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how to use eem

The 28th edition of EEM is arranged in four volumes, each composed of related Product Sections. For user convenience, each volume contains its own Product Index and Directory (green pages) and its own Manufacturers and Sales Offices Directory (yellow pages). Every Product Heading and every Manufacturer of electronic products is listed in each volume. Where, however, the Product Section is assigned to a volume other than that in use, a cross reference is made to the appropriate volume for further information.

To locate a specific product. Start by choosing the volume whose title describes the class of electronic product you are seeking. If you are not sure which volume is appropriate, pick up the first one at hand and find the product heading in the green pages. There you will find either a list of that product's manufacturers or you will be referred to the proper volume. All products are identified by their generic terms. Please read the detailed instructions on the first page of this section. Manufacturers with catalog data in this edition of EEM appear in bold face type and page numbers are shown. Manufacturers appearing in light face type have submitted verifying evidence that they supply the products shown. When you have located a product of interest, turn to the page(s) shown for further information. You will find these pages in each volume in the appropriate sections.

product selection guides

There are 34 Product Selection Guides included in this edition of EEM! They are located on the first pages of the Product Section to which they apply. Use these guides for basic selection parameters and then go to the EEM pages shown in the guide for more detailed information.

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*Product Selection Guide

advertisers' index

To find a specific manufacturer's data pages, an alphabetical index of EEM participants appears in EEM starting on page A•4 of Volume A and on pages B•4, C•4 and D•4 of the other volumes.

trademark and logofinder directories

A comprehensive trademark directory is included at the end of the EEM green pages in Volume B. NEW in this edition, the EEM logofinder shows the symbols and graphics used by manufacturers as identifiers on their products. Use these pages to locate manufacturers of specific trademarks and logos.

manufacturers' index

In the EEM yellow pages you will find pertinent details on all manufacturers listed in EEM including local sales offices and/or distributors. Please refer to the detailed instructions on the first page of the EEM yellow pages for additional information.

to order a product found in eem

When you have located the product that suits your needs, call the manufacturer or the local sales rep or distributor as shown in the EEM yellow pages. Give the EEM data page number and specs from that page. You and the supplier will be talking on the same wave length which should simplify your ordering and buying.

to file manufacturers' catalogs and data

The EEM File System has been revised and updated. The new EEM File System contains a complete Product Index. This Index tells you where to file which catalog. It also contains a cross-reference so you'll know where catalogs are filed.

In order to use the new EEM File System all you need is a supply of standard letter size, third-cut, manila file folders which are available locally. You then use the pressure sensitive labels which are supplied with the File System to go into as much detail as you want (or need).

Each label fits the third-cut file folder exactly. There are over 300 of these labels in one System: 1 for the index, 1 each for the 62 EEM Product Sections, 24 for the alphabetical file of multiproduct catalogs, plus more than 200 additional labels for System expansion. The System also includes 62 Cross Reference Cards so you can quickly and easily find multiproduct catalogs. The EEM File System is complete and can save you countless hours of time and thousands of dollars. The price? Only $25.00. Send a check to: EEM File System, 645 Stewart Ave., Garden City, NY 11530 and we'll absorb postage and handling. Send a purchase order and add $2.00 for postage and handling. NY and CA residents, please add sales tax.

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Abrasive Belts, Compounds, Cords, Powders, etc.-5400

† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Ferro Corp. Electronic Ceramic Matls. Dept., Transelco Div., P.O. Box 217, Penn Yann, NY 14527-0127 315-536-3357
§† Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

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Adapters/Connectors, T.V. to Peripheral Equipment-2100

International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020

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Adapters, Meter, Current Measurement-2900 — *See Vol. D*

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Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 617-682-6936
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 301-921-8282
† Western DataCom, 5083 Market St., Youngstown, OH 44512 216-788-6583

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Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600

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† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1737
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 213-532-9341
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
§† Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 617-337-6075
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 718-646-7996
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900

Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ... 800-227-2201
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ... 617-881-2000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 ... 401-949-2060
§ Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 ... 312-272-9030
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 ... 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ... 219-747-7411
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ... 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ... 516-349-1100
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 ... 718-444-3880
SermeTel, 155 Limerick Rd., Limerick, PA 19468 ... 215-948-5100
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 ... 201-985-8800
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 ... 716-621-8400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ... 617-391-5550
Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 ... 718-441-4759
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242

Adhesives, General Purpose-1600

† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 ... 213-532-9341
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 ... 203-562-2171
† Adhesive Prods., 1660 Boone Ave., Bronx, NY 10460 ... 212-542-4600
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 ... 203-242-8511
Ambroid Co., P.O. Box 1089, Taunton, MA 02780 ... 617-823-1726
† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 ... 614-889-3333
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ... 313-646-5100
Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 ... 617-337-6075
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 ... 216-694-5000
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 ... 517-496-4000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
§† Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 ... 714-951-3231
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ... 800-227-2201
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ... 617-881-2000
§† GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 ... 312-272-9030
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ... 203-357-7401
Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 ... 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ... 219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ... 401-828-4550
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 ... 619-755-4477
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ... 516-349-1100
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 ... 303-289-5651
† Screenprint/Dow, 271 Ballardvale St., Wilmington, MA 01887 ... 617-935-6395
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
SL Homalite, Div. of SL Inds., 11 Brookside Dr., Wilmington, DE 19804 ... 302-652-3686
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ... 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ... 617-948-2501

Adhesives, Insulating-1600

SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 ... C•1082
Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 ... C•1679
† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 ... 213-532-9341
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St, New Haven, CT 06513 ... 203-562-2171
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 ... 617-337-6075
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 ... 718-646-7996
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 ... 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
§ Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 ... 714-951-3231

Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ... 800-227-2201
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ... 617-881-2000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ... 203-357-7401
Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 ... 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ... 219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ... 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ... 516-349-1100
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 ... 718-444-3880
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 ... 303-289-5651
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
Soundcoat Co., Inc., 1 Burt Dr., Deer Park, NY 11729 ... 516-242-2200
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 ... 213-603-8888
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ... 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ... 617-948-2501

Adhesives, Liquid Spray-1600

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Optical Fiber Technologies, Inc., P.O. Box 148, Nutting Lake, MA 01865 ... 617-663-6629
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
Soundcoat Co., Inc., 1 Burt Dr., Deer Park, NY 11729 ... 516-242-2200

Adhesives, Optical-1600

† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ... 800-227-2201
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 ... 312-272-9030
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 ... 401-723-2100
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 ... 718-444-3880
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ... 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ... 617-948-2501

Adhesives, UV Curing-1600

§ Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 ... 312-272-9030
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Xenon Corp., 66 Industrial Way, Wilmington, MA 01887 ... 617-658-8940

Adhesives, Wire Tacking-1600

Ambroid Co., P.O. Box 1089, Taunton, MA 02780 ... 617-823-1726
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
§ Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 ... 312-272-9030
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ... 219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 ... 313-426-3903
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
Xenon Corp., 66 Industrial Way, Wilmington, MA 01887 ... 617-658-8940

Air Cleaners & Filters (Shielded & Unshielded)-2600

Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 ... C•1637
ETRI, Inc., 608 Broome St., P.O. Box 5006, Monroe, NC 28110, 704-289-5423 ... C•1640
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... C•1736
§ Airmatic-Allied, 185 Park Dr., Wilmington, OH 45177 ... 513-382-1691
Air Maze Corp., 25000 Miles Rd., Cleveland, OH 44128 ... 216-292-6800
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 ... 714-847-7515
† Aluminum Filter, P.O. Box 1311, Santa Barbara, CA 93102 ... 805-684-7651
§ AMF Inc., AMF Cuno/General Filter Products Division, 400 Research Pkwy., Meriden, CT 06450 ... 203-237-5541
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 ... 415-969-2640
† Baker Co., Inc., Drawer E - Sanford Airport, Sanford, ME 04073 ... 207-324-8773
† Balston, 703 Massachusetts Ave., Lexington, MA 02173 ... 617-861-7240
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
§ Cambridge Filter Corp., P.O. Box 4906, Syracuse, NY 13221-4906 ... 315-457-1000
† Carey Elctrn. Engrg. Co., 1880 Clifton Ave., Springfield, OH 45505 ... 513-323-6300
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 ... 516-968-8282
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 ... 216-951-3300
§ Heath Co., Benton Harbor, MI 49022 ... 616-982-3886

§ Heat Systems-Ultrasonics, Inc., 1938 New Hwy., Farmingdale, NY 11735 ... 516-694-9555
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 ... 312-283-3600
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 ... 603-889-1121
McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 ... 609-799-0100
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 ... 215-643-2116
C. A. Norgren Co., 5400 South Delaware, Littleton, CO 80120-1663 ... 303-794-2611
§ Pall Ultrafine Filtration Corp., 2200 Northern Blvd., East Hills, NY 11548 ... 516-484-5400
† Research Prods., 1015 E Washington Ave., Madison, WI 53701 ... 608-257-8801
Tegal Scientific, Inc., Box 5905, Concord, CA 94524 ... 415-827-1054
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 ... 415-548-4434
Ultrapar, 90 Liberty Corner Road, Warren, NJ 07060-6709 ... 201-647-6650
† Universal Shielding Corp., 20 W. Jefryn Blvd., Deer Park, NY 11729 ... 516-667-7900
† Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191

Air Conditioners (For Equipment)-2600

Cincinnati Sub-Zero Prods., 12011 Mosteller Rd., Cincinnati, OH 45241, 513-772-8810 ... D•1166
† Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 ... C•1637
† McLean Midwest, 4000 83rd Ave. N., Brooklyn Pk., MN 55443, 612-561-9400 ... C•1650
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 ... C•1675-1677
Capitol Temptrol, 5 Coulton Rd., Old Lyme, CT 06371 ... 203-739-4421
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 ... 716-894-5710
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 ... 612-421-2240
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 ... 609-466-3400
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ... 213-452-5444
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 ... 215-643-2116
† Sinclair Radio Labs., 122 Rayette Rd., Concord, ONT, CANADA L9W2Y8 ... 416-669-1244
§ Square D Co., Executive Plaza, Palatine, IL 60067 ... 312-397-2600
Standard Environmental Systems, Inc., 383 Minnisink Rd., Totowa, NJ 07512 ... 201-256-2200

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Alarms, Static — See Alarms & Alarm Systems

Alloys, Brazing-5400

† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 ... C•1097
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 ... 201-434-6778
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 ... 516-349-8800
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 ... 415-592-9440
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ... 614-276-5522; 800-245-5253
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050;800-822-4653

Alloys, Metal/Ceramic-1600

† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 ... 201-434-6778
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 ... 516-349-8800
Carpenter Techn., Box 662, Reading, PA 19603 ... 215-371-2000
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
† Magnetics, Box 391, Butler, PA 16003-0391 ... 412-282-8282
Materials Resch., Route 303, Orangeburg, NY 10962 ... 914-359-4200
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 ... 201-996-2121
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 ... 717-265-2121

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Antennas (MIL), Phased Array-3475 — *See Vol. D*
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Awls-5400

Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Backpanel Interconnect Systems-3200

Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720, 617-263-9100 .... C•1700
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1703
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1706-1707
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460, 617-486-0311 ...... C•1710
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1713
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1446,1449
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C•1094
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
† Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803 417-862-0751
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
Austin Electronics, The Austin Co., 17-01 Pollitt Drive, Fair Lawn, NJ 07410 201-794-0200
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Central Data Corp., 1602 Newton Dr., Champaign, IL 61820 217-359-8010
§ Codar Technology, Inc., 1428 Florida Avenue, Longmont, CO 80501 303-776-0472
† CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040 214-276-0333
DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
Data-Design Labs., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730 714-987-2511
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 213-675-3311
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123 .... 619-292-0242; 800-854-7086
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 .... 214-221-8776;214-233-3033
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
† Interconics, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101 612-228-6512
† Interconics, Bussing Sys. Oper., a unit of BMC Industries, Inc., 2525 E. Vista Industria, Compton, CA 90220 213-639-2535
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004
Lamtech Electronics, 620 Easy Street, Garland, TX 75042 214-272-3504
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075 203-684-2703
Ostby & Barton, 487 Jefferson Blvd., Warwick, RI 02886 401-739-7310
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 .... 814-723-2000;800-221-3333
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Urban Elctrns., P. O. Box 456, Dover, MA 02030 617-329-4068
West-Tronics, Inc., 215 Park St., Bensenville, IL 60106 312-860-3560

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Bars, Shorting-3200

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1296,1301,1305-1307,1385
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
† Basic Electronics, Inc., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ CTS Electronics Corp., Paso Robles Div., Electromechanical Gp., 500 Linne Rd., Paso Robles, CA 93446 805-238-0350
† Eldre Corporation, 1500 Jefferson Rd., Rochester, NY 14623 716-427-7280
† Hytek Microsystems, 980 University Ave., Los Gatos, CA 95030 408-395-2300
Interconics, Bussing Sys. Oper., a unit of BMC Industries, Inc., 2525 E. Vista Industria, Compton, CA 90220 213-639-2535
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
§† Ross Engrg. Corp., 540 Westchester Dr., Campbell, CA 95008 408-377-4621
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Baths, Controlled Temperature (Air & Liquid)-4100 — *See Vol. D*

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Batteries, Gelled Electrolyte-3900 — *See Vol. D*

Batteries, Lead Acid-3900 — *See Vol. D*

Batteries, Lead Dioxide-3900 — *See Vol. D*

Batteries, Lithium-3900 — *See Vol. D*

Batteries, Lithium Manganese Dioxide-3900 — *See Vol. D*

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Bearings-2500

Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ... C•1596
Andrews Bearing Corp., MPB Corp., New Cut Road, Spartanburg, SC 29304 ... 803-583-4541
Bearing Inspection, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670 ... 213-944-6251
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 ... 617-894-0160
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ... 313-646-5100
Carbone USA Corp., Carbone Lorraine Inds. Corp., 402 Myrtle Ave., Boonton, NJ 07005 ... 201-334-0700
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 ... 401-253-2000
Dodge-Master-Reeves, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 ... 800-245-4501;in OH 800-245-4497
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 ... 214-746-6000
General Elec. Co., Carboloy Systems Dept., Box 237, Detroit, MI 48232 ... 313-536-9100
† Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 ... 914-968-8400
Keystone Carbon, Thermistor Div., St. Marys, PA 15857 ... 814-781-1591
† Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ... 213-452-5444
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
Miniature Precision Bearings, MPB Corp., Precision Park, Keene, NH 03431 ... 603-352-0310
MPB Corp., Precision Park, Keene, NH 03431 ... 603-352-0310
§† New Hampshire Ball Bearings, Inc., Rte. 202, Peterborough, NH 03458 ... 603-924-3311
† NL Bearings/NL Industries Inc., PO Box 934, Toledo, OH 43694 ... 419-381-3100
PIC Design, P.O. Box 1004, Middlebury, CT 06762 ... 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 ... 213-777-8108
Polymer Corp., P.O. Box 422, Reading, PA 19603 ... 215-320-6600
§† Raway Bearing, 8 Melnick Rd., Monsey, NY 10952 ... 914-352-4944
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 ... 800-245-4501;800-245-4497 In Ohio
Rogers Corp., One Technology Dr., Rogers, CT 06263 ... 203-774-9605
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 ... 305-823-5440
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
Split Ball Bearing, MPB Corp., Highway 4, Lebanon, NH 03766 ... 603-448-3000
Stackpole, Carbon Div., 201 Stackpole St., St. Marys, PA 15857 ... 814-781-1234
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ... 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ... 516-328-0200;328-3300
§† Torrington Co., 59 Field St., Torrington, CT 06790 ... 203-482-9511

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Belts, Drive-2500

Belting Inds. Co. Inc., 20 Boright Ave., Kenilworth, NJ 07033 ... 201-272-8591
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 ... 513-226-5927
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 ... 606-269-2351
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 ... 800-245-4501;800-245-4497 In Ohio

Benches, Consoles, Tables (Work Stations, Lab & Shop)-Also See Enclosures, Equipment and Panel Mounting-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 ... C•1006-1007
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 ... C•1029
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 ... C•1056
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 ... C•1057
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 ... C•1059
† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 ... C•1064-1065
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 ... C•1066
† Kalamazoo Technical Furniture, P.O. Box 1165, Kalamazoo, MI 49005, 616-385-2255 ... C•1068
Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 ... C•1072
§† Production Industries, Inc., 12880-E Pierce Street, Pacoima, CA 91331, 818-896-0555;800-423-5618 ... C•1075-1077
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 ... C•1083
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 ... C•1064-1065
Advance Engrg., 18225 So. Hoover St., Gardena, CA 90248 ... 213-321-3100
† Aldes Sys., Alden Products Co., 262 N. Main St., P.O. Box 860, Brockton, MA 02403 ... 617-583-0160
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 ... 415-969-2640
† Baker Co., Inc., Drawer E - Sanford Airport, Sanford, ME 04073 ... 207-324-8773
§† Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 ... 215-DE8-7300
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 ... 818-991-2600
§ Borroughs, Lear Siegler, Inc., 3002 N. Burdick St., Kalamazoo, MI 49007 ... 616-342-0161
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
Chassis-Trak, General Devices Co., Inc., P.O. Box 39100, Indianapolis, IN 46239 ... 317-897-7000
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 ... 714-497-1506
† Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 ... 516-968-8282
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 ... 607-974-8725
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 ... 617-388-5662
Cramer Inc., 625 Adams St., Kansas City, KS 66105 ... 913-621-6700
§ Digiac Corp., 175 Engineers Rd., Hauppauge, NY 11788 ... 516-273-8600
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 ... 714-776-5420
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 ... 215-638-9550
E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 ... 603-669-9181
§† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000
§ Ferno-Salesmaker, Ferno-Washington, Inc., 70 Well Way, Wilmington, OH 45177 ... 513-382-1451
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 ... 614-373-4763
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 ... 305-894-3351
† House of Metal Enclosures, 500 W. 9th St., Box 225, Hermann, MO 65041 ... 314-486-3111
§ Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ... 213-452-5444
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 ... 312-892-8941
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ... 714-540-6630
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ... 404-939-6340
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 ... 215-365-8400
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG ... 0442-40471/6
Stackbin Corp., Albion Road, Lincoln, RI 02865 ... 401-333-1600
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 ... 215-797-6600
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 ... 717-346-3871
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191

Bends & Twists, Microwave-3450 — *See Vol. A*

Bezels, Shielded & Unshielded-2400

§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ... C•1601
† JMJ Technical Prods., 50 Wheeler Point Rd., Newark, NJ 07105, 201-589-4257 ... C•1613
RMF Prods., Inc., 1275 Paramount Pkwy., P.O. Box 520, Batavia, IL 60510, 312-879-0020 ... C•1616
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... C•1534
§ Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 ... 203-249-8471
† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 ... 414-447-8200
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 ... 805-969-5805
§† Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 ... 414-449-7487
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 ... 305-894-3351
§† Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 ... 818-787-0311
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ... 213-991-9614
LaFrance Corp., Entprs & Exec Aves, Philadelphia, PA 19153 ... 215-365-8000
Leecraft Mfg., 21-02 44th Rd., Long Island City, NY 11101 ... 718-392-8800
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410
§ NOBEX Div., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010 ... 415-342-8170
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 ... 215-365-8400
Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 ... 213-603-0400
§† Shelly Associates, Inc., 14281 Chambers Road, Tustin, CA 92680 ... 714-669-9850
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
† Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191

Bimetals, Thermostatic-5300 — *See Vol. B*

Bins, Part Storage-3800

3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963, 800-328-1360 ... **D•1980**
§ Akro-Mils, 1293 S. Main St., Akron, OH 44301 ... 216-253-5593
† Aldes Sys., Alden Products Co., 262 N. Main St., P.O. Box 860, Brockton, MA 02403 ... 617-583-0160
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
§ Borroughs, Lear Siegler, Inc., 3002 N. Burdick St., Kalamazoo, MI 49007 ... 616-342-0161
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 ... 603-669-9181
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ... 305-633-2556;800-327-6085
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ... 213-452-5444
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 ... 312-892-8941
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ... 714-540-6630
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 ... 415-969-7717
Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191

Blackbody Radiation Sources-2900 — *See Vol. D*

Blowers, Centrifugal-2600

† **Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670** ... **C•1007,1625**
Buehler Products, Inc., P. O. Box 33400, Raleigh, NC 27606, 919-469-8522 ... **B•1142**
§ **Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451** ... **C•1043**
Eastern Air Devices Motor Div., 1 Progress Dr., Dover, NH 03820, 603-742-3330 ... **B•1146**
§ **ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515** ... **C•1628**
§ **EG & G Rotron, Commercial Div., Saugerties, NY 12477, 914-246-3615** ... **C•1630-1636**
§† **Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181** ... **C•1056**
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 ... **C•1059**
† **Hi-Tech, Inc., 3600 16th St., Zion, IL 60099, 312-746-2447** ... **C•1642**
† **IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070** ... **C•1644-1645**
† **McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100** ... **C•1648-1649**
† **Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200** ... **C•1073**
§† **TRW Motor Div. (Military), 2275 Stanley Ave., Dayton, OH 45404, 513-228-3171** ... **B•1195**
† Aeroflex Labs., Magnetic Prods. Div.,, 35 South Service Road, Plainview, NY 11803 ... 516-694-6700
§ Alpha Comps., 115 Eucalyptus Dr., El Segundo, CA 90245 ... 213-322-7780
† Ashland Elec. Prods., 80 39th Street, Brooklyn, NY 11232 ... 718-965-0770
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 ... 617-935-4944
Bertsch U.S., Sycamore Resch. Ctr., 2142F Industrial Ct., Vista, CA 92083 ... 619-727-7420
Brailsford & Co., 670 Milton Rd., Rye, NY 10580 ... 914-967-1820
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062 ... 312-498-6090
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 ... 617-275-0889
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 ... 214-746-6000
§† EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498 ... 914-679-5201
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 ... 714-776-5420
§† ETRI, Inc., 608 Broome St., P.O. Box 5006, Monroe, NC 28110 ... 704-289-5423
Fasco Industries, Inc., Div. of Hawker Siddeley Grp. Plc., 601 North Federal Highway, Boca Raton, FL 33432 ... 305-368-0600
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 ... 716-894-5710
§ Howard Industries, MSL Ind., Inc., Box 287, Milford, IL 60953 ... 815-889-4105
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 ... 609-466-3400
§ Lutron Elctrns., Box 205, Suter Rd., Coopersburg, PA 18036 ... 215-282-3800
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 ... 215-643-2116
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 ... 619-727-7400
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ... 404-939-6340
§ Pamotor, 770 Airport Blvd., Burlingame, CA 94010 ... 415-347-1203
Papst Mechatronic Corp., Aquidneck Indl. Pk., Newport, RI 02840 ... 401-849-5930
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 ... 203-635-2200
Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 ... 603-669-4615
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG ... 0442-40471/6
Shinano Kenshi Corp. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605 ... 818-764-4266
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605 ... 818-875-0800
† Telectro Sys., 96-18 43rd Ave., Corona, NY 11368 ... 212-651-8900
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 ... 215-692-0800
† Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191
§† Zero-East Div., 288 Main St., Monson, MA 01057

Blowers, Scroll (Squirrel Cage)-2600

Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176 ... 312-671-6670
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 ... 617-275-0889
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269 ... 404-487-6681

Blowers, Tangential-2600

Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176 ... 312-671-6670
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 ... 617-275-0889

Board Computers & Subassemblies, Multibus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, PC Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, Q Bus/Unibus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, S100 Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, STD Bus Compatible-2025 — *See Vol. D*

Board Computers & Subassemblies, VME Bus Compatible-2025 — *See Vol. D*

Boards, Circuit, Clad-1700

Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ... **C•1101**
† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305** ... **C•1711**
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... **C•1102**
§ Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
Arstan Products Intl. Ltd., 99 Jericho Tpke., Jericho, NY 11753 ... 516-333-8100
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 ... 312-451-7223
† Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 ... 503-829-9108
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 ... 617-657-8030
Engelmann Microwave Co., KDI Pyrofilm, 60 S. Jefferson Rd., Whippany, NJ 07981 ... 201-887-5700
KDI Electronics, Inc., Engelmann & Pyrofilm Divisions, 60 S. Jefferson Rd., Whippany, NJ 07981 ... 201-887-8100
† Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 ... 800-556-7683
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ... 717-386-4156; 215-377-5990
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400

Boards, Circuit, Unclad-1700

Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... **C•1095,1102**
§ Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 ... 503-829-9108
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 ... 617-657-8030
Engelmann Microwave Co., KDI Pyrofilm, 60 S. Jefferson Rd., Whippany, NJ 07981 ... 201-887-5700
KDI Electronics, Inc., Engelmann & Pyrofilm Divisions, 60 S. Jefferson Rd., Whippany, NJ 07981 ... 201-887-8100
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ... 717-386-4156; 215-377-5990
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400

Boards, Display, Graphic-2450 — *See Vol. B*

Boards, Integrated Circuit — See Boards, Plug-in (Vol. C)

Boards, Plug-in-3200

Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720, 617-263-9100 ... **C•1700**
§ **Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202** ... **C•1702-1703**
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ... **C•1706**
§ **Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086** ... **D•1085**
General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 ... **D•1067**
§ **Gordos Arkansas, Gordos International Corp., 1000 N. Second St., Rogers, AR 72756, 501-636-5000** ... **B•1383**

G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1088-1090
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460, 617-486-0311 .... C•1710
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1712-1713, D•1411
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095,1102-1103, D•1103-1104
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Acromag, 30765 Wixom Rd., Wixom, MI 48096 313-624-1541
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
† Analog Devices, P.O. Box 280, Norwood, MA 02062 617-329-4700
Analogic Corp., 8 Centennial Dr., Peabody, MA 01961 .... 617-532-5660;617-777-4500; 617-246-0300;800-451-1
§† Analog Technology Corp., 15859 E. Edna Pl., Irwindale, CA 91706 213-960-4004
Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101 212-786-7200
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
† Avionics, Box 200, Niagara-On-Lake, ON, CANADA 416-468-3632
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Burr-Brown Corp., P.O. Box 11400, Tucson, AZ 85734 602-746-1111
§ California Computer Systems, 740 S. Milpitas Blvd., Milpitas, CA 95035 408-945-0500
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§ Consolink Corp., 1275 S. Sherman Dr., Longmont, CO 80501 303-651-2014
§ Cromemco, 280 Bernardo Ave., Mountain View, CA 94043 415-964-7400
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455
Data Capture Technology, Hathaway Instruments, 5436-F South Mingo Rd., Tulsa, OK 74146 918-627-7521
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
Datatex Corp., 10935 S. Wilcrest Dr., Houston, TX 77099 713-495-3100
Digital Communications Assocs., Inc., 303 Technology Pk., Norcross, GA 30092 404-448-1400
Digital Equip., One Iron Way, Marlborough, MA 01752
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
† Eastern Elctrns. Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821
§ Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405 717-848-1722
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ Gateway Communications Inc., 16782 Redhill Ave., Irvine, CA 92714 714-261-0762
GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
GEN/COMP Inc., 6 Algonquin Rd., Canton, MA 02021 617-828-2008
§ Gordos Corporation, Gordos International Corp., 250 Glenwood Ave., Bloomfield, NJ 07003 201-743-6800
§ Gunther, W., GmbH, Virnsberger Strasse 51, D 8500 Nurnberg 82, WEST GERMANY .... (0)911/65521 or 65520
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
IDE Associates, Inc., 35 Dunham Rd., Billerica, MA 01821 617-663-6878
Information Control Corp., Abacus Div. Dept. EM7, 9610 Bellanca Ave., Los Angeles, CA 90045 213-641-8520
Interface Electronics Inc., 21134 Bridge St., Southfield, MI 48034 313-352-8820
§ Intra-computer, 101 W. 31st St., New York, NY 10001 212-947-5533
JF Microsystems, 3641 Frontier Road, Pasco, WA 99301 .... 509-297-4294; 800-JF-CARDS
Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
Logic Technology, Inc., 2452 Charleston Rd., Mtn. View, CA 94043 415-967-1007
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
Mega Logic, 9659 Natl. Rd., Brookville, OH 45309 513-833-5222
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mohawk Data Sciences, MDS Center, Herkimer, NY 13350 315-866-5300
§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Omnibyte Corp., 245 W. Roosevelt Rd., Bldg. 1-5, W. Chicago, IL 60185 312-231-6880
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
RCA Solid State Div., Route 202, Somerville, NJ 08876 201-685-6000
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Rolm Mil-Spec Computers, Rolm Corp., 1 River Oaks Pl., San Jose, CA 95134 408-942-8000
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 .... 206-575-1830; 800-426-8936
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
§ TransKinetic Sys., 110 Shawmut Rd., Canton, MA 02021 617-828-3000
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
† Western DataCom, 5083 Market St., Youngstown, OH 44512 216-788-6583
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971
Ziatech, 3433 Roberto Ct., San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in, Extender-3200

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1706
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1085-1086
General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 .... D•1067
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1088
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460, 617-486-0311 .... C•1710
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... C•1714
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095,1102-1103, D•1103-1104
† Acromag, 30765 Wixom Rd., Wixom, MI 48096 313-624-1541
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
Burr-Brown Corp., P.O. Box 11400, Tucson, AZ 85734 602-746-1111
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700
Comark Corp., 93 W St., P. O. Box 474, Medfield, MA 02052 617-359-8161
§ Davidge Corp., 1951 Colony St., Mountain View, CA 94043 805-688-7707
Digital Communications Assocs., Inc., 303 Technology Pk., Norcross, GA 30092 404-448-1400
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Quam Corporation, 900 W. 128th St. Ste 208, Burnsville, MN 55337 612-894-2360
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Solarcon Technology, Inc., P.O. Box 4715, Hayward, CA 94544 415-489-3141
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898

Boards, Plug-in, Interface-3200

ADAC Corp., 70 Tower Office Pk., Woburn, MA 01801, 617-935-6668 .... D•1135
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1703
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1706
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1084-1085
General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 .... D•1067
§ Gordos Arkansas, Gordos International Corp., 1000 N. Second St., Rogers, AR 72756, 501-636-5000 .... B•1383
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1089
† ILC Data Device Corp., 105 Wilbur Pl., Bohemia, NY 11716, 516-567-5600 .... D•1151
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
Matrix Corp., 2260 Distributors Dr., Indianapolis, IN 46241, 317-248-2036 .... D•1158
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095,1102-1103, D•1103-1104
† Acromag, 30765 Wixom Rd., Wixom, MI 48096 313-624-1541
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
Burr-Brown Corp., P.O. Box 11400, Tucson, AZ 85734 602-746-1111
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700

Comark Corp., 93 W St., P. O. Box 474, Medfield, MA 02052 617-359-8161
Control Systems, 2855 Anthony Lane, Minneapolis, MN 55418 612-789-2421
§ Davidge Corp., 1951 Colony St., Mountain View, CA 94043 805-688-7707
§ Digital Communications Assocs., Inc., 303 Technology Pk., Norcross, GA 30092 404-448-1400
Electrologic, Inc., 1359 28th St., Signal Hill, CA 90806 213-595-0551
§ Gordos Corporation, Gordos International Corp., 250 Glenwood Ave., Bloomfield, NJ 07003 201-743-6800
§ Gunther, W., GmbH, Virnsberger Strasse 51, D 8500 Nurnberg 82, WEST GERMANY .... (0)911/65521 or 65520
§ ICS Electronics Corp., 2185 Old Oakland Rd., San Jose, CA 95131 408-263-4844
Interface Electronics Inc., 21134 Bridge St., Southfield, MI 48034 313-352-8820
JF Microsystems, 3641 Frontier Road, Pasco, WA 99301 .... 509-297-4294; 800-JF-CARDS
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
K-Systems, Inc., 3902 Lilac, Las Cruces, NM 88005 505-526-3209
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
Minntronics Corporation, 2599 White Bear Ave., St. Paul, MN 55109 612-770-5247
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Pickles & Trout, P.O. Box 1206, Goleta, CA 93116 685-4641
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
§ Quam Corporation, 900 W. 128th St. Ste 208, Burnsville, MN 55337 612-894-2360
§ Quartic Systems, Inc., 3575 South West Temple #7, Salt Lake City, UT 84115 801-268-9264
Racal-Dana Instrs. Inc., 4 Goodyear St., Irvine, CA 92715 714-859-8999
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 .... 206-575-1830; 800-426-8936
Serial Lab Prods., Inc., 162 Cook Lane, P.O. Box 766, Marlboro, MA 01752 617-481-1684
§ Standard Grigsby, Inc., Gordos International Corp., 920 Rathbone Ave., Aurora, IL 60507 312-844-4300
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sunol Systems, 1187 Quarry Lane, Pleasanton, CA 94586 415-484-3322
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
§† Titan Technologies, Inc., 310 W. Ann, Ann Arbor, MI 48104 313-662-8542
§ Via West Inc., 534 N. Stone Ave., Tucson, AZ 85705 602-623-5716
Ziatech, 3433 Roberto Ct., San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in, Memory-3200

General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 .... D•1067
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1088
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1103, D•1103-1104
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
§ California Computer Systems, 740 S. Milpitas Blvd., Milpitas, CA 95035 408-945-0500
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700
Charles River Data Systems, Inc., 983 Concord St., Framingham, MA 01701 617-626-1000
Comark Corp., 93 W St., P. O. Box 474, Medfield, MA 02052 617-359-8161
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 415-786-0909
§ Computer System Assocs., 7564 Trade St., San Diego, CA 92121 619-566-3911
Creative Micro Systems, 3822 Cerritos Ave., Los Alamitos, CA 90720 213-493-2484
Dataram Corp., Princeton Road, Cranbury, NJ 08512 609-799-0071
§ Davidge Corp., 1951 Colony St., Mountain View, CA 94043 805-688-7707
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123 .... 619-292-0242; 800-854-7086
§ General Robotics Corp., 57 N. Main St., Hartford, WI 53027 414-673-6800
Heurikon Corporation, 3201 Latham Dr., Madison, WI 53713 .... 800-356-9602; 608-271-8700
IDE Associates, Inc., 35 Dunham Rd., Billerica, MA 01821 617-663-6878
JF Microsystems, 3641 Frontier Road, Pasco, WA 99301 .... 509-297-4294; 800-JF-CARDS
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
Pacific Microcomputers, Inc., 160 Chesterfield Dr., Cardiff, CA 92007 619-436-8649
§† Plessey Microsystems, Plessey Trading Corp., 1641 Kaiser Ave., Irvine, CA 92714 .... 714-540-9931/9932
PPM, Inc., 4521 Emery Ind. Pkwy., Cleveland, OH 44128 216-292-6006
§ Quam Corporation, 900 W. 128th St. Ste 208, Burnsville, MN 55337 612-894-2360
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 .... 206-575-1830; 800-426-8936
SGS Semiconductor Corporation, 1000 E. Bell Road, Phoenix, AZ 85022 602-867-6100
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sunol Systems, 1187 Quarry Lane, Pleasanton, CA 94586 415-484-3322
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
Systek, 1023 N. Kellogg St., Kennewick, WA 99336 509-735-1200
§† Titan Technologies, Inc., 310 W. Ann, Ann Arbor, MI 48104 313-662-8542
TL Industries, Inc., 2541 Tracy Road, Toledo, OH 43619 1-419-666-8144
Ziatech, 3433 Roberto Ct., San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in Processor-1900

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1706,1708
General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 .... D•1067
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1089
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700
Charles River Data Systems, Inc., 983 Concord St., Framingham, MA 01701 617-626-1000
Comark Corp., 93 W St., P. O. Box 474, Medfield, MA 02052 617-359-8161
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 415-786-0909
§ Computer System Assocs., 7564 Trade St., San Diego, CA 92121 619-566-3911
Creative Micro Systems, 3822 Cerritos Ave., Los Alamitos, CA 90720 213-493-2484
§ Davidge Corp., 1951 Colony St., Mountain View, CA 94043 805-688-7707
Digital Communications Assocs., Inc., 303 Technology Pk., Norcross, GA 30092 404-448-1400
§ Gateway Communications Inc., 16782 Redhill Ave., Irvine, CA 92714 714-261-0762
§ General Robotics Corp., 57 N. Main St., Hartford, WI 53027 414-673-6800
Interface Electronics Inc., 21134 Bridge St., Southfield, MI 48034 313-352-8820
JF Microsystems, 3641 Frontier Road, Pasco, WA 99301 .... 509-297-4294; 800-JF-CARDS
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Quartic Systems, Inc., 3575 South West Temple #7, Salt Lake City, UT 84115 801-268-9264
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 .... 206-575-1830; 800-426-8936
Serial Lab Prods., Inc., 162 Cook Lane, P.O. Box 766, Marlboro, MA 01752 617-481-1684
Solarcon Technology, Inc., P.O. Box 4715, Hayward, CA 94544 415-489-3141
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
Systek, 1023 N. Kellogg St., Kennewick, WA 99336 509-735-1200
§† Titan Technologies, Inc., 310 W. Ann, Ann Arbor, MI 48104 313-662-8542
TL Industries, Inc., 2541 Tracy Road, Toledo, OH 43619 1-419-666-8144
† Western DataCom, 5083 Market St., Youngstown, OH 44512 216-788-6583
Ziatech, 3433 Roberto Ct., San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in, Prototype-4200

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1706
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1084-1086
General Digital Corp., 700 Burnside Ave., E. Hartford, CT 06108, 203-528-9041 .... D•1067
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1088
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460, 617-486-0311 .... C•1710
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... C•1714
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095,1102-1103, D•1103-1104
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
Comark Corp., 93 W St., P. O. Box 474, Medfield, MA 02052 617-359-8161
§ Computer System Assocs., 7564 Trade St., San Diego, CA 92121 619-566-3911
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
JF Microsystems, 3641 Frontier Road, Pasco, WA 99301 .... 509-297-4294; 800-JF-CARDS
Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Solarcon Technology, Inc., P.O. Box 4715, Hayward, CA 94544 415-489-3141
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525

Boards, Prewired, High Density-3200

Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
Circuitech, Inc., FCS Industries, 527 Industrial Way West, Eatontown, NJ 07724 201-493-4102
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044 312-295-2610
Racal-Dana Instrs. Inc., 4 Goodyear St., Irvine, CA 92715 714-859-8999
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525

Boards, Printed Circuit — See Circuits, Printed, Rigid (Vol. C)

Boards, Programming-3200

Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720, 617-263-9100 .... C•1700
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 .... B•1539
CYTEC Corp., 107 N. Washington St., E. Rochester, NY 14445, 716-381-4740 .... D•1207
Information Transfer Indl., Box 357, Holcomb, NY 14469, 716-657-7074 .. D•1153
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520, 516-868-1900 .... B•1620-1621
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1712-1713, D•1411
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1103, D•1103-1104
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101 212-786-7200
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 414-447-8200
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Data Capture Technology, Hathaway Instruments, 5436-F South Mingo Rd., Tulsa, OK 74146 918-627-7521
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
§ Data General, 4400 Computer Dr., Westboro, MA 01581 617-366-8911
Dataprofits Corp., 2260 Distributors Dr., Indianapolis, IN 46241
Datatex Corp., 10935 S. Wilcrest Dr., Houston, TX 77099 713-495-3100
Digital Equip., One Iron Way, Marlborough, MA 01752
§† Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405 717-848-1722
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Enerco, Inc., 9615 W. Marginal Way S., Seattle, WA 98108 206-762-1422
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Fairchild Microcontroller Div., Fairchild Camera & Instr. Corp., 450 National Ave., Mountain View, CA 94042 415-962-3838
GEN/COMP Inc., 6 Algonquin Rd., Canton, MA 02021 617-828-2008
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
IDE Associates, Inc., 35 Dunham Rd., Billerica, MA 01821 617-663-6878
Information Technolgoy A.D.S.C., P.O. Box 470, College Park, MD 20740 301-779-5110
Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Kepco, Inc., 131-38 Sanford Ave., Flushing, NY 11352 718-461-7000
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Methods Research, 54D Asbury Ave., Farmingdale, NJ 07727 201-938-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Pulse Instrs. Co., 1234 Francisco, Torrance, CA 90502 213-515-5330
† Racal-Dana Instrs. Inc., 4 Goodyear St., Irvine, CA 92715 714-859-8999
RCA Solid State Div., Route 202, Somerville, NJ 08876 201-685-6000
† Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 301-279-5535
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

Bobbins, Winding, Coil & Transformer-Also See Coil Assemblies & Forms-2500

§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... A•1232
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503, 201-345-8900 .... A•1304-1306
Renco Elctrns., 60 Jefryn Blvd., E., Deer Park, NY 11729, 516-586-5566 .... A•1276
† American Plasticraft Co., 814 N. Sacramento Blvd., Chicago, IL 60622 312-722-7727
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
† A.P.W. Co., Inc., 72 W. Main, Rockaway, NJ 07866 201-627-0643
Cortec, Inc., 15811 Chemical La., Huntington Bch., CA 92649 714-897-2529
Cosmo Plastics Co., 3239 W. 14th St., Cleveland, OH 44109 216-861-5594
Coto Corporation, 55 DuPont Drive, Providence, RI 02907 401-943-2686
† D & L Sales Co. Inc., 296 Preakness Ave., Paterson, NJ 07502 .... 201-684-8223/8224
† Dia-Netics, Inc., 18823 Napa St., Northridge, CA 91324 818-886-2616
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Electrical Plastics Corp., 500 Long Branch Ave., Long Branch, NJ 07740 201-870-9500
Engineering Design & Sls., Rt. 2, Box 305, Danville, VA 24540 804-685-7073
† Genisco Technlg. Corp., Filters Div., 18435 Susana Rd., Rancho Dominguez, CA 90221 213-537-4750
Grand Transformers, Box 188, Grand Haven, MI 49417 616-842-5430
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Harbison Indl. Prods., Sub. of Polymer Corp., 7205 Hibbs La., Levittown, PA 19057 215-943-9000
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
† Magnetico Inc., 182 Morris Ave., Holtsville, NY 11742 516-654-1166
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., 703 Rogers St., Downers Grove, IL 60515 312-968-7000
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, JAPAN .... Tokyo 03-402-6161
† Wayne Transformer Co., Inc., 99 Hazel St., Paterson, NJ 07503 201-278-7674
Xylog Corp., 150 Tillman St., Westwood, NJ 07675 201-664-7997

Bolometers, Infrared-2900 — *See Vol. D*

Bolometers, Microwave-2900 — *See Vol. D*

Bolts-2825

Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356

Books — See Technical Books (Vol. D)

Boosters, Low Line Voltage, Automatic — See Regulators & Stabilizers, Voltage (Vol. D)

Boxes, Decade — See Decade Boxes (Vol. D)

Boxes, Junction, Outlets & Wall Plates-1400

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1124
Marway Prods. Inc., 311 N. Clara St., Santa Ana, CA 92703, 714-973-1800 .... D•1945
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1478-1481
§ Perma Power Elctrns., 5615 W. Howard Ave., Chicago, IL 60648, 312-647-9414 .... C•1690-1691
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... C•1078
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1507
SL Waber, 300 Harvard Ave., Westville, NJ 08093, 609-456-5400;800-257-8384 .... C•1692
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682
§ Adalet-PLM Div, Div. Scott & Fetzer Co., 4801 W. 150th St., Cleveland, OH 44135 216-267-9000
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 .... 215-425-3395; 800-523-0130
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
§† Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
Fil-Coil Economy Intl., Inc., 800 Axinn Ave., Garden City, NY 11530 516-228-9445
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 617-682-6936
§ Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Todd Systems, Inc., 50 Ash St., Yonkers, NY 10701 914-963-3400
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
§ The Wadsworth Elec. Mfg. Co., Inc., 20 W. 11th St., Covington, KY 41012 606-431-0900

§ Wiremold Company, 60 Woodlawn Street, W. Hartford, CT 06110 203-233-6251
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zero-East Div., 288 Main St., Monson, MA 01057

Boxes, Metal & Plastic — See Enclosures (Various types) (Vol. C)

Boxes, Power Outlet — See Boxes, Junction, Outlets & Wall Plates (Vol. C)

Boxes, Shipping (Reusable) — See Enclosures, Shipping (Vol. C)

Brackets, Antenna — See Mounts, Antenna (Vol. D)

Braid, Cable-Also See Wire Shielding-6000

† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1792
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1794
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... C•1823-1824
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1830
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... C•1729
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069 619-744-7720
† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 814-455-0966
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Brakes, Magnetic-3500 — *See Vol. B*

Brakes, Mechanical-3500 — *See Vol. B*

Breadboard Assemblies-4200

† Hybricon Corp., 410 Great Rd., Littleton, MA 01460, 617-486-0311 ...... C•1710
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1102-1103, D•1103-1104
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
† Eastern Elctrns. Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 ... 203-528-9821
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Noll, J. A. Co., P.O. Box 312, Monroeville, PA 15146 412-733-1009
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ RCA Solid State Div., Micro Processors/Memories/Peripherals, Route 202, Somerville, NJ 08876 201-685-6000
§ TransKinetic Sys., 110 Shawmut Rd., Canton, MA 02021 617-828-3000
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

Breadboards & Breadboard Kits — See Kits, Breadboarding (Vol. C)

Bridge Rectifiers, Silicon-Also See Rectifiers, Bridges & Assemblies-4800 — *See Vol. A*

Bridges, Admittance-2900 — *See Vol. D*

Bridges, Antenna — See Bridges, RF (Vol. D)

Bridges, Audio-2900 — *See Vol. D*

Bridges, Calorimeter-2900 — *See Vol. D*

Bridges, Capacitance-2900 — *See Vol. D*

Bridges, Deviation-2900 — *See Vol. D*

Bridges, Dissipation Factor-2900 — *See Vol. D*

Bridges, Impedance-2900 — *See Vol. D*

Bridges, Inductance-2900 — *See Vol. D*

Bridges, Kelvin-2900 — *See Vol. D*

Bridges, LCR-2900 — *See Vol. D*

Bridges, Limit — See Bridges (Specific Types) (Vol. D)

Bridges, Megohm — See Bridges, Resistance (Vol. D)

Bridges, Power, RF-2900 — *See Vol. D*

Bridges, Programmable — See Bridges (Specific Types) (Vol. D)

Bridges, Q-2900 — *See Vol. D*

Bridges, Ratio — See Meters, Ratio (Vol. D)

Bridges, Resistance-2900 — *See Vol. D*

Bridges, RF-2900 — *See Vol. D*

Bridges, Silicon Cell-4800 — *See Vol. A*

Bridges, Strain Gauge-2900 — *See Vol. D*

Bridges, Synchro & Resolver-2900 — *See Vol. D*

Bridges, Telephone/Data-1900 — *See Vol. D*

Bridges, Temperature-2900 — *See Vol. D*

Bridges, Wheatstone-2900 — *See Vol. D*

Brushes & Brush Assemblies-3500 — *See Vol. B*

Buffers, Data — See Spoolers, Printer Buffers (Vol. D)

Bulbs — See Lamps, Miniature & Subminiature (Vol. B)

Bumpers-2825

Bumper Products Corp., 14 King St., P.O. Box 45, Mt. Holly, NJ 08060, 609-261-8100;800-541-2500 .... C•1694
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1596
Alasco Rubber & Plastics Corp., 617 Mountain View Ave. #7, Belmont, CA 94002 415-595-4100
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
Budwig Mfg., P.O. Box 829, Ramona, CA 92065-0829 619-789-0900
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Burnishers, Contact-5400

Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025	619-743-7143
Dymek Corp., 1851 Zanker Road, San Jose, CA 95070	408-947-8700
§ Eraser Co., Box 4961, Syracuse, NY 13221	315-454-3237
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990

Bus Bars & Systems-3200

Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510	**C•1684,1701**
† **Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800**	**B•1608**
§† **Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010**	**C•1430**
† **Rogers Corp., One Technology Dr., Rogers, CT 06263, 203-774-9605**	**C•1715**
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062	603-880-6000
American Etching & Mfg., 13730 Desmond St., Pacoima,, CA 91331	213-896-1187
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172	617-924-1500
† Basic Electronics, Inc., 11762 Western Ave. "Q", Stanton, CA 90680	714-530-2400
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375	317-983-5200
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611	203-372-0038
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644	201-796-2886
Brown Boveri Elec., Norristown Rd., Spring House, PA 19477	215-628-7400
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245	213-322-6580
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131	312-455-8830
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648	201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018	312-696-1000
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216	414-449-7487
† Eldre Corporation, 1500 Jefferson Rd., Rochester, NY 14623	716-427-7280
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033	201-241-0710
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116	801-537-5237
ILC Data Device Corp., 105 Wilbur Pl., Bohemia, NY 11716	516-567-5600
† Interconics, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101	612-228-6512
† Interconics, Bussing Sys. Oper., a unit of BMC Industries, Inc., 2525 E. Vista Industria, Compton, CA 90220	213-639-2535
§ Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406	213-452-5444
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656	312-867-9600
Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008	312-392-3500
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006	201-227-7996
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199	800-245-4501;800-245-4497 In Ohio
Rogers Corp., Bus Products Division, 5750 East McKellips Rd., Mesa, AZ 85205	602-830-3370
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886	401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG	0442-40471/6
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201	213-245-9121
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707	714-979-4770
§† Tech-Etch, Inc., 45 Aldrin Rd., Plymouth, MA 02360	617-747-0300
† Zero Corp., 777 Front St., Burbank, CA 91503	213-846-4191

Bus Compatible Instruments — See Instruments, Test and Measuring, GPIB Compatible (Vol. D)

Bushings, Glass, Plastic, Metal, Rubber, etc.-2500

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725	**C•1617**
§ **Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571**	**C•1175**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400**	**C•1837**
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400	**B•1160**
§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182**	**C•1227**
§ **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800**	**C•1595-1596,1599**
§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400**	**C•1509,1693**
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700	**C•1696**
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505	914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593	516-546-1751
§ Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657	201-943-7650
§ Adalet-PLM Div, Div. Scott & Fetzer Co., 4801 W. 150th St., Cleveland, OH 44135	216-267-9000
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056	206-284-5563
Alasco Rubber & Plastics Corp., 617 Mountain View Ave. #7, Belmont, CA 94002	415-595-4100
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530	516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647	714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515	203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424	201-256-3939
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570	617-943-1746
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457	203-346-6677
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484	203-929-1401
Avdel, Newman Inds., Inc., 50 Lackawanna Ave., Parsippany, NJ 07054	201-263-8100
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518	516-599-5010
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718	714-951-8808
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644	201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065-0829	619-789-0900
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012	313-646-5100
Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005	201-DE4-0700
Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507	201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126	518-794-7800
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107	216-226-1360
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696	212-471-9800
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831	607-974-4102
§ Dayco Corp., 333 W. First St., Dayton, OH 45402	513-226-5927
Delbert Blinn Co., Box 2007, Pomona, CA 91766	714-629-3900
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245	213-322-8840
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809	401-253-2000
General Elec. Co., Carboloy Systems Dept., Box 237, Detroit, MI 48232	313-536-9100
§† Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766	714-623-2747
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801	914-633-8600
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605	213-875-0213
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012	212-475-4600
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406	213-452-5444
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520	516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505	213-849-6211;800-423-2734
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101	617-736-0601
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634	501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966	215-355-0200
† Moldtronics, Inc., 703 Rogers St., Downers Grove, IL 60515	312-968-7000
† NL Bearings/NL Industries Inc., PO Box 934, Toledo, OH 43694	419-381-3100
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735	516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470	201-696-4700
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080	201-561-1300
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981	312-532-1800
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124	215-288-7366
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250	213-777-8108
Polymer Corp., P.O. Box 422, Reading, PA 19603	215-320-6600
† Quantum, Barnes Indl. Pk., Wallingford, CT 06492	203-265-2811
§ RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483	203-888-2133
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013	717-243-5929
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199	800-245-4501;800-245-4497 In Ohio
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646	312-539-4060
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543	914-698-5600
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201	213-245-9121
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014	305-823-5440
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087	603-893-2330
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111	314-481-2450
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777	704-765-4241
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019	201-672-2140
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401	615-867-4100
† Stock Drive-Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040	516-328-0200;328-3300
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620	716-232-1291
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839	214-243-4321
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243	513-561-8145
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387	513-767-7261
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629	312-585-1212
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641	312-282-8626

Busses, Multibus, Q Bus, S100 Bus, STD Bus — See Board Computers & Subassemblies (Vol. D)

Buzzers, Electronic — See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices (Vol. D)

Cabinets, Plastic — See Enclosures, Nonmetallic (Vol. C)

Cabinets & Accessories, Metal — See Enclosures, Equipment & Panel Mounting (Vol. C)

Cable, Audio-6000

§ **American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700**	**C•1747**
§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200**	**C•1753-1757,1760-1765,1769-1770**
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886**	**C•1797-1798**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605	**C•1801-1812,1814**
† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000**	**C•1839**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357	**C•1842**
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720	**C•1842**

§ **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 C•1901-1903**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 C•1507
§ **Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 D•1039**
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 C•1909
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
§ Duotone, 6875 S.W. 81st St., S. Miami, FL 33143 305-665-1121
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 617-562-9913
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§ Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Recoton Corp., 46-23 Crane St., Long Island City, NY 11101 718-392-6442
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§ Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§ Vidaire Electronics Mfg. Corp., P. O. Box 788, Freeport, NY 11520 516-623-6696
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cable, Battery Booster-6000

§ **Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 C•1469**
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Cable, Coaxial-6000

§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 C•1750-1752,1771-1772,1775**
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 C•1790-1791
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 C•1814-1819
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 C•1175
§ **JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 C•1841**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 C•1842
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 C•1847**
† **M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 C•1849-1857**
§† **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 C•1859**
§† **Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 C•1689**
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224, 503-620-9400 C•1867
† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 C•1895**
§† **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 C•1897-1899**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 C•1905
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 C•1909
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 312-349-3300
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 215-425-3395; 800-523-0130
† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
† Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Eaton Corp., Microwave Products Division, 955 Benicia Avenue, Sunnyvale, CA 94086 408-730-6300
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932

Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 ... 201-689-3020
† Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074 ... 207-883-5161
Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 ... 201-768-8082
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
§ Heath Co., Benton Harbor, MI 49022 ... 616-982-3886
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ... 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ... 714-752-3800
IDE Associates, Inc., 35 Dunham Rd., Billerica, MA 01821 ... 617-663-6878
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 ... 516-293-1500
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 ... 818-367-1811
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 ... 215-489-3700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ... 619-449-3844
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Pathcom, Inc., Pace Two-Way Radio Prods., 24105 S. Frampton Ave., Harbor City, CA 90710 ... 213-325-1290
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 ... 201-827-7141
§† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 ... 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
† Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 ... 301-279-5535
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 ... 212-892-6700
Scientific-Atlanta, Inc., P.O. Box 105600, Atlanta, GA 30348 ... 404-441-4000
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 ... 516-957-8700;800-645-5516
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 ... 312-971-3460
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 ... 301-921-8282
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
Weinschel Engrg., One Weinschel La., Gaithersburg, MD 20877 ... 301-948-3434; 800-638-2048
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 ... 213-475-9411
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 ... 818-843-5770
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, Communication-6000

Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 ... C•1906-1908
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 ... 303-792-5760
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 ... 614-828-2468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Gandalf Technologies, Inc., 350 E Dundee Rd., Suite 301, Wheeling, IL 60090 ... 312-459-6630
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 ... 617-562-9913
§ L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 ... 617-682-6936
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 ... 201-827-7141
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 ... 201-338-8826
§ Via West Inc., 534 N. Stone Ave., Tucson, AZ 85705 ... 602-623-5716
Xebex Data Systems, 6610 Buckley Dr., Cambria, CA 93428 ... 805-927-5008

Cable, Computer-6000

§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... C•1807-1812,1814,1819
M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 ... C•1849-1857
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... C•1567-1569,1909
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 ... 703-642-4000
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 ... 303-792-5760
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 ... 614-828-2468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 ... 206-939-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 ... 617-562-9913
Lamtech Electronics, 620 Easy Street, Garland, TX 75042 ... 214-272-3504
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
§ L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 ... 617-682-6936
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 ... 305-592-0551
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 ... 201-338-8826
§ Via West Inc., 534 N. Stone Ave., Tucson, AZ 85705 ... 602-623-5716
Xebex Data Systems, 6610 Buckley Dr., Cambria, CA 93428 ... 805-927-5008

Cable, Data Transmission-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... C•1807-1812,1814-1819
M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 ... C•1849-1857
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... C•1567-1569,1909
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 ... 303-792-5760
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 ... 614-828-2468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 ... 617-562-9913
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376 ... 413-863-4357
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 ... 617-682-6936
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 ... 201-338-8826
Textro, P.O. Box 381, Greer, SC 29652 ... 803-879-0752
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§ Via West Inc., 534 N. Stone Ave., Tucson, AZ 85705 ... 602-623-5716

Cable, Dial — See Cords & Cable, Dial Drive (Vol. C)

Cable, FEP Insulated-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1794
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... C•1896
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000

§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600

Cable, Fiber Optic-2475 – *See Vol. B*

Cable, Flame Retardant-6000

§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... C•1771-1772
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... C•1801-1806
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1449,1859
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1875-1876
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1895
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1896
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
Fibronics Intl. Inc., 325 Stevens St., Hyannis, MA 02601 617-778-0700
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
§ Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Flat-6000

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1748
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155,1158
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... C•1824-1825
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... C•1840
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224, 503-620-9400 .... C•1866-1867
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1881-1882
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528
Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 .... C•1906-1908
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
† Basic Electronics, Inc., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600

Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Sunol Systems, 1187 Quarry Lane, Pleasanton, CA 94586 415-484-3322
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131
Xebex Data Systems, 6610 Buckley Dr., Cambria, CA 93428 805-927-5008
Yamaichi Electronics, 2471 E. Bayshore Rd. #530, Palo Alto, CA 94303 415-493-3756

Cable, Heater-6000

Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
Amperex Electronic Corp., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802 516-931-6200
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325

Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§ Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800

Cable, High Temperature (Over 125°C)-6000

Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1790
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1793-1794
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1832
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1449
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1895
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1896
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
† Metier Management Sys., Inc., 5884 Point West Dr., Houston, TX 77036 713-988-9100
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561

† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 ... 714-751-7733
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 ... 607-335-5000
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 ... 718-939-8300
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 ... 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 ... 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, High Voltage (1,000 Volts & Over)-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... C•1747
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1793,1796
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1832
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... C•1839
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842-1843
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842-1843
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ... C•1873-1874
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1895
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 ... 617-388-5210
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 ... 1-203-677-2657
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Bertan Assocs., 121 New South Rd., Hicksville, NY 11801 ... 516-433-3110
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ... 617-448-5485
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 ... 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 ... 215-489-3700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
† Parlex Corp., 145 Milk St., Methuen, MA 01844 ... 617-685-4341, ext. 325
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 ... 607-335-5000
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, Instrumentation & Control-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... C•1747
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ... C•1753-1788
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ... C•1790-1791
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1795-1798
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... C•1801-1812
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... C•1821-1822,1826
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1833-1834
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... C•1839
§ Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842
§ L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 ... C•1846-1847
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ... C•1871-1880,1883-1884
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... C•1896-1903
Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 ... C•1906-1908
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... C•1909
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 ... 1-203-677-2657
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 ... 215-348-4413
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 ... 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Eaton Corp., Microwave Products Division, 955 Benicia Avenue, Sunnyvale, CA 94086 ... 408-730-6300
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
Gandalf Data, Inc., 1019 S. Noel Ave., Wheeling, IL 60090 ... 312-541-6060
Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 ... 617-562-9913
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
† National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 ... 305-592-0551
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 ... 914-429-3103
SpecTran Corp., 50 Hall Road, Sturbridge, MA 01566 ... 617-347-2261
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361

Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Systems Resch. Labs., Inc., 2800 Indian Ripple Rd., Dayton, OH 45440 .. 513-426-6000
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 201-338-8826
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770

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§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

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Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... C•1806,1812,1819
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1900
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 614-828-2468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 617-562-9913
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
V.I.P. Inds., Inc., 246 Knickerbocker Ave., Paterson, NJ 07503 201-345-5800
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Microphone-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1797
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... C•1814
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1407
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1901-1903
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
§ AKG Acoustics, Inc., 77 Selleck St., Stamford, CT 06902 203-348-2121
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
§ Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§ Vidaire Electronics Mfg. Corp., P. O. Box 788, Freeport, NY 11520 516-623-6696
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cable, Multiconductor-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... C•1747
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... C•1753-1770,1773-1788
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1790
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1794, 1796-1798
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... C•1801-1812,1814
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... C•1821-1822,1826
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1830,1833-1834
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... C•1273
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 .... C•1841
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842-1843
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842-1843
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846-1847
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1449,1859
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1871-1884
§† Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1899-1903
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1905
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528-1529
Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 .... C•1906-1908
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1567-1568,1909
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 .... 212-775-1395;800-221-3333
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§† Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 203-269-7701
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 .... 507-235-3355; 507-235-9712
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800

† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, Plenum-6000

§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ... C•1753-1774**
§ **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1833**
† **M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 ... C•1850-1851**
§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... C•1449**
§ **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... C•1896**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 ... 817-737-2900
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ... 215-376-8071
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 ... 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 ... 614-828-2468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 ... 206-939-4880
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Fibronics Intl. Inc., 325 Stevens St., Hyannis, MA 02601 ... 617-778-0700
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 ... 201-768-8082
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 ... 617-562-9913
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 ... 312-971-3460
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 ... 301-921-8282

Cable, Power-6000

Arstan Products Intl. Ltd., 99 Jericho Tpke., Jericho, NY 11753, 516-333-8100 ... A•2119
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1795**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... C•1819
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1830-1831**
ETRI, Inc., 608 Broome St., P.O. Box 5006, Monroe, NC 28110, 704-289-5423 ... C•1640
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ... C•1892-1893
§† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1895**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ... C•1905
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 ... 603-880-6000
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 ... 201-288-1939
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 ... 203-249-8471
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 ... 309-695-2511
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 ... 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§† Linemaster Switch, Box 52, Woodstock, CT 06281 ... 203-974-1000
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 ... 213-532-6600
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 ... 201-762-6886
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131
Xebex Data Systems, 6610 Buckley Dr., Cambria, CA 93428 ... 805-927-5008

Cable, Retractile – See Cords, Retractile (Vol. C)

Cable, Ribbon – See Cable, Flat (Vol. C)

Cable, Rotator Antenna – See Cable, Multiconductor (Vol. C)

Cable, Satellite-6000

§ **Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... C•1808-1811,1814,1819**
M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 ... C•1849-1851,1856
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 ... 516-293-1500
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431

Cable, Security-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996

§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920 ...... 914-268-6848; 800-431-2774
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121

Cable, Shielded-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ...... C•1747
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ...... C•1750-1752,1760-1772,1775-1788
† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ...... C•1790-1791
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1794-1798
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .. C•1801-1803,1806,1808-1812,1814-1819
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ...... C•1823
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1833-1834
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ...... C•1839
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 ... C•1840
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 ...... C•1841
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ...... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ...... C•1842
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 ...... C•1846
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ...... C•1729
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ...... C•1859
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ...... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ...... C•1871-1878
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ...... C•1895
§† Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ...... C•1896-1903
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ...... C•1905
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 ...... C•1529
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ...... C•1567-1568,1909-1911
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ...... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
§† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 815-678-2211
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
† Parlex Corp., 145 Milk St., Methuen, MA 01844 ...... 617-685-4341, ext. 325
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ...... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 .. 201-827-7141
§† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§† Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 203-269-7701
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 ...... 516-957-8700;800-645-5516
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 ...... 507-235-3355; 507-235-9712
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
† Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Cable, Speaker-6000

§ American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431

Cable, Telephone-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ...... C•1805
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590, 516-935-3640 ...... C•1827
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1833
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ...... C•1273
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ...... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ...... C•1842
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ...... C•1879-1880

Cable, Telephone-6000 (Cont'd)

Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1896
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1567-1568,1909
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 614-828-2468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 201-827-7141
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, TFE Insulated-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1793-1794
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1832,1834
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... C•1840
M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 .... C•1849-1857
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Thermocouple-6000

§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... C•1747
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... C•1765
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 .... C•1887
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
Amperex Electronic Corp., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802 516-931-6200
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Degussa Corp., 104 New Era Drive, So. Plainfield, NJ 07080 201-757-6500
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 312-541-3232
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000

Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ...... 203-265-5533;800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161-1793 617-527-1512
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770

Cable, Transmission Line, Power-6000

§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ...... C•1750-1752,1771-1777**
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1798**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ...... C•1801,1806,1815-1819
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1833
§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ...... C•1449**
§† **Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ...... C•1689**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ...... C•1879-1880
§ **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ...... C•1896**
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 312-349-3300
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ...... 212-775-1395;800-221-3333
§ Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Transmission Line, Data – See Cable, Data Transmission

Cable, Triaxial-6000

§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ...... C•1449,1859**
§† **Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ...... C•1689**
§† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ...... C•1895**
§ **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ...... C•1896**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ...... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 617-562-9913
§† ITT Surprenant Division, 172 Sterling St., Clinton, MA 01510 617-368-1401
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
† M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603 ...... 704-324-2200;800-438-3331
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ...... 203-265-5533;800-243-3959
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 201-827-7141
Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, TV (Incl. Camera)-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ...... C•1814-1819
† **M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 ...... C•1849,1851-1857**
§ **Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ...... C•1899**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
§ ITT Surprenant Division, 172 Sterling St., Clinton, MA 01510 617-368-1401
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 201-827-7141
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Vitek Elctrns., 4 Gladys Ct., Edison, NJ 08817 201-287-3200
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Cable, Twisted Pair-6000

§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... C•1753,1758-1759,1766-1768,1773-1777,1782
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1796-1798
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... C•1807-1812
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1834
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1872,1874,1877-1878
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1900-1903
§† Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 .... C•1906-1908
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
§ Hartley Prods., 620 Island Rd., Ramsey, NJ 07446 201-327-4443
§ Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 617-562-9913
§† ITT Surprenant Division, 172 Sterling St., Clinton, MA 01510 617-368-1401
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§ Wilco Wire & Cable Co., Inc., 1921 Las Plumas Ave., San Jose, CA 95133 408-926-8880
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Woven Conductor-6000

Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... C•1840
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... C•1729
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1882
§† Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 .... C•1906-1908
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cable Systems, Inc., 210 Broadway, Everett, MA 02149 617-389-7080
§† Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460

Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable & Assemblies (MIL)-2440 – *See Vol. B*

Cable & Connectors, Satellite Antennas-1900 – *See Vol. D*

Cable Assemblies & Harnesses-6000

§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155,1158**
† **Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1790-1791**
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... C•1826
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... C•1839
† **GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... C•1840**
§ **H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1329,1362,1392-1405**
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846-1847**
§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1446,1449**
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224, 503-620-9400 .... C•1866-1867
§ **National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1884
† **Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... C•1885**
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502-1504
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1905
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528-1529**
§† **Textro, P.O. Box 381, Greer, SC 29652, 803-879-0752 .... C•1906-1908**
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Adams-Russell, Parisi Div., 280 Bear Hill Rd., Waltham, MA 02154 617-890-0055
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
Advanced Techn. Research Labs., 5645 K General Washington Dr., Alexandria, VA 22312 703-750-2920
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 818-889-9304
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
Altek Co., P.O. Box 1128, Torrington, CT 06790 203-482-7626
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
† Apsco, Inc., Sub. of The National Copper & Smelting Co., 5976 Heisley Road, Mentor, OH 44060 216-942-3871
Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Augat/ES•P. Inc., /Augat, Inc., 12832 Chadron Ave., Hawthorne, CA 90250 213-973-0262
§ Aura Mfg., 50 McDermott Rd., North Haven, CT 06473 203-777-2541
Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 215-348-4413
† Basic Electronics, Inc., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Burton Electrical Engineering, Wyle Laboratories, 111 Maryland Street, P.O. Box 217, El Segundo, CA 90245-0217 213-772-1406
† Cable Systems, Inc., 210 Broadway, Everett, MA 02149 617-389-7080
§† Cablex, Inc., 14 Inverness Dr. E. H-136, Englewood, CO 80112 303-792-5760
† Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 203-828-6379
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
Cross Elctrns., 100 Commonwealth Dr., Warrendale, PA 15086 412-776-1591
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 .... 818-882-7979/5280
§ Dataprobe, 110 Palisades Blvd., Palisades Park, NJ 07650 201-947-9500
§ Data Set Cable Co., Inc., 722 Danbury Rd., Ridgefield, CT 06877 203-438-9684
Davidson Elctrn. Dev. Co., 113 E. 13th St., Erie, PA 16512 814-453-7547
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Digital Equip., One Iron Way, Marlborough, MA 01752
Dymec, 8 Lowell Ave., Winchester, MA 01890 617-729-7870
† Eastern Elctrns. Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro-Prep, Ltd., Rt 28A, P.O. Box 437, Cataumet, MA 02534 617-563-5559
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
EOTec Corp., 420 Frontage Road, W. Haven, CT 06516 203-934-7961
EOTec Corporation, Fiber Optic Interconnect Group, 420 Frontage Road, West Haven, CT 06516 203-934-7961
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
Evershed & Vignoles, Ltd., Acton Lane, Chiswick, London, ENGLAND W4 5HJ 01-994-3670
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
General Electric Co., 333 W. Seymour Ave., Cincinnati, OH 45216 513-948-5050
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 .... 714-642-2400;800-854-4066
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
Hollex, Inc., 81 W. Wyoming Ave., Melrose, MA 02176 617-665-2413
† Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† IEC Elctrns., 105 Norton St., Newark, NY 14513 315-331-7742
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
Interface Electronics Inc., 21134 Bridge St., Southfield, MI 48034 313-352-8820
§ International Data Sciences, 7 Wellington Rd., Lincoln, RI 02865 401-333-6200
§† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
K & M Elctrns., 123 Interstate Dr., W. Springfield, MA 01089 413-781-1350
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
§ Laboratory Products, Inc., 57 Cornwall St., P. O. Box 1750, Jamaica Plain, MA 02130 617-522-7800
Lamtech Electronics, 620 Easy Street, Garland, TX 75042 214-272-3504
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
§† Linemaster Switch, Box 52, Woodstock, CT 06281 203-974-1000
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
Manage, Inc., Fibre Optics Elctrns. Sys. Grp., P.O. Box 175, 40 Nichols Rd., Chicopee, MA 01014 .... 413-598-8204;592-3834
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Metric Sys., 645 Anchors St., Ft. Walton Beach, FL 32548 904-244-9600
§ Midland Standard, Inc., 603 E. Chicago St., Box 38, Elgin, IL 60120 312-741-6600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mohawk Data Sciences, MDS Center, Herkimer, NY 13350 315-866-5300
† MoldCon Corp., 221 Interstate Dr., W. Springfield, MA 01089 413-736-0371
Muirhead, 1101 Briston Rd., Mountainside, NJ 07092 201-233-6010
Multi Prods. Intl., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009 201-239-8183
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
† Poly-Scientific, Litton Inds., 1213 N. Main St., Blacksburg, VA 24060 703-552-3014
† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032 201-997-1000

Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
†Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 301-279-5535
§†Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 203-269-7701
§RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
†Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
†Ronor Systems, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492 203-265-2110
§†Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 301-984-1783
§RVS Electronics, Inc., 40 North St., Middletown, NY 10940 914-342-3199
§SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
†Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
†Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Sunol Systems, 1187 Quarry Lane, Pleasanton, CA 94586 415-484-3322
§Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§†Systron-Donner Microwave Div., 14844 Oxnard St., Van Nuys, CA 91409 818-786-1760
§T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 201-338-8826
Tegam, 7230 N. Ridge Rd., Madison, OH 44057 216-428-7505
†Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
†Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 507-235-3355; 507-235-9712
†Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 301-921-8282
§Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
†Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
†Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
†TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
†TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
†United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
†Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 401-821-1700;SALES 401-821-7800
§Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
V.I.P. Inds., Inc., 246 Knickerbocker Ave., Paterson, NJ 07503 201-345-5800
†V-Tron Elctrns. Corp., 10 Venus Way, P.O. Box 297-S, S. Attleboro, MA 02703 617-761-9100
†Western Reserve Elctrns., 2150 Highland Rd., Twinsburg, OH 44087 216-425-4951
†Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§Wilco Wire & Cable Co., Inc., 1921 Las Plumas Ave., San Jose, CA 95133 408-926-8880
§†Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
†Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131
Xylog Corp., 150 Tillman St., Westwood, NJ 07675 201-664-7997
†Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Cable Assemblies, Microwave-6000

Advanced Techn. Research Labs., 5645 K General Washington Dr., Alexandria, VA 22312 703-750-2920
†Airtron, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
§Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 312-349-3300
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
†Cable Systems, Inc., 210 Broadway, Everett, MA 02149 617-389-7080
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 203-828-6379
Eaton Corp., Microwave Products Division, 955 Benicia Avenue, Sunnyvale, CA 94086 408-730-6300
†Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816 201-238-1223
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
†GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Muirhead, 1101 Briston Rd., Mountainside, NJ 07092 201-233-6010
†Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
RLC Elctrns., Inc., 83 Radio Cir., Mt. Kisco, NY 10549 914-241-1334
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121

Cable Fault Locators-2900 — *See Vol. D*

Cable (MIL), Flat-2440 — *See Vol. B*

Cable (MIL), RF-2440 — *See Vol. B*

Cable Retractors-1400

Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 C•1073
§†Accuride, 12311 S. Shoemaker, Santa Fe Springs, CA 90670 213-944-0921
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
Jonathan Mfg., 1101 So. Acacia Ave., Fullerton, CA 92631 714-526-4651
†Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000

Cages, Card — See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. C)

Calculators, Electronic, Desk Top-4200

†Exergetic Sys., Inc., 1499 Franklin St., Oakland, CA 94612 415-763-3460
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 Call Local Sls. Off.
§Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 408-727-1970
§Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611

Calculators, Electronic, Hand Held-4200

Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 Call Local Sls. Off.
§Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611

Calibration & Instrument Repair Services — See Services, Calibration & Instrument Repair (Vol. D)

Calibrators, Accelerometer-2900 — *See Vol. D*

Calibrators, Attenuation-2900 — *See Vol. D*

Calibrators, Automated-2900 — *See Vol. D*

Calibrators, Crystal-2900 — *See Vol. D*

Calibrators, Current-2900 — *See Vol. D*

Calibrators, Frequency-2900 — *See Vol. D*

Calibrators, LVDT-2900 — *See Vol. D*

Calibrators, Magnetic Field-2900 — *See Vol. D*

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Calibrators, Sound Level-2900 — *See Vol. D*

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Calibrators, Synchro-2900 — *See Vol. D*

Calibrators, Time Base-2900 — *See Vol. D*

Calibrators, Transducer-2900 — *See Vol. D*

Calibrators, Voltage-2900 — *See Vol. D*

Calibrators, VSWR-2900 — *See Vol. D*

Calorimeters, Microwave-2900 — *See Vol. D*

Cameras, Data Recording-2325 — *See Vol. D*

Cameras, Digital Image Acquisition-2325 — *See Vol. D*

Cameras, Image Converter-1900 — *See Vol. D*

Cameras, Infrared-2325 — *See Vol. D*

Cameras, Oscilloscope-2975 — *See Vol. D*

Cameras, Television-1900 — *See Vol. D*

Cameras, Television, Fiber Optic-1900 — *See Vol. D*

Cans & Flat Packs, Integrated Circuit — See Packages, Integrated Circuit (Vol. A)

Cans, Capacitor, Relay, Semiconductor, Transformer, etc-2500

†American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
§General Electric Co., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021 315-253-7321
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
†Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§†Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
†Plastic Capacitors, Inc., 2623 N. Pulaski Rd., Chicago, IL 60639 312-489-2229
South Shore Metal Prods., 88 E Allen Blvd., Farmingdale, NY 11735 516-249-3322
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611

§ The Wadsworth Elec. Mfg. Co., Inc., 20 W. 11th St., Covington, KY 41012 606-431-0900
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Capacitance Comparators — See Bridges, Capacitance (Vol. D)

Capacitor Arrays-1500 — *See Vol. A*

Capacitor, Folded Flag Tabs-1500 — *See Vol. A*

Capacitor Hardware-2800

§ Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§ Cornell-Dubilier Electronics, 150 Avenue "L", Newark, NJ 07105 201-589-7500
CSI Capacitors, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069 619-747-4000
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Sprague Elec. Co., 481 Marshall St., No. Adams, MA 01247 413-664-4411
§† Sprague Electric Company, Distribution Division, 481 Marshall St., No. Adams, MA 01247 413-664-4481
† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Capacitor Leakage Indicators — See Testers, Capacitor (Vol. D)

Capacitor, Tap Rolls-1500 — *See Vol. A*

Capacitor Wafers-1500 — *See Vol. A*

Capacitors, Energy Storage-1500 — *See Vol. A*

Capacitors, Chip (For Microcircuits)-1500 — *See Vol. A*

Capacitors, Fixed, AC (Incl. Motor Start)-1500 — *See Vol. A*

Capacitors, Fixed, Air-1500 — *See Vol. A*

Capacitors, Fixed, Aluminum Electrolytic-1500 — *See Vol. A*

Capacitors, Fixed, Ceramic, Disc & Tubular-1500 — *See Vol. A*

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Capacitors, Fixed, Polyester — See Capacitors, Fixed, Film (Vol. A)

Capacitors, Fixed, Polypropylene — See Capacitors, Fixed, Film (Vol. A)

Capacitors, Fixed, Polysulfone — See Capacitors, Fixed, Film (Vol. A)

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Capacitors, Fixed, Vacuum-1500 — *See Vol. A*

Capacitors, Variable, Air-1500 — *See Vol. A*

Capacitors, Variable, Ceramic-1500 — *See Vol. A*

Capacitors, Variable, Film-1500 — *See Vol. A*

Capacitors, Variable, Gas Filled-1500 — *See Vol. A*

Capacitors, Variable, Glass-1500 — *See Vol. A*

Capacitors, Variable, HV (Lab Type)-Also See Decade Boxes, Capacitance-1500 — *See Vol. A*

Capacitors, Variable, Mica-1500 — *See Vol. A*

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Capacitors (MIL), Fixed-2440 — *See Vol. B*

Capacitors (MIL), Variable-2440 — *See Vol. B*

Caps, Connector-2100

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1318-1319,1324
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... C•1409
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Foundation Instruments Inc., 24 Colonnade Rd., Nepean, ON, CANADA K2E 7J6 613-226-4000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Caps, Forms & Tapes, Heat Shrinkable-Also See Tubing, Heat Shrinkable-3100

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800

Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860

Caps, Lenses, Indicator Light-2450 – *See Vol. B*

Caps, Wire Splicing – See Splicers, Wire (Vol. C)

Caps (MIL)-2440 – *See Vol. B*

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Carts & Dollies, Instrument & Equipment-3800

Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... C•1029

† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056

§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682

§† Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 .... 215-DE8-7300

Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493

§† Bonus-Bilt, Inc., Hofmann Inds., 1096 Air Way, Glendale, CA 91201 ....213-245-9177; 800-692-8888

Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776 818-287-0451

§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 516-968-8282

§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700

EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572

† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420

† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871

§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279

§ Ferno-Salesmaker, Ferno-Washington, Inc., 70 Well Way, Wilmington, OH 45177 513-382-1451

Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .. Call Local Sls. Off.

Inter Metro Industries Corp., North Washington St., Wilkes-Barre, PA 18705 717-825-2741

§ Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ..... 305-633-2556;800-327-6085

§ Leader Instrs. Corp., 380 Oser Ave., Hauppauge, NY 11788-3694 516-231-6900

§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941

§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200

† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630

Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-546-0884

§ Panel Controls, 1000 Mt. Elliott Ave., Detroit, MI 48207 313-568-2400

Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726

Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655

Stackbin Corp., Albion Road, Lincoln, RI 02865 401-333-1600

§ Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 215-673-5600

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282

† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161

United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200

York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660

† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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Cases, Transit – See Enclosures, Shipping (Vol. C)

Casters-1400

Inter Metro Industries Corp., North Washington St., Wilkes-Barre, PA 18705 717-825-2741

† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630

† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108

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Chassis, Circuit Board Mounting-1400

§† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027

§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1085

Lansing Research Corp., 705 Willow Ave., Ithaca, NY 14850, 607-272-3265;800-847-3535 .... C•1069

Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 ...... C•1714

Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 ...... C•1080

SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082

† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, 213-204-0472 .... C•1084-1085

† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090-1091

UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C•1094

§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095

§ Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682

§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400

Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605

Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202

§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038

§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200

§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200

† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776 818-287-0451

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Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933

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EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572

§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800

Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
§Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§†E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§†Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
†Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 818-795-4811
§Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
†LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
†Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
†Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
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†Plessey Electro-Products, 3860 Centinela Ave., Los Angeles, CA 90066 213-390-3585
Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
§RCA Solid State Div., Micro Processors/Memories/Peripherals, Route 202, Somerville, NJ 08876 201-685-6000
RCI/Data, 1992 Lakewood Rd., Toms River, NJ 08753 201-341-8361
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
†Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110 619-276-5920
§Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
Teradyne, Inc., 183 Essex St., Boston, MA 02111 617-482-2700
†Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
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Chassis, Metal-1400

§†Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
†General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
Lansing Research Corp., 705 Willow Ave., Ithaca, NY 14850, 607-272-3265;800-847-3535 .... C•1069
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... C•1714
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
†STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, 213-204-0472 .... C•1084-1085
†Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090-1091
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Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
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†Churchill Corp., 344 Franklin St., Melrose, MA 02176 617-665-4700
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§†Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
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†Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zero-East Div., 288 Main St., Monson, MA 01057

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Chemicals, Electroplating-1600

†Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
†Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
†Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
§†Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
†Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
Baker, J. T., Chemical Co., 222 Red School La., Phillipsburg, NJ 08865 201-859-2151
§Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
†Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
§GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§†Kepro Circuit Sys., 630 Axminster Dr., Fenton, MO 63026 314-343-1630
†M&T Chemicals, Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
†Technic, Inc., Box 965, Providence, RI 02901 401-781-6100
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

Chemicals, Epoxy Stripping-1600

†Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
§Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 617-337-6075
§Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§†Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
§†Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 714-951-3231
†Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
†Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
†Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
†Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
†Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
§Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
†Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 313-426-3903

Chemicals, Etching-1700

§†Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1100
§Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
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§†Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
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§Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
†DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
†FMC Corp., Ind'l. Chemical Grp., 2000 Market St., Philadelphia, PA 19103 215-299-6000
§Gates, Geo. W., & Co., Inc., Hempstead Tpke. & Lucille Ave., Franklin Sq., NY 11010 516-352-2904
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†W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§†Kepro Circuit Sys., 630 Axminster Dr., Fenton, MO 63026 314-343-1630

† M&T Chemicals, Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
† Technic, Inc., Box 965, Providence, RI 02901 401-781-6100
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Union Etchants Intl., Inc., 8-10 Green St., Bldg. G, Woburn, MA 01801 617-935-8878
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

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† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
† M&T Chemicals, Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
† Technic, Inc., Box 965, Providence, RI 02901 401-781-6100
Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 718-441-4759

Chemicals, Wire Stripping-1600

† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

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Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1156
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
AT&T, 1 Oak Way, Berkeley Heights, NJ 07922 1-800-372-2447
† Basic Electronics, Inc., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124 206-773-1083
Bowmar Instrument Corp., Commercial Products Div., 4640 126th Ave. N., Clearwater, FL 33520 813-576-2525
Buckbee-Mears Co., Nashua Div., 100 Northeastern Blvd., P.O. Box 888, Nashua, NH 03062 603-883-5541
† Bureau of Engraving, Inc., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413 612-623-0900
Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
† Eldre Corporation, 1500 Jefferson Rd., Rochester, NY 14623 716-427-7280
§† Electrofilm, 27727 Avenue Scott, Valencia, CA 91355 805-257-2240
Flexprint Div, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103 603-669-4615
GTI/Circuits Div., Box 217, Leesburg, IN 46538 219-453-3261
Hi-Tech Components, Mitsubishi International Corp., 520 Madison Ave., New York, NY 10022 212-605-2607
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
† Interconics, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101 612-228-6512
Kemtron Circuits & Elctrns. Corp., 48 Merrick Rd., Rockville Centre, NY 11570 516-766-2772
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Minco Prods., 7300 Commerce La., Minneapolis, MN 55432 612-571-3121
† Noble U.S.A., Inc., 151 Stanley St., Elk Grove Village, IL 60007 312-364-6038
OMNI Switch, Inc., 21630 N. 19th Ave., Suite B-20, Phoenix, AZ 85027 602-582-0629
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
† Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
Proto Systems of Atlanta, 625 Sims Industrial Blvd., Alpharetta, GA 30201 404-475-1330
† Rogers Corp., Box 700, Chandler, AZ 85224 602-963-4584
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
§† SL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470 201-835-2765
† Sierracin/Thermal Sys., 13920 S. Broadway, Los Angeles, CA 90061 213-321-4350
† Tech-Etch, Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
† Thermolab, 13345 Saticoy St., N. Hollywood, CA 91605 213-875-0105
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527

Circuits, Printed, Multilayer-1700

Additive Products Div., Kollmorgen Corp., P.O. Box 700, West La., Aquebogue, NY 11931 516-722-4100
† Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803 417-862-0751
American Electronic Labs., Box 552, Lansdale, PA 19446 215-822-2929
Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., # 200, Santa Clara, CA 95051 408-748-1200
† Astro Circuit, 100 Hale St., Lowell, MA 01851 617-458-3240
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124 206-773-1083
† Bureau of Engraving, Inc., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413 612-623-0900
† Circuits, Inc., 59 Deming Rd., Berlin, CT 06037 203-828-3526
† Collins Avionics Divisions, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498 319-395-1000
† Compunetics, Inc., 2000 Eldo Rd., Monroeville, PA 15146 412-373-8110
CTS Corporation, 905 North West Blvd., Elkart, IN 46514 219-293-7511
† CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040 214-276-0333
Data-Design Labs., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730 714-987-2511
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 .... 214-221-8776;214-233-3033
Flexprint Div, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103 603-669-4615
† General Technology Corp., 6816 Washington Avenue, NE, Albuquerque, NM 87109 505-345-5591
† Granite State Circuits, Power Elctrns. Corp., P.O. Box 2208, 96 Milton Rd., Rochester, NH 03867 603-332-3334
† Hadco Printed Circuits, Manchester Rd. Rte. 28, Derry, NH 03038 603-432-9541
Hi-Tech Components, Mitsubishi International Corp., 520 Madison Ave., New York, NY 10022 212-605-2607
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Interconics, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101 612-228-6512
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Memorex Corp., San Thomas at Central Expwy., Santa Clara, CA 95052 408-987-1000
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micropac Inds., 905 E. Walnut St., Garland, TX 75040 214-272-3571
Micropac Inds., Inc., General Sensors Div., 905 E. Walnut St., Garland, TX 75040 214-272-3571
§† Multi-Plate Co., Inc., 2362 Lu Field Rd., Dallas, TX 75229 214-243-1557
† Multiwire Div., Kollmorgen Corp., 10 Andrews Rd., Hicksville, NY 11801 516-938-2000
† Natel Engrg. Co., Inc., 4550 Runway St., Simi Valley, CA 93063 805-581-3950
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Noble U.S.A., Inc., 151 Stanley St., Elk Grove Village, IL 60007 312-364-6038

North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075 203-684-2703
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
† Pho-Tronics, 8701 W. Bradley Rd., Milwaukee, WI 53224 414-355-6704
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
† Proto Systems of Atlanta, 625 Sims Industrial Blvd., Alpharetta, GA 30201 404-475-1330
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032 201-997-1000
† R & D Circuits, 2381B S. Clinton Ave. Dept. 1202, Plainfield, NJ 07080 .. 201-561-8286
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
§† SL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470 201-835-2765
† Solid State Circuits, 3300 S. Golden, Springfield, MO 65807 417-887-0823
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sylvania Electronic, Box 360, Muncy, PA 17756 717-546-3191
Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
T.D.S. Circuits, Inc., 6290 Sunset Blvd., # 1126, Los Angeles, CA 90028 213-463-5170
† Townsend Industries, 51 Carl Rd., Orange, CT 06477 203-795-0241
Truline Corp., P.O. Box 1469, Visalia, CA 93279 209-625-3237
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Victoreen, Inc., Component Div., 10101 Woodland Ave., Cleveland, OH 44104 216-795-8200
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527

Circuits, Printed, Rigid, One & Two Sided-1700

§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ..... C•1101
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Additive Products Div., Kollmorgen Corp., P.O. Box 700, West La., Aquebogue, NY 11931 516-722-4100
† Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803 417-862-0751
† Airtron, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
API Instrs., 1601 Trapelo Rd., Waltham, MA 02254 617-890-2000
Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101 212-786-7200
Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., # 200, Santa Clara, CA 95051 408-748-1200
§ A-Systems Inc., 1500 Avon St. Extd., Charlottesville, VA 22901 804-295-7200
† Avionics, Box 200, Niagara-On-Lake, ON, CANADA 416-468-3632
Aydin Corp., 700 Dresher Rd., Horsham, PA 19044 215-657-7510
Bally Electronics, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-7223
Basler Elec. Circuits, Inc., 204 Highland Dr., P.O. Box 1165, Taylor, TX 76574 512-352-7683
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124 206-773-1083
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Bureau of Engraving, Inc., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413 612-623-0900
Cherry Electrical Prods. Corp., 3623 Sunset Ave., Waukegan, IL 60087 .. 312-578-3500
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§† Circuits, Inc., 59 Deming Rd., Berlin, CT 06037 203-828-3526
† Collins Avionics Divisions, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498 319-395-1000
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
† Compunetics, Inc., 2000 Eldo Rd., Monroeville, PA 15146 412-373-8110
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
CTS Corporation, 905 North West Blvd., Elkart, IN 46514 219-293-7511
CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040 214-276-0333
Data Capture Technology, Hathaway Instruments, 5436-F South Mingo Rd., Tulsa, OK 74146 918-627-7521
Data I/O Corp., 10525 Willows Rd. N.E., Redmond, WA 98073-9746 206-881-6444
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
† Dynacircuits Inc., 11230 W. Addison, Franklin Park, IL 60131 312-451-1700
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
† Eastern Elctrns. Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821
ECI Company, Box 1565, Terra Haute, IN 47808 812-232-4442
† Electro Mechanical Design Services, Inc., 16698 Oakmont Ave., Gaithersburg, MD 20877 301-840-5710
† Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 .. 503-829-9108
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ..... 214-221-8776;214-233-3033
Elgin Electronics, Combustion Engineering, 5533 New Perry Hwy., Erie, PA 16509-3570 814-864-4921
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816 201-238-1223
Flexprint Div, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103 603-669-4615
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† GCI, Inc., 14520 Lima Rd., Fort Wayne, IN 46818 219-637-5520
GECO, 145 Penn St., Millheim, PA 16854 814-349-5555
† General Technology Corp., 6816 Washington Avenue, NE, Albuquerque, NM 87109 505-345-5591
Gordos Corporation, Gordos International Corp., 250 Glenwood Ave., Bloomfield, NJ 07003 201-743-6800
† Granite State Circuits, Power Elctrns. Corp., P.O. Box 2208, 96 Milton Rd., Rochester, NH 03867 603-332-3334
GTI/Circuits Div., Box 217, Leesburg, IN 46538 219-453-3261
† Hadco Printed Circuits, Manchester Rd. Rte. 28, Derry, NH 03038 603-432-9541
Hi-Tech Components, Mitsubishi International Corp., 520 Madison Ave., New York, NY 10022 212-605-2607
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Interconics, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101 612-228-6512
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Kemtron Circuits & Elctrns. Corp., 48 Merrick Rd., Rockville Centre, NY 11570 516-766-2772
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Knol Enterprises, 3468 Sacramento Dr., San Luis Obispo, CA 93401 805-544-4881
Kontron Elctrns., 1230 Charleston Rd., Mountain View, CA 94039-7230 415-965-7020
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 .... 313-628-971†
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
Memorex Corp., San Thomas at Central Expwy., Santa Clara, CA 95052 408-987-1000
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Modular Systems, Inc., 905 Albemarle St., Charlottesville, VA 22901 804-295-7882
† National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
† Noble U.S.A., Inc., 151 Stanley St., Elk Grove Village, IL 60007 312-364-6038
North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075 203-684-2703
† Parlex Corp., 145 Milk St., Methuen, MA 01844 .... 617-685-4341, ext. 325
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
† Photocircuits Glen Cove, Div., Kollmorgen Corp., 31 Sea Cliff Ave., Glen Cove, NY 11542 516-674-1303
† Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
† Pho-Tronics, 8701 W. Bradley Rd., Milwaukee, WI 53224 414-355-6704
§ Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
† Proto Systems of Atlanta, 625 Sims Industrial Blvd., Alpharetta, GA 30201 404-475-1330
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032 201-997-1000
† R & D Circuits, 2381B S. Clinton Ave. Dept. 1202, Plainfield, NJ 07080 .. 201-561-8286
RCI/Data, 1992 Lakewood Rd., Toms River, NJ 08753 201-341-8361
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
Rockwell Intl., Commercial Elctrns. Opers., 1200 N. Alma Rd., Richardson, TX 75081 214-996-5000
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
SFE Technologies, 1501 1st St., San Fernando, CA 91340 213-365-9411
§† SL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470 201-835-2765
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
† Signatron, A Unit of Sundstrand Corp., 12 Hartwell Ave., Lexington, MA 02173 617-861-1500
† Solid State Circuits, 3300 S. Golden, Springfield, MO 65807 417-887-0823
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sylvania Electronic, Box 360, Muncy, PA 17756 717-546-3191
Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§† Techniques, Inc., 235 Jackson St., Englewood, NJ 07631 201-569-5900
Truline Corp., P.O. Box 1469, Visalia, CA 93279 209-625-3237
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
Victoreen, Inc., Component Div., 10101 Woodland Ave., Cleveland, OH 44104 216-795-8200
† West-Tronics, Inc., 215 Park St., Bensenville, IL 60106 312-860-3560

§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Circuits, Printed (With Components) — See Cards, Linear Function (Vol. D)

Circuits, Thick Film, Thin Film — See Circuits, Hybrid (Vol. A)

Circulators, Ferrite-3450 — *See Vol. A*

Clamps & Clips, Cable-Also See Wire & Cable Ties-2800

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1835
§† Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1888-1890
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
§† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 216-771-5225
Parker Hannifin Corp., 17325 Euclid Ave., Cleveland, OH 44112 216-531-3000
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
§† Waldom Elctrns., 4301 W. 69th St., Dept EEM, Chicago, IL 60629 312-585-1212
§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626

Clamps & Clips, Component-2825

§ Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... B•1229
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 ...... C•1051
§† Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227
Industrial Devices, Inc., 7 Hudson St., Edgewater, NJ 07020, 201-224-4700 .... B•1064-1065
§ AAVID Engrg., One Kool Path, Laconia, NH 03246 603-524-4443
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682
† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
§† FIC Corp., 12216 Parklawn Dr., Rockville, MD 20852 ..... 301-881-8124;800-638-6594
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 .... 818-849-2481;818-786-1182
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Micro Instr., 2250 Micro Pl., Escondido, CA 92025 619-746-2010
† Micro-Mounting Devices, 4092 Keith Dr., Campbell, CA 95008 408-866-4626
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 216-771-5225
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Quantum, Barnes Indl. Pk., Wallingford, CT 06492 203-265-2811
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
† Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Sprague Electric Company, Distribution Division, 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552
§† Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clamps & Clips, Ground-2825 — *See Vol. D*

Clamps, Synchro & Servo-2800

† Timber-Top, Hopkins Rd., Box 517E, Watertown, CT 06795 203-274-6706

Clamps (MIL), Cable-2440 — *See Vol. B*

Cleaners, Magnetic Medium-1600

Verbatim Corp., 323 Soquel Way, Sunnyvale, CA 94086 408-245-4400

Cleaners, Ultrasonic-4100 — *See Vol. D*

Cleaners & Degreasers, Machine — See Machines, Cleaning & Degreasing (Vol. D)

Cleaners & Solvents-1600

§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... C•1738
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
§ Allen Co., Inc., Robert G., 7267 Coldwater Canyon, N. Hollywood, CA 91605 .... 818-765-8300;800-423-3186
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 ... 614-889-3333
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 ... 516-654-1197
Baker, J. T., Chemical Co., 222 Red School La., Phillipsburg, NJ 08865 .. 201-859-2151
Baron-Blakeslee, Inc., Sub. Purex Inds., Inc., 2001 N. Janice Ave., Melrose Pk., IL 60160 312-450-3900
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 516-968-8282
§† Cobehn, Inc., 226 Passaic Ave., Fairfield, NJ 07006 201-227-6675
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 216-694-5000
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
§ Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 .. 503-829-9108
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237

Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Heat Systems-Ultrasonics, Inc., 1938 New Hwy., Farmingdale, NY 11735 516-694-9555
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 203-357-7401
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 603-889-1121
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§† Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639 312-235-1600
§ L & R Mfg. Co., 577 Elm St., Kearny, NJ 07032 201-991-5330
§† LPS Chemical Products, Holt Lloyd Corp., 4647 Hugh Howell Rd., P. O. Box 3050, Tucker, GA 30084 .... 404-934-7800;800-241-8334
† M&T Chemicals, Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
† Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
† Odell, M. P., Co., 1620 Chesapeake Dr., Hoffman Estates, IL 60195 312-991-2828
Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
PTS Electronics Inc., Box 272, Bloomington, IN 47401 812-824-9331
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
§ R-Columbia Prods. Co., Inc., 2008 St. Johns Ave., Highland Park, IL 60035 312-432-7915
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 313-426-3903
Sonicor Instrument Corp., 1365 Marconi Blvd., Copiague, NY 11726 516-842-3344
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Union Etchants Intl., Inc., 8-10 Green St., Bldg. G, Woburn, MA 01801 617-935-8878
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Clean Room Equipment & Supplies-2550 – *See Vol. D*

Clips, Alligator-2100

§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1316**
§† **Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... C•1468-1469,1471**
§ **National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Concord Elctrns., 30 Great Jones St., Dept JE, New York, NY 10012 212-777-6571
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
§ Industrial Devices, Inc., 7 Hudson St., Edgewater, NJ 07020 201-224-4700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300

Clips & Holders, Fuse-Also See Panels, Fuse-4300 – *See Vol. B*

Clips, Battery-2100

§† **Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... C•1468-1469**
§ **National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506,1508
§† Atlee Inc., One Gill St., Woburn, MA 01801 617-933-3510
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Waldom Elctrns., 4301 W. 69th St., Dept EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Board, Harness-1700

§† Bussmann Div., P.O. Box 14460, St. Louis, MO 63178 314-394-2877
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Breadboard-4200

§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356

Clips, Fahnestock-2100

Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, LED – See Retainers, Transistor & Diode

Clips, Logic Test-2900 – *See Vol. D*

Clips, Test-2100

§ **Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 .... C•1225**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1292-1293,1309,1352-1354,1362-1366**
§† **Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... C•1468-1472**
† **Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506**
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Electro Scientific Inds., 13900 N.W. Science Pk. Dr., Portland, OR 97229 503-641-4141
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Industrial Devices, Inc., 7 Hudson St., Edgewater, NJ 07020 201-224-4700
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 617-682-6936
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Micro Electronic Sys., Inc., 3 Quarry Road, Brookfield, CT 06804 .... 203-775-1440; 800-243-7254
Micro Instr., 2250 Micro Pl., Escondido, CA 92025 619-746-2010
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237 214-333-3201
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Transistor & Diode – See Retainers, Transistor & Diode (Vol. C)

Clips (MIL), Electrical-2440 – *See Vol. B*

Clocks, Time Keeping - Also See Oscillators, Clock-2200 – *See Vol. D*

Clocks & Controllers, Thermal-2200 – *See Vol. D*

Clutches, Friction-3500 – *See Vol. B*

Clutches, Magnetic-3500 – *See Vol. B*

Clutches, Positive-3500 – *See Vol. B*

Coating Services – See Services, Coating (Vol. D)

Coatings, Antistatic-1600

§ **Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101**

Liberty Mirror, Libbey-Owens-Ford Co., 851 Third Ave., Brackenridge, PA 15014, 412-224-1800 ...... B•1212
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ...... C•1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§ Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Evaporated Coatings, P.O. Box 160, Huntingdon Valley, PA 19006 215-947-1465
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 419-247-4797
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 800-328-1368
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 ...... 212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., # 8, Pacheco, CA 94553 415-798-6066
§† Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
Static, Inc., Rte. 113 & Mensch Rd., P.O. Box 80, Skippack, PA 19474 215-584-9600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ...... 614-276-5522; 800-245-5253
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Coatings, Compounds, Lubricants, etc., Heat Conductive-1600

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ...... C•1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
Hivec/Astrodyne, Inc., 35 Executive Dr., Hudson, NH 03051 603-880-8600
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 ...... 818-849-2481;818-786-1182
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† LPS Chemical Products, Holt Lloyd Corp., 4647 Hugh Howell Rd., P. O. Box 3050, Tucker, GA 30084 ...... 404-934-7800;800-241-8334
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ...... 516-328-0200;328-3300
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

Coatings, Conductive, Electric-1600

Liberty Mirror, Libbey-Owens-Ford Co., 851 Third Ave., Brackenridge, PA 15014, 412-224-1800 ...... B•1212
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 ...... C•1082
Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ...... C•1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
† Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Balzers Optical Grp., 170 Locke Dr., Marlboro, MA 01752 617-481-9860
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Evaporated Coatings, P.O. Box 160, Huntingdon Valley, PA 19006 215-947-1465
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 419-247-4797
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
§† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 800-328-1368
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 ...... 212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., # 8, Pacheco, CA 94553 415-798-6066
Panelgraphic Corp., 10 Henderson Dr., W. Caldwell, NJ 07006 201-227-1500
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§ Pervel Inds., Inc., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374 203-564-2741
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ...... 614-276-5522; 800-245-5253

Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 718-441-4759
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Coatings, Corrosion Resistant-1600

§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 718-646-7996
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§ Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
† Electrofilm, 27727 Avenue Scott, Valencia, CA 91355 805-257-2240
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
§† Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 714-951-3231
Ferro Corp., Coatings Div., 4150 East 56th St., Cleveland, OH 44101 216-641-8580
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 .... 818-849-2481;818-786-1182
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§† LPS Chemical Products, Holt Lloyd Corp., 4647 Hugh Howell Rd., P. O. Box 3050, Tucker, GA 30084 .... 404-934-7800;800-241-8334
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 603-224-9585
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

Coatings, Electromagnetic Wave Absorbing-1600

Liberty Mirror, Libbey-Owens-Ford Co., 851 Third Ave., Brackenridge, PA 15014, 412-224-1800 .... B•1212
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1736-1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§ Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Evaporated Coatings, P.O. Box 160, Huntingdon Valley, PA 19006 215-947-1465
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 .... 212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
§ Pervel Inds., Inc., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374 203-564-2741
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 603-224-9585
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253

Coatings, Fungicidal-1600

§† Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
Liberty Mirror, Libbey-Owens-Ford Co., 851 Third Ave., Brackenridge, PA 15014, 412-224-1800 .... B•1212
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
† Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
Multi-Tech Inds., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

Coatings, High Temperature, Ceramic, Plasma Spray – See Services, Coating (Vol. D)

Coatings, Insulating-3100

§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§ Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 718-646-7996
† Dennis Chemical, 2700 Papin St., St. Louis, MO 63103 314-771-1800
§† Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 714-951-3231
Evaporated Coatings, P.O. Box 160, Huntingdon Valley, PA 19006 215-947-1465
Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 805-968-5000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 203-357-7401
§† HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 .... 818-849-2481;818-786-1182
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503 201-345-8900
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Multi-Tech Inds., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
§ Murata Mfg. Co., Ltd., 26-10-2-chome-Tenjin, Nagaoka-Kyo-Shi, Kyoto, Japan, JAPAN 075-951-9111
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
† Nova Tran, 100 Deposition Dr., Clear Lake, WI 54005 715-263-2333
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 303-289-5651
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
† Whittaker Corp., Providence Chemicals Div., King Philip Rd., P.O. Box 16069, E. Providence, RI 02916 401-434-1770
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Coatings, Moisture Repellant & Waterproofing-1600

§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ..... C•1101
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 ... C•1082
† Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 ... 818-579-6270
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 ... 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 ... 516-582-3322
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 ... 517-636-1000
§ Dow Corning Corp., Box 0994, Midland, MI 48686-0994 ... 517-496-4000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
Ferro Corp., Coatings Div., 4150 East 56th St., Cleveland, OH 44101 ... 216-641-8580
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 ... 718-932-0800
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 ... 404-475-6100
§† LPS Chemical Products, Holt Lloyd Corp., 4647 Hugh Howell Rd., P. O. Box 3050, Tucker, GA 30084 ... 404-934-7800;800-241-8334
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 ... 516-334-7997
Multi-Tech Inds., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 ... 201-431-0550
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ... 516-349-1100
§† Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 ... 617-890-6107
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 ... 314-481-2450
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 ... 619-279-4500
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Coatings, Protective-1600

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1590
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ..... C•1101
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 ... 313-984-5581
Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 ... 818-579-6270
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 ... 201-434-6778
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 ... 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 ... 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 ... 914-762-0685
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 ... 201-242-4100
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 ... 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 ... 516-582-3322
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 ... 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 ... 517-636-1000
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 ... 517-496-4000
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 ... 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
Ferro Corp., Coatings Div., 4150 East 56th St., Cleveland, OH 44101 ... 216-641-8580
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 ... 201-242-4110
† Formulated Resins Inc., Box 508, Greenville, RI 02828 ... 401-949-2060
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 ... 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 ... 216-266-2451
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ... 201-751-3000
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ... 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ... 714-752-3800
§† HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 ... 718-932-0800
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 ... 213-849-2481
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 ... 401-723-2100
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 ... 404-475-6100
§† LPS Chemical Products, Holt Lloyd Corp., 4647 Hugh Howell Rd., P. O. Box 3050, Tucker, GA 30084 ... 404-934-7800;800-241-8334
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ... 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 ... 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ... 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 ... 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
† Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 ... 203-743-4447
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 ... 516-334-7997
Multi-Tech Inds., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 ... 201-431-0550
† Nova Tran, 100 Deposition Dr., Clear Lake, WI 54005 ... 715-263-2333
§ Optics International, Box 101, Tenafly, NJ 07670 ... 201-567-4799
Panelgraphic Corp., 10 Henderson Dr., W. Caldwell, NJ 07006 ... 201-227-1500
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ... 516-349-1100
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 ... 213-603-0400
Polymer Corp., P.O. Box 422, Reading, PA 19603 ... 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 ... 213-321-0710
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 ... 201-667-5200
SermeTel, 155 Limerick Rd., Limerick, PA 19468 ... 215-948-5100
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 ... 314-481-2450
SL Homalite, Div. of SL Inds., 11 Brookside Dr., Wilmington, DE 19804 .. 302-652-3686
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 ... 716-278-2000
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 ... 603-224-9585
† Technic, Inc., Box 965, Providence, RI 02901 ... 401-781-6100
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
Tempil Div., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080 ... 201-757-8300
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 ... 619-279-4500
† Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 ... 213-475-9411
† Whittaker Corp., Providence Chemicals Div., King Philip Rd., P.O. Box 16069, E. Providence, RI 02916 ... 401-434-1770

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SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
§ Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 617-337-6075
§† Celanese Plastics, 26 Main St., Chatham, NJ 07928 201-635-2600
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 718-646-7996
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 .... 818-882-7979/5280
† Dennis Chemical, 2700 Papin St., St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 714-951-3231
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 800-227-2201
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Freed Transformer, 1718 Weirfield St., Ridgewood, NY 11385 212-386-1300
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 203-357-7401
Hivec/Astrodyne, Inc., 35 Executive Dr., Hudson, NH 03051 603-880-8600
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
Isolation Products, Inc., 157 San Lazaro Ave., Sunnyvale, CA 94086 408-730-4672
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
† Miller-Stephenson Chem. Co., Inc., George Washington Hwy., Danbury, CT 06810 203-743-4447
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 303-289-5651
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 313-426-3903
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
Whittaker Corp., Providence Chemicals Div., King Philip Rd., P.O. Box 16069, E. Providence, RI 02916 401-434-1770
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Compounds, Insulating-3100

SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02189 617-337-6075
§ Celanese Plastics, 26 Main St., Chatham, NJ 07928 201-635-2600
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
† Dennis Chemical, 2700 Papin St., St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
Hivec/Astrodyne, Inc., 35 Executive Dr., Hudson, NH 03051 603-880-8600
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

Computer-Aided Design Services — See Computers, CAD, CAM, & CAD/CAM (Vol. D), Services, Computer-Aided Design (Vol. D)

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Conductive Elastomers-4525

† AME Corp., 101 E. Main St., Little Falls, NJ 07424, 201-256-3939 .... B•1485
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, 215-672-0787;215-672-4741 .... C•1483
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1530-1533,1535,1735,1737
A.C. Interface, 17911 Sampson, Huntington Beach, CA 92647 714-841-6090
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 718-646-7996
Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 800-328-1368
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 314-694-1000
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
§† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 718-441-4759
† UCE, Inc., 24 Fitch St., Norwalk, CT 06855 203-838-7509
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Conductive Fabrics, Films & Tapes – See Fabrics, Conductive (Vol. C)

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§† NRD, Mark IV Ind., Inc., 2937 Alt Blvd. N., Grand Island, NY 14072, 716-773-7634 .... D•1983
Rogers Corp., One Technology Dr., Rogers, CT 06263, 203-774-9605 .... C•1715
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1530-1533,1535,1736-1737
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§ Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 301-539-6537
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
Litton Potentiometer Div., 750 So. Fulton Ave., Mt. Vernon, NY 10551 914-664-7733
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 800-328-1368
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 314-694-1000
§† Production Industries, Inc., 12880-E Pierce Street, Pacoima, CA 91331 .... 818-896-0555; 800-423-5618
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269 404-487-6681
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 718-441-4759
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Conduit, Electrical-6000

† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1791
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Wiremold Company, 60 Woodlawn Street, W. Hartford, CT 06110 203-233-6251
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Connecting Blocks, Data-2100

Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237

Connecting Blocks, Modular Telephones-2100

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237

Connector Adapters-2100

† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1171,1790-1791
Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 .... A•1594
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1234,1236
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1318-1320,1324,1326-1328,1337-1348,1350,1389-1391
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... C•1409
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1847
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1456
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1466
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 .... C•1497
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506-1507,1905
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060

† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
† Alford Mfg. Co., P.O. Box 2116, 32 Sixth Rd., Woburn, MA 01888 ... 617-935-8610
§† Alltech Assocs. Inc., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015 ... 312-948-8600
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 ... 817-737-2900
§ Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 ... 203-249-8471
§ Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 ... 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 ... 603-524-5101
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
§† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 ... 216-248-1200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
§ Westinghouse Elec. Corp., Bryant Circuit Devices Div., 500 Sylvan Ave., Bridgeport, CT 06606 ... 203-334-5561
§† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 ... 203-239-3311
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 ... 617-268-2100
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ... 212-691-9050
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 ... 818-579-7130
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 ... 800-237-2374
Elcom Systems, Inc., 932 Clint Moore Rd., Boca Raton, FL 33431 ... 305-994-1774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§ E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ... 818-362-9396
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 ... 213-631-1133
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9961
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 ... 818-247-6000
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451;800-225-9228
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 ... 714-554-6840
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 ... 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 ... 714-987-4715
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 ... 215-489-3700
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 ... 201-992-7700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ... 619-449-3844
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 ... 201-762-6886
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 ... 312-682-4100
§ Recoton Corp., 46-23 Crane St., Long Island City, NY 11101 ... 718-392-6442
RLC Elctrns., Inc., 83 Radio Cir., Mt. Kisco, NY 10549 ... 914-241-1334
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 ... 212-892-6700
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940 ... 914-342-3199
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 ... 305-287-5000
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 ... 401-351-8282
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 ... 805-238-2840
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 ... 814-589-7071
† Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ... 216-354-0925
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
United States Software Corp., 5470 N.W. Innisbrook Place, Portland, OR 97229 ... 503-645-5043
Vann Instruments, 1200 Schofield La., Farmington, NM 87401 ... 505-326-7557
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 ... 312-440-1000
† Weinschel Engrg., One Weinschel La., Gaithersburg, MD 20877 ... 301-948-3434; 800-638-2048
§ Wiltron, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290 ... 415-969-6500
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242

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Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ... C•1171,1790-1791
§ **Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451 ... C•1041**
§† **H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ... C•1226**
§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... C•1447**
§† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... C•1548-1549**
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 ... C•1566
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 ... 206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 ... 201-575-7660; 800-221-1451
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 ... 213-649-1400
§ Elite Electronics, Inc., 1408 Summit - Suite # 5, Plano, TX 75074 ... 214-881-0026
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 ... 213-631-1133
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 ... 201-589-1800
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 ... 314-392-7174
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 ... 417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 ... 201-762-6886
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 ... 312-342-6300
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Sabritec, 16631 Noyes Ave., Irvine, CA 92714 ... 714-549-7350
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
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§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
TCL Incorporated, 41829 Albrae Street, Fremont, CA 94538 ... 415-657-3800
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 ... 301-921-8282
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 ... 214-328-6200

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† **AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ... C•1111,1113-1116,1118**
§ **Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ... C•1185**
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ... C•1412,1414
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 ... 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 ... 602-622-8605
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075 ... 305-753-3639
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 ... 714-558-8755
† Eastern Elctrns. Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 ... 203-528-9821
† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 ... 814-643-0700
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ... 214-221-8776;214-233-3033
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451;800-225-9228
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012 ... 212-677-1881
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600

Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Urban Elctrns., P. O. Box 456, Dover, MA 02030 617-329-4068
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 ...... C•1124
Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048, 312-680-7400 ...... A•1596
MCG Elctrns., 12 Burt Dr., Deer Park, NY 11729, 516-586-5125 ...... B•1248-1249,1251-1253
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ...... C•1478-1481,1892-1893
§ Perma Power Elctrns., 5615 W. Howard Ave., Chicago, IL 60648, 312-647-9414 ...... B•1256, C•1690-1691
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 ...... C•1489-1490
SL Waber, 300 Harvard Ave., Westville, NJ 08093, 609-456-5400;800-257-8384 ...... C•1692
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 ...... 215-425-3395; 800-523-0130
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ The Wadsworth Elec. Mfg. Co., Inc., 20 W. 11th St., Covington, KY 41012 606-431-0900
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§ Wiremold Company, 60 Woodlawn Street, W. Hartford, CT 06110 203-233-6251
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ...... C•1476
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 ...... C•1489-1491
§ Anderson Power Prods., Div. of High Voltage Engrg., 145 Newton St., Boston, MA 02135 617-787-5880
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 312-440-1000

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Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ...... C•1176-1177
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 ...... C•1193
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 ...... C•1232-1233
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 ...... C•1275,1287
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ...... C•1331-1333
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 ...... C•1497
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ...... C•1506-1507
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ...... C•1527
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 ...... C•1570
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
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§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 603-524-5101
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Benjamin electroproducts, inc., Robins Div., 80 Smith St., Farmingdale, NY 11735 516-293-7744
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§ Duotone, 6875 S.W. 81st St., S. Miami, FL 33143 305-665-1121
§ Ercona, 125 Wilbur Pl., Bohemia, NY 11716 516-567-3399
§ Fuji-Svea, P.O. Box 3375, Torrance, CA 90510 213-533-1221
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Goldwell Comps., 1815 W. 205th St. Ste. 201, Torrance, CA 90501 213-533-1228
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
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§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ...... C•1177
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ...... C•1506-1507
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Anderson Power Prods., Div. of High Voltage Engrg., 145 Newton St., Boston, MA 02135 617-787-5880
Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
§† Elcon Products International Company, 44036 Grimmer Blvd., Fremont, CA 94538 415-490-4200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 415-961-2950
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
† Ronor Systems, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492 203-265-2110
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Speciality Electronics, Inc., 208 E. Rutherford St., Landrum, SC 29356 ... 803-457-3824
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Yardney Battery Div., Yardney Corp., 82 Mechanic St., Pawcatuck, CT 02891 203-599-1100
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Connectors, Cable-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ...... C•1111,1113,1115,1118
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 ...... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1132-1147
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ...... C•1160
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 ...... C•1167

§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101	**C•1170**
† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511	**C•1171,1790**
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315	**C•1172**
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108	**C•1177**
Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200	**C•1184**
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396	**C•1193**
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282	**C•1226**
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002	**C•1232-1233**
† Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141	**C•1240-1247,1256-1268**
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228	**C•1271**
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881	**C•1272**
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463	**C•1322,1324-1325,1328-1333**
Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571	**C•1409**
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174	**C•1415-1417,1421**
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811	**C•1431-1439**
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111	**C•1712**
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373	**C•1449**
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500	**C•1454-1457**
Mhotronics., Inc., 444 Lake Cook Rd., Ste. 8, Deerfield, IL 60015, 312-948-5600	**C•1460-1461**
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550	**C•1463,1466**
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225	**C•1470-1471**
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440	**C•1473**
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800	**C•1474,1476,1890-1891**
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338	**C•1497**
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761	**C•1502-1503**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911	**C•1506-1507,1905**
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966	**C•1513-1517**
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561	**C•1523**
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700	**C•1527**
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000	**C•1546-1549**
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010	**C•1566**
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941	**C•1585**
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406	213-873-6400; 818-988-4400
§ AKG Acoustics, Inc., 77 Selleck St., Stamford, CT 06902	203-348-2121
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403	617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362	818-889-9304
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105	717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532	312-983-3500
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462	312-349-3300
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060	216-354-2101
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047	201-869-4201
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101	203-249-8471
§ Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060	1-201-560-3800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703	617-222-2202
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725	516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377	718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484	203-929-1401
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838	607-563-5324
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125	617-265-2102
Burndy Corporation, Richards Ave., Norwalk, CT 06852	203-838-4444
Burton Electrical Engineering, Wyle Laboratories, 111 Maryland Street, P.O. Box 217, El Segundo, CA 90245-0217	213-772-1406
Cambridge Prods., Tridex, 244 Woodland Ave., Bloomfield, CT 06002	203-243-1761
Chabin Corp., 890 Fortress St., Chico, CA 95926	916-891-6410
Chatsworth Data Corp, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311	213-341-3000
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703	714-855-7887
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467	617-268-2100
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379	617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735	516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401	612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002	206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006	201-575-7660; 800-221-1451
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590	516-935-3640
Cornell-Dubilier Electronics, 150 Avenue "L", Newark, NJ 07105	201-589-7500
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648	201-768-5400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301	212-447-4911
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011	800-237-2374
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652	814-643-0700
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523	914-592-7322
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006	818-446-6175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
† Giannini Petro Marine, 9474 Chesapeake Dr., San Diego, CA 92123	619-569-1668
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714	714-660-5701
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022	415-961-2950
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178	815-895-5181
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747	516-293-1500
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684	714-557-4700
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093	507-835-6222
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707	914-793-5000
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514	203-288-5571
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845	617-682-6936
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054	603-424-4111
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133	313-848-2555
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730	714-987-4715
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963	512-834-6682
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426	215-489-3700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020	619-449-3844
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061	215-459-3566
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019	203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131	312-451-1360
Mupac, 10 Mupac Dr., Brockton, MA 02401	617-588-6110
† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788	516-231-1700
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224	503-620-9400
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464	215-323-7120
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006	201-227-7996
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054	603-424-4111
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247	213-532-6600
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696	516-239-6161
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104	717-232-0500
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801	417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052	201-762-6886
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651	312-342-6300
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025	415-361-3860
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199	800-245-4501;800-245-4497 In Ohio
Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150	812-945-0211
† Ronor Systems, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492	203-265-2110
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940	914-342-3199
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543	914-698-0080
Sabritec, 16631 Noyes Ave., Irvine, CA 92714	714-549-7350
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150	812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543	914-698-5600
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014	305-823-5440
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530	914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736	201-223-9400
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492	305-287-5000
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355	805-257-4830
§ Square D Co., Executive Plaza, Palatine, IL 60067	312-397-2600
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050	400-988-0700
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909	401-274-5090
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804	415-234-9090
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077	216-354-0925
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043	415-965-4500
Teledyne Mecca, Box 36393, Houston, TX 77236	713-772-2811
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703	617-699-3800
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869	201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303	213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311	818-882-1020
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311	818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629	312-585-1212
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614	312-440-1000
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236	804-794-2877
Yamaichi Electronics, 2471 E. Bayshore Rd. # 530, Palo Alto, CA 94303	415-493-3756

Connectors, Circular, MS/AN-2100

† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100	**C•1141-1143**
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511	**C•1171**

† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 .... C•1173
§ Dai-ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... C•1179
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 .... C•1193
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
§† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1279-1285
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1439
§† Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1448-1449
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... C•1526
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Burton Electrical Engineering, Wyle Laboratories, 111 Maryland Street, P.O. Box 217, El Segundo, CA 90245-0217 213-772-1406
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Hoffman Engineering Corp., P.O. Box 300, Old Greenwich, CT 06870 203-325-8933
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§† Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Connectors, DIN-2100

Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1167
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1191
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1232-1233
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .. C•1422-1423
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 .... A•2034, C•1497
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... C•1526
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
COBA, Inc., P. O. Box 14920B 28TH Ave. N., Plymouth, MN 55441 612-559-3772
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 416-445-2292
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§ LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940 914-342-3199
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§† Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Stenning Instrments, Inc., 671 Enchanted Way, Pacific Palisades, CA 90272 213-459-2930
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 312-440-1000
Yamaichi Electronics, 2471 E. Bayshore Rd. #530, Palo Alto, CA 94303 415-493-3756

Connectors, D Subminiature-2100

§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1136-1140
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1167
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1184-1185
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1196-1197,1212,1222-1223
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§† Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... C•1247-1268
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1277,1284-1286
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846
§† Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1447-1448
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1454-1457
Mhotronics., Inc., 444 Lake Cook Rd., Ste. 8, Deerfield, IL 60015, 312-948-5600 .... C•1460-1461
Murata Erie North America, Inc., 1148 Franklin Rd., S.E., Marietta, GA 30067, 404-952-9777 .... A•1616
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... A•1635, C•1513-1517
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... C•1520
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1544,1546-1558,1560
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1585
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100

† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
§ Ercona, 125 Wilbur Pl., Bohemia, NY 11716 516-567-3399
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 714-250-8770
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lawrence-Crow Elctrns. Inc., 2100 Stemmons, Dallas, TX 75207 214-749-5440
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940 914-342-3199
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
§ U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 312-440-1000
Yamaichi Electronics, 2471 E. Bayshore Rd. #530, Palo Alto, CA 94303 415-493-3756

Connectors, Edgeboard — See Connectors, Printed Circuit, Card Edge (Vol. C)

Connectors, Elastomeric-2100

PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, 215-672-0787;215-672-4741 .... C•1483
SP America Inc., Shin-Etsu Polymer, 1181 N. 4th St., San Jose, CA 95112, 408-947-0311 .... C•1510-1511
§ A.C. Interface, 17911 Sampson, Huntington Beach, CA 92647 714-841-6090
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811

Connectors, Fiber Optic-2475 — *See Vol. B*

Connectors, Filtered-2100

§† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1283
† Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1454-1457
Murata Erie North America, Inc., 1148 Franklin Rd., S.E., Marietta, GA 30067, 404-952-9777 .... A•1616
† Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... A•1635, C•1513-1517
† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§ Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048 312-680-7400
Cornell-Dubilier Electronics, 150 Avenue "L", Newark, NJ 07105 201-589-7500
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§ Ercona, 125 Wilbur Pl., Bohemia, NY 11716 516-567-3399
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000

Connectors, Flat Cable (Incl. Flexible)-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ...... C•1111
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1138-1140,1144-1147,1748
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1167
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ...... C•1184
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1196-1200,1203-1215,1222-1223
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1286
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1415-1417,1421
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... C•1444
Mhotronics., Inc., 444 Lake Cook Rd., Ste. 8, Deerfield, IL 60015, 312-948-5600 .... C•1459
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1463-1464,1467
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1474,1476,1890-1891
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1531-1533,1535
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1536-1545
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Burton Electrical Engineering, Wyle Laboratories, 111 Maryland Street, P.O. Box 217, El Segundo, CA 90245-0217 213-772-1406
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ..... 214-221-8776;214-233-3033

§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147; New Albany, IN 47150 812-944-6733
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
Yamaichi Electronics, 2471 E. Bayshore Rd. #530, Palo Alto, CA 94303 415-493-3756

Connectors, Fused-2100

§ Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048 312-680-7400
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
SP America Inc., Shin-Etsu Polymer, 1181 N. 4th St., San Jose, CA 95112 408-947-0311

Connectors, Heavy Duty, Power-2100

Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1170
§ **ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1287**
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1478-1481
§ **Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1489-1492**
§ **WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1574-1575**
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Chatsworth Data Corp, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311 213-341-3000
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000

§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9396
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 415-961-2950
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 203-735-9311
Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330

Connectors, Hermetically Sealed, Pressurized, or Waterproof-2100

Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 .... C•1173
§ **Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... C•1179**
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 .... C•1193
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
§ **ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1281-1282,1284,1287**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1321,1323**
Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... C•1409
§† **TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566**
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
Eaton Corp., Microwave Products Division, 955 Benicia Avenue, Sunnyvale, CA 94086 408-730-6300
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
§ Flight Connector Corp., Dubilier America, 233 E. Manville St; Rancho Dominguez, CA 90220 213-631-1133
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 .... 714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .. 201-245-0033;800-526-4182
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600

† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811
Thomson-CSF Comps. Corp.; Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770

Connectors, High Voltage (1,000 Volts & Over)-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ...... C•1111
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1119-1123
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... C•1179
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .. C•1408-1409
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502-1503
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 603-524-5101
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Bertan Assocs., 121 New South Rd., Hicksville, NY 11801 516-433-3110
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Chatsworth Data Corp, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311 213-341-3000
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
CSI Capacitors, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069 619-747-4000
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Del Elctrns. Corp., 250 E. Sandford Blvd., Mt. Vernon, NY 10550 914-699-2000
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9396
Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 312-283-3600
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
Isolation Products, Inc., 157 San Lazaro Ave., Sunnyvale, CA 94086 408-730-4672
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
† PTK Division, Emerson Electric Co., 1173 Los Olivos Ave., Los Osos, CA 93402 805-528-5858
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145

Connectors, IDC (Insulation Displacement Contact)-2100

Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1167
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1415-1417,1421
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 ... C•1463-1464
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 .... 612-338-0995;800-422-2537
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
§† CW Industries, 130 James Way, Southhampton, PA 18966 215-355-7080
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 714-250-8770
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Yamaichi Electronics, 2471 E. Bayshore Rd. #530, Palo Alto, CA 94303 415-493-3756

Connectors, Integrated Circuit — See Sockets, Integrated Circuit (Vol. C)

Connectors, LCD-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, 215-672-0787;215-672-4741 .... C•1483
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1493
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1530-1535
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Elform, Inc., 521 Dunn Circle, Sparks, NV 89431 702-356-1734
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
SP America Inc., Shin-Etsu Polymer, 1181 N. 4th St., San Jose, CA 95112 408-947-0311
Teledyne Kinetics, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075 619-755-1181
† UCE, Inc., 24 Fitch St., Norwalk, CT 06855 203-838-7509

Connectors, Magnetron-2100

† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .. C•1408-1409

Connectors, Miniature, Subminiature & Microminiature-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .. C•1111-1118
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1132-1140,1144-1145,1149-1150,1748
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1158
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1167
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1170
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... C•1179
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... C•1183
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1184-1185
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1707
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190-1191
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 .... C•1193
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1196-1213,1216-1223
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
† Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... C•1240-1255
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 .... C•1272
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... C•1273
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1277-1286,1288

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1318-1333
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1439
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1446-1449
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1454-1457
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1463
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1474,1476
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 .... C•1497
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502-1503
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506-1507
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... A•1635, C•1513-1517
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... C•1518-1520
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... C•1526
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1536-1541,1546-1549,1559-1560
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
§ Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1567-1569,1909
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1572-1573,1576-1578
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1583-1585
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. = 104, Westlake Village, CA 91362 818-889-9304
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 416-445-2292
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Enerco, Inc., 9615 W. Marginal Way S., Seattle, WA 98108 206-762-1422
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 212-464-8400
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Hoffman Engineering Corp., P.O. Box 300, Old Greenwich, CT 06870 203-325-8933
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 714-250-8770
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Min-E-Con, 1791 Reynolds, Irvine, CA 92714 714-250-0474
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Oxley, Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 213-463-5120
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940 914-342-3199
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
† Ted Corp., 11415 Johnson Dr., Shawnee Mission, KS 66203 913-631-6211
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
† Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Connectors, Missile (Umbilicals, Interstage, Post Boost)-3475 – *See Vol. D*

Connectors, Piggy Back – See Connectors, Wirewrap (Z-3 Level) (Vol. C)

Connectors, Plug-in, Program Board-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1158
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1184
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1712-1713, D•1411
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1574-1575
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. = 104, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122

AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Cable Systems, Inc., 210 Broadway, Everett, MA 02149 617-389-7080
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451;800-225-9228
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012 212-677-1881
§ Interswitch, 770 Airport Blvd., Burlingame, CA 94010 415-347-8217
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 814-589-7071
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Connectors, Printed Circuit, Card Edge-2100

AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... C•1111,1117
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1144,1146-1147,1149-1150
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... C•1180-1182
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1184-1185
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1707
§ Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1196-1197,1210-1211
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§† Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... C•1240-1246,1248-1255
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 .... C•1272
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1417-1418
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... C•1444
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1447-1449
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1474
§ Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... C•1518-1519
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528
Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1531-1533,1535
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1543,1560-1565
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1583-1584
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
§† AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Cincinnati Electrosys., 469 Wards Corner Rd., Loveland, OH 45140 513-831-4347
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
CTS Corporation, 905 North West Blvd., Elkart, IN 46514 219-293-7511
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§ Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
§ Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 416-445-2292
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 213-675-3311
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 714-250-8770
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
Lawrence-Crow Elctrns. Inc., 2100 Stemmons, Dallas, TX 75207 214-749-5440
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100

Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§† Teka Prods., 45 Salem, Providence, RI 02907 401-785-4110
Teradyne, Inc., 183 Essex St., Boston, MA 02111 617-482-2700
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
§† Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
Urban Elctrns., P. O. Box 456, Dover, MA 02030 617-329-4068
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

Connectors, Printed Circuit (Other than Card Edge)-2100

† **AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... C•1111-1113,1115-1118**
§ **Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128**
§† **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1134-1140,1144-1147,1748**
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1170
Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1184
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1191
§ **Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1196-1198,1200-1205,1207-1209,1212-1223**
§† **H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226**
† **Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... C•1247-1255**
† **Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271**
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1285-1286,1288
§ **Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1412,1414,1418-1420,1422-1423**
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1432,1434-1438
§ **Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1447-1448**
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1455-1456
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1463,1466
§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1474,1476**
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, 215-672-0787;215-672-4741 .... C•1483
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... C•1513-1517
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... C•1520
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... C•1526
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1528**
† **Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1531-1533,1535**
§† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1536-1541,1545**
§ **Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1567-1569,1909**
§ **WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1572-1574,1576-1578**
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075 305-753-3639
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Delta Electronics Mfg. Corp., 416 Cabot St., Beverly, MA 01915 617-927-1060
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 416-445-2292
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 213-675-3311
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9396
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 415-961-2950
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 714-250-8770
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Oxley, Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 213-463-5120
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648 312-647-8338
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
† Refac Elctrns. Corp., P.O. Box 809, Winsted, CT 06098 203-379-2731
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400

Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Speciality Electronics, Inc., 208 E. Rutherford St., Landrum, SC 29356 ... 803-457-3824
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
Teledyne Kinetics, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075 619-755-1181
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 312-440-1000

Connectors, Rack & Panel-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... C•1111,1113-1114,1118
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1120
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... C•1125-1128
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1134-1144
Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1170
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 .... C•1173
§† Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... C•1183
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 .... C•1193
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1275,1277-1282,1285
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1320-1321,1323-1325,1328
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1412,1414,1419-1420
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1846-1847
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1439
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1447-1449
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1454,1457
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502-1503
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506-1507
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... A•1635, C•1513-1517
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ...... C•1526
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... C•1529
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1546-1549
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 818-889-9304
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Bailey Controls Co., 29801 Euclid Ave., Wickliffe, OH 44092 216-585-5800
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075 305-753-3639
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Concord Elctrns, 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Contact Electronics, Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451
CTS Corporation, 905 North West Blvd., Elkart, IN 46514 219-293-7511
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 416-445-2292
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
§† Elcon Products International Company, 44036 Grimmer Blvd., Fremont, CA 94538 415-490-4200
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
§ Ideal Industries, 4450 Becker Pl, Sycamore, IL 60178 815-895-5181
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
† Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Min-E-Con, 1791 Reynolds, Irvine, CA 92714 714-250-0474
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Teka Prods., 45 Salem, Providence, RI 02907 401-785-4110
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Tex-Techs, Inc., 10021 Cayuga, Dallas, TX 75228 214-328-6200
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§† U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941

Connectors, RF, Coaxial & Triaxial-2100

AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ...... C•1115
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1132-1133
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... C•1172
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 .... A•1706
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174-1175
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... C•1179
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9396 .... C•1193
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1318-1319,1321-1330,1349
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... C•1847
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1432,1434,1436,1438-1439
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1449
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1502
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506-1507
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... C•1566
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1570
† Adams-Russell, Anzac Div., 80 Cambridge St., Burlington, MA 01803 671-273-3333
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 .. 612-835-6800
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
† Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 818-889-9304
American Electronic Labs., Box 552, Lansdale, PA 19446 215-822-2929
§† AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 312-349-3300
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282

Connectors, RF, Coaxial & Triaxial-2100 (Cont'd)

§† Arco Elctrns., 400 Moreland Rd., Commack, NY 11725 516-864-7000
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
§ Cambridge Prods., Tridex, 244 Woodland Ave., Bloomfield, CT 06002 203-243-1761
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ..... 612-338-0995;800-422-2537
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† Connector Inds. of Amer. Div., Microdot Mfg., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Delta Electronics Mfg. Corp., 416 Cabot St., Beverly, MA 01915 617-927-1060
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034 609-429-7800
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
§ Fuji-Svea, P.O. Box 3375, Torrance, CA 90510 213-533-1221
Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074 207-883-5161
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Goldwell Comps., 1815 W. 205th St. Ste. 201, Torrance, CA 90501 213-533-1228
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Kevlin Microwave Corp., 26 Conn St., Woburn, MA 01801 617-935-4800
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406
M/A-Com Cable/Home Communication Prodelin Satellite Antenna Systems, M/A-Com, Inc., P.O. Box 468, Newton, NC 28658 ..... 800-222-1195;704-464-4141
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Murata Mfg. Co., Ltd., 26-10-2-chome-Tenjin, Nagaoka-Kyo-Shi, Kyoto, Japan, JAPAN 075-951-9111
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Sitco Antennas, 10330 N.E. Marx St., Portland, OR 97220 503-253-2000
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§† Ted Corp., 11415 Johnson Dr., Shawnee Mission, KS 66203 913-631-6211
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 203-265-8500
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† Weinschel Engrg., One Weinschel La., Gaithersburg, MD 20877 ..... 301-948-3434; 800-638-2048
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
§ Wiltron, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290 415-969-6500

Connectors, Solderless-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ..... C•1111
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ..... C•1144,1146-1147
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 ..... C•1170
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ..... C•1226
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ..... C•1271
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010 ..... C•1430
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 ..... C•1463,1466
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561 ..... C•1523
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ..... C•1531-1533,1535
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 ..... C•1574-1575
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ..... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245 213-322-6580
Cambridge Prods., Tridex, 244 Woodland Ave., Bloomfield, CT 06002 203-243-1761
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ..... 214-221-8776;214-233-3033
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9396
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 401-941-6000
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 312-342-6300
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Sprague Electric Company, Distribution Division, 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
† Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§† Teka Prods., 45 Salem, Providence, RI 02907 401-785-4110

§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 ... 203-735-9311
Teledyne Kinetics, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075 ... 619-755-1181
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 ... 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 ... 516-589-8080
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 ... 312-564-3300
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877

Connectors, Splicing-2100

† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 ... 312-342-6300
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000

Connectors, Stripline-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... C•1155,1157
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 ... C•1275,1285-1286
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... C•1559
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 ... 516-546-1751
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 ... 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 ... 203-387-5282
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 ... 216-354-9239
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 ... 516-543-5000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 ... 714-855-7887
† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034 ... 609-429-7800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451;800-225-9228
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ... 619-449-3844
National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 ... 305-287-5000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
§ Wiltron, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290 ... 415-969-6500

Connectors, Test-2100

Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 ... C•1234,1236
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... C•1271
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ... C•1409
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 ... C•1712
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ... C•1470,1472
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 ... 516-546-1751
§ Air-O-Tronics Prods., Box K, Morrisville, NY 13408 ... 315-684-3705
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 ... 216-354-2101
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 ... 817-737-2900
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 ... 617-699-7646
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 ... 516-543-5000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 ... 412-746-5500
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 ... 309-695-2511
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 ... 605-665-9301
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ... 818-362-9396
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 ... 818-247-6000
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 ... 913-342-5544
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 ... 714-623-3463
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 ... 507-835-6222
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 ... 714-554-6840
† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 ... 617-682-6936
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 ... 707-578-8811
Loranger Mfg., Box 948, Warren, PA 16365 ... 814-723-2250
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788 ... 516-231-1700
National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
Oxley, Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ... 213-463-5120
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 ... 214-243-0611
Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 ... 417-866-2322
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 ... 516-589-8080
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 ... 703-949-8376

Connectors, Thermocouple-2100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... C•1617
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 ... C•1431-1432,1437
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ... B•1683
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 ... 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 ... 201-852-1122
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
Ceramaseal, Box 25, New Lebanon Center, NY 12126 ... 518-794-7800
† Connector Inds. of Amer. Div., Microdot Mfg., 639 N. Wayne, Cincinnati, OH 45215 ... 513-733-3680
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ... 818-362-9396
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 ... 313-280-1648
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 ... 815-678-2211
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ... 714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 ... 818-283-0411
† Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 ... 800-321-5111, Ext. 596
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-5000
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 ... 312-541-3232
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
† NANMAC Corp., 9 Mayhew St., Framingham, MA 01701 ... 617-872-4811
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 ... 312-342-6300
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 ... 206-365-3535
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161-1793 ... 617-527-1512
† Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 ... 201-843-5800

Connectors, Video-2100

International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 ... 516-293-1500
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 ... 707-578-8811
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000

Connectors, Wirewrap (Z-3 Level)-2100

§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ... C•1226
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... C•1271
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 ... C•1272
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .. C•1418-1420
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... C•1449
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 ... 516-546-1751
† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001 ... 214-931-3200
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 ... 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 ... 216-354-9239
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 ... 201-428-4880
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075 ... 305-753-3639
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 ... 603-524-5101
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 ... 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 ... 714-855-7887
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
CTS Corporation, 905 North West Blvd., Elkart, IN 46514 ... 219-293-7511
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 ... 605-665-9301
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 ... 617-273-5800
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 ... 800-237-2374
§ Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 ... 714-558-8755
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 ... 215-969-4200
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 ... 814-643-0700
† Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 ... 213-675-3311
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ... 214-221-8776;214-233-3033
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 ... 312-577-8620
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044 ... 312-295-2610
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 ... 617-486-0311
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705 ... 714-250-8770
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 ... 714-554-6840
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 ... 213-775-3471
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 ... 512-834-6682
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ... 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 ... 212-994-6600
Oxley, Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ... 213-463-5120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 ... 312-342-6300
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG ... 0442-40471/6
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 ... 401-274-5090
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069 ... 619-744-0125
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 ... 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 ... 415-965-4500
§† Teka Prods., 45 Salem, Providence, RI 02907 ... 401-785-4110
Teradyne, Inc., 183 Essex St., Boston, MA 02111 ... 617-482-2700
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
Urban Elctrns., P. O. Box 456, Dover, MA 02030 ... 617-329-4068
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 ... 516-589-8080
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 ... 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877

Connectors, Wire — See Wire Nuts (Vol. C)

Connectors, Zero & Low Insertion Force-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ... C•1111-1113,1116-1118
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... C•1271
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ... C•1409
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, 215-672-0787;215-672-4741 ... C•1483
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... C•1567-1569,1909
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 ... 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 ... 717-780-7025
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 ... 203-372-0038
Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
† CTS Fabri-Tek, Inc., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344 ... 612-941-9100
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ... 214-221-8776;214-233-3033
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 ... 314-392-7174
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 ... 707-578-8811
3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 ... 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 ... 415-856-9332
§† Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 ... 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 ... 213-579-2300
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 ... 305-823-5440
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Teledyne Kinetics, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075 ... 619-755-1181
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 ... 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 ... 516-589-8080

Connectors & Terminals, Push-on, Quick Disconnect-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... C•1131,1134-1135,1141-1142,1145,1148
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 ... C•1166
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590, 516-935-3640 ... C•1827

Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 ... C•1179
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ... C•1226
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... C•1271
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ... C•1273
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1331-1333
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... C•1428-1429
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 ... C•1431-1433
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 ... C•1463
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 ... C•1491-1492
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1502
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ... C•1506-1507
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 ... 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 ... 919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 ... 818-889-9304
Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 ... 201-852-1122
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 ... 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§ Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 ... 201-783-7800
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 ... 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 ... 818-843-4330
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 ... 203-334-4124
§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 ... 603-524-5101
Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 ... 216-248-1200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
Ceramaseal, Box 25, New Lebanon Center, NY 12126 ... 518-794-7800
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 ... 617-268-2100
Computer Systems Products, 740 Washington Ave N, Minneapolis, MN 55401 ... 612-338-0995;800-422-2537
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 ... 818-579-7130
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ... 513-681-5424
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 ... 800-237-2374
§† Elcon Products International Company, 44036 Grimmer Blvd., Fremont, CA 94538 ... 415-490-4200
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
Fischer-America, Inc., Div. of Technographics, Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ... 818-362-9396
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§† Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 ... 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 ... 815-895-6501
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 ... 415-961-2950
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 ... 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-5000
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 ... 313-848-2555
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
§ Marathon Special Prods., 13300 Van Camp Rd., Bowling Green, OH 43402 ... 419-352-8441
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ... 203-756-8847
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 ... 216-442-2286
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ... 312-392-3500
Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 ... 215-489-3700
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 ... 203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 ... 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ... 215-323-7120
Oxley, Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ... 213-463-5120
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† Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 ... 401-941-6000
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 ... 718-444-3880
Pyle-National, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651 ... 312-342-6300
Reliance Comm/Tec, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 ... 800-245-4501;in OH 800-245-4497
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 ... 212-892-6700
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 ... 713-682-5151
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG ... 0442-40471/6
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 ... 401-461-8220
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 ... 714-996-0960
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
§ Sprague Electric Company, Distribution Division, 481 Marshall St., No. Adams, MA 01247 ... 413-664-4481
Staffall Inc., 7 Woodland St., Providence, RI 02908 ... 401-351-8282
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
† Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ... 216-354-0925
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 ... 201-272-5500
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 ... 203-735-9311
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 ... 201-469-4000
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 ... 312-867-4600
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 ... 219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 ... 818-786-9388
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 ... 312-564-3300
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
§ Visual Communications Co., Inc., P.O. Box 986, El Segundo, CA 90245 ... 213-822-4727
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 ... 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 ... 312-440-1000
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 ... 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242

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Contact Strips, Finger-4525

Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327, 717-424-8510 ... C•1725
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 ... 201-436-2230
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ... 203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245 ... 213-322-6580
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
§ Edac Inc., 20 Railside Rd., Toronto, ON, CANADA M3A 1A4 ... 416-445-2292
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 ... 415-961-2950
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 ... 913-342-5544
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 ... 313-628-9711
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 ... 201-824-8467
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
§ Tapeswitch Corp. of America, 100 Schmitt Blvd., Farmingdale, NY 11735 ... 516-694-6312
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800

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Contacts, Electrical-2800

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ...... C•1112
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1157
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1166
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176
† Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 .... B•1160
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... C•1271
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1531-1533,1535,1737
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
§ Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 201-436-2230
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Brady, W. H., Co., Xymox Div., 8225 W. Parkland Ct., P.O. Box 571, Milwaukee, WI 53201 414-355-8300
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 .... 201-DE4-0700
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 .... 818-882-7979/5280
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067 ..... 214-221-8776;214-233-3033
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Everett/Charles Contact Prods. Inc., 700 E. Harrison Ave., Pomona, CA 91767 714-625-5551
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 212-464-8400
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012 .. 212-677-1881
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 .. 913-342-5544
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
† Poly-Scientific, Litton Inds., 1213 N. Main St., Blacksburg, VA 24060 703-552-3014
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
† Servometer Corp., 501 Little Falls Rd., Cedar Grove, NJ 07009 201-785-4630
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Stackpole, Carbon Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§† Superior Carbon Prods., Inc., 9115 George Ave., Cleveland, OH 44105 .. 216-883-4880
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
† Tech-Etch, Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
§ U.S. Components, Inc., Unitech PLC., 35 Carlough Rd., Bohemia, NY 11716 516-589-8080
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

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Containers, Storage-3800

3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963, 800-328-1368 .... D•1981
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 .... C•1087
§ Akro-Mils, 1293 S. Main St., Akron, OH 44301 216-253-5593
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
§† Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 .... 215-DE8-7300
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
Flambeau Products Corp., P. O. Box 97, Middlefield, OH 44062 216-632-1631
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 818-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 413-267-5561
Metric Sys., 645 Anchors St., Ft. Walton Beach, FL 32548 904-244-9600
§ Panel Controls, 1000 Mt. Elliott Ave., Detroit, MI 48207 313-568-2400
† Parabam, Inc., 3017 E. Las Hermanas St., Rancho Dominguez, CA 90221 213-537-1771
§† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
Stackbin Corp., Albion Road, Lincoln, RI 02865 401-333-1600
Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057

Controllers, Card Reader/Punch, Add-in-2000 – *See Vol. D*

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Controls, Fluid Flow-2200 – *See Vol. D*

Controls, Frequency-2200 – *See Vol. D*

Controls, Gas-2200 – *See Vol. D*

Controls, Humidity-2200 – *See Vol. D*

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Controls, Level, Liquid-2200 – *See Vol. D*

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Converters, ASCII to BCD-2325 – *See Vol. D*

Converters, BCD to ASCII-2325 – *See Vol. D*

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Converters, DC to DC, 300 to 1,000 VDC Output-4000 – *See Vol. D*

Converters, DC to DC, Greater Than 1,000 VDC Output-4000 – *See Vol. D*

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Cords & Tapes, Lacing-6000

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1835
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1891
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

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§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1830-1831
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 .... C•1841
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1491-1492
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1507,1905
SL Waber, 300 Harvard Ave., Westville, NJ 08093, 609-456-5400;800-257-8384 .... C•1692
Todd Systems, Inc., 50 Ash St., Yonkers, NY 10701, 914-963-3400 ...... A•2317
§ Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Cable Systems, Inc., 210 Broadway, Everett, MA 02149 617-389-7080
Concept Industries, App-Rep, Inc., 3641 San Gabriel River Pkwy., Pico Rivera, CA 90660 213-699-0918
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Diamond Magnetics, P.O. Box 4736, San Luis Obispo, CA 93403 805-544-4019
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
McGill Mfg. Co., Inc., Electrical Div., 1002 N. Campbell St., Valparaiso, IN 46383 219-465-2200
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cords, Line (Lamp) – See Cable, Multiconductor (Vol. C)

Cords, Line, Resistance-6000

§ Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1909
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Cords, Patch-2100

Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1237
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1355-1361,1368-1371,1373-1388,1393-1405,1407
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... D•1411
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1507,1905
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 .. 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 .... 215-425-3395; 800-523-0130
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406

§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 216-771-5225
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cords, Power — See Cable, Power (Vol. C)

Cords, Retractile-6000

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1124
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1795
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590, 516-935-3640 .... C•1827
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1830-1831
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1386,1399
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224, 503-620-9400 .... C•1866-1867
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... C•1883
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1491-1492
§† Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1896
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1507,1905
§† Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... C•1567-1568,1909
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Concept Industries, App-Rep, Inc., 3641 San Gabriel River Pkwy., Pico Rivera, CA 90660 213-699-0918
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
Interelectronics Corp., Interelectronics Park, 550 U.S. Rte. 303, Congers, NY 10920 .... 914-EL8-8000
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
MoldCon Corp., 221 Interstate Dr., W. Springfield, MA 01089 413-736-0371
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700;SALES 401-821-7800

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Cords & Cable, Dial Drive-2400

Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
§ Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 803-359-5501
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Cords & Cord Sets, Telephone-6000

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Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
Arstan Products Intl. Ltd., 99 Jericho Tpke., Jericho, NY 11753 516-333-8100
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Concept Industries, App-Rep, Inc., 3641 San Gabriel River Pkwy., Pico Rivera, CA 90660 213-699-0918
Connect-Air International, Inc., 50 37th St. N.E., Auburn, WA 98002 206-939-4880
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700

Cords & Cord Sets, International-6000

Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1478-1481,1892-1893
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1491-1492
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1507,1905
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§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 216-951-3300
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Couplings, Quick-disconnect, Liquid or Gas-2500
§ Airmatic-Allied, 185 Park Dr., Wilmington, OH 45177 513-382-1691
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§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
† Micro Mo Electronics, Inc., 742 2nd Ave. S., St. Petersburg, FL 33701 813-822-2529
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
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† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 ..... 516-ED3-5955
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§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155,1157
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ..... C•1351
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ..... C•1595
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§† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
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Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Cover Craft Corp., 540 Commercial St., Manchester, NH 03102 603-889-6811
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
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§ Potter & Brumfield, AMF Incorporated, 200 S. Richland Creek Dr., Princeton, IN 47671-0001 812-386-1000
† Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 415-856-2128
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
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Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
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§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
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TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
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§ Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zero-East Div., 288 Main St., Monson, MA 01057

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Cups, Encapsulation-1600
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 ..... C•1082
Electrical Plastics Corp., 500 Long Branch Ave., Long Branch, NJ 07740 201-870-9500
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Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
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§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., 703 Rogers St., Downers Grove, IL 60515 312-968-7000
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† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 ..... C•1741

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Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 ... 408-267-1168
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§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
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§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 ... 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 ... 315-454-3237
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§ General Hardware Mfg., 80 White St., New York, NY 10013 ... 212-431-6100
§ Greenlee Tool Co., 2330 23rd Ave., Rockford, IL 61108 ... 815-399-3903
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 ... 301-760-2200
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
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§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 ... 800-423-4510
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§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 ... 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 ... 312-564-3300
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212

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Decade Boxes, Transformer-2900 – *See Vol. D*

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Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ... 213-452-5444

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Demagnetizers-4525

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§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Walker Scientific, Rockdale St., Worcester, MA 01606 617-852-3674
§ Wide Range Elctrns. Corp., 2119 Schultz Rd., St. Louis, MO 63146 314-567-5366

Demodulators-1900 — *See Vol. D*

Demodulators, Magnetic-2200 — *See Vol. D*

Densitometers-2900 — *See Vol. D*

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Dials, Instrument, Metal, Plastic, etc.-2400

§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1591,1594
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Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
§ API Instrs., 1601 Trapelo Rd., Waltham, MA 02254 617-890-2000
§ Beckman Industrial Corp., Electronic Technologies Div., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207 614-445-8433
Clarostat Mfg., Washington St., Dover, NH 03820 603-742-1120
§† Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
§† Electronic Hardware, 320 Broad Hollow Rd., Farmingdale, NY 11735 516-752-1950
† Hallmark Nameplate, Inc./Electropanel Co., 1855 New Highway, Farmingdale, NY 11735 516-454-0700
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Jumbo Process Control, Inc., 410 Garibaldi Ave., Lodi, NJ 07644 201-779-7744
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
Muirhead, 1101 Briston Rd., Mountainside, NJ 07092 201-233-6010
§ NOBEX Div., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010 415-342-8170
Northern Precision Labs., 11 Madison Rd., Fairfield, NJ 07006 201-227-4800
† Perfect Gear & Instr., 2101 Jericho Tpk., New Hyde Park, NY 11040 516-328-3300
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§† Rogan, 3455 Woodhead Dr., Northbrook, IL 60062 312-498-2300
Selco Products Co., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
SL Homalite, Div. of SL Inds., 11 Brookside Dr., Wilmington, DE 19804 .. 302-652-3686
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 .... 516-328-0200;328-3300
§ Triplett Corp.-A Penril Co., One Triplett Dr., Bluffton, OH 45817-9987 419-358-5015
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Dials, Turns Counting-2400

§ Bourns, Inc., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507, 714-781-5050 .... A•2004
§ Duncan Electronics, Inc., 2865 Fairview Rd., Costa Mesa, CA 92626, 714-545-8261 .... A•2013
§ ETI Systems, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054, 619-757-7770 .... A•2016
§ Spectrol Elctrns., 17070 East Gale Ave., City of Industry, CA 91749, 818-964-6565 .... A•2046
§ Beckman Industrial Corp., Electronic Technologies Div., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
§ Clarostat Mfg., Washington St., Dover, NH 03820 603-742-1120
Harrel, Inc., 16 Fitch St., E. Norwalk, CT 06855 203-866-2573
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† Litton Potentiometer Div., 750 So. Fulton Ave., Mt. Vernon, NY 10551 ... 914-664-7733
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 ... 714-957-6904
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
§ Ragen Data Systems, Inc., 3 Oval Dr., Central Islip, NY 11722 516-234-3800
§ VRN International, Div. Vernitron, 2801 72nd St. N., Box 44000, St. Petersburg, FL 33743 813-347-2181

Dielectric Heating Equipment-4100 — *See Vol. D*

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Disks, Optical Encoder – See Encoders, Shaft Angle, Optical (Vol. B)

Dispensers, Adhesive-1600

Aremco Prods., Box 429, Ossining, NY 10562	914-762-0685
§† CHEM-MIXX Corp., 55 North St., Medford, MA 02155	617-395-7270
† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021	617-828-3300
Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062	312-272-9030
§ IVEK Corp., 43 School St., N. Springfield, VT 05150	802-886-8278
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
Microbond Div., PO Box 689, Altamonte Springs, FL 32701	305-339-8298
† Tridak, 1120 Federal Rd., Brookfield, CT 06804	203-775-1287

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Displays, Indicator Lights-2450 – *See Vol. B*

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Displays, Plasma-2450 – *See Vol. B*

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Dividers, Power (LF, HF, VHF, UHF)-3450 — *See Vol. A*

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Doublers, Voltage-Also See Rectifiers, Bridges & Assemblies-4800 — *See Vol. A*

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§† Keuffel & Esser Co., 900 Lanidex Plaza, Parsippany, NJ 07054 201-428-7000
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§ Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§ Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
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§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
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† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
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§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
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§ HAPCO, Box 1205, Boulder, CO 80302 303-447-0441
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-5444
† Lenox Laser, 504 Pittsfield Rd., Lenox, MA 01240 413-637-0444
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Drivers & Decoders For Readouts-2450 — *See Vol. B*

Drivers, Chopper-1100 — *See Vol. D*

Drivers, Nut-5400

§ Best Way Tools, 171 Brook Ave., Deer Park, NY 11729 516-586-4702
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510 702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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§† Bailey Controls Co., 29801 Euclid Ave., Wickliffe, OH 44092 216-585-5800
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
† Perfect Gear & Instr., 2101 Jericho Tpk., New Hyde Park, NY 11040 516-328-3300
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
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† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 .... 516-328-0200;328-3300
Transicoil, Inc., Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990 215-277-1300
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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Ducts, Wiring-6000
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1891
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Gould Inc., Circuit Protection Div., 374 Merrimac St., Newburyport, MA 01950 .... 617-462-6662/3131
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 .. 612-421-2240
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ The Wadsworth Elec. Mfg. Co., Inc., 20 W. 11th St., Covington, KY 41012 606-431-0900
§ Wiremold Company, 60 Woodlawn Street, W. Hartford, CT 06110 203-233-6251

Dummy Loads, Electronic-2900 – *See Vol. D*

Dummy Loads, Microwave-2900 – *See Vol. D*

Dummy Loads, Power-2900 – *See Vol. D*

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ECM Sets (MIL), Close Air Support-3475 – *See Vol. D*

ECM Sets (MIL), Shipboard-3475 – *See Vol. D*

ECM Systems (MIL)-3475 – *See Vol. D*

ECM Systems (MIL), Deceptive-3475 – *See Vol. D*

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ESM (MIL), Ships-3475 – *See Vol. D*

ESM Suites (MIL)-3475 – *See Vol. D*

ESM Systems (MIL), Automated-3475 – *See Vol. D*

ESM Systems (MIL), IFM Receiver-3475 – *See Vol. D*

Electronic Warfare (EW) Sets (MIL)-3475 – *See Vol. D*

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EW Sets (MIL), Portable-3475 – *See Vol. D*

EW Suites (MIL), Ships-3475 – *See Vol. D*

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Emulators, RTS-2900 – *See Vol. D*

Encapsulating Materials – See Compounds, Encapsulating, Molding, Potting (Vol. C)

Encapsulation Services – See Services, Encapsulation (Vol. D)

Enclosures, Circuit Board, Module, & Relay Mounting-1400
† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1006-1007
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336;201-484-1115 .... C•1008
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1702-1703
Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 .... C•1026
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... C•1029
† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451 .... C•1030-1031,1040,1042-1044
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ... C•1046-1049
Datec, Inc., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514, 919-929-2135 .... D•1049
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 .... C•1052
Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1084-1086
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... C•1054-1055
Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .. C•1060-1061
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1067
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1334-1351
Lansing Research Corp., 705 Willow Ave., Ithaca, NY 14850, 607-272-3265;800-847-3535 .... C•1069
§ Opto 22, 15461 Springdale St., Huntington Bch., CA 92649, 714-891-5861 .... B•1440
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1002,1070
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1072-1073
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... C•1714
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... C•1621
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... C•1078-1079
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... C•1080

† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... C•1081
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 .... C•1087
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090-1091
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C•1092-1093
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C•1094
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 602-622-8605
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Automatic Switch Co., 50-60 Hanover Road, Florham Park, NJ 07932 1-201-966-2000
Beal Communications, Beneficial Properties, 11020 Audelia Rd. Ste. C 101, Dallas, TX 75243 .... 214-340-2044;214-340-2045
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Contours, Inc., P.O. Box 1041, Middletown, CT 06457 203-347-5694
Controls Unlimited, Inc., 4823 North Ridge Rd., Perry, OH 44081 216-259-2500
§ CTS Electronics Corp., San Jose Division, 660 Lenfest Rd., San Jose, CA 95133 408-251-1600
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§ Fancort Industries, Inc., 31 Fairfield Place, W. Caldwell, NJ 07006 201-575-0610
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 201-241-0710
§ Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Gordos Arkansas, Gordos International Corp., 1000 N. Second St., Rogers, AR 72756 501-636-5000
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 818-795-4811
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 .... 818-849-2481;818-786-1182
Industrial Fabricating Co., 820 Woodend Ave., Stratford, CT 06497 203-375-5853
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
Inter Metro Industries Corp., North Washington St., Wilkes-Barre, PA 18705 717-825-2741
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
McKinstry Metal Works, Inc., 285 McKinstry Ave., Chicopee, MA 01013
Miller, W. A., Co., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964 207-864-3344
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
† Plessey Electro-Products, 3860 Centinela Ave., Los Angeles, CA 90066 213-390-3585
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
Pro-Log, 2411 Garden Rd., Monterey, CA 93940 408-372-4593
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 415-365-0498
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
South Shore Metal Prods., 88 E Allen Blvd., Farmingdale, NY 11735 516-249-3322
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110 619-276-5920
§ Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
† Teledyne Relays, 12525 Daphne Ave., Hawthorne, CA 90250 213-777-0077
† Teledyne Solid State Products, 12525 Daphne Ave., Hawthorne, CA 90250 213-777-0077
Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
TL Industries, Inc., 2541 Tracy Road, Toledo, OH 43619 1-419-666-8144
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 718-932-3660
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zero-East Div., 288 Main St., Monson, MA 01057

Enclosures, CRT – See Mounts CRT

Enclosures, Equipment & Panel Mounting-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1006-1007
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336;201-484-1115 .... C•1008
Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 .... C•1026
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... C•1029
Datec, Inc., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514, 919-929-2135 .... D•1049
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 .... C•1052
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056
§ Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242;800-854-7086 .... D•1084-1086
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... C•1055
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... C•1057
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... C•1059
† Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .... C•1060-1061
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1066-1067
§ Kepco, Inc., 131-38 Sanford Ave., Flushing, NY 11352, 718-461-7000 .... D•1701,1713-1714
Lansing Research Corp., 705 Willow Ave., Ithaca, NY 14850, 607-272-3265;800-847-3535 .... C•1069
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1002,1070-1071
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1072-1073
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... C•1078-1079
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... C•1080
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... C•1081
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .... C•1083
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 .... C•1087
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 .... C•1088-1089
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090-1091
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C•1092-1093
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682
§† Accuride, 12311 S. Shoemaker, Santa Fe Springs, CA 90670 213-944-0921
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 818-241-5121
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. = 104, Westlake Village, CA 91362 818-889-9304
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944

† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 414-447-8200
§ Atlas Sound Div., 10 Pomeroy Rd., Parsippany, NJ 07054 201-887-7800
§ ATR Elctrns., Inc., P.O. BOX 7008, St. Paul, MN 55107 ... 612-738-6520;414-297-7374
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Automatic Switch Co., 50-60 Hanover Road, Florham Park, NJ 07932 1-201-966-2000
Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111 619-560-7737
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§ Westinghouse Elec. Corp., Bryant Circuit Devices Div., 500 Sylvan Ave., Bridgeport, CT 06606 203-334-5561
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 617-667-4111
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
California Instruments, A Div. of Amstar Tech. Prods. Co., Inc., 5150-Convoy St., San Diego, CA 92111 .... 619-279-8620;800-356-2244;800-821-1634
Chassis-Trak, General Devices Co., Inc., P.O. Box 39100, Indianapolis, IN 46239 317-897-7000
† Churchill Corp., 344 Franklin St., Melrose, MA 02176 617-665-4700
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 415-786-0909
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† Contours, Inc., P.O. Box 1041, Middletown, CT 06457 203-347-5694
Controls Unlimited, Inc., 4823 North Ridge Rd., Perry, OH 44081 216-259-2500
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 617-388-5662
§ CTS Electronics Corp., San Jose Division, 660 Lenfest Rd., San Jose, CA 95133 408-251-1600
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 215-638-9550
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 818-795-4811
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
† Henschel, General Signal Corp., 9 Hoyt Drive, P.O. Box 30, Newburyport, MA 01950 617-462-2400
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 .. 612-421-2240
Holiday-Hammond Corp., 220 S. 2nd Street, Waco, TX 76701 817-756-7401
† House of Metal Enclosures, 500 W. 9th St., Box 225, Hermann, MO 65041 314-486-3111
Industrial Fabricating Co., 820 Woodend Ave., Stratford, CT 06497 203-375-5853
† Innovatek Microsystems, Inc., Smithfield Rd., R1 Box 104, Millerton, NY 12546-9720 914-373-9003
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 818-768-4622
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† JRW Inds., Inc., 2312 N Second St., Harrisburg, PA 17110 717-236-1418
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Langley, P.O. Box 2911, San Diego, CA 92112 619-264-3181
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
Matrox Elctrn. Sys., 1055 St. Regis Blvd., Dorval, QU, CANADA H9P 2T4 514-685-2630
McKinstry Metal Works, Inc., 285 McKinstry Ave., Chicopee, MA 01013
Miller, W. A., Co., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964 207-864-3344
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
Pacific Instrs. Inc., 215 Mason Circle, Concord, CA 94518 415-827-9010
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 415-365-0498
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Scientific-Atlanta, Inc., P.O. Box 105600, Atlanta, GA 30348 404-441-4000
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Soundlier, American Trading & Prod. Corp., 9380 Watson Ind'l. Pk., St. Louis, MO 63126 314-962-9870
† Spectro Equipment, Inc., 13821 Progress Pkwy., N. Royalton, OH 44133 216-237-8910
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Systems Furniture Co., 2727 Maricopa St., Torrance, CA 90503 213-533-1212
§ Ten-Tec, Inc., Industrial Park, Sevierville, TN 37862 615-453-7172
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
† Tridak, 1120 Federal Rd., Brookfield, CT 06804 203-775-1287
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
Viking Cases, 10480 Oak St. N.E., St. Petersburg, FL 33702 813-577-1216
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
§ Zero-East Div., 288 Main St., Monson, MA 01057

Enclosures, Instrument, With Integral Connectors-1400

Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463

Enclosures, Keyboard-1400

Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 .... C•1026
§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1067**
§ **PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1070-1071**
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C•1092-1093
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§ CTS Electronics Corp., San Jose Division, 660 Lenfest Rd., San Jose, CA 95133 408-251-1600
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 818-795-4811
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 818-768-4622
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
§ Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 ... 301-984-1783
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660

Enclosures, Nonmetallic-1400

Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 .... C•1026
† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027**
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 .... C•1052
† **Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .. C•1060-1061**
§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1066-1067**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1334-1338**
§ **PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1002,1070-1071**
§† **Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... C•1078-1079**
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... C•1080
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
† **Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... C•1081**
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C•1092-1093
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Cover Craft Corp., 540 Commercial St., Manchester, NH 03102 603-889-6811
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502

Flambeau Products Corp., P. O. Box 97, Middlefield, OH 44062 216-632-1631
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 .. 612-421-2240
IET Labs, Inc., 534 Main St., Westbury, NY 11590 516-334-5959
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ..... 305-633-2556;800-327-6085
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 413-267-5561
Miller, W. A., Co., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964 207-864-3344
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 203-397-1338
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
§ Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 .... 213-478-0046; 800-TECHMAR
† Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
§ Vertox Co., 9252 Garden Grove Blvd. #22, Garden Grove, CA 92644 .. 714-530-4541
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057

Enclosures, Portable, Metallic & Nonmetallic-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1006-1007
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336;201-484-1115 .... C•1008
Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 .... C•1026
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... C•1029
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 .... C•1052
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... C•1057
† Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .. C•1060-1061
† Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1067
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1002,1070-1071
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1072-1073
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... C•1621
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... C•1078-1079
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 ...... C•1080
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... C•1081
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .. C•1083
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, 213-204-0472 .. C•1084
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 .... C•1087
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 .... C•1088-1089
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090-1091
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C•1092-1093
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 212-589-5682
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 .. 818-241-5121
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 415-969-2640
Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111 619-560-7737
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 617-388-5662
§ Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507 312-897-4691
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
§ Ferno-Salesmaker, Ferno-Washington, Inc., 70 Well Way, Wilmington, OH 45177 513-382-1451
Flambeau Products Corp., P. O. Box 97, Middlefield, OH 44062 216-632-1631
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ GMR Co., 8801 Sepulveda Blvd., Los Angeles, CA 90045 213-216-9516
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 .. 612-421-2240
Holiday-Hammond Corp., 220 S. 2nd Street, Waco, TX 76701 817-756-7401
† House of Metal Enclosures, 500 W. 9th St., Box 225, Hermann, MO 65041 314-486-3111
IET Labs, Inc., 534 Main St., Westbury, NY 11590 516-334-5959
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 818-768-4622
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 .... 800-325-9814;213-870-9383
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 413-267-5561
Miller, W. A., Co., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964 207-864-3344
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 203-397-1338
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 415-856-2128
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 415-365-0498
Pylon Elex Development Co. Ltd., 2300 Victoria, Lachine, PQ, CANADA H8S 1Z3 514-637-1186
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG 0442-40471/6
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
§ Ten-Tec, Inc., Industrial Park, Sevierville, TN 37862 615-453-7172
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Trilobyte Computer Corporation, 801 W. Grand Ave., Oakland, CA 94607 415-839-1100
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
Viking Cases, 10480 Oak St. N.E., St. Petersburg, FL 33702 813-577-1216
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
§† Zero-East Div., 288 Main St., Monson, MA 01057

Enclosures, Shielded-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1006-1007
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... C•1722
§† Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ... C•1046-1049
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... C•1055
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... C•1057
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... C•1059
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1339-1351
† Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100 .... C•1726

§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 ... C•1070
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 ... C•1714
SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 ... C•1082
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 ... C•1081
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 ... C•1087
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 ... C•1088-1089
Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 ... C•1092-1093
§† Abalon Precision Mfg., 1040 Home Street, Bronx, NY 10459 ... 212-589-5682
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 ... 818-241-5121
† Adams-Russell, Anzac Div., 80 Cambridge St., Burlington, MA 01803 ... 671-273-3333
† Adams Russell, Modpak Div., 80 Cambridge St., Burlington, MA 01803 ... 617-273-3333
† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975 ... 219-223-3158
§ Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 ... 201-233-3500
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 ... 201-831-3148
† Ark Elctrns. Corp., 1325 Industrial Hwy., Southampton, PA 18966 ... 215-322-6510
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 ... 617-935-4944
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 ... 317-356-2493
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
† Churchill Corp., 344 Franklin St., Melrose, MA 02176 ... 617-665-4700
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 ... 617-388-5662
CTS Electronics Corp., San Jose Division, 660 Lenfest Rd., San Jose, CA 95133 ... 408-251-1600
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 ... 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 ... 505-865-6700
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 ... 818-442-2572
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 ... 714-776-5420
§ Elite Electronics, Inc., 1408 Summit - Suite ≠5, Plano, TX 75074 ... 214-881-0026
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 ... 215-638-9550
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 ... 503-476-8871
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 ... 616-451-4502
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 ... 201-241-0710
Gemini, 103 Mensing Way, Cannon Falls, MN 55009 ... 507-263-3957
General Devices, Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 ... 301-539-6537
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 ... 716-894-5710
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 ... 612-421-2240
† House of Metal Enclosures, 500 W. 9th St., Box 225, Hermann, MO 65041 ... 314-486-3111
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 ... 201-589-1800
IET Labs, Inc., 534 Main St., Westbury, NY 11590 ... 516-334-5959
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 ... 818-768-4622
† Isotronics, Industrial Park, New Bedford, MA 02745 ... 617-998-2000
§† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 ... 212-361-0800
Keene Ray Proof, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878 ... 203-838-4555
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
† Langley, P.O. Box 2911, San Diego, CA 92112 ... 619-264-3181
Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ... 800-325-9814;213-870-9383
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 ... 312-766-7800
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 ... 313-628-9711
Miller, W. A., Co., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964 ... 207-864-3344
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ... 404-939-6340
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ... 415-365-0498
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 ... 301-984-1783
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, ENGLAND HP2 4SG ... 0442-40471/6
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 ... 814-455-0966
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 ... 201-672-2140
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 ... 213-204-0472
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 ... 717-346-3871
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 ... 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 ... 607-772-1161
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ... 614-276-5522; 800-245-5253
† Trilobyte Computer Corporation, 801 W. Grand Ave., Oakland, CA 94607 ... 415-839-1100
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 ... 714-686-1400
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 ... 718-932-3660
† Zero-East Div., 288 Main St., Monson, MA 01057

Enclosures, Shipping, Metallic & Nonmetallic-3800

† Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 ... C•1060-1061
3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963, 800-328-1368 ... D•1981
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 ... C•1081
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 818-242-8855 ... C•1087
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 ... C•1094
§† ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 ... 312-221-3400
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 ... 617-935-4944
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 ... 317-356-2493
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 ... 617-388-5662
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 ... 315-736-3028
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 ... 215-682-7181
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 ... 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 ... 503-476-8871
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 ... 213-892-7279
General Devices, Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 ... 301-539-6537
Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 ... 413-665-2163
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 ... 818-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ... 213-991-9614
† Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ... 305-633-2556;800-327-6085
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ... 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 ... 413-267-5561
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 ... 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 ... 203-397-1338
Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 ... 415-856-2128
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 ... 212-993-9200
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 ... 201-687-1750
Pylon Elex Development Co. Ltd., 2300 Victoria, Lachine, PQ, CANADA H8S 1Z3 ... 514-637-1186
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 ... 717-346-3871
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 ... 213-603-1976
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 ... 617-352-2200
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
Viking Cases, 10480 Oak St. N.E., St. Petersburg, FL 33702 ... 813-577-1216
Zero Corp., 777 Front St., Burbank, CA 91503 ... 213-846-4191
§† Zero-East Div., 288 Main St., Monson, MA 01057

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Encoders, Magnetic Strip-5500 — *See Vol. B*

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Escutcheons-2400

§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ... C•1601
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200

Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
† Topflight, 160 East 9th Ave., York, PA 17404 800-233-9386

Etchants, Fluorocarbon-1600

§ W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290

Etchants, Printed Circuit-1700

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1100
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ..... C•1101
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

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§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 ...... C•1051
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1362
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Micro Electronic Sys., Inc., 3 Quarry Road, Brookfield, CT 06804 .... 203-775-1440; 800-243-7254
§† Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Eyelets-2825

† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
Atlas Eyelets, Pinkham St., Fairhaven, MA 02719 617-997-9491
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Braxton Mfg., Echo Lake Rd. N., P.O. Box 429, Watertown, CT 06795 203-274-6781
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773; 914-699-7223
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Fabrics, Conductive-4525

American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 .... 201-DE4-0700
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
§ Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 413-243-1000
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269 404-487-6681

§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385 .. 718-441-4759
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

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† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1007,1625
Buehler Products, Inc., P. O. Box 33400, Raleigh, NC 27606, 919-469-8522 .... B•1142
Eastern Air Devices Motor Div., 1 Progress Dr., Dover, NH 03820, 603-742-3330 .... B•1146
§ ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1626-1628
§ EG & G Rotron, Commercial Div., Saugerties, NY 12477, 914-246-3615 .... C•1630-1636
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... C•1059
§ ETRI, Inc., 608 Broome St., P.O. Box 5006, Monroe, NC 28110, 704-289-5423 .... C•1638-1640
§ Frederick Components Intl., 20806 Plummer St., Chatsworth, CA 91311, 818-882-0868;800-354-0660 .... C•1641
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 ...... C•1065
† Hi-Tech, Inc., 3600 16th St., Zion, IL 60099, 312-746-2447 .... C•1642
† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 .... C•1644
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100 .... C•1648-1649
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083, 619-727-7400 .... C•1654-1673
Motor-Tronics, Inc., 2142 Industrial Ct., Bldg. "F", Vista, CA 92083, 619-727-7430 .... B•1177
Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040, 516-328-0200;328-3300 .... C•1674
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 .... C•1675-1677
TRW Motor Div. (Military), 2275 Stanley Ave., Dayton, OH 45404, 513-228-3171 .... B•1195
§ U.S. Toyo Fan Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-5297 .... C•1680-1681
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Brailsford & Co., 670 Milton Rd., Rye, NY 10580 914-967-1820
Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776 818-287-0451
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 617-275-0889
§† EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498 914-679-5201
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 216-951-3300
General Inds., Taylor & Olive St., Elyria, OH 44035 216-323-3136
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 .. 612-421-2240
§ Howard Industries, MSL Ind., Inc., Box 287, Milford, IL 60953 815-889-4105
§ I.M.S. Equipment, Inc., P.O. Box 16909, Irvine, CA 92713 714-857-6302
Inmark Corp., 147 West Cedar St., Norwalk, CT 06854 203-866-8474
§ Japanese Prods. Corp., 31368 Via Colinas, Ste. 103-104, West Lake Village, CA 91362 818-991-6111
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 .. 215-643-2116
§ MG Electronics, 32 Ranick Rd., Hauppauge, NY 11788 516-582-3400
§† Nidec-Torin Corporation, 100 Franklin Drive, Torrington, CT 06790 203-482-4422
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
§ Pamotor, 770 Airport Blvd., Burlingame, CA 94010 415-347-1203
Papst Mechatronic Corp., Aquidneck Indl. Pk., Newport, RI 02840 401-849-5930
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Shinano Kenshi Corp. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605 818-764-4266
§† Zero-East Div., 288 Main St., Monson, MA 01057

Fans, Propeller-2600

† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 .... C•1644
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 617-275-0889
§ Howard Industries, MSL Ind., Inc., Box 287, Milford, IL 60953 815-889-4105

Fans, Tubeaxial-2600

ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1628
† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 .... C•1644
Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040, 516-328-0200;328-3300 .... C•1674
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 617-275-0889
§ EG & G Rotron, Commercial Div., Saugerties, NY 12477 914-246-3615

§ Frederick Components Intl., 20806 Plummer St., Chatsworth, CA 91311 ...... 818-882-0868;800-354-0660
General Inds., Taylor & Olive St., Elyria, OH 44035 216-323-3136
§ Howard Industries, MSL Ind., Inc., Box 287, Milford, IL 60953 815-889-4105
IMC Magnetics Corp., New Hampshire Div., Rte. 16B, Rochester, NH 03867 603-332-5300
§ MG Electronics, 32 Ranick Rd., Hauppauge, NY 11788 516-582-3400

Fans, Vaneaxial-2600

† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 ...... C•1644-1645
IMC Magnetics Corp., New Hampshire Div., Rte. 16B, Rochester, NH 03867, 603-332-5300 ...... C•1647
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083, 619-727-7400 ...... C•1654-1673
Cambridge Aero Instruments, Inc., 6A Dunham Rd., Billerica, MA 01821 617-275-0889

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Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, 203-334-4124 ...... C•1686
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ...... C•1598
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ...... C•1509
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ...... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 818-241-5121
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
§ Arrow Fastener, 271 Mayhill St., Saddlebrook, NJ 07662 201-843-6900
§† Associated Spring, Barnes Grp., 18 Main St., Bristol, CT 06010 203-583-1331
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Avdel, Newman Inds., Inc., 50 Lackawanna Ave., Parsippany, NJ 07054 201-263-8100
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ...... 212-597-1773; 914-699-7223
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
§ Dimco-Gray, 8200 S. Suburban Rd., Dayton, OH 45459 513-433-7600
† Dupree, Inc., 9835 Dupree St., So. El Monte, CA 91733 818-442-4700
† Dzus Fastener, 425 Union Blvd., W. Islip, NY 11795 516-669-6000
Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
§† ESNA Div., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 201-241-0710
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
† Hoffman Engineering Corp., P.O. Box 300, Old Greenwich, CT 06870 203-325-8933
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ...... 213-849-6211;800-423-2734
§ Markat Div., Wild Oats Corp., 3 Country Dr., Plainview, NY 11803 516-549-9272
† Milford Rivet & Mach., 857 Bridgeport Ave., Milford, CT 06460 203-878-4631
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§ Nelson Stud Welding TRW Inc., 28th & Toledo Ave., Lorain, OH 44055 216-245-6931
§† NKR Precision Mfg., Rte. 17M, Box 333, Harriman, NY 10926 914-782-8562
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§† RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
† Southco, Inc., 210 N. Brinton Lake Rd., Concordville, PA 19331 215-459-4000
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ...... 516-328-0200;328-3300
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101-4478 718-392-3100
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Fasteners, Nonmetallic-2825

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ...... C•1174
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1837
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ...... C•1227
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ...... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718 714-951-8808
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065-0829 619-789-0900
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
§† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
† Dzus Fastener, 425 Union Blvd., W. Islip, NY 11795 516-669-6000
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Hanscom, H. F., Co., Inc., 225 Chapman St., Providence, RI 02905 401-941-1455
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
Jaco Mfg. Co., 468 Geiger St., Berea, OH 44017 216-234-4000
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ...... 213-849-6211;800-423-2734
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§ Markat Div., Wild Oats Corp., 3 Country Dr., Plainview, NY 11803 516-549-9272
§ Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ...... 501-453-2261;1-800-643-2356
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† Southco, Inc., 210 N. Brinton Lake Rd., Concordville, PA 19331 215-459-4000
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ...... 516-328-0200;328-3300
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626

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Feedthrus & Seals, Environmental-2500

§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ...... A•1594,1706
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ...... C•1174

Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... C•1457
Airpax Corp., Woods Rd., Cambridge, MD 21613 301-228-4600
† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
† Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
Eltec Instruments Inc., P.O. Box 9610, Daytona Bch., FL 32020 904-253-5328
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
† Servometer Corp., 501 Little Falls Rd., Cedar Grove, NJ 07009 201-785-4630
§ Sloan Technology, 602 E. Montecito St., Santa Barbara, CA 93103 805-963-4431
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Teledyne Mecca, Box 36393, Houston, TX 77236 713-772-2811
Vactronic Lab. Equip., 65 Brightside Ave., E. Northport, NY 11731 .... 516-AN1-2660
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Veeco Instruments Inc., Terminal Dr., Plainview, NY 11803 516-349-8300
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261

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Ferrules, Cable-end-2825

§ Augat Fiberoptics, 710 Narragansett Park Dr., Pawtucket, RI 02861 401-724-4400
Braxton Mfg., Echo Lake Rd. N., P.O. Box 429, Watertown, CT 06795 203-274-6781
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Fiberoptic Fabrications, Inc., 70 Pullman St., Worcester, MA 01606 617-853-6449
Fiberoptics Technlg., Inc., Quassett Rd., Pomfret, CT 06258 203-928-0443
Fiberoptic Systems, Inc., 4525 - 3B E. Industrial St., Simi Valley, CA 93063 805-583-2008
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Sumita Optical Glass Mfg. Co., Ltd., Box 105, 1766 Front Street, Yorktown Heights, NY 10598 914-962-2055

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Films, Masking (Incl. Photographic)-3100

§ AGFA-Gevaert, Inc., 275 North St., Teterboro, NJ 07608 201-288-4100
Conforming Matrix, Box 5126, Pt. Pl. Sta., Toledo, OH 43611 419-729-3777
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Keuffel & Esser Co., 900 Lanidex Plaza, Parsippany, NJ 07054 201-428-7000
§† Lenox Laser, 504 Pittsfield Rd., Lenox, MA 01240 413-637-0444
Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700
Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465

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Flux, Brazing & Soldering Materials-4600

§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... C•1738
§† Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 .... C•1740
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
§ Bow Solder Prods., 900 Hobson St., Union, NJ 07083 .... 201-686-6040;800-526-4496
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
Degussa Corp., 104 New Era Drive, So. Plainfield, NJ 07080 201-757-6500
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Electric Co., Lamp Comps: & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
§ Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338- 404-475-6100
§ LMB Heeger, Inc., 2946 E. 11th St., Los Angeles, CA 90023 213-261-0382
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Superior Flux & Mfg. Co., 95 Alpha Pk., Cleveland, OH 44143 216-461-3315
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

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† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... C•1006
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... C•1029
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, 213-643-8181 .... C•1056
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... C•1066
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1072-1073
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .. C•1083
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1065
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 617-388-5662
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507 312-897-4691
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 614-373-4763
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 617-272-1313
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
Standard Engrg., 44800 Industrial Dr., Fremont, CA 94538 415-657-7555
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057

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Applied Control, 1275 Bloomfield Ave., Fairfield, NJ 07006-2828 201-227-5454
Automatic Timing & Controls Co., 201 So. Gulph Rd., King of Prussia, PA 19406 .... 215-337-5500;800-441-8245
§† Bourns Instrs., Inc., Technical Prods. Grp., 6135 Magnolia Ave., Riverside, CA 92506 714-781-5433
§ Bourns Instrs., Inc., Industrial Div., 1960 Chicago Ave., Unit F, Riverside, CA 92503 714-781-5147
Celesco Transducer Prods., Inc., 7800 Deering Ave., Canoga Pk., CA 91304 818-884-6860
Computer Instrs., 100 Madison Ave., Hempstead, NY 11550 516-483-8200
EOTec Corp., 420 Frontage Road, W. Haven, CT 06516 203-934-7961
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .. Call Local Sls. Off.
Instron Corp., 100 Royall St., Canton, MA 02021 617-828-2500
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Lion Precision, 60 Bridge St., Newton, MA 02195 617-969-4710
Marlow Inds., 10451 Vista Park Rd., Dallas, TX 75238 214-340-4900
§ Mechanical Techn., 968 Albany Shaker Rd., Latham, NY 12110 518-785-2353
Nuclear Resch. Corp., 125 Titus Ave., Warrington, PA 18976 215-343-5900
Robinson-Halpern, One Apollo Rd., P.O. Box 248, Plymouth Meeting, PA 19462-0248 215-825-9200
Schaevitz Engrg., U.S. 130, Union Ave., Pennsauken, NJ 08110 609-662-8000
Siltran Digital, 2250 Monterey Rd., Atascadero, CA 93422 805-466-3209
Teledyne Gurley, 514 Fulton St. P.O. Box 88, Troy, NY 12181 518-272-6300
§ Temposonics, MTS Sys. Corp., 111 East Ames Ct., Plainview, NY 11803 516-349-1950
Trans-Tek, P.O. Box 338, Rte. 83, Ellington, CT 06029 203-872-8351
† Warren-Knight Instr. Co., Warren Inds., Inc., 2045 Bennett Rd., Philadelphia, PA 19116 215-464-9300

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Gauges, Ionization-2900 — ***See Vol. D***

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Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 .... C•1720
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... C•1722
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327, 717-424-8510 .... C•1725
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1317
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1730-1734,1737
† Airtron, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988

Chomerics, Inc., 77 Dragon Ct., Wóburn, MA 01888 617-935-4850
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 609-799-0100
† Mitec Elctrns., 15 Commerce St., Williston, VT 05495 802-864-0064
§† Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040 .... 215-672-0787;215-672-4741
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† Premier Microwave, 35 New Broad St., Port Chester, NY 10573 914-939-8900
§† Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 .. 201-985-8800
Soundcoat Co., Inc., 1 Burt Dr., Deer Park, NY 11729 516-242-2200
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 814-455-0966
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§† Tech-Etch, Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300

Gates, Computer Circuit (AND, OR, NOR, etc.) — See Cards, Logic (Vol. D)

Gearheads & Speed Reducers - Also see gears and gear mechanisms-3500 — *See Vol. B*

Gears & Gear Mechanisms (Precision)-2500

† Maxon Precision Motors, Inc., 838 Mitten Rd., Burlingame, CA 94010, 415-697-9614 .... B•1171
† Micro Mo Electronics, Inc., 742 2nd Ave. S., St. Petersburg, FL 33701, 813-822-2529 .... B•1173-1174
Portescap U.S., 1547 Trooper Rd., P.O. Box 780, Worcester, PA 19490, 215-277-0433 .... B•1181
Airpax Corp., Ft. Lauderdale Div., 6801 W. Sunrise Blvd., Ft. Lauderdale, FL 33313 305-587-1100
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Bowmar Instrument Corp., Aerospace Div., 8000 Bluffton Rd., Ft. Wayne, IN 46809 219-747-3121
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773; 914-699-7223
† EEMCO Div., 4585 Electronics Pl., Los Angeles, CA 90039 213-247-7060
† Evershed & Vignoles, Ltd., Acton Lane, Chiswick, London, ENGLAND W4 5HJ 01-994-3670
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590 .. 516-334-7070
† Industrial Control Co., 3100 Pineda Ave., Rockledge, FL 32955 305-259-7105
† Instru-Lec, 44 Old State Rd, #18, New Milford, CT 06776 203-355-3717
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-5444
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
† Perfect Gear & Instr., 2101 Jericho Tpk., New Hyde Park, NY 11040 516-328-3300
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 .... 516-ED3-5955
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 .... 516-328-0200;328-3300
† Transicoil, Inc., Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990 215-277-1300
† Valley Electromagnetics Corp., P.O. Box 557, Crystal Lake, IL 60014 815-459-3080
† Valley Electromagnetics, P.O. Box 131, Spring Valley, IL 61362 815-664-2348
† Western Gear Corp., Applied Tech. Div.; 14724 E. Proctor, City of Industry, CA 91744 818-968-6525

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Generators, Arbitrary Waveform-2900 — *See Vol. D*

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Generators, FM/Stereo-2900 — *See Vol. D*

Generators, Frequency Synthesizer-2900 — *See Vol. D*

Generators, Function-2900 — *See Vol. D*

Generators, Gating/Timing-2900 — *See Vol. D*

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Glass Diode Sleeves-2500

Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071

Glues — See Adhesives (Vol. C)

Glass Parts-2500

† Applied Instrs., Inc., 25 Will Place, Brooklyn, NY 11207 212-257-0885

† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Kontes, Kimble Div. of Owens/IL, 1001 Spruce St., Vineland, NJ 08360 609-692-8500

Graphic Recording Instruments – See Recorders (Vol. D)

Graphic Recording Paper & Supplies-3000 – *See Vol. D*

Graphite Parts-2500

† Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 .... B•1160
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
§ Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 .... 201-DE4-0700
Carbone USA Corp., Carbone Lorraine Inds. Corp., 402 Myrtle Ave., Boonton, NJ 07005 201-334-0700
Laser Techn., 10624 Ventura Blvd., N. Hollywood, CA 91604 818-763-7091
Stackpole, Carbon Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Superior Carbon Prods., Inc., 9115 George Ave., Cleveland, OH 44105 216-883-4880
Ultra Carbon, Box X-924, Bay City, MI 48707 517-894-2911

Grilles & Accessories, Speaker-1300 – *See Vol. D*

Grilles, Metal, Plastic-1400

ETRI, Inc., 608 Broome St., P.O. Box 5006, Monroe, NC 28110, 704-289-5423 .... C•1640
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 415-969-2640
§ Fourjay Industries, Box 14617 Northridge Br., Dayton, OH 45414 513-278-9416
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
LaFrance Corp., Entprs & Exec Aves, Philadelphia, PA 19153 215-365-8000
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 609-799-0100
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sparkomatic, Rte. 6 & 209, Milford, PA 18337 717-296-6444
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 .... 516-957-8700;800-645-5516
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Grommets & Bushings-2800

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 .... C•1695
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065-0829 619-789-0900
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
† Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
† Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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§ Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... C•1009
§† Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451 .... C•1032-1036
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731, 818-442-2572 .... C•1051,1053
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... C•1054
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... C•1711
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 .... C•1488
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1073
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C•1094
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095, D•1103-1104
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§ D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Gyros (All Types)-2200 – *See Vol. D*

Hall Effect Devices – See Generators, Hall (Vol. B), Magnetoresistors, Hall (Vol. A), Multipliers, Hall (Vol. A), Probes, Hall (Vol. A), Switches, Hall Effect (Vol. B)

Handlers, Integrated Circuit (Automatic)-4100 – *See Vol. D*

Handles For Cabinets, Circuit Boards, Racks, etc.-1400

§ Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451 .... C•1039
† Chassis-Trak, General Devices Co., Inc., P.O. Box 39100, Indianapolis, IN 46239, 317-897-7000 .... C•1063
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1063
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1597
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1073
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 818-241-5121
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800

Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
§† Electronic Hardware, 320 Broad Hollow Rd., Farmingdale, NY 11735 516-752-1950
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 201-241-0710
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
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† Southco, Inc., 210 N. Brinton Lake Rd., Concordville, PA 19331 215-459-4000
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 .... 213-478-0046; 800-TECHMAR
Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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Headers, DIP-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155,1157
Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1162-1163
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840

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Headers, Relay & Transformer-2100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ Aura Mfg., 50 McDermott Rd., North Haven, CT 06473 203-777-2541
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Essex Group, 9933 13th St., Ft. Wayne, IN. 46809 219-478-1521
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Moldtronics, Inc., 703 Rogers St., Downers Grove, IL 60515 312-968-7000
§ Morris Entprs., 16799 Schoenborn St, Sepulveda, CA 91343 818-894-9103
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388

Headers, Shrouded-2100

Bead Electronic Connectors, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, 305-753-3639 .... C•1164-1165
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1197,1200-1204
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475-1476

§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 818-889-9304
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§ Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069 619-744-0125

Headers, Socket-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155,1157
Mhotronics., Inc., 444 Lake Cook Rd., Ste. 8, Deerfield, IL 60015, 312-948-5600 .... C•1459
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... C•1521
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... C•1586

Headers, Transistor & Diode-2500

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
† Airpax Corp., Woods Rd., Cambridge, MD 21613 301-228-4600
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600

Headphones-1300 — *See Vol. D*

Heads, Magnetic Recording-1300 — *See Vol. D*

Heads, Reflective-3700 — *See Vol. B*

Headsets (MIL)-2440 — *See Vol. B*

Heat Dissipators — See Heat Sinks, Semiconductor (Vol. C), Heat Sinks, Soldering (Vol. C)

Heaters, Immersion-4100 — *See Vol. D*

Heaters & Heating Elements (For Components & Equipment)-Also See Ovens-5300 — *See Vol. B*

Heat Exchangers & Systems-2600

† Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 ..... C•1637
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100 .... C•1648
† McLean Midwest, 4000 83rd Ave. N., Brooklyn Pk., MN 55443, 612-561-9400 .... C•1651
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 .... C•1675-1677
§ AAVID Engrg., One Kool Path, Laconia, NH 03246 603-524-4443
§ Aerotronic Assocs., Inc., Riverside Dr., Contoocook, NH 03229 603-746-4631
† Aham Tor Inc (ATI), 999, 27901 Front St., Rancho California, CA 92390 714-676-4151
† Bemco, 9908 San Fernando Rd., Pacoima, CA 91331 818-899-5296
Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
Capitol Temptrol, 5 Coulton Rd., Old Lyme, CT 06371 203-739-4421
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-8725
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
EG & G Rotron, Commercial Div., Saugerties, NY 12477 914-246-3615
† EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498 914-679-5201
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
† Electro-Optical Inds., Box 3770, Santa Barbara, CA 93130 805-964-6701
Hivec/Astrodyne, Inc., 35 Executive Dr., Hudson, NH 03051 603-880-8600
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
§ International Rectifier Corp., Semiconductor Div., 233 Kansas St., El Segundo, CA 90245 213-772-2000
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 609-466-3400
† Lepel, 59-21 Queens-Midtown Expwy., Maspeth, NY 11378 718-426-4580
Melcor/Materials Elctrn. Prods., 994 Spruce St., Trenton, NJ 08648 609-393-4178
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 .. 215-643-2116
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 619-727-7400
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Technipower, A Penril Co., P.O. Box 222, Commerce Pk., Danbury, CT 06810 203-748-7001
§ Temptronic, 55 Chapel St., Newton, MA 02158 617-969-2501
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
WEI Corp., 1405 S. Village Way, Santa Ana, CA 92705 714-834-9333
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411

Heat Guns, Production-5400

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Commercial Elec. Heating Devices & Mfg., Inc., 1008 E. Garvey Blvd., Monterey Park, CA 91754 213-288-9445
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GTE Corp., Sylvania Emissive Prods./Process Heat, Portsmouth Ave., Exeter, NH 03833 603-772-4331
Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034 602-275-4126
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Master Appliance Corp., 2420 18th St., Box 68, Racine, WI 53403 414-633-7791
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 619-727-7400
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Pamran, 1101 Cedar Creek, Racine, WI 53402 414-639-9076
Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950

Heating Elements, Infrared-5300 — *See Vol. B*

Heat Pumps — See Cooling/Heating Modules, Thermoelectric (Vol. B)

Heat Shrinkable Elastomers, Plastics — See Caps, Forms & Tapes, Heat Shrinkable (Vol. C), Tubing, Heat Shrinkable (Vol. C)

Heat Sinks, Semiconductor-2600

§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502; 818-849-2481;818-786-1102 .... C•1643
Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
§ AAVID Engrg., One Kool Path, Laconia, NH 03246 603-524-4443
† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Aham Tor Inc (ATI), 999, 27901 Front St., Rancho California, CA 92390 714-676-4151
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Atlee Inc., One Gill St., Woburn, MA 01801 617-933-3510
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
Fab-Tek Inc., 68 Morgan Ave., Danbury, CT 06810 203-743-3312
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 201-241-0710
General Electric Co., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021 315-253-7321
Hivec/Astrodyne, Inc., 35 Executive Dr., Hudson, NH 03051 603-880-8600
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 312-283-3600
Thermal Prods. Group, IMC Magnetics Corp., 100 Jericho Quad., Ste. 221, Jericho, NY 11753 516-938-0800
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 215-643-2116
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ NEC Elctrns. USA Inc., NEC Electron Div., 252 Humboldt Ct., Sunnyvale, CA 94086 408-745-6520
Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
§ RCA Distr. & Special Prods. Div., RCA Corp., 2000 Clements Bridge Rd., Deptford, NJ 08096 609-541-3636
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
Tran-Tec, Box 1044, Columbus, NE 68601 402-564-2748
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
WEI Corp., 1405 S. Village Way, Santa Ana, CA 92705 714-834-9333
§ Westinghouse Elec. Corp., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697 412-925-7272
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

Heat Sinks, Soldering-4600

§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
American Etching & Mfg., 13730 Desmond St., Pacoima, CA 91331 213-896-1187
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 818-442-2572
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
Syntel Div., Tegam, Inc., 7230 North Ridge Rd., Madison, OH 44057 216-428-7505
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Hinges-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600

Holders, Battery — See Retainers, Battery (Vol. C), Connectors, Battery (Vol. C)

Holders, Brush — See Brushes & Brush Assemblies (Vol. B)

Holders, Circuit Board (Production Type)-4100 — *See Vol. D*

Holders, Crystal-2300 — *See Vol. A*

Holders, Diode-2500

§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
† Sage Laboratories, Inc., 3 Huron Dr., Natick, MA 01778 617-653-0844

Holders, Fuse — See Clips & Holders, Fuse (Vol. B), Panels, Fuse (Vol. B)

Holders, Lamp — See Sockets, Lamp & Lamp Assemblies (Vol. B)

Holders, Test Lead-2900 — *See Vol. D*

Holders, Tube — See Retainers, Tube (Vol. A)

Holders & Carriers, Chip (Capacitor, IC, LSI)-2100

§† ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684, 714-557-4700 .... C•1287
† Mini-Systems, Inc., Electronic Package Div., 168 E. Bacon St., P.O. Box 1597, Plainville, MA 02762, 617-695-2000 .... A•1681
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... C•1580
American Etching & Mfg., 13730 Desmond St., Pacoima, CA 91331 213-896-1187
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Holders & Carriers, IC, LSI (Packaged)-3130 – *See Vol. A*

Honeycomb Sheets, Panels, etc.-2500

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1736
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Nurad, Inc., 2165 Druid Pk. Dr., Baltimore, MD 21211 301-462-1700
† Universal Shielding Corp., 20 W. Jefryn Blvd., Deer Park, NY 11729 516-667-7900

Hoods, Oscilloscope-2975 – *See Vol. D*

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Housings, Photomultiplier Tube – See Photomultiplier Tube Housings (Vol. A)

Housings, Terminal-1400

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1157
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800

Hum Eliminators-2700 – *See Vol. A*

Hybrid Circuits – See Circuits, Hybrid (Vol. A)

Hybrid Voltage Regulators – See Regulators & Stabilizers

Identification, Friend or Foe (IFF) ESM (MIL)-3475 – *See Vol. D*

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Inclinometers-2900 – *See Vol. D*

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Indicators, Directional-2200 – *See Vol. D*

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Indicators, Null-2900 – *See Vol. D*

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Indicators, Phase Sequence-2200 – *See Vol. D*

Indicators, Positioning-2200 – *See Vol. D*

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Indicators, Sound Level – See Meters, Audio Level (Vol. D)

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Indicators, Tilt-2200 – *See Vol. D*

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Inductance Standards – See Standards, Inductance (Vol. D)

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Inductors (MIL) – See Coils (MIL)

Infrared Emitter Detectors – See Emitters/Detectors, Infrared

Infrared (IR) Equipment (MIL)-3475 – *See Vol. D*

Infrared Soldering – See Soldering Equipment, Infrared

Inks for Thick Film Microcircuits-1700

† Advanced Coatings & Chem., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 ... 805-968-5000
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Ohmtek, Inc., 2160 Liberty Dr., Niagara Falls, NY 14304 716-283-4025
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

Input/Output Equipment, Voice-2000 – *See Vol. D*

Input/Output Switching Modules – See Modules, Control & Switching (Vol. D)

Inserters, DIP & IC – See Extractors, DIP & IC (Vol. C)

Insertion Loss Measurement Systems-2900 – *See Vol. D*

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Installation Equipment, Fiber Optic-4100 – *See Vol. D*

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Instrument Parts, Precision – See Bearings (Vol. C), Gears & Gear Mechanisms (Precision) (Vol. C)

Instruments, Test & Measuring, GPIB (IEEE 488) Compatible-2900 – *See Vol. D*

Insulation Materials-3100

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1837
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ...... C•1729
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 ...... C•1885
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800;800-526-3842 ...... C•1697
§ Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 617-894-0160
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Ferro Corp., Composites Div., 34 Smith St., Norwalk, CT 06852 203-853-2123
Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 805-968-5000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† HumiSeal Div., Columbia Chase Corp., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377 718-932-0800
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
§ Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
§ Murata Mfg. Co., Ltd., 26-10-2-chome-Tenjin, Nagaoka-Kyo-Shi, Kyoto, Japan, JAPAN 075-951-9111
§† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 303-289-5651
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 413-243-1000
S. F. Products Corporation, P. O. Box 369, Southport, CT 06490 203-929-6180
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770
Ultra Carbon, Box X-924, Bay City, MI 48707 517-894-2911
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Insulation Parts, Fabricated-3100

§ Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 ...... C•1025
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1837
Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ...... C•1227
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 ...... C•1228-1229
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ...... C•1729
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ...... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 617-667-4111
Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
† Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
§ Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
† Paramount Tube, Inc., 1430 Progress Rd., Ft. Wayne, IN 46808 219-484-4111
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
† Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
† Robison Elctrns., P.O. Box 8121, San Luis Obispo, CA 93403-8121 805-544-8000
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087 603-893-2330
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
† Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
Tran-Tec, Box 1044, Columbus, NE 68601 402-564-2748
Ultra Carbon, Box X-924, Bay City, MI 48707 517-894-2911
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Insulators, Antenna-3100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1837
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Jennings, 970 McLaughlin Ave., San Jose, CA 95122 408-292-4025
Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154

Insulators, Bushing (Metallized) – See Bushings, etc. (Vol. C)

Insulators, Clip, Test & Battery-3100

§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ...... C•1468-1469,1472

Insulators, Clip, Test & Battery-3100 (Cont'd)

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Insulators, Mica-3100

Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
§ Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291

Integrated Circuit Handlers — See Handlers, Integrated Circuit (Automatic) (Vol. D)

Integrated Circuit Interconnect Systems-3200

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1103, D•1103-1104
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
AT&T, 1 Oak Way, Berkeley Heights, NJ 07922 1-800-372-2447
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
PCK Technology Div., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013 717-243-5929
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700

Integrated Circuit Design Aids-4200

International Microelectronic Prods., 2830 North First Street, San Jose, CA 95134, 408-262-9100 .... A•1674,1676
§† Advanced Microcomputers, 3340 Scott Blvd., Santa Clara, CA 95051 408-732-2400
§† Advanced Micro Devices, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088 408-732-2400
Exar Corp., P. O. Box 62229, 750 Palomar Ave., Sunnyvale, CA 94086 .. 408-732-7970
§† Fairchild Camera & Instr. Corp., 464 Ellis St., 20-2271, Mountain View, CA 94042 415-962-5011
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Holt Inc., 9351 Jeronimo Rd., Irvine, CA 92718 714-859-8800
Integrated Circuit Engrg. Corp. (ICE), 15022 N. 75th St., Scottsdale, AZ 85260 602-998-9780
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 408-438-2900
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
Linear Technlg., P.O. Box 489, Sta. "A", Burlington, ON, CANADA L7R 3Y3 416-632-2996
§ Matra Design Systems, 2840-100 Sam Tomas Expressway, Santa Clara, CA 95051 408-986-9000
MCE Semiconductor, Inc., 1111 Fairfield Dr., West Palm Beach, FL 33407 305-845-2837
NEC Electronics, Inc., 401 Ellis Street, Mtn. View, CA 94039 415-960-6000
Polycore Elctrns., 1107 Tourmaline Dr., Newbury Pk., CA 91320 805-499-6777
§† Raytheon Semiconductor, 350 Ellis St., Mountain View, CA 94043 415-968-9211
§ Rockwell Int'l., 4311 Jamboree Rd., Newport Beach, CA 92660 800-854-8099
SGS Semiconductor Corporation, 1000 E. Bell Road, Phoenix, AZ 85022 602-867-6100
Tektronix, Inc., P. O. Box 500, Y3-314, Beaverton, OR 97077 .... 800-547-1512;Oregon only 800-452-1877
VLSI Technology, Inc., 1101 McKay Dr., San Jose, CA 95131 408-942-1810

ZyMOS Corp., 477 N. Mathilda Ave., Sunnyvale, CA 94086 .... 408-730-8800; 408-730-5400

Integrated Circuits, Custom/Semicustom-3130 — *See Vol. A*

Integrated Circuits, Digital-3130 — *See Vol. A*

Integrated Circuits, Interface-3130 — *See Vol. A*

Integrated Circuits, Linear-3130 — *See Vol. A*

Integrated Circuits, Memory-3130 — *See Vol. A*

Integrated Circuits, Microprocessor-3130 — *See Vol. A*

Integrated Circuits, Silicon Monolithic, Unpackaged Chips-3130 — *See Vol. A*

Integrators, Electronic-2325 — *See Vol. D*

Integrators, Mechanical & Electromechanical-2200 — *See Vol. D*

Intensifiers, Image-5700 — *See Vol. A*

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Interconnection Systems-3200

MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1463,1465,1467

Interfaces, Computer/Peripheral-2000 — *See Vol. D*

Interfaces, Telex/Computer-1900 — *See Vol. D*

Interrupters, Photo-3700 — *See Vol. B*

Interrupters, Ground Fault-4300 — *See Vol. B*

Interrupters, Optoelectronic-3700 — *See Vol. B*

Interrupters, Power-4300 — *See Vol. B*

Interrupters, Vacuum-4300 — *See Vol. B*

Intervalometers — See Timers (Vol. D)

Inverters, DC to AC — See Power Supplies, AC Output (Vol. D)

Isolators, Antenna-1900 — *See Vol. D*

Isolators, Ferrite-3450 — *See Vol. A*

Isolators, Line-4050 — *See Vol. D*

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Jack Adapters (All Types)-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1302,1308-1316,1335-1336
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506,1905
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 .. 612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Duotone, 6875 S.W. 81st St., S. Miami, FL 33143 305-665-1121
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282

§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Jack Covers-2100

Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 603-524-5101
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Jack Panel Assemblies & Access. — See Panels, Jack (Vol. C)

Jacks (All Types)-2100

† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1124
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1836
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1188
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... C•1273
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1294,1296-1304,1306-1308,1321-1325,1328-1329,1331-1333,1383,1385, 1401
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1434,1439
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506-1507,1905
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§† Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... C•1524-1525,1527
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1570
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§† Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 815-877-0241
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451;800-225-9228
† Imtronics Inds., 11930 31st Ct., St. Petersburg, FL 33715 813-577-9010
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Lab-Line Instrs., 15th & Bloomingdale, Melrose Park, IL 60160 312-450-2600
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Middleburg Corp., Middco Connectors, 95 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
§ Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Jacks, Modular Telephones-2100

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Concept Industries, App-Rep, Inc., 3641 San Gabriel River Pkwy., Pico Rivera, CA 90660 213-699-0918
§ Dataprobe, 110 Palisades Blvd., Palisades Park, NJ 07650 201-947-9500
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845 617-682-6936
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161

Jacks (MIL)-2440 — *See Vol. B*

Jammers (MIL)-3475 — *See Vol. D*

Jammers (MIL), Advanced Self Protection-3475 — *See Vol. D*

Jammers (MIL), Chaff, Flares-3475 — *See Vol. D*

Jammers (MIL), Communications (Commjam)-3475 — *See Vol. D*

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Jammers (MIL), Drone Borne-3475 — *See Vol. D*

Jammers (MIL), Expendable-3475 — *See Vol. D*

Jammers (MIL), High Band-3475 — *See Vol. D*

Jammers (MIL), Integrated Command-3475 — *See Vol. D*

Jammers (MIL), J-band-3475 — *See Vol. D*

Jammers (MIL), Low Band-3475 — *See Vol. D*

Jammers (MIL), Portable-3475 — *See Vol. D*

Jammers (MIL), Radar-3475 — *See Vol. D*

Jammers (MIL), Shipboard-3475 — *See Vol. D*

Jammers (MIL), Standoff-3475 — *See Vol. D*

Jammers (MIL), Tactical-3475 — *See Vol. D*

Jamming Pods (MIL), ECM-3475 — *See Vol. D*

Jamming Sets (MIL), Multipurpose-3475 — *See Vol. D*

Jamming Systems (MIL)-3475 — *See Vol. D*

Jamming Systems (MIL), Mobile-3475 — *See Vol. D*

Jamming Systems (MIL), Multipurpose-3475 — *See Vol. D*

Jamming Systems (MIL), Tactical Communications (TACJAM)-3475 — *See Vol. D*

Jigs And Fixtures, Chassis & Circuit Board-4100 — *See Vol. D*

Joint Compounds, Semiconductor — See Coatings, Compounds, Lubricants, etc., Heat Conductive (Vol. C)

Joints, Rotary, Fiber Optic-2475 — *See Vol. B*

Joints, Rotary, Microwave-3450 — *See Vol. A*

Joysticks — See Controls, Computer Input (Vol. D)

Jumpers, Bonding-2100

Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1171
§† Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800 .... B•1608

Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 ... 603-524-5101
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 ... 206-457-0904
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 ... 312-262-4781
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
† Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 ... 617-695-0203
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 ... 213-245-9121
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361

Jumpers, Circuit Board-2100

Allen-Bradley Co., Electronics Group, Rockwell Corporation, 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 ... A•1799
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... C•1155,1158
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... C•1175
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ... A•1876
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1362,1384-1385
Micro-Ohm Corp., 4900 Santa Anita Ave., El Monte, CA 91731, 818-442-3310;213-686-0535 ... A•1895
§ Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ... C•1469
§† RCD Components, Inc., 330 Bedford St., Manchester, NH 03101, 603-669-0054 ... A•1935
§ TRW Resistive Products Div., TRW Electronic Components Grp., 401 N. Broad St., Philadelphia, PA 19108, 215-923-8230 ... A•1957
Allen-Bradley Co., Industrial Control Div., 1201 S. Second St., Milwaukee, WI 53201 ... 414-671-2000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 ... 216-354-2101
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 ... 216-354-9239
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 ... 215-348-4413
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 ... 714-855-7887
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 ... 201-627-0290
Cross Elctrns., 100 Commonwealth Dr., Warrendale, PA 15086 ... 412-776-1591
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 ... 800-237-2374
E & L Instruments, Inc., 61 First St., Derby, CT 06418 ... 203-735-8774
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 ... 203-674-1515
Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 ... 215-969-4200
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
† Fancort Industries, Inc., 31 Fairfield Place, W. Caldwell, NJ 07006 ... 201-575-0610
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
§† Holmberg Elctrns., Asheville Hwy., Inman, SC 29349 ... 803-472-4141
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 ... 201-974-0090
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 ... 203-348-7761
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 ... 312-682-4100
Roederstein Elctrns., Inc., P.O. Box 5588, Statesville, NC 28677 ... 704-872-8101
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ... 216-354-0925
§† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 ... 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 ... 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 ... 703-949-8376

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Keyboards, Capacitive-5150 — *See Vol. B*

Keyboards, Ferrite Core-5150 — *See Vol. B*

Keyboards, Full Travel-5150 — *See Vol. B*

Keyboards, Hall Effect-5150 — *See Vol. B*

Keyboards, Hard Contact-5150 — *See Vol. B*

Keyboards, Lighted-5150 — *See Vol. B*

Keyboards, Low Profile-5150 — *See Vol. B*

Keyboards, Membrane-5150 — *See Vol. B*

Keyboards, Modular-5150 — *See Vol. B*

Keyboards, Pad-5150 — *See Vol. B*

Keyboards, Photo-optical-5150 — *See Vol. B*

Keyboards, Reed-5150 — *See Vol. B*

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Keyers, Tone-1900 — *See Vol. D*

Keypads-5150 — *See Vol. B*

Kits, Breadboarding (For Engineers)-4200

§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... C•1102-1103, D•1103-1104
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 ... 216-354-2101
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 ... 818-991-2600
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 ... 714-497-1506
Clarostat Mfg., Washington St., Dover, NH 03820 ... 603-742-1120
§ Computer System Assocs., 7564 Trade St., San Diego, CA 92121 ... 619-566-3911
E & L Instruments, Inc., 61 First St., Derby, CT 06418 ... 203-735-8774
EG & G Birtcher, 4505 N. Arden Dr., El Monte, CA 91731 ... 818-442-2572
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 ... 203-624-3103
§ Heath Co., Benton Harbor, MI 49022 ... 616-982-3886
Holt Inc., 9351 Jeronimo Rd., Irvine, CA 92718 ... 714-859-8800
Industrial Computer Designs, Inc., 31264 La Baya Drive, Westlake Village, CA 91362 ... 818-889-3179
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 ... 714-891-5305
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 ... 408-438-2900
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 ... 516-293-1500
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 ... 314-392-7174
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 ... 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
Linear Technlg., P.O. Box 489, Sta. "A", Burlington, ON, CANADA L7R 3Y3 ... 416-632-2996
M/A-Com Millimeter Products, M/A-Com, Inc., Second Avenue, Burlington, MA 01803 ... 617-272-3000
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 ... 512-834-6682
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 ... 301-490-9860
PIC Design, P.O. Box 1004, Middlebury, CT 06762 ... 203-758-8272
Pulse Instrs. Co., 1234 Francisco, Torrance, CA 90502 ... 213-515-5330
Rehlander Assocs., 118A Bridge St., Beverly, MA 01915 ... 617-922-5961
SMD Technology Svc. Ctr., A North American Philips Co., 5855 N. Glen Pk. Rd., Milwaukee, WI 53209 ... 800-431-4444
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 ... 714-979-4770
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 ... 516-328-3300
§ Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 ... 215-673-5600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 ... 214-350-4978
§ Victory Engrg. Corp., Victory Rd., Springfield, NJ 07081 ... 201-379-5900

Kits, Connector-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1133,1145
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .. C•1408-1409
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 ... 817-737-2900
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 ... 213-649-1400

§ E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .. Call Local Sls. Off.
Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .. 201-245-0033;800-526-4182
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Enclosure Prototyping-1400

Lansing Research Corp., 705 Willow Ave., Ithaca, NY 14850, 607-272-3265;800-847-3535 .... C•1069
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... C•1002,1070
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .. C•1083
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, 213-204-0472 .. C•1084
Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046;800-TECHMAR .... C•1090
Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111 619-560-7737
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103

Kits, Fiber Optic-2475 — *See Vol. B*

Kits, Marking (Dial, Instrument, Equipment, etc.)-2400

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... C•1590,1838
§ Adcotech, 1980 Tarob Ct., Milpitas, CA 95035 408-943-9430
Allen Avionics, 224 E. 2nd St., Mineola, NY 11501 516-248-8080
APA Division, 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
§ Eastern Marking Machines, 422 S Franklin St., Hempstead, NY 11550 .. 516-483-7070
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
† JRW Inds., Inc., 2312 N Second St., Harrisburg, PA 17110 717-236-1418
§† Kepro Circuit Sys., 630 Axminster Dr., Fenton, MO 63026 314-343-1630
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 619-755-4477
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Systonics, Inc., Box 121, Winchester, MA 01890 617-729-4439
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Potentiometer, Rheostat-4750 — *See Vol. A*

Kits, Printed Circuit-1700

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1100
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
APA Division, 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 ... 516-654-1197
§ Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Cybernetic Micro Sys., P.O. Box 3000, 3000 Hwy. 84, San Gregorio, CA 94074 415-726-3000
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
Foredom Elec. Co., Blackstone Inds. Inc., Route 6, Bethel, CT 06801 203-792-8622
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Kepro Circuit Sys., 630 Axminster Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
SMD Technology Svc. Ctr., A North American Philips Co., 5855 N. Glen Pk. Rd., Milwaukee, WI 53209 800-431-4444
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Kits, Programming Board-4200

† Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 .... B•1539
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Industrial Computer Designs, Inc., 31264 La Baya Drive, Westlake Village, CA 91362 818-889-3179
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
UVP, Inc., 5100 Walnut Grove Ave., P.O. Box 1501, San Gabriel, CA 91778 818-285-3123

Kits, Shielding-4525

† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... C•1729
Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1730-1737
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Craig Systems Corp., 10 Industrial Way, Amesbury, MA 01913-4848 617-388-5662
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Ferronics, 52 N. Main St., Fairport, NY 14450 716-223-1010
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 201-241-0710
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 617-321-4410
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Terminal-2100

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 203-735-9311
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Kits, Training Aid-4200

† Arra Inc., 15 Harold Ct., Bay Shore, NY 11706 516-231-8400
§ Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Computer System Assocs., 7564 Trade St., San Diego, CA 92121 619-566-3911
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
Digiac Corp., 175 Engineers Rd., Hauppauge, NY 11788 516-273-8600
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
Electronic Kits Intl., Inc., 791 Redrock Rd., St. George, UT 84770 801-628-3627
§ Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .. Call Local Sls. Off.
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 408-438-2900
MCE Semiconductor, Inc., 1111 Fairfield Dr., West Palm Beach, FL 33407 305-845-2837
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 201-992-7700
§ Midwest Comps., 1981 Port City Blvd., Muskegon, MI 49443 616-777-2602
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Paccom, 3928 148th NE, Redmond, WA 98052 .... 206-883-9200;800-426-6254
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
Philips Test & Measuring Instrs., 85 McKee Dr., Mahwah, NJ 07430 201-529-3800
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Knobs - Also see Dials, Instrument-2400

Bourns, Inc., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507, 714-781-5050 .... A•2004
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1591,1604-1611
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1615
§ Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
§ Alpha Products, Inc., 5740 Corsa Ave. = 104, Westlake Village, CA 91362 818-889-9304
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§† Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
§† Electronic Hardware, 320 Broad Hollow Rd., Farmingdale, NY 11735 516-752-1950
§ Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
§† Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 ... 714-957-6904
Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† Radial Controls, 2555 E. 55th Place, Indianapolis, IN 46220 317-255-2796
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§† Rogan, 3455 Woodhead Dr., Northbrook, IL 60062 312-498-2300
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Security Plastics, Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Selco Products Co., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600

Knobs, Collet-2400

Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886

Knobs, Limit Stop-2400

Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1609-1610
Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
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§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 ... 714-957-6904
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§† Rogan, 3455 Woodhead Dr., Northbrook, IL 60062 312-498-2300

Knobs, Locking, Control Shaft-2400

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§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1609-1610
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1615
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
† Dupree, Inc., 9835 Dupree St., So. El Monte, CA 91733 818-442-4700
§ ETI Systems, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054 619-757-7770
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 ... 714-957-6904
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Knobs, Slip Clutch-2400

Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1604,1609-1610
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
§† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886

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§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1591
Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
§ Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 ... 714-957-6904
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§† Rogan, 3455 Woodhead Dr., Northbrook, IL 60062 312-498-2300

Labels, Pressure Sensitive, Adhesive-2400

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1590
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1890
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Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
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§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§ Computerware, Inc., 8480-I Tyco Rd., Vienna, VA 22180 703-821-8200
Computype, Inc., 2285 W. County Road "C", St. Paul, MN 55113 .... 612-633-0633; 800-328-0852
Display Devices, Box 667, Encinitas, CA 92024 619-753-0113
† GM Nameplate, Inc., 2040 15th Ave. West, Seattle, WA 98119 206-284-2200
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† GraphTec Services, Inc., 1600 N.W. Madrid Way, Boca Raton, FL 33432 305-392-3373
† Hallmark Nameplate, Inc./Electropanel Co., 1855 New Highway, Farmingdale, NY 11735 516-454-0700
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International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
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§† Miller Dial Corp., 4400 N. Temple City Blvd., El Monte, CA 91734 818-283-5111
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† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
† Screenprint/Dow, 271 Ballardvale St., Wilmington, MA 01887 617-935-6395
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§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Stanpat Prods., 366 Main St., Port Washington, NY 11050 516-883-8400
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† Topflight, 160 East 9th Ave., York, PA 17404 800-233-9386

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Lacing, Cable – See Cords & Tapes, Lacing (Vol. C)

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Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
§† Astro Packaging, Inc., 100 Thomas Road North, Hawthorne, NJ 07507 .. 201-423-3000
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
General Elec. Co., Electromaterials Bus. Dep., Coshocton, OH 43812 614-622-5310
Handy & Harman Elctrn. Matls. Corp., 72 Elm St. N., Atteboro, MA 02760 617-695-1401
† Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
† Mica Corporation, 8536 National Blvd., Culver City, CA 90232 213-837-8100
§† Miller Dial Corp., 4400 N. Temple City Blvd., El Monte, CA 91734 818-283-5111
† OAK Materials Group Inc., Laminates Div., 1 Mechanic Street, Hoosick Falls, NY 12090 518-686-4379
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
Technical Materials, Inc., Sub. of Brush Wellman, Inc., 5 Wellington Rd., Lincoln, RI 02865 401-333-1700

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Brady, W.H., Co., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201 414-332-8100
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ General Elec. Co., Electromaterials Bus. Dep., Coshocton, OH 43812 614-622-5310
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Mica Corporation, 8536 National Blvd., Culver City, CA 90232 213-837-8100
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
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§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366

† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241

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Lamp Drivers-2450 — *See Vol. B*

Lamp Holders — See Sockets, Lamp & Lamp Assemblies (Vol. B)

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Lamps, Edge Lighting, Panel-2450 — *See Vol. B*

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Lamps, Indicator — See Lamps, Miniature & Subminiature (Vol. B)

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Lamps, LED & LCD — See Diodes, Light Emitting (Vol. B), Diodes, Liquid Crystal (Vol. B)

Lamps, Magnifying, Inspection-4100 — *See Vol. D*

Lamps, Mercury Vapor-2450 — *See Vol. B*

Lamps, Miniature & Subminiature-2450 — *See Vol. B*

Lamps, Neon-2450 — *See Vol. B*

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Lamps, Projection-2450 — *See Vol. B*

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Lamps, Stroboscopic Source-2450 — *See Vol. B*

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Lamps, Ultraviolet-2450 — *See Vol. B*

Lamps, Xenon-2450 — *See Vol. B*

Laser Systems-4100 — *See Vol. D*

Laser Components & Laser Accessories-3700 — *See Vol. B*

Laser Diodes — See Diodes, Laser

LCDs — See Diodes, Liquid Crystal (Vol. B)

Lead Assemblies, High Voltage-Also See Connectors; Cable Assemblies & Harnesses-6000

† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ...... C•1410
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 309-695-2511
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 203-828-6379
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
§† Electronic Coil Corp., Farmington Industrial Park, Farmington, CT 06032 203-677-6731
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 216-771-5225
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† PTK Division, Emerson Electric Co., 1173 Los Olivos Ave., Los Osos, CA 93402 805-528-5858
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

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§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Dillon, W. C., & Co., National Controls, Inc., 2320 Airport Blvd., Santa Rosa, CA 95401 707-527-5555
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Perfect Gear & Instr., 2101 Jericho Tpk., New Hyde Park, NY 11040 516-328-3300
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 .... 516-ED3-5955
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
§ Tapeswitch Corp. of America, 100 Schmitt Blvd., Farmingdale, NY 11735 516-694-6312

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Illinois Lock Co., The Eastern Co., 301 W. Hintz Rd., Wheeling, IL 60090, 312-537-1800 .... B•1593-1595

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Dodge-Master-Reeves, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 ... 800-245-4501;in OH 800-245-4497
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§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 ... 517-496-4000
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
† Electrofilm, 27727 Avenue Scott, Valencia, CA 91355 ... 805-257-2240
† E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 ... 317-463-2511
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§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
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Soundcoat Co., Inc., 1 Burt Dr., Deer Park, NY 11729 ... 516-242-2200

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Tracewell Enclosures, 7032 Worthington Galena Rd., Columbus, OH 43085, 614-846-6175;800-848-4525 .... C◦1093
† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 414-447-8200
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430 201-327-1123
§ Conrac Div., Conrac Corp., 600 N. Rimsdale Ave., Covina, CA 91722 213-966-3511
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Infodex, Inc., 395 W. Main St., Waterbury, CT 06702 203-757-9291
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Syntronic Instruments, Inc., 100 Industrial Rd., Addison, IL 60101 312-543-6444
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161

Mounts, Crystal-2300 – *See Vol. A*

Mounts, Integrated Circuit – See Sockets, Integrated Circuit (Vol. C), Boards, Plug-In (Vol. C)

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Mounts, Mobile Antenna – See Mounts, Antenna (Vol. D)

Mounts, Satellite Antennas-1900 – *See Vol. D*

Mounts, Shock & Vibration-2825

§ **E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 .... C◦1695**
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C◦1094
† Aeroflex Labs., Magnetic Prods. Div.,, 35 South Service Road, Plainview, NY 11803 516-694-6700
Airpot, 27 Lois St., Norwalk, CT 06851 203-846-2021
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Barry Controls, Barry Wright Corp., 700 Pleasant St., Watertown, MA 02172 617-923-1150
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Electrospace Sys., Inc., P. O. Box 831359, Richardson, TX 75083-1359 214-783-2004
Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 413-665-2163
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Projects Unltd., 3680 Wyse Rd., Dayton, OH 45414 513-890-1918
† Stock Drive Prods., Div. of Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 .... 516-328-0200;328-3300
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161

Mounts, Thermistor-5300 – *See Vol. B*

Mounts, Transistor (Incl. Kits) – See Pads, Transistor Mounting (Vol. C)

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Multiplexers, Frequency Division-1900 — *See Vol. D*

Multiplexers, Statistical-1900 — *See Vol. D*

Multiplexers, Time Division-1900 — *See Vol. D*

Multiplexers, Transmission-1900 — *See Vol. D*

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Networks, Ladder-4700 — *See Vol. A*

Networks, LC-2700 — *See Vol. A*

Networks, Line Impedance Stabilization-1900 — *See Vol. D*

Networks, Matching-1900 — *See Vol. D*

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Networks, Resistance, Trimmer-4700 — *See Vol. A*

Networks, Resistance, Voltage Divider-4700 — *See Vol. A*

Networks, Video-2700 — *See Vol. A*

Networks, (MIL), Resistance-2440 — *See Vol. B*

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Nuts, Metal-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1598
†Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
§†Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§†Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
§Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Nuts, Plastic — See Fasteners, Nonmetallic (Vol. C)

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Optical Breadboards-4200

†Melles Griot, 1770 Kettering St., Irvine, CA 92714 714-261-5600
Muirhead, 1101 Briston Rd., Mountainside, NJ 07092 201-233-6010
Noll, J. A. Co., P.O. Box 312, Monroeville, PA 15146 412-733-1009

Optical Component Mounts & Accessories-3700 — *See Vol. B*

Optical-Coupler Isolators — See Isolators, Opto (Vol. B)

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Oscillators, Bias-2300 — *See Vol. A*

Oscillators, Cavity-2300 — *See Vol. A*

Oscillators, Clock-2300 — *See Vol. A*

Oscillators, Crystal Controlled (Module)-2300 — *See Vol. A*

Oscillators, Digitally Compensated Crystal (DCXO)-2300 — *See Vol. A*

Oscillators, Decade (Test)-2900 — *See Vol. D*

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Oscillators, Low Frequency (Module)-2300 — *See Vol. A*

Oscillators, Microwave-3450 — *See Vol. A*

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Oscillators, Power (Module)-2300 — *See Vol. A*

Oscillators, Programmable-2300 — *See Vol. A*

Oscillators, Pulse (Module)-2300 — *See Vol. A*

Oscillators, Pulse (Test) — See Generators, Pulse (Vol. D)

Oscillators, RC (Module)-2300 — *See Vol. A*

Oscillators, Reed-2300 — *See Vol. A*

Oscillators, RF (Module)-2300 — *See Vol. A*

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Oscillators, Sinusoidal (Module)-2300 — *See Vol. A*

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Oscillators, UHF/VHF (Module)-2300 — *See Vol. A*

Oscillators, UHF/VHF (Test) — See Generators, UHF/VHF (Vol. D)

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Brooks Mktg. Corp., 3569 Bristol Pike Bldg. 2 Ste 102, Bensalem, PA 19020
.... 215-244-0264;1-800-523-1551

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Packaging Materials, Antistatic-3800

§† ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 312-221-3400
§† Astro Packaging, Inc., 100 Thomas Road North, Hawthorne, NJ 07507 .. 201-423-3000
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 516-968-8282
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 301-539-6537
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269
.... 404-487-6681
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200

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§† ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 312-221-3400
§† Astro Packaging, Inc., 100 Thomas Road North, Hawthorne, NJ 07507 .. 201-423-3000
§† Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268 317-872-1111
Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 413-665-2163
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362
.... 213-991-9614
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914
.... 800-556-7683
Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ..... 305-633-2556;800-327-6085
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963
.... 800-328-1368
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020
.... 413-267-5561
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
Robison Elctrns., P.O. Box 8121, San Luis Obispo, CA 93403-8121 805-544-8000
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269
.... 404-487-6681
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
United Foam Plastics, 172 E. Main St., Georgetown, MA 01833 617-352-2200
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041
.... 415-969-7717

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Packaging Services — See Services, Packaging (Vol. D)

Pads, L, T, & H — See Attenuators, Audio (Vol. D)

Pads, Transistor Mounting-2100

§† Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§† Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593
.... 516-546-1751
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§ D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 617-695-0203
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
† Robison Elctrns., P.O. Box 8121, San Luis Obispo, CA 93403-8121 805-544-8000
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
§† Teledyne Relays, 12525 Daphne Ave., Hawthorne, CA 90250 213-777-0077
§† Teledyne Solid State Products, 12525 Daphne Ave., Hawthorne, CA 90250
.... 213-777-0077
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

Paints, Conductive, Electric — See Coatings, Conductive, Electric (Vol. C)

Paints, Finishing-1600

§† Casso-Solar, P.O. Box 163, U.S. Route 202, Pomona, NY 10970 914-354-2500

Paints, Metallic, Conductive-1600

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513 203-562-2171
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269
.... 404-487-6681
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041
.... 415-969-7717

Paints, Radioactive — See Coatings, Radioactive (Vol. C)

Paints, Resistive-Also See Inks for Thick Film Microcircuits-1600

† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898
.... 302-773-3218
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 ... 805-968-5000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715
.... 714-752-3800
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893
.... 401-828-4550
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 619-755-4477
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§ Murata Mfg. Co., Ltd., 26-10-2-chome-Tenjin, Nagaoka-Kyo-Shi, Kyoto, Japan, JAPAN
.... 075-951-9111
Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

Panel Equipment — See Dials (Vol. C), Connectors (Vol. C), Jacks (Vol. C), Lights, Indicator (Vol. B), etc.

Panel Marking Kits — See Kits, Marking (Vol. C)

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Panels, Electroluminescent-2450 – *See Vol. B*

Panels, Fuse-4300 – *See Vol. B*

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Panels, Jack-2100

Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176
† GRIM Corporation, Box 67, Medford, NJ 08055, 609-267-7950 .... D•1051
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1713
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 .. 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
† Ansco, 1243 West 134th St., Gardena, CA 90247 .... 1-800-421-1270;1-800-821-3308; 213-532-7780
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 215-348-4413
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Communication Cables & Connectors, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830 614-828-2468
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455
§ Dataprobe, 110 Palisades Blvd., Palisades Park, NJ 07650 201-947-9500
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
§ Electro Standards Lab., Inc., P.O. Box 9144, Providence, RI 02940 401-943-1164
§ Elite Electronics, Inc., 1408 Summit - Suite #5, Plano, TX 75074 214-881-0026
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
The Hall Company, 420 East Water St., Urbana, OH 43078 513-652-1376
† Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 .... 800-321-5111, Ext. 596
§ International Data Sciences, 7 Wellington Rd., Lincoln, RI 02865 401-333-6200
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
§† Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
York Metal Products, Inc., 34-20 12th St., Long Island City, NY 11367 718-932-3660

Panels, Metal – See Enclosures, Circuit Board, Module & Relay Mounting (Vol. C)

Panels, Meter – See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. C)

Panels, Patch – See Panels, Jack (Vol. C)

Panels, Power BUS for ICs-3200

Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1702
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1707
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
† Eldre Corporation, 1500 Jefferson Rd., Rochester, NY 14623 716-427-7280
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047 215-757-1202

Spectro Equipment, Inc., 13821 Progress Pkwy., N. Royalton, OH 44133 216-237-8910
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700

Panels, Relay Rack – See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. C)

Panels, Touch – See Touch Panels

Paper Tape Equipment, Punch-2000 – *See Vol. D*

Paper Tape Equipment, Reader-2000 – *See Vol. D*

Paper Tape Equipment, Reader/Punch-2000 – *See Vol. D*

Paper, Graphic Recording-3000 – *See Vol. D*

Paper, Thermal-2000 – *See Vol. D*

Patch Boards – See Boards, Programming (Vol. C)

Peak Sense & Hold Amplifiers – See Amplifiers, Peak Sense & Hold

Peltier (Thermoelectric) Heat Pumps – See Cooling/Heating Modules, Thermoelectric (Vol. B)

Perforators, Paper Tape (Electrically Powered)-2000 – *See Vol. D*

Phones – See Handsets, Chestsets, Headphones, Headsets, etc. (Vol. D)

Photocells & Phototubes – See Cells, Photoconductive (Vol. B)

Photodetectors, GaAs-3700 – *See Vol. B*

Photoelectric Equipment – See Alarms, Controls, Photoelectric (Vol. B)

Photoelectric Tubes – See Cells, Photoconductive (Vol. B)

Photoemissive Detectors – See Cells, Photoemissive (Vol. B)

Photographic Services – See Services, Photographic (Vol. D)

Photometers – See Meters, Light (Vol. D)

Photomultiplier Tube Housings-5700 – *See Vol. A*

Photoresistors-3700 – *See Vol. B*

Pickups, Magnetic, Proximity, Torque, Vibration, etc. – See Transducers, Specific Type (Vol. B)

Pickups, Telephone (For Recording)-1300 – *See Vol. D*

Piezoelectric Ceramics-2300 – *See Vol. A*

Pilot Lights – See Lights, Indicator (Vol. B)

Pin Grid Arrays – See Sockets, Pin Grid Array

Pin Straighteners, Tube-5700 – *See Vol. A*

Pins, Cotter, Dowel, Taper, etc.-2825

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010

Pins, Electrically Conductive-2100

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, 203-334-4124 .... C•1686-1688
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 .... B•1539
H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010 .... C•1430
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
§ Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Pins, Mechanical-2825

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C∘1685
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, 203-334-4124 .... C∘1686-1688
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C∘1175
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010 .... C∘1430
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 617-894-0160
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† ESNA Div., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
§ Torrington Co., 59 Field St., Torrington, CT 06790 203-482-9511
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Plastic Raw Materials, Liquids, Pellets, Powders, Resins-1600

† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§† Celanese Plastics, 26 Main St., Chatham, NJ 07928 201-635-2600
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773; 914-699-7223
† Dennis Chemical, 2700 Papin St., St. Louis, MO 63103 314-771-1800
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 216-694-5000
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ Epoxylite Corp., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713 714-951-3231
Ferro Corp, Complas Reinforced Thermoplastics Bus., 5001 O'Mara Drive, Evansville, IN 47711 812-423-5218
Ferro Corp.,Stryker Color & Additive Concentrate Bus, Thermoplastic Div., 3 Railroad Street, Stryker, OH 43557 419-682-3311
† FMC Corp., Ind'l. Chemical Grp., 2000 Market St., Philadelphia, PA 19103 215-299-6000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 203-357-7401
† Isochem Products Co., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
† M&T Chemicals, Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 314-694-1000
§† Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7520
Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
† Sigma Plastronics, P.O. Box 649, Whitmore Lake, MI 48189 313-426-3903
Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
Whittaker Corp., Providence Chemicals Div., King-Philip Rd., P.O. Box 16069, E. Providence, RI 02916 401-434-1770

Plastics, Encapsulating — See Compounds, Encapsulating, Molding, Potting (Vol. C)

Plastics Fabrication — See Services, Plastics Fabrication (Vol. D)

Plastics, Heat Shrinkable — See Caps, Forms & Tapes, Heat Shrinkable (Vol. C), Tubing, Heat Shrinkable (Vol. C)

Plastics, Custom Molding — See Services, Custom Molding, Plastic (Vol. D)

Plated Wire Memory Systems — See Memory Systems (Vol. D)

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Platforms, Thermal — See Thermal Platforms (Vol. D)

Plating Services — See Services, Plating (Vol. D)

Players, Magnetic Tape — See Recorders, Magnetic Tape (Vol. D)

Pliers-5400

Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 213-772-0751
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300

† Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101-4478 ... 718-392-3100

Plotters/Hard-Copy Devices-2000 – *See Vol. D*

Plotters, X-Y, & Accessories-3000 – *See Vol. D*

Plug & Jack Sets-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... C•1174-1175
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 ... C•1234,1236
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1294-1299,1301-1303,1305-1309,1312-1314,1324
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 ... C•1712-1713
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 ... C•1473
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ... C•1506,1905
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 ... D•1039
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... C•1509
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561 ... C•1523
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ... C•1527
WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 ... C•1573,1576-1578
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 ... 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. # 104, Westlake Village, CA 91362 ... 818-889-9304
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 ... 703-642-4000
Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 ... 815-877-0241
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 ... 212-471-9800
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ... 212-691-9050
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 ... 800-237-2374
Enerco, Inc., 9615 W. Marginal Way S., Seattle, WA 98108 ... 206-762-1422
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 ... 313-280-1648
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 ... 312-681-7100
† Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 ... 800-321-5111, Ext. 596
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451;800-225-9228
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 ... 415-348-5625
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 ... 516-293-1500
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 ... 507-835-6222
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
† Roanwell, 180 Varick St., New York, NY 10014 ... 212-989-1090
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ... 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 ... 714-996-0960
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 ... 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 ... 612-537-1010
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 ... 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877

Plug Adapters-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... C•1175
Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048, 312-680-7400 ... A•1596
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 ... C•1234,1236
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ... C•1273
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1296,1300-1302,1304,1308-1315,1324,1335-1336
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ... C•1892-1893
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ... C•1506
Todd Systems, Inc., 50 Ash St., Yonkers, NY 10701, 914-963-3400 ... A•2317
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
§ ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 ... 203-249-8471
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 ... 1-201-560-3800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Compac, 279 Skidmore Rd., Deer Park, NY 11729 ... 516-667-3933
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 ... 212-471-9800
Cord Electronics, Inc., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ... 212-691-9050
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 ... 312-681-7100
Interlok, 770 Airport Blvd., Burlingame, CA 94010 ... 415-348-5625
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 ... 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 ... 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 ... 516-239-6161
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
Staffall Inc., 7 Woodland St., Providence, RI 02908 ... 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 400-988-0700
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 ... 805-238-2840
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242

Plug Buttons-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... C•1175
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ... C•1227
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 ... 516-222-1200
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 ... 516-249-7245
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212

Plug Caps & Shells-2100

§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ... C•1227
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1318
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 ... 212-471-9800
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 ... 714-557-4700
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 ... 516-249-7245
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 ... 805-238-2840
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 ... 612-537-1010

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Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 ... C•1170
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... C•1174
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ... C•1176-1177
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1836
H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ... C•1226

Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1234,1236
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... C•1273
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1295-1303,1305-1309,1314,1319,1321-1325,1328-1329,1331-1333,1383, 1391,1401
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406, 707-578-8811 .... C•1431-1434,1439
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... C•1712-1713
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1448
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1478-1481,1892-1893
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1489-1492
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1506
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .. C•1525,1527
Todd Systems, Inc., 50 Ash St., Yonkers, NY 10701, 914-963-3400 .... A•2317
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1570
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§† Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451;800-225-9228
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SL Waber, 300 Harvard Ave., Westville, NJ 08093 .... 609-456-5400;800-257-8384
§ SPEMCO Switches, 23425 Harper, Box 386, St. Clair Shores, MI 48080 800-482-2828
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Plugs, Fused-2100

§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1489-1492
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

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Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1491-1492

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Pointers, Dial-2400

Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 414-447-8200
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
Selco Products Co., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
Spectra Lux Corp., 12840 N.E. 21 St. Pl., Bellevue, WA 98005 206-747-0560
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... C•1185
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 .... C•1225
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1235
§† ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1300-1301,1305,1309-1313,1315
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561 .... C•1523
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245 213-322-6580
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ NOBEX Div., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010 415-342-8170
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Posts, Harness Board-6000

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

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† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 .... C•1097
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632 312-847-0100
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
§ Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050;800-822-4653

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§ Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 818-287-0451 .... C•1036-1040
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... C•1054
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... C•1094
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Stanford Applied Engrg. Inc., 3620 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Pullers, Tube-5400

Allen-Bradley Co., Industrial Control Div., 1201 S. Second St., Milwaukee, WI 53201 414-671-2000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700

Pulleys-2500

Belting Inds. Co. Inc., 20 Boright Ave., Kenilworth, NJ 07033 201-272-8591
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio

Pulsers, Diode — See Power Supplies, AC Input, Greater than 1,000 VDC Output (Vol. D)

Pulsers, Logic Test-2900 — *See Vol. D*

Pumps, Vacuum-4100 — *See Vol. D*

Punches, Chassis-5400

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Greenlee Tool Co., 2330 23rd Ave., Rockford, IL 61108 815-399-3903
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Pyrometers, Infrared-2900 — *See Vol. D*

Pyrometers, Optical, Noninfrared-5300 — *See Vol. B*

Pyrometers, Recording-2900 — *See Vol. D*

Q Bus — See Board Computers & Subassemblies (Vol. D)

Quartz, Fused-2500

† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
† Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Quartz, Raw — See Crystals, Quartz (Vol. A)

Racks, Aging — See Ovens, Aging, Burn-in, Life Test (Vol. D)

Racks, Cabinet — See Enclosures, Equipment & Panel Mounting (Vol. C)

Racks, Circuit Board — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. C)

Racks, Desk & Console – See Enclosures, Equipment & Panel Mounting (Vol. C)

Racks, Module – See Enclosures, Circuit Board, Module & Relay Mounting (Vol. C)

Racks, Relay & Mounting – See Enclosures, Circuit Board, Module & Relay Mounting (Vol. C)

Radar Homing & Warning (RHAW) Systems (MIL)-3475 – *See Vol. D*

Radar Forward-Looking Infrared (FLIR) Sets (MIL)-3475 – *See Vol. D*

Radar Intercept (MIL)-3475 – *See Vol. D*

Radar Systems (MIL), Elint-3475 – *See Vol. D*

Radar System Components-3450 – *See Vol. A*

Radio Communications Systems – See Communications Systems (Vol. D)

Radiographic Equip. – See X-ray Inspection Equip. (Vol. D)

Radiometers-2900 – *See Vol. D*

Radomes & Windows, Microwave-3450 – *See Vol. A*

Reactors, Charging-5600 – *See Vol. A*

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Reactors, Filter-5600 – *See Vol. A*

Reactors, Loading-5600 – *See Vol. A*

Reactors, Saturable-1800 – *See Vol. A*

Reactors (MIL)-2440 – *See Vol. B*

Readers, Badge-2000 – *See Vol. D*

Readers, Bar Code-2000 – *See Vol. D*

Readers, Character-2000 – *See Vol. D*

Readers, Magnetic Card-2000 – *See Vol. D*

Readers, Magnetic Stripe Card-2000 – *See Vol. D*

Readers, Punched Card-2000 – *See Vol. D*

Readers, Punched Tape-2000 – *See Vol. D*

Readers, Static Card-2000 – *See Vol. D*

Readers, Time Code-2000 – *See Vol. D*

Readouts – See Tubes, Readout (Vol. A)

Reamers-5400
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Receivers, AM/FM (Incl. Precision Test)-2900 – *See Vol. D*

Receivers, Communication-1900 – *See Vol. D*

Receivers, Fiber Optic-2475 – *See Vol. B*

Receivers, Field Intensity, Microwave – See Receivers, Microwave (Vol. D)

Receivers, Fixed Frequency-2900 – *See Vol. D*

Receivers, Frequency Shift-1900 – *See Vol. D*

Receivers, Headphone – See Handsets, etc. (Vol. D)

Receivers, Loran & Omega-1900 – *See Vol. D*

Receivers, Microwave-3400 – *See Vol. D*

Receivers, Monitoring, Communications-1900 – *See Vol. D*

Receivers, NBS-2900 – *See Vol. D*

Receivers, Telemetry-1900 – *See Vol. D*

Receivers, Tone-1900 – *See Vol. D*

Receivers, TV – See Monitors, Video (Vol. D)

Receivers (MIL)-3475 – *See Vol. D*

Receivers (MIL), Acoustic Intercept-3475 – *See Vol. D*

Receivers (MIL), Digital Warning-3475 – *See Vol. D*

Receivers, (MIL), ECM-3475 – *See Vol. D*

Receivers (MIL), Elint-3475 – *See Vol. D*

Receivers (MIL), ESM-3475 – *See Vol. D*

Receivers (MIL), Handoff-3475 – *See Vol. D*

Receivers (MIL), IFM-3475 – *See Vol. D*

Receivers (MIL), IR Warning-3475 – *See Vol. D*

Receivers (MIL), Missile Launch Warning-3475 – *See Vol. D*

Receivers (MIL), Radar Warning-3475 – *See Vol. D*

Receivers (MIL), Radio-3475 – *See Vol. D*

Receivers (MIL), Recon-3475 – *See Vol. D*

Receivers (MIL), Search-3475 – *See Vol. D*

Receivers (MIL), Shipboard-3475 – *See Vol. D*

Receivers (MIL), Submarine-3475 – *See Vol. D*

Receivers (MIL), Surveillance-3475 – *See Vol. D*

Receivers (MIL), Warning-3475 – *See Vol. D*

Receptacles – See Connectors (Vol. C), Jacks (Vol.), Sockets

Receptacles, Power – See Sockets, Power

Recognition Equipment, Speech-2000 – *See Vol. D*

Recorders, Computer Data-2000 – *See Vol. D*

Recorders, Electrostatic-3000 – *See Vol. D*

Recorders, Event/Multievent-3000 – *See Vol. D*

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Recorders, Polar-3000 – *See Vol. D*

Recorders, Program Loading-2000 – *See Vol. D*

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Recorders, Strip Chart-3000 – *See Vol. D*

Recorders, Transient-3000 – *See Vol. D*

Recorders, Vibration-3000 – *See Vol. D*

Recorders, Video-1900 – *See Vol. D*

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Recorders (MIL), RHAW-3475 – *See Vol. D*

Recording Systems (MIL)-3475 – *See Vol. D*

Rectifiers, Bridges & Assemblies-4800 – *See Vol. A*

Rectifiers, Copper Oxide-4800 – *See Vol. A*

Rectifiers, Copper Sulfide-4800 – *See Vol. A*

Rectifiers, Electron Tube – See Tubes, Rectifying (Vol. A)

Rectifiers, Germanium-4800 – *See Vol. A*

Rectifiers, Selenium-4800 – *See Vol. A*

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Reels, Tape – See Tape Recording Accessories (Vol. D)

Reference Books – See Technical Books (Vol. D)

References, DC Voltage-2900 – *See Vol. D*

Refrigerants, Spray-1600
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Refrigerated Cooling Equipment – See Air Conditioners (Vol. C)

Refrigerators, Environmental Test-2550 – *See Vol. D*

Regulators, Current-4000 – *See Vol. D*

Regulators, Frequency-4050 – *See Vol. D*

Regulators & References, Silicon-Also See Diodes, Zener & Stabistors-4800 – *See Vol. A*

Regulators & Stabilizers, Voltage-Also See Transformers, Voltage Regulating-4000 – *See Vol. D*

Relays, Antenna – See Relays, RF (Incl. Antenna & Coaxial) (Vol. B)

Relays, Audio Operated – See Relays, Frequency Selective (Vol. B)

Relays, Coaxial – See Relays, RF (Vol. B)

Relays, Contact – See Relays, Power (Vol. B)

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Relays, Crystal Can, 1/2 Crystal Can-4500 – *See Vol. B*

Relays, Current Sensing-4500 – *See Vol. B*

Relays, Differential-4500 – *See Vol. B*

Relays, Frequency Selective-4500 – *See Vol. B*

Relays, General Purpose-4500 – *See Vol. B*

Relays, High Voltage (500 Volts & Over)-4500 – *See Vol. B*

Relays, Hybrid-4500 – *See Vol. B*

Relays, Impulse – See Relays, Stepping (Vol. B)

Relays, I/O Modules – See Modules, I/O Relays (Vol. A)

Relays, Latching-4500 – *See Vol. B*

Relays, Mercury-Wetted Contacts-4500 – *See Vol. B*

Relays, Meter-4500 – *See Vol. B*

Relays, Motor Start-4500 – *See Vol. B*

Relays, Phase Sensing-4500 – *See Vol. B*

Relays, Plug-in-4500 – *See Vol. B*

Relays, Power-4500 – *See Vol. B*

Relays, Printed Circuit Mounting (Incl. Transistor & DIP Case Types)-4500 – *See Vol. B*

Relays, Programmable-4500 – *See Vol. B*

Relays, RF (Incl. Antenna & Coaxial)-4500 – *See Vol. B*

Relays, Reed-4500 – *See Vol. B*

Relays, Sealed-4500 – *See Vol. B*

Relay, Solid State-4500 – *See Vol. B*

Relays, Stepping-4500 – *See Vol. B*

Relays, Telephone-4500 – *See Vol. B*

Relays, Thermal-4500 – *See Vol. B*

Relays, Time Delay-4500 – *See Vol. B*

Relays, Transistor & DIP Case Types – See Relays, Printed Circuit Mounting (Vol. B)

Relays, Vacuum-4500 – *See Vol. B*

Relays, Voltage Sensitive-4500 – *See Vol. B*

Relays (MIL)-2440 – *See Vol. B*

Rental & Lease Equipment-2900 – *See Vol. D*

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Repeaters, Servo-4900 – *See Vol. D*

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Resins, Synthetic – See Plastic Raw Materials (Vol. C)

Resistance Comparators – See Bridges, Resistance (Vol. D)

Resistor Hardware-2800
Caddock Electronics, Inc., 1717 Chicago Ave., Riverside, CA 92507, 714-788-1700 .... A•1826
TRW Resistive Products Div., TRW Electronic Components Grp., 401 N. Broad St., Philadelphia, PA 19108, 215-923-8230 .... A•1957
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718 714-951-8808
Bourns, Inc., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507 714-781-5050
§† Dale Electronics, Inc., Columbus Div., Box 609, 2064 12th Ave., Columbus, NE 68601 402-564-3131
§† Dale Electronics, Inc., Norfolk Div., 2300 Riverside Blvd., Norfolk, NE 68701 402-371-0080
Lectrohm Div. of Capco, Inc., Box 1028, Grand Junction, CO 81502 303-243-8480
Micro-Ohm Corp., 4900 Santa Anita Ave., El Monte, CA 91731 .... 818-442-3310; 213-686-0535
Milwaukee Resistor Corp., 700 W. Virginia St., Milwaukee, WI 53204 414-271-9900
§† Ohmite Mfg. Co., 3601 W. Howard St., Skokie, IL 60076 312-675-2600
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
Vishay Resistive Sys. Grp., 63 Lincoln Hwy., Malvern, PA 19355 215-644-1300
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
Ward Leonard Elec., 31 South St., Mt. Vernon, NY 10550 914-664-1000

Resistors, Adjustable-Also See Potentiometers; Rheostats-4700 – *See Vol. A*

Resistors, Ballast (Incl. Tube & Solid State Devices)-4700 – *See Vol. A*

Resistors, Beryllia Core – See Resistors, Integral Heat Dissipator (Vol. A)

Resistors, Bulk Ceramic-4700 – *See Vol. A*

Resistors, Carbon Film-4700 – *See Vol. A*

Resistors, Ceramic Core-4700 – *See Vol. A*

Resistors, Ceramic Metal (Cermet)-4700 – *See Vol. A*

Resistors, Chip (For Microcircuits)-4700 – *See Vol. A*

Resistors, Composition, Carbon-4700 – *See Vol. A*

Resistors, Decade-4700 – *See Vol. A*

Resistors, Deposited Carbon-4700 – *See Vol. A*

Resistors, Disk, Rod & Tube-4700 – *See Vol. A*

Resistors, Film, Metallized & Nonmetallized-4700 – *See Vol. A*

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Resistors, Flux Sensitive-4700 – *See Vol. A*

Resistors, Foil, Ultraprecision-4700 – *See Vol. A*

Resistos, Four Terminal-4700 – *See Vol. A*

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Resistors, Glass-4700 – *See Vol. A*

Resistors, Heat Sink Encased – See Resistors, Integral Heat Dissipator (Vol. A)

Resistors, High Frequency-4700 – *See Vol. A*

Resistors, High Megohm (Over 22 Megohms)-4700 – *See Vol. A*

Resistors, High Temperature (Over 125°C)-4700 – *See Vol. A*

Resistors, High Voltage (1,000 Volts & Over)-4700 – *See Vol. A*

Resistors, Hot Molded-4700 – *See Vol. A*

Resistors, Integral Heat Dissipator-4700 – *See Vol. A*

Resistors, Low Temperature Coefficient-4700 – *See Vol. A*

Resistors, Metal Glazed-4700 – *See Vol. A*

Resistors, Metal Oxide-4700 – *See Vol. A*

Resistors, Microwave-4700 – *See Vol. A*

Resistors, Negative Temperature Coefficient-4700 – *See Vol. A*

Resistors, Noninductive-4700 – *See Vol. A*

Resistors, Oil Filled-4700 – *See Vol. A*

Resistors, Plug-in-4700 – *See Vol. A*

Resistors, Positive Temperature Coefficient-4700 – *See Vol. A*

Resistors, Power-4700 – *See Vol. A*

Resistors, Precision-4700 – *See Vol. A*

Resistors, Pressure Sensitive-4700 – *See Vol. A*

Resistors, Rectilinear-4700 – *See Vol. A*

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Resistors, Strip-4700 – *See Vol. A*

Resistors, Suppressor-4700 – *See Vol. A*

Resistors, Surge-4700 – *See Vol. A*

Resistors, Tapped-4700 – *See Vol. A*

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Resistors, Tin Oxide-4700 – *See Vol. A*

Resistors, Variable – See Potentiometers (Vol. A), Rheostats (Vol. A), Resistors, Adjustable (Vol. A)

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Resistors, Wirewound-4700 – *See Vol. A*

Resistors, Zero-Ohm-4700 – *See Vol. A*

Resistors (MIL)-2440 – *See Vol. B*

Resolvers, Synchro-4900 – *See Vol. D*

Resonators, Ceramic-2700 – *See Vol. A*

Resonators, SAW-2300 – *See Vol. A*

Retainers, Battery-2800

Elect. Prec. Comp. Corp., 11 W. Sandford Blvd., Mt. Vernon, NY 10550, 914-664-2333 .... A•1868
§† Memory Protection Devices Inc., 320 Broad Hollow Rd., Farmingdale, NY 11735, 516-454-0340;516-454-0341 .... C•1451-1453
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... C•1508
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 .... D•1039
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
ISL Products Int'l, Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 .. 516-822-9601
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† N.C.E., Mail Station 331, 9925 Lyndale Ave. S., Bloomington, MN 55420 612-890-1360
Parker Hannifin Corp., 17325 Euclid Ave., Cleveland, OH 44112 216-531-3000
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
† Power Group International, Dept. 227, 2200 West 66th Street, Richfield, MN 55423 612-890-1360
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Retainers, Relay-4500 – *See Vol. B*

Retainers, Tube-5700 – *See Vol. A*

Retractors & Carriers – See Cable Retractors (Vol. C)

RFI Measuring Equipment-2900 – *See Vol. D*

RFI Shielding – See Shields, RF (Vol. C)

RFI Testing Services – See Services, Electrical Measurement & Test (Vol. D)

Rheostats-4750 – *See Vol. A*

Ribbons for Printers-2000 – *See Vol. D*

Rings, Retaining-2500

† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101-4478 ... 718-392-3100

Rivets-2825

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Avdel, Newman Inds., Inc., 50 Lackawanna Ave., Parsippany, NJ 07054 201-263-8100
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773; 914-699-7223
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Electro-Mechanical Corp., 785 Hertel Ave., Buffalo, NY 14207 .. 716-876-9685
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Milford Rivet & Mach., 857 Bridgeport Ave., Milford, CT 06460 203-878-4631
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
† Southco, Inc., 210 N. Brinton Lake Rd., Concordville, PA 19331 215-459-4000

Robotic Pick & Place – See Arms & Manipulators, Robotic

Robotics – See Arms & Manipulators, Robotic (Vol. D), Control Systems, Robotic (Vol. D)

Rods, Ground-2800

§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§ Premax Prods. Div., Highland & College Aves., Niagara Falls, NY 14305 716-285-9186

Rotators – See Antenna Rotators (Vol. D)

Rotors, Motor & Generator – See Motor & Generator Armatures, Rotors, Stators (Vol. B)

Rubber, Conductive-1600

SIDAC Enclosures, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, 718-441-4728 .... C•1082
Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... C•1735,1737
Alasco Rubber & Plastics Corp., 617 Mountain View Ave. #7, Belmont, CA 94002 415-595-4100
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
§ Bowmar Instrument Corp., Commercial Products Div., 4640 126th Ave. N., Clearwater, FL 33520 813-576-2525
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773; 914-699-7223
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300

Gates Data Products, Gates Corporation, 2455 Executive Circle, Colorado Springs, CO 80906 303-579-0330
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 800-328-1368
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269 404-487-6681
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
§ Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Rubber Guards (For Equipment) — See Bumpers (Vol. C)

Rubber, Silicone-1600

Alasco Rubber & Plastics Corp., 617 Mountain View Ave. #7, Belmont, CA 94002 415-595-4100
† Allaco Prods. Div., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
§† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ..... 212-597-1773; 914-699-7223
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§† Dow Corning Corp., Box 0994, Midland, MI 48686-0994 517-496-4000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
Gates Data Products, Gates Corporation, 2455 Executive Circle, Colorado Springs, CO 80906 303-579-0330
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040 ..... 215-672-0787;215-672-4741
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261

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Scales, Dial-2400

Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
Beckman Instrs., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Dillon, W. C., & Co., National Controls, Inc., 2320 Airport Blvd., Santa Rosa, CA 95401 707-527-5555
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 ..... 800-245-4501;800-245-4497 In Ohio
§ Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 215-673-5600
3D Optics, Box 224, 4 Strathmore Cir., Braintree, MA 02184 617-848-8002
Toledo Scale, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 ..... 800-245-4501;in OH 800-245-4497
§ Vemaline Prods. Div., P.O. Box 6267, Providence, RI 02940 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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Scanners, Crossbar-1900 — *See Vol. D*

Scanners, Fiber Optic-2475 — *See Vol. B*

Scanners, Flying Spot-1900 — *See Vol. D*

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Scanners, Instrument, Input/Output-2900 — *See Vol. D*

Scanners, Optical-2900 — *See Vol. D*

Scanners, Reed-2900 — *See Vol. D*

Scintillometers-2900 — *See Vol. D*

Scissors-5400

Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
§† Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 213-772-0751
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010

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Screens, Printed Circuit-1700

Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
NAZ-DAR Intl., 1087 N. Branch St., Chicago, IL 60622 312-943-8338
Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
Universal Instrs., P.O. Box 825, Binghamton, NY 13902 607-775-1102
§ Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527

Screwdrivers-5400

Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
§ Best Way Tools, 171 Brook Ave., Deer Park, NY 11729 516-586-4702
† Black & Webster, 219 Bear Hill Rd., Waltham, MA 02254 617-890-9100
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 213-772-0751
§ Foredom Elec. Co., Blackstone Inds. Inc., Route 6, Bethel, CT 06801 203-792-8622
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Kedman Co., Box 25667, Salt Lake City, UT 84125 801-973-9112
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510 702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877

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Screws, Fastening-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ..... C•1174
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ..... C•1227
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ..... C•1317
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ..... C•1696
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
§ Foredom Elec. Co., Blackstone Inds. Inc., Route 6, Bethel, CT 06801 203-792-8622
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ..... 501-453-2261;1-800-643-2356
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Southco, Inc., 210 N. Brinton Lake Rd., Concordville, PA 19331 215-459-4000

Scribers-5400

§ Apollo Lasers, Inc., 9201 Independence Ave., Chatsworth, CA 91311 213-709-1111
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Coherent, Inc., 3210 Porter Dr., Palo Alto, CA 94304 415-493-2111
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 404-429-9061
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

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Sealing Equipment, Metal to Glass/Ceramic-4100 — *See Vol. D*

Seals & Feedthrus, Environmental — See Feedthrus & Seals, Environmental (Vol. C)

Seals, Ceramic To Metal-2500

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
† Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 .... C•1173
† Airpax Corp., Woods Rd., Cambridge, MD 21613 301-228-4600
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-8725
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 ... 805-968-5000
Ferro Corp, Electronic Glasses Dept., 4150 East 56th St., P. O. Box 6550, Cleveland, OH 44101 216-641-8580
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ...... 714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791

Seals, Glass To Metal-2500

† Airpax Corp., Woods Rd., Cambridge, MD 21613 301-228-4600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Connector Inds. of Amer. Div., Microdot Mfg., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-8725
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Ferro, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117 ... 805-968-5000
Ferro Corp, Electronic Glasses Dept., 4150 East 56th St., P. O. Box 6550, Cleveland, OH 44101 216-641-8580
Fredericks Co., Philmont & Anne Sts., Huntingdon Valley, PA 19006 215-947-2500
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 617-272-1313
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
† Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013 717-243-5929
Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 .. 201-334-7770
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, JAPAN ...... Tokyo 03-402-6161
Wall, A. T., Co., 55 Service Ave., Warwick, RI 02886 401-739-0740
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791

Seals, Hermetic-Also See Services, Hermetic Sealing-2500

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 ...... C•1619-1621
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Connector Inds. of Amer. Div., Microdot Mfg., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
† Detoronics Corporation, 10660 E. Rush St., S. El Monte, CA 91733 818-579-7130
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Ferro Corp, Electronic Glasses Dept., 4150 East 56th St., P. O. Box 6550, Cleveland, OH 44101 216-641-8580
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 617-695-0203
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
§ Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
† Sealtron, Inc., 9705 Reading Road, Cincinnati, OH 45215 513-733-8400
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

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Seals, Pressure Sensitive-2500

† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351

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Security Systems, Data-2325 — *See Vol. D*

Seismographs-2900 — *See Vol. D*

Seizers-5400

§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

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Lamtech Electronics, 620 Easy Street, Garland, TX 75042, 214-272-3504 ..... C•1845
† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ..... C•1474
Altek Co., P.O. Box 1128, Torrington, CT 06790 203-482-7626
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Corlund Elctrns. Corp., 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-6947
Electronic Component Assembly, Inc., 9500 Alto Drive, La Mesa, CA 92041 619-464-0910
§† Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
General Electric Co., 333 W. Seymour Ave., Cincinnati, OH 45216 513-948-5050
Interface Electronics Inc., 21134 Bridge St., Southfield, MI 48034 313-352-8820
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 203-288-5571
National Telephone & Elctrns. Inc., 2350 N.W. 96 Avenue, Miami, FL 33172 305-592-0551
§ RVS Electronics, Inc., 40 North St., Middletown, NY 10940 914-342-3199
† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 215-673-5600
Technical Aids to Independence, Inc., 12 Hyde Road, Bloomfield, NJ 07003 201-338-8826
Won Tronics, Apollo Magnetics Corp., 2720 W. Beverly Blvd., Los Angeles, CA 90057 213-381-2500

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Services, Instrument Design (Industrial)-4100 – ***See Vol. D***

Services, Integration, Computer Systems – See Services, Computer Systems, Integrators

Services, Laser, Consulting-4100 – ***See Vol. D***

Services, Measurement & Test, Electrical – See Services, Electrical Measurements & Test (Vol.), Services, Environmental Testing

Services, Measuring – See Services, Instrument Calibration (Vol.), Services, Testing & Measuring

Services, Metal Etching, Engraving-4100 – ***See Vol. D***

Services, Metal Parts Fabrication-4100 – ***See Vol. D***

Services, Metallizing (Incl. Electroforming)-4100 – ***See Vol. D***

Services, Microprocessor Development - Also see Services, PROM & Array Programming-4100 – ***See Vol. D***

Services, Molding/Casting - Also see Services, Plastic Fabrication & Molding-4100 – ***See Vol. D***

Services, Optical Design-4100 – ***See Vol. D***

Services, Packaging-4100 – ***See Vol. D***

Services, Permanent Magnet-1850 – ***See Vol. A***

Services, Photographic-4100 – ***See Vol. D***

Services, Plastics Fabrication/Molding/Foaming/Finishing-4100 – ***See Vol. D***

Services, Plating-4100 – ***See Vol. D***

Services, Precious Metal Refining-4100 – ***See Vol. D***

Services, Precious Metal Resmelting, Recovery, Recycling-4100 – ***See Vol. D***

Services, PC Design/Preparation/Production-4100 – ***See Vol. D***

Services, PROM & Array Programming - Also see Services, Microprocessor Development-4100 – ***See Vol. D***

Services, Qualification Testing – See Services, Environmental Testing (Vol. D)

Services, Reliability-4100 – ***See Vol. D***

Services, Rental, Instruments & Equipment — See Test Equipment, Rental & Lease

Services, Repair, Maintenance — See Services, Calibration & Repair Instrument

Services, RFI Measuring — See Services, Electrical Measurement & Test (Vol. D)

Services, Silicon Foundry — See Silicon Foundry Services

Services, Silk Screening-4100 — *See Vol. D*

Services, Soldering-4100 — *See Vol. D*

Services, Technical Writing — See Services, Documentation

Services, Testing & Measuring — See Services, Electrical Measurement & Test (Vol.), Services, Environmental Testing

Services, Testing, Environmental — See Services, Environmental Testing

Services, Training/Education-4100 — *See Vol. D*

Services, Vibration Surveys-4100 — *See Vol. D*

Services, Wire Cutting & Stripping - Also see Services, Crimping-4100 — *See Vol. D*

Services, Wirewrapping/Soldering/Welding/Brazing - Also See Services, Backplane Wiring-4100 — *See Vol. D*

Servo Systems-4900 — *See Vol. D*

Shaft Encoders, Shaft Position — See Encoders, Shaft Angle (Vol. B)

Shaft Locks — See Locks, Dial & Shaft (Vol. C)

Shafts & Adapters-Also See Couplings, Shaft, Rigid & Flexible-3500 — *See Vol. B*

Shake Tables — See Testers, Vibration (Vol. D)

Shells, Encapsulation — See Cups, Encapsulation (Vol. C)

Shielding, EMI/RFI-4525

Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510	**C•1722**
† Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100	**C•1726**
Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373	**C•1447**
Acme Chemicals & Insulation Co., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513	203-562-2171
§ ADE, Inc., 1560 E. 98th St., Chicago, IL 60628	312-221-3400
† Ark Elctrns. Corp., 1325 Industrial Hwy., Southampton, PA 18966	215-322-6510
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312	703-642-4000
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060	201-753-7988
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644	201-796-2886
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906	317-463-2511
GM Nameplate, Inc., 2040 15th Ave. West, Seattle, WA 98119	206-284-2200
Keene Ray Proof, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878	203-838-4555
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503	201-345-8900
Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016	800-325-9814;213-870-9383
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040	215-672-0787;215-672-4741
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269	404-487-6681
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505	814-455-0966
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157	603-224-9585
† Zippertubing.Co., P.O. Box 61129, Los Angeles, CA 90061	213-321-3901

Shielding Beads, Ferrite-4525

Allen-Bradley Co., Electronics Group, Div. of Rockwell Corp., Magnetic Products Div., 5900 N. Harrison St., Shawnee, OK 74801, 405-275-2100	**A•1298-1299**
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503, 201-345-8900	**A•1304,1306**
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733	818-579-7060
§ Allen-Bradley Co., Electronics Group, Rockwell Corporation, 1201 S. Second St., Milwaukee, WI 53204	414-671-2000
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477	914-246-2811
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491	309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644	201-796-2886
§ Fair-Rite Prods., PO Box J, Wallkill, NY 12589	914-895-2055
Ferronics, 52 N. Main St., Fairport, NY 14450	716-223-1010
Micrometals, 1190 N. Hawk, Anaheim, CA 92807	714-630-7420
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857	814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401	615-867-4100

Shields, Cable — See Braid, Cable (Vol. C)

Shields, Cathode-Ray Tube-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158	**C•1720**
Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000	**C•1721**
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030	**C•1723**
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006, 201-575-5586	**A•2343**
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060	313-984-5581
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430	201-327-1123
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888	617-935-4850
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033	201-241-0710
Inter-Technical Grp., Box 23, Irvington, NY 10533	914-591-8822
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101	212-361-0800
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106	312-766-7800
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148	617-321-4410
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063	415-365-0498
Screen Data Corp., 80 S. Jefferson Rd., Whippany, NJ 07981	201-887-7713; 800-248-1212

Shields, Coil-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158	**C•1720**
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000	**C•1721**
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510	**C•1722**
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030	**C•1723**
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503, 201-345-8900	**A•1304**
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501	516-746-2310
CELCO, 70 Constantine Dr., Mahwah, NJ 07430	201-327-1123
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888	617-935-4850
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033	201-241-0710
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106	312-766-7800
§ Microtran Co., Inc., 145 E. Mineola Ave., Valley Stream, NY 11580	516-561-6050
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148	617-321-4410
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063	415-365-0498
SL Electronics, 300 Harvard Ave., Westville, NJ 08093	609-456-7300
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706	516-666-8000
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612	716-621-8400

Shields, Corona-4525

Ross Engrg. Corp., 540 Westchester Dr., Campbell, CA 95008, 408-377-4621	**B•1443**
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060	313-984-5581
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060	201-753-7988
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888	617-935-4850
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450	617-448-5485
Hipotronics, P.O. Drawer A, Brewster, NY 10509	914-279-8091
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101	212-361-0800
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117	616-469-2727
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063	415-365-0498
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612	419-729-9761
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157	603-224-9585
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105	806-372-8523

Shields, Electrostatic — See Shields, Tube (Vol. C)

Shields, Indicator Light-4525

† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888	617-935-4850
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706	516-666-8000

Shields, Magnetic-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158	**C•1720**
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000	**C•1721**
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030	**C•1723**
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800	**C•1602**
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503, 201-345-8900	**A•1306**
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800	**C•1727,1729**
THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006, 201-575-5586	**A•2343**
ATV Research, Inc., 1301 Broadway, Dakota City, NE 68731	402-987-3771
† Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491	309-695-2511
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430	201-327-1123
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888	617-935-4850
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648	201-768-5400
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362	206-457-0904

Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 ... 201-241-0710
Hamamatsu Photonics K.K., 325-6 Sunayama-Cho, Hamamatsu City, Shizuoka Pref, JAPAN ... 0534-52-2141
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 ... 201-589-1800
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 ... 717-424-8510
Inter-Technical Grp., Box 23, Irvington, NY 10533 ... 914-591-8822
§† Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ... 800-325-9814;213-870-9383
† Magnetics, Box 391, Butler, PA 16003-0391 ... 412-282-8282
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ... 415-365-0498
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 ... 516-536-5000
† Schonstedt Instr. Co., 1775 Wiehle Ave., Reston, VA 22090 ... 703-471-1050
SL Electronics, 300 Harvard Ave., Westville, NJ 08093 ... 609-456-7300
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 ... 814-781-1234
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 ... 716-621-8400
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, JAPAN ... Tokyo 03-402-6161
Topflight, 160 East 9th Ave., York, PA 17404 ... 800-233-9386
Won Tronics, Apollo Magnetics Corp., 2720 W. Beverly Blvd., Los Angeles, CA 90057 ... 213-381-2500
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Shields, Photomultiplier-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ... C•1720
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ... C•1721
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ... C•1723
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ... C•1728
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006, 201-575-5586 ... A•2343
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
Inter-Technical Grp., Box 23, Irvington, NY 10533 ... 914-591-8822
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 ... 212-361-0800
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410

Shields, RF-Also See Gaskets, Shielding, RF-4525

Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ... C•1720
Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ... C•1721
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ... C•1722
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327, 717-424-8510 ... C•1724-1725
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07503, 201-345-8900 ... A•1306
† Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100 ... C•1726
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... C•1730-1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 ... 313-984-5581
† Adams Russell, Modpak Div., 80 Cambridge St., Burlington, MA 01803 ... 617-273-3333
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 ... 818-579-7060
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 ... 201-256-3939
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 ... 201-831-3148
† Ark Elctrns. Corp., 1325 Industrial Hwy., Southampton, PA 18966 ... 215-322-6510
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 ... 703-642-4000
§ Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 ... 612-835-2322
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 ... 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
Compac, 279 Skidmore Rd., Deer Park, NY 11729 ... 516-667-3933
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 ... 206-457-0904
Evaporated Coatings, P.O. Box 160, Huntingdon Valley, PA 19006 ... 215-947-1465
§ Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 ... 714-993-4200
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 ... 213-849-2481
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 ... 714-623-3463
Keene Ray Proof, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878 ... 203-838-4555
§† Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ... 800-325-9814;213-870-9383
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 ... 419-247-4797
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 ... 609-799-0100
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963 ... 800-328-1368
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., #8, Pacheco, CA 94553 ... 415-798-6066
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 ... 215-365-8400
PCK Elastomerics, Inc., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040 ... 215-672-0787;215-672-4741
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ... 415-365-0498
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 ... 201-985-8800
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 ... 814-455-0966
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 ... 516-666-8000
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 ... 201-672-2140
§† Tafa, Inc., Dow Rd, Box 1157, Bow, NH 03301-1157 ... 603-224-9585
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 ... 716-621-8400
§† Tech-Etch, Inc., 45 Aldrin Rd., Plymouth, MA 02360 ... 617-747-0300
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 ... 607-772-1161
Topflight, 160 East 9th Ave., York, PA 17404 ... 800-233-9386
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ... 614-276-5522; 800-245-5253
† Universal Shielding Corp., 20 W. Jefryn Blvd., Deer Park, NY 11729 ... 516-667-7900
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Shields, Transformer-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ... C•1720
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ... C•1721
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ... C•1722
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ... C•1723
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
Framar Metal Products Co., Inc., 345 Carnegie Avenue, Kenilworth, NJ 07033 ... 201-241-0710
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 ... 201-589-1800
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 ... 212-361-0800
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 ... 312-766-7800
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
Microtran Co. Inc., 145 E. Mineola Ave., Valley Stream, NY 11580 ... 516-561-6050
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ... 415-365-0498
SL Electronics, 300 Harvard Ave., Westville, NJ 08093 ... 609-456-7300
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 ... 516-666-8000
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 ... 716-621-8400

Shields, Tube-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ... C•1720
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ... C•1721
† Eagle Magnetic Company, Inc., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ... C•1723
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 ... 818-579-7060
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 ... 216-226-1360
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Drawn Metal Products, 6143 W. Howard St., Niles, IL 60648 ... 312-647-8941
Hamamatsu Photonics K.K., 325-6 Sunayama-Cho, Hamamatsu City, Shizuoka Pref, JAPAN ... 0534-52-2141
§† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 ... 818-849-2481;818-786-1182
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 ... 717-424-8510
§† Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 ... 213-849-2481
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 ... 212-361-0800
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 ... 312-766-7800
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ... 616-469-2727
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 ... 617-321-4410
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ... 415-365-0498
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 ... 516-666-8000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Shields, Wire — See Braid, Cable (Vol. C)

Shift Registers-2325 — *See Vol. D*

Shifters, Frequency — See Converters, Frequency to Frequency (Vol. D)

Shifters, Phase, Microwave-3450 — *See Vol. A*

Shifters, Phase, RF-3450 — *See Vol. A*

Shifters, Phase 60/400 Hz-4050 — *See Vol. D*

Shrinkable Plastics & Elastomers — See Caps, Forms & Tapes, Heat Shrinkable (Vol. C), Tubing, Heat Shrinkable (Vol. C)

Shunts, Connector-2100

Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... C•1586

Shunts, Meter-2900 — *See Vol. D*

Shutters, Microwave-3450 — *See Vol. A*

SIDACs-4800 — *See Vol. A*

Signal Averagers-2900 — *See Vol. D*

Signal Conditioners & Equipment-1100 — *See Vol. D*

Signal Generators — See Generators, Specific Type (Vol. D)

Signal Systems, Fiber Optic-2325 — *See Vol. D*

Signal Tracers — See Testers, Signal Tracing (Vol. D)

Silica, Fused-2500

† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Silk Screening Services — See Services, Silk Screening (Vol. D)

Simulation Systems, Electromagnetic Pulse-1100 — *See Vol. D*

Simulators, Data-2900 — *See Vol. D*

Simulators, Motion-2550

North Atlantic Inds., Instrument Div., 60 Plant Ave., Hauppauge, NY 11788, 516-582-6500 .... D•1283
† Transmagnetics, 210 Adams Blvd., Farmingdale, NY 11735, 516-293-3100 .... D•1162-1163
† Aeroflex Labs., Magnetic Prods. Div.,, 35 South Service Road, Plainview, NY 11803 516-694-6700
§ Aerotech, Inc., 101 Zeta Dr., Pittsburgh, PA 15238 412-963-7470
Anorad Corp., 110 Oser Ave., Hauppauge, NY 11788 516-231-1990
Austin Electronics, The Austin Co., 17-01 Pollitt Drive, Fair Lawn, NJ 07410 201-794-0200
Automation Unltd., 10H Roessler Rd., Woburn, MA 01801 617-933-7288
Centent Co., 3879 S. Main St., Santa Ana, CA 92707 714-979-6491
† Computer Conversions Corp., 6 Dunton Ct., E. Northport, NY 11731 516-261-3300
Contraves Goerz Corp., 610 Epsilon Dr., Pittsburgh, PA 15238 412-967-7700
† Control Technology Co., 41-16 29th St., Long Island City, NY 11101 718-361-2133
† Genisco Technlg. Corp., Rotating Test Div., 18435 Susana Rd., Rancho Dominguez, CA 90221 213-537-4750
† HEI Corporation, 290 S. Main Place, Carol Stream, IL 60188 312-665-5500
Icon, 156 Sixth St., Cambridge, MA 02142 617-868-5400
† Instruments and Controls Div., Technology Inc., P.O. Box 3036, Overlook Branch, Dayton, OH 45431 513-426-2405
Interface Engrg., 386 Lindelof Ave., Stoughton, MA 02072 617-344-7383
† McFadden Sys., Inc., 8953 S. Atlantic Ave., South Gate, CA 90280-9990 213-564-5958
MTS Sys., Box 24012, Minneapolis, MN 55424 612-937-4000
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Stenning Instrments, Inc., 671 Enchanted Way, Pacific Palisades, CA 90272 213-459-2930
Summit Engineering Corp., Box 938, Bozeman, MT 59715 406-587-4511

Simulators, Optics-3700 — *See Vol. B*

Simulators, Power Failure-2900 — *See Vol. D*

Simulators, Powerline Disturbance-2900 — *See Vol. D*

Simulators, Radar-3475 — *See Vol. D*

Simulators, Resolvers-2900 — *See Vol. D*

Simulators, Solar-2900 — *See Vol. D*

Simulators, Thermocouple-2900 — *See Vol. D*

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Sleeves — See Tubing (Vol. C)

Slides, Cabinet & Chassis-1400

§† Barnes Engrg., 1645 So. Claudina Way, Anaheim, CA 92805, 714-533-7530 .... C•1010-1024
† Chassis-Trak, General Devices Co., Inc., P.O. Box 39100, Indianapolis, IN 46239, 317-897-7000 .... C•1062-1063
† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1062-1063
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... C•1073
§† Accuride, 12311 S. Shoemaker, Santa Fe Springs, CA 90670 213-944-0921
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Grant Hardware Co., Div. of Grant Inds. Inc., 7 Hoover Ave, Haverstraw, NY 10927-1092 .... 914-EL8-4400
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
Jonathan Mfg., 1101 So. Acacia Ave., Fullerton, CA 92631 714-526-4651
Lambda Electronics, Veeco Instr., Inc., 515 Broad Hollow Rd., Melville, NY 11747 516-694-4200
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 .... 501-453-2261;1-800-643-2356
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 .... 213-478-0046; 800-TECHMAR
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057

Slip Clutch — See Knobs, Slip Clutch (Vol. C)

Slip Rings & Assemblies-3500 — *See Vol. B*

Slotted Lines, Microwave-3450 — *See Vol. A*

Socket Adapters-2100

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1406
MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1467
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1892-1893
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 .... C•1497
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718 714-951-8808
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Data I/O Corp., 10525 Willows Rd. N.E., Redmond, WA 98073-9746 206-881-6444
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
Power Controls, P.O. Box 5860, San Antonio, TX 78201 512-734-7155
§ Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Array-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155-1156,1158
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1161
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1413
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1580,1587
§ Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 818-787-0311
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886

§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

Sockets, Capacitor-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

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Sockets, Crystal-2100

Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Diode-2100

† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... C•1409
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Leecraft Mfg., 21-02 44th Rd., Long Island City, NY 11101 718-392-8800
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Visual Communications Co., Inc., P.O. Box 986, El Segundo, CA 90245 .. 213-822-4727
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

Sockets, DIP and DIL-2100

§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1151
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155-1158
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160-1161
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1703
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1186-1188,1708-1709
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190
§† H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532, 312-969-4550 .... C•1467
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1581,1587
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
§† Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 ... 818-787-0311
Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§† 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§† Refac Elctrns. Corp., P.O. Box 809, Winsted, CT 06098 203-379-2731
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
† Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Sockets, Integrated Circuit-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155-1156,1158
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160-1161
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... C•1703
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1186-1187,1708-1709
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190
H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§ Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405, 818-787-0311 .... B•1078
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... C•1101
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... C•1409
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1413
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475
§† Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495

WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578
§ **Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1581-1582,1587**
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Beckman Industrial Corp., Electronic Technologies Div., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 E. Huntington Dr., Duarte, CA 91010 818-358-0191
Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ New-Tone Electronics, Inc., 44 Farrand St., Bloomfield, NJ 07003 201-748-5089
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 312-440-1000
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552

Sockets, International-2100

Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... C•1482
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1489-1490
Preh Electronics Industries, Inc., 5665 Howard Street, Niles, IL 60648, 312-647-8338 .... C•1497

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Sockets, Leadless Carrier-2100

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1188
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1413
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 818-787-0311
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941

Sockets, LIF & ZIF-2100

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... C•1187
§† **Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... C•1582**
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Alpha Products, Inc., 5740 Corsa Ave. #104, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

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§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155-1156,1158**
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... C•1413
§ Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 818-787-0311
Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941

Sockets, Power (Receptacles)-2100

Power Dynamics, 59 Lakeside Ave., West Orange, NJ 07052, 201-762-6886 .... C•1489-1490
Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839, 214-243-4321 .... C•1679
Brooks Mktg. Corp., 3569 Bristol Pike Bldg. 2 Ste 102, Bensalem, PA 19020 .... 215-244-0264;1-800-523-1551
Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311

Sockets, Relay-2100

§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155-1156,1158**
† **Aromat Corp., 250 Sheffield St., Mountainside, NJ 07092, 201-232-4260 .... B•1282,1285,1289-1290**
§ **IDEC Systems & Controls Corp., 1213 Elko Drive, Sunnyvale, CA 94089-2211, 408-747-0550 .... B•1408-1410**
§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1597,1600**
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 .... C•1488
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§ **RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1498**
Telemecanique, Inc., Allied Control Products, 100 Relay Rd., Plantsville, CT 06479, 203-621-6771 .... B•1452,1459
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ American Zettler, 16881 Hale Ave., Irvine, CA 92714 714-660-1670
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Bosch, Robert, Corp., 2800 S. 25th Ave., Broadview, IL 60153 312-865-5200
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 203-828-6379
§ Clare Division, General Instrument Corp., 3101 W. Pratt Blvd., Chicago, IL 60645 312-262-7700
Computer Components, Inc., 629 Fifth Ave., Pelham, NY 10803 914-738-1611
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
§ Custom Connector, 1738 E. 30th St., Cleveland, OH 44114 216-241-1679
† DAN-L Inc., 229 Laurel Rd., E. Northport, NY 11731 516-757-8000
§ Diversified Elctrns., Inc., Indl. Controls Div., 119 N. Morton Ave., Evansville, IN 47711 812-426-2806
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§ Electromatic Controls Corp., 2495 Pembroke Road, Hoffman Estates, IL 60195-2010 312-882-5757
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Gould Inc., Industrial Controls Div., 901 Baltimore Blvd., Westminster, MD 21157 301-876-2214
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ ITT Components Electromechanical Grp., 1201 E. McFadden Ave., Santa Ana, CA 92705 714-836-0351

§ H. Kuhnke, Inc., 26 W. Highland Ave., Atlantic Highlands, NJ 07716 .... 201-291-3334; 800-221-0714
§ Leach Corp., Relay Div., 5915 Avalon Blvd., Los Angeles, CA 90003 213-232-8221
§ Line Elec. Prods., G. General Electro-Components, Inc., 122 Naubuc Ave., Glastonbury, CT 06033 203-659-3573
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ Magnecraft Elec. Co., 1910 Techny Road, Northbrook, IL 60062-5376 ... 312-282-5500
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midland-Ross Corp., Midtex Div., P.O. Box 3328, No. Mankato, MN 56001 507-625-6521
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Omron Elctrns., Inc., Control Comps. Div., One E. Commerce Dr., Schaumburg, IL 60195 312-843-7900
§ Potter & Brumfield, AMF Incorporated, 200 S. Richland Creek Dr., Princeton, IN 47671-0001 812-386-1000
† PSG Inds., 1225 Tunnel Road, Perkasie, PA 18944 215-257-3621
§ Relay Specialties, 1300 Plaza Rd., Fair Lawn, NJ 07410 .. 201-797-3313;800-526-5376
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Schrack North America Corp., 3 Westchester Plaza, Elmsford, NY 10533 914-592-1305
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Sigma Instrs., 170 Pearl St., Braintree, MA 02184 617-843-5000
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§† Struthers-Dunn, Inc., Lamb's Rd., Pitman, NJ 08071 609-589-7500
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Sockets, SIP-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155-1156
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
Elfab Corp., 1097 Yates Street, Lewisville, TX 75067, 214-221-8776;214-233-3033 .... C•1190
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... C•1582
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

Sockets, Test-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1158
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160
Richard Hirschmann of America, Industrial Row, Riverdale, NJ 07451, 201-835-5002 .... C•1235
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1293,1406
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ...... C•1409
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... C•1587
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 .. 913-342-5544
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ "World" Enterprises, Inc., P. O. Drawer 1428, Waynesboro, VA 22980 ... 703-949-6753

Sockets, Transistor-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... C•1160-1161
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ...... C•1185
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 .... C•1225
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ...... C•1409
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§ AMF/Electro Comps. Div., AMF, 2713 Gateway Dr., Pompano Beach, FL 33060 305-973-8620
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., 703 Rogers St., Downers Grove, IL 60515 312-968-7000
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ New-Tone Electronics, Inc., 44 Farrand St., Bloomfield, NJ 07003 201-748-5089
Projects Unltd., 3680 Wyse Rd., Dayton, OH 45414 513-890-1918
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, P. O. Box 810839, Dallas, TX 75381-0839 214-243-4321
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941
§ Winslow Intl., 2471 E. Bayshore #520, Palo Alto, CA 94303 415-856-0552
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Tube-2100

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... C•1122
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ...... C•1409
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1498
Amperite Co., Inc., 600 Palisade Ave., Union City, NJ 07087 201-864-9503
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847

§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006 201-575-5586
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Software, Data Base Management-2050 – *See Vol. D*

Software, Data Base Management Dictionaries-2050 – *See Vol. D*

Software, Data Base Query Language-2050 – *See Vol. D*

Software, Data Communications Control-2050 – *See Vol. D*

Software, Disk/Tape File Utilities-2050 – *See Vol. D*

Software, Emulation/Simulation-2050 – *See Vol. D*

Software, Information Storage & Retrieval-2050 – *See Vol. D*

Software, Job Scheduling/Accounting-2050 – *See Vol. D*

Software, Librarians-2050 – *See Vol. D*

Software, Operating Systems-2050 – *See Vol. D*

Software, Operating Systems Enhancement-2050 – *See Vol. D*

Software, Programming/Systems Development Aids-2050 – *See Vol. D*

Software, Program Translators-2050 – *See Vol. D*

Software, Report Generators-2050 – *See Vol. D*

Software, Security-2050 – *See Vol. D*

Software, Sort/Merge-2050 – *See Vol. D*

Software, Spoolers-2050 – *See Vol. D*

Software, Utilities-2050 – *See Vol. D*

Solar Cells – See Cells, Photovoltaic (Vol. B)

Solder (All Types)-4600

§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... C•1738
§† Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 .... C•1096,1740
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
§† Bow Solder Prods., 900 Hobson St., Union, NJ 07083 .... 201-686-6040;800-526-4496
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Fusion Inc., 4658 E. 355th. St., Willoughby, OH 44094 216-946-3300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Glenmarc Mfg., 330 Melvin Dr., Northbrook, IL 60062 312-272-9030
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† New England Smelting Works, Inc., 502 Union St., W. Springfield, MA 01090 413-734-6491
Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Solder Lugs – See Terminals, Lug (All Types) (Vol. C)

Solder Pots & Baths-4600

Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 .... C•1740
† Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
§ APA Division, 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 ... 516-654-1197
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
† Electrovert USA Corp., 10969 Shady Trail, #101, Dallas, TX 75220 214-353-9950
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204 201-245-6200
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 603-889-1121
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Trent, Inc., 201 Leverington Ave., Philadelphia, PA 19127 215-482-5000
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411

Soldering Accessories-4600

§ Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... C•1738
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204, 201-245-6200 .... C•1739
Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 .... C•1096,1740
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
APA Division, 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 ... 516-654-1197
§† Beau Tech, P.O. Box 598, Portland, ME 04122 207-775-6139
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
Fusion Inc., 4658 E. 355th. St., Willoughby, OH 44094 216-946-3300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Kahle Engrg., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087 201-867-6500
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Miller, L.C., Co., 717 Monterey Pass Rd., Monterey Pk., CA 91754 213-268-3611
Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-595-7621
Philips ECG, Inc., 100 First Ave., Waltham, MA 02254 617-890-6107
Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Roean Industries, Inc., 12970 Branford, Ste. C, Pacoima, CA 91331 818-767-7047
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501 919-527-4186
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411
§ Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137 312-469-8473
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Soldering Equipment, Hot Gas-4100 — *See Vol. D*

Soldering Equipment, Induction Heating-4100 — *See Vol. D*

Soldering Equipment, Infrared-4100 — *See Vol. D*

Soldering Equipment, Printed Circuit-4100 — *See Vol. D*

Soldering Equipment, Resistance-4100 — *See Vol. D*

Soldering Systems, Temperature Controlled-4100 — *See Vol. D*

Soldering Equipment, Ultrasonic-4100 — *See Vol. D*

Soldering Equipment, Vapor Phase-4100 — *See Vol. D*

Soldering Guns, Irons & Desoldering Tools-4600

§ Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... C•1738
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204, 201-245-6200 ...... C•1739
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
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§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 ... 516-654-1197
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
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§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 213-772-0751
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
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† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ MG Electronics, 32 Ranick Rd., Hauppauge, NY 11788 516-582-3400
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
§ Nu-Concept Computer Sys., Rte. 309 & Advance La., Colmar, PA 18915 215-822-8400
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Roean Industries, Inc., 12970 Branford, Ste. C, Pacoima, CA 91331 818-767-7047
§ Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§† Solder Removal, P.O. Box 1678, Covina, CA 91722 213-967-3681
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Triton Mfg. Co., P.O. Box 361, East Haddam, CT 06423 203-838-4666
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
§† Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501 919-527-4186
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411
§ Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137 312-469-8473
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Soldering (MIL)-2440 — *See Vol. B*

Solenoids, Linear-4550 — *See Vol. B*

Solenoids, Proportional-4550 — *See Vol. B*

Solenoids, Rotary-4550 — *See Vol. B*

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Sonar Systems-3475 — *See Vol. D*

S100 Bus — See Board Computers & Subassemblies (Vol. D)

Sound Absorbing Materials-2825

§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 .... C•1695
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
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Ferro Corp., Composites Div., 34 Smith St., Norwalk, CT 06852 203-853-2123
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Soundcoat Co., Inc., 1 Burt Dr., Deer Park, NY 11729 516-242-2200
† Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Sound Level Indicators — See Meters, Audio Level (Vol. D)

Sound Recording Equip. — See Microphones (Vol. D), Recorders (Vol. D), etc.

Spacers-2825

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, 203-334-4124 .... C•1686
Bivar, Inc., 4 Thomas, Irvine, CA 92718, 714-951-8808 .... C•1025
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1837
Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509,1693
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
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§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
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Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Boker's, Inc., 3104 Snelling Ave., Minneapolis, MN 55406 612-729-9365
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
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† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
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§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
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† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087 603-893-2330
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
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§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Spaghetti — See Tubing, Spaghetti (Vol. C)

Spark Gaps-4300 — *See Vol. B*

Speakers, Explosion & Flame Proof-1300 — *See Vol. D*

Speakers, Horn-1300 — *See Vol. D*

Speakers, Intercom-1300 — *See Vol. D*

Speakers, Midrange-1300 — *See Vol. D*

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Speakers, Paging — See Speakers, Intercom (Vol. D)

Speakers, Pillow-1300 – *See Vol. D*

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Speakers, Subminiature-Also See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices-1300 – *See Vol. D*

Speakers, Tweeter-1300 – *See Vol. D*

Speakers, Weatherproof-1300 – *See Vol. D*

Speakers, Woofer-1300 – *See Vol. D*

Speakers (MIL)-2440 – *See Vol. D*

Speaker Systems-1300 – *See Vol. D*

Spectrometers-2900 – *See Vol. D*

Speech Compression & Synthesis Equipment-2325 – *See Vol. D*

Speed Drives, Motor – See Controls, Motor Speed (Vol. D)

Spiral Wrap – See Tubing, Spiral Wrap (Vol. C)

Splices, Fiberoptic-2475 – *See Vol. B*

Splicers, Coaxial Cable-5400

AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
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† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Splicers, Wire (Incl. Butt & Cap Types)-5400

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Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .. 201-245-0033;800-526-4182
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
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Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Splicing Equipment, Magnetic Tape-1300 – *See Vol. D*

Splicing Equipment, Fiber Optic-5400

Power Technology, Inc., P.O. Box 9769, Little Rock, AR 72219, 501-568-1995 .... B•1125
Custom Sci. Instrs., 13 Wing Dr., Cedar Knolls, NJ 07927 201-538-8500
Foundation Instruments Inc., 24 Colonnade Rd., Nepean, ON, CANADA K2E 7J6 613-226-4000
§† General Cable Co., Fiber Optics Div., 160 Fieldcrest Ave., Raritan Ctr., Edison, NJ 08818 201-225-4780
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860

Splicers, Fiber Optic-2475 – *See Vol. B*

Splitters/Combiners, Power – See Dividers, Power (Vol. A)

Spoolers, Printer Buffers-2325 – *See Vol. D*

Spoolers, Punched Tape – See Readers, Punched Tape (Vol. D)

Springs (All Types)-2500

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 .... B•1160
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... C•1472
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Ametek, Inc, Hunter Spring Division, 1 Spring Ave., Hatfield, PA 19440 215-822-2971
§† Associated Spring, Barnes Grp., 18 Main St., Bristol, CT 06010 203-583-1331
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Stabilizers, Current – See Current Sources (Vol. D), Regulators, Current (Vol. D)

Stabilizers, Line Impedance-4050 – *See Vol. D*

Stabilizers, Voltage – See Regulators & Stabilizers, Voltage (Vol. D), Transformers, Voltage Regulating (Vol. A), Voltage Sources (Vol. D)

Stabilizers, Voltage/Current, Automatic – See Power Supplies, Constant Current (Vol. D)

Stalos (Stabilized Local Oscillators) – See Oscillators, Microwave (Vol. A)

Stampings, Precious Metal – See Preforms, Precious Metal (Vol. C)

Standards, Atomic Beam-2900 – *See Vol. D*

Standards, Capacitance-2900 – *See Vol. D*

Standards, Current-2900 – *See Vol. D*

Standards, Delay Line-2350 – *See Vol. A*

Standards, Frequency-2900 – *See Vol. D*

Standards, Inductance-2900 – *See Vol. D*

Standards, Noise-2900 – *See Vol. D*

Standards, Phase-2900 – *See Vol. D*

Standards, Phase Angle-2900 – *See Vol. D*

Standards, Resistance-2900 – *See Vol. D*

Standards, Temperature-2900 – *See Vol. D*

Standards, Time-2900 – *See Vol. D*

Standards, Voltage-2900 – *See Vol. D*

Standards, Voltage Ratio-2900 – *See Vol. D*

Standoffs – See Bushings, Glass, Plastic, Metal, etc. (Vol. C)

Stands, Instruments-1400

§† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... C•1027**
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... C•1059
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-546-0884
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Stands, Printer/Terminal-1400

Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... C•1059
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064
§ **Production Industries, Inc., 12880-E Pierce Street, Pacoima, CA 91331, 818-896-0555;800-423-5618 .... C•1075-1077**
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064

§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000
Ergotron, Inc., 1621 E. 79th Street, Minneapolis, MN 55420 ... 612-854-9116; 800-328-9839
Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 ... 714-546-0884
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ... 404-939-6340
† Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 ... 301-921-8282
Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 ... 201-231-9400

Static Eliminating Materials, Devices, & Equipment-4525

ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1366
† 3M Co., Static Control Sys. Div., P. O. Box 2963, Austin, TX 78769-2963, 800-328-1368 ... D•1980-1981
§† NRD, Mark IV Ind., Inc., 2937 Alt Blvd. N., Grand Island, NY 14072, 716-773-7634 ... D•1983
S & H Inds., 119 Glen Cove Dr., Glen Head, NY 11545, 516-671-5600 ... D•1984
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... C•1730-1737
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 ... 313-984-5581
§† ACL Inc., 1960 E. Devon Ave., Elk Grove, IL 60007 ... 312-981-9212
§† ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 ... 312-221-3400
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
† Chapman Corp., P.O. Box 10700, Portland, ME 04104 ... 207-773-4726
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 ... 516-968-8282
§ Cover Craft Corp., 540 Commercial St., Manchester, NH 03102 ... 603-889-6811
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ... 617-448-5485
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 ... 301-539-6537
§ Herbert Prods. Inc., 180 Linden Ave., Westbury, NY 11590-0384 ... 516-334-6500
Lundy Elctrns. & Systems, Inc., 1 Robert La., Glen Head, NY 11545 ... 516-671-9000
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 ... 312-221-8242
§ Nu-Concept Computer Sys., Rte. 309 & Advance La., Colmar, PA 18915 ... 215-822-8400
§ Production Industries, Inc., 12880-E Pierce Street, Pacoima, CA 91331 ... 818-896-0555; 800-423-5618
§ Semtronics Corp., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269 ... 404-487-6681
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 ... 800-628-8862
Static, Inc., Rte. 113 & Mensch Rd., P.O. Box 80, Skippack, PA 19474 ... 215-584-9600
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ... 806-372-8523
Voyager Technologies, Inc., 2250 Cabot Blvd. W. Bldg. 40M, Langhorne, PA 19047 ... 215-750-0270
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614 ... 312-440-1000
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 ... 415-969-7717

Stators, Motor & Generator – See Motor & Generator Armatures,Rotors, Stators (Vol. B)

STD Bus – See Board Computers & Subassemblies (Vol. D)

Steppers, Indexing, Motor-3500 – *See Vol. B*

Steppers, Indexing, Switch-5100 – *See Vol. B*

Storage Euipment, Cartridge/Cassette-3800

Phi Technologies, Inc., 4605 North Stiles, Oklahoma City, OK 73105, 405-521-9000 ... D•1052-1053
§ Algo, Inc., 9198-C Red Branch Rd., Columbia, MD 21045 ... 301-730-7442
Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., # 200, Santa Clara, CA 95051 ... 408-748-1200
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
§ Digi-Data Corp., 8580 Dorsey Run Rd., Jessup, MD 20794 ... 301-498-0200
§ Dylon Data Corp., 9561 Ridgehaven Ct., San Diego, CA 92123 ... 619-292-5584
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
Mohawk Data Sciences, MDS Center, Herkimer, NY 13350 ... 315-866-5300
Ring King Visibles, Inc., 2210 Second Ave., Muscatine, IA 52761 ... 319-263-8144
Sentry Safes, John D. Brush Co., Inc., 900 Linden Ave., Rochester, NY 14625 ... 716-381-4900
Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 ... 201-231-9400

Storage Equipment, Disk-3800

† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 ... 414-447-8200
Burroughs Corp., Borroughs Place, Rm. 4C-51, Detroit, MI 48232 ... 313-972-7000
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
§ Computer Maintenance Corp., 405 Murray Hill Pkwy, East Rutherford, NJ 07073 ... 201-866-6400
§ Data General, 4400 Computer Dr., Westboro, MA 01581 ... 617-366-8911
First Computer Corp., 645 Blackhawk Dr., Westmont, IL 60559 ... 312-920-1050
Harris Corp., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309 ... 305-974-1700
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
§ Innovative Data Technology, 5340 Eastgate Mall, San Diego, CA 92121 ... 619-587-0555
I^2 Interface, Inc., 21101 Osborne St., Canoga Park, CA 91304 ... 818-341-7014

Lancore Technologies, Inc., 31324 Via Colinas, Westlake Village, CA 91362 ... 818-991-5100
RACET Computes, Ltd., 1855 W Katella Ste. 255, Orange, CA 92667 ... 714-997-4950
Ring King Visibles, Inc., 2210 Second Ave., Muscatine, IA 52761 ... 319-263-8144
Sentry Safes, John D. Brush Co., Inc., 900 Linden Ave., Rochester, NY 14625 ... 716-381-4900
Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 ... 201-231-9400
Vermont Resch. Corp., Precision Pk., N. Springfield, VT 05150 ... 802-886-2256

Storage Equipment, Flexible Disk-3800

Applied Micro Technlg., A Burr Brown Co., 3669 E. 44th Street, Tucson, AZ 85713 ... 602-622-8605
Burroughs Corp., Borroughs Place, Rm. 4C-51, Detroit, MI 48232 ... 313-972-7000
§ Data General, 4400 Computer Dr., Westboro, MA 01581 ... 617-366-8911
Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
I^2 Interface, Inc., 21101 Osborne St., Canoga Park, CA 91304 ... 818-341-7014
Ring King Visibles, Inc., 2210 Second Ave., Muscatine, IA 52761 ... 319-263-8144

Storage Equipment, Magnetic Card-3800

† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 ... 414-447-8200
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000

Storage Equipment, Microform-3800

† Keyan Inds., Inc., P.O. Box 1228, Middleboro, MA 02346 ... 617-947-7719
Ring King Visibles, Inc., 2210 Second Ave., Muscatine, IA 52761 ... 319-263-8144
Sentry Safes, John D. Brush Co., Inc., 900 Linden Ave., Rochester, NY 14625 ... 716-381-4900

Storage Equipment, Multifunctional-3800

Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ... 305-633-2556;800-327-6085
Lancore Technologies, Inc., 31324 Via Colinas, Westlake Village, CA 91362 ... 818-991-5100
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 ... 312-892-8941
Sentry Safes, John D. Brush Co., Inc., 900 Linden Ave., Rochester, NY 14625 ... 716-381-4900
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 ... 215-797-6600

Storage Equipment, Paper Tape-3800

† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 ... 414-447-8200

Storage Equipment, Printout-3800

Inmac, 2465 Augustine Dr., Santa Clara, CA 95054 ... 408-727-1970
Ring King Visibles, Inc., 2210 Second Ave., Muscatine, IA 52761 ... 319-263-8144

Storage Equipment, Punched Card-3800

† Astronautics Corporation of America, P.O. Box 523, Milwaukee, WI 53201-0523 ... 414-447-8200

Storage Equipment, Reel-to-Reel Tape-3800

† Data Capture Technology, Hathaway Instruments, 5436-F South Mingo Rd., Tulsa, OK 74146 ... 918-627-7521
§ Digi-Data Corp., 8580 Dorsey Run Rd., Jessup, MD 20794 ... 301-498-0200
§ Dylon Data Corp., 9561 Ridgehaven Ct., San Diego, CA 92123 ... 619-292-5584
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 ... 312-859-1000
First Computer Corp., 645 Blackhawk Dr., Westmont, IL 60559 ... 312-920-1050
Harris Corp., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309 ... 305-974-1700
Lancore Technologies, Inc., 31324 Via Colinas, Westlake Village, CA 91362 ... 818-991-5100
Nissei Sangyo America, Ltd., 1701 Golf Rd., Ste. 401, Rolling Meadows, IL 60008 ... 312-981-8989
RACET Computes, Ltd., 1855 W Katella Ste. 255, Orange, CA 92667 ... 714-997-4950

Strain Reliefs, Cable & Wire-2800

Bopla Enclosures, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, 703-549-7242 ... C•1026
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 ... C•1227
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ... C•1892
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 ... 617-586-5406
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 ... 501-452-3987
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 ... 703-642-4000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 ... 814-643-0700
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ Harwil, 1548 17th St., Santa Monica, CA 90404 ... 213-829-2310
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 ... 415-856-9900
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 ... 714-623-3463
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 ... 314-392-7174
Lance Wire & Cable, Inc., 1010 Sherman Ave., Hamden, CT 06514 ... 203-288-5571
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 ... 512-834-6682
† Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Multi-Tech Inds., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 ... 201-431-0550
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 ... 814-724-6440

† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Strip-Line Components, Microwave-3450 – *See Vol. A*

Strips, Ground-1900 – *See Vol. D*

Strips, Marker & Fanning-6000

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .. C•1590
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1889
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247 603-524-5101
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Stroboscopes – See Lamps, Stroboscopic Source (Vol. B)

Substrates, Ceramic-2800

† Electro-Films, Inc., 111 Gilbane St., Warwick Central Indl. Pk., Warwick, RI 02886, 401-738-9150 .... A•1866-1867
† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 .... A•1873
M/A-Com. Cable/Home Communicatios Comm/Scope Coaxial Cable, M/A-Com Inc., P.O. Box 1729, Hickory, NC 28603, 704-324-2200;800-438-3331 .. C•1850
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761, 617-695-0203 .... A•1906
† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
Allen-Bradley Co., Electronics Group, Rockwell Corporation, 1201 S. Second St., Milwaukee, WI 53204 414-671-2000
Allen-Bradley Co., Electronics Group, Div.of Rockwell Corp., Microelectronic Products Div., Highway 29 N. Bryan Pk. Exit, Greensboro, NC 27410 919-621-9010
American Microsignal, 8431 Monroe Ave., Stanton, CA 90680 714-761-1222
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 ... 516-349-8800
AVX Corporation, Box 867, Myrtle Bch., SC 29577 803-448-9411
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
† Circuit Techn., 160 Smith St., Farmingdale, NY 11735 516-293-8686
† Compex Corp., 35A East Main St., Marlton, NJ 08053 609-596-9388
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Environmental Comm., 3150 Pullman St., Costa Mesa, CA 92627 714-557-7800
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
Honeywell Inc., Aerospace & Defense Grp., Honeywell Plaza, Minneapolis, MN 55408 612-870-5186
§† Kyocera Intl., Inc., Elctrn. Comps. Grp., 11425 Sorrento Valley Rd., San Diego, CA 92138 619-454-1800
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
† MERET, Inc., 1815 24th St., Santa Monica, CA 90404-4998 213-828-7496
Microplex, Inc., 1977 State College Blvd., Anaheim, CA 92806 .... 714-979-8833; 714-634-1535
§† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
NTK Technical Ceramics, NGK Spark Plugs (U.S.A.), Inc., 1701 N. Greenville Ave. #205, Richardson, TX 75081 214-235-8332
† Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
§ TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076 312-679-8200
Teledyne Microelectronics, 12964 Panama St., Los Angeles, CA 90066 .... 213-822-8229;213-870-9831
Trans-Tech, 12 Meem Ave., Gaithersburg, MD 20760 301-948-3800
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Substrates, Flexible-2800

DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
Norton, One New Bond St., Worcester, MA 01606 617-853-1000

Substrates, Glass-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 .... A•1873
† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
KLC/Karl Lambrecht Corp., 4204 N. Lincoln Ave., Chicago, IL 60618 312-472-5442
† Melles Griot, 1770 Kettering St., Irvine, CA 92714 714-261-5600
§ TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076 312-679-8200
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 .. 201-334-7770
† Unique Optical Co., Diversified Optical Corp., P.O. Box 585, Farmingdale, NY 11735 516-420-0288

Substrates, Metallic-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 .... A•1873
Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
Lincoln Laser Co., 234 East Mohave, Phoenix, AZ 85004 602-257-0407

Substrates, Sapphire-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 .... A•1873
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Surface Acoustic Wave, Delay Line-2350 – *See Vol. A*

Surface Acoustic Wave, Filter-2700 – *See Vol. A*

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Switches, Mercury Displacement-5100 – *See Vol. B*

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Switches (MIL), Non-RF-2440 – *See Vol. B*

Switches (MIL), RF-2440 – *See Vol. B*

Switch Hardware-2800

Electro-Mech Comps., 1826 N. Floradale Ave., So. El Monte, CA 91733, 818-442-7180 .... B•1562-1563
§† Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 .... B•1571
Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800 .... B•1608-1609
§ Mechanical Entprs., 461 Carlisle Dr., Herndon, VA 22070, 703-435-9496 .... B•1624,1728-1729
§ Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 .... B•1654-1657,1666-1667
§ Veetronix, Inc., Sub. Reach Electronics, Box 480, Lexington, NE 68850, 308-324-4600 .... B•1703
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91204 .. 818-241-5121
§ Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
Arcolectric Corp., 9001 Canoga Ave., Canoga Park, CA 91304 818-700-1933
§† Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
C & K Components, Inc., 15 Riverdale Ave., Newton, MA 02158 617-964-6400
Capitol Machine & Switch Co., Box 890, Danbury, CT 06810 203-744-3300
§ Carlingswitch, Inc., 505 New Park Ave., W. Hartford, CT 06110-0641 203-233-5551
§ Centralab, Inc., A North American Philips Co., Hwy. 20 W., P.O. Box 858, Ft. Dodge, IA 50501 515-573-1300
§ Crouzet Controls, Inc., 1083 State Pkwy., Schaumburg, IL 60195 312-843-2200
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
§† Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
§ Gaynor Elec. Co., 135 South Main St, P.O. Box 316, Thomaston, CT 06787-0316 203-283-4388
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
ITT Schadow, 8081 Wallace Rd., Eden Prairie, MN 55344 612-934-4400
§ ITW Switches, Illinois Tool Works, 6615 W. Irving Park Rd., Chicago, IL 60634 312-282-4040
§ Licon Div., Illinois Tool Works, 6615 W. Irving Park Rd., Chicago, IL 60634 312-282-4040
MEC A/S, Industriparken 23, Ballerup, DENMARK DK-2750 452-973366
§† MSC Prods./Eaton Corp., 1640 Monrovia St., Costa Mesa, CA 92627 ... 714-642-2427
Oak Switch Sys., 100 S. Main St., Crystal Lake, IL 60014 815-459-5000
Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
† Radio Switch Corp., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 201-462-6100
Relay Service Co., 1310 N. Pulaski Rd., Chicago, IL 60651 .... 312-AL2-2700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Switching Systems, Audio-1300 – *See Vol. D*

Switching Systems, Test & Measurement-2900 – *See Vol. D*

Switch Seals, Environmental-2800

Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845, 617-685-4371 .... B•1481
§† AME Corp., 101 E. Main St., Little Falls, NJ 07424, 201-256-3939 .... B•1485
Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 .... B•1656
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Brady, W.H., Co., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201 414-332-8100
§† Clare Division, General Instrument Corp., 3101 W. Pratt Blvd., Chicago, IL 60645 312-262-7700
§ Crouzet Controls, Inc., 1083 State Pkwy., Schaumburg, IL 60195 312-843-2200
§ Eaton Corp./Cutler-Hammer Prods, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
EECO Incorporated, 1601 E. Chestnut Ave., P.O. Box 659, Santa Ana, CA 92702-0659 714-835-6000
§† MSC Prods./Eaton Corp., 1640 Monrovia St., Costa Mesa, CA 92627 ... 714-642-2427
† Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
§ SPEMCO Switches, 23425 Harper, Box 386, St. Clair Shores, MI 48080 800-482-2828

Swivel Units, Data Entry Terminals-1400

Ergotron, Inc., 1621 E. 79th Street, Minneapolis, MN 55420 .... 612-854-9116; 800-328-9839

Synchronizers (MIL), Antenna-3475 – *See Vol. D*

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Tape Recording Accessories-1300 – *See Vol. D*

Tape Search Equipment-2000 – *See Vol. D*

Tape Winders-2000 – *See Vol. D*

Tapes, Electrical Insulation-3100

§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
Moxness Products, Inc., Versa Technologies, 1914 Indiana St., Racine, WI 53405, 414-554-5050;800-558-5706 ... B•1734
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ... 203-423-6321
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ... 313-646-5100
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 ... 203-777-3631
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 ... 401-253-2000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 ... 415-856-9900
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 ... 800-556-7683
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 ... 201-696-4700
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§ Polymer Corp., P.O. Box 422, Reading, PA 19603 ... 215-320-6600
† Press-On Prods., 39 Factory Rd., Addison, IL 60101 ... 312-628-2255
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 ... 516-536-5000
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 ... 704-765-4241
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§ Vidaire Electronics Mfg. Corp., P. O. Box 788, Freeport, NY 11520 ... 516-623-6696

Tapes, Films & Foils, Pressure Sensitive-4525

Moxness Products, Inc., Versa Technologies, 1914 Indiana St., Racine, WI 53405, 414-554-5050;800-558-5706 ... B•1734
Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975 ... 219-223-3158
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 ... 203-346-6677
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 ... 818-991-2600
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 ... 414-351-6630
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ... 313-646-5100
Chartpak, 1 River Rd., Leeds, MA 01053 ... 413-584-5446
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 ... 203-777-3631
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
GM Nameplate, Inc., 2040 15th Ave. West, Seattle, WA 98119 ... 206-284-2200
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 ... 516-671-6010
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 ... 800-556-7683
Markem Corp., I000 Congress St., Keene, NH 03431 ... 603-352-1130
Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 ... 516-484-9700
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 ... 201-696-4700
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Polymer Corp., P.O. Box 422, Reading, PA 19603 ... 215-320-6600
† Press-On Prods., 39 Factory Rd., Addison, IL 60101 ... 312-628-2255
Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 ... 413-243-1000
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 ... 716-621-8400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
† Topflight, 160 East 9th Ave., York, PA 17404 ... 800-233-9386
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Tapes, Heat Shrinkable — See Caps, Forms & Tapes, Heat Shrinkable (Vol. C)

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Tapes, Magnetic, ¼″, 300' Cartridge-2000 — *See Vol. D*

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Tapes, Magnetic, ½″, 3600' Reel-2000 — *See Vol. D*

Tapes, Magnetic, Digital Cassette-2000 — *See Vol. D*

Tapes, Numerical Control-2000 — *See Vol. D*

Technical Books-4200

Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ... B•1683,1767,1821, C•1887, D•1013,1070,1128,1160,1290,1374-1375,1407
§ American Radio Relay League, 225 Main St., Newington, CT 06111 ... 203-666-1541
† Analog Devices, P.O. Box 280, Norwood, MA 02062 ... 617-329-4700
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ... 516-599-5010
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
§ Consumertronics, 2011 Crescent Dr., Alamogordo, NM 88310 ... 505-434-0234
† D.A.T.A., Inc., Cordura Co., P.O. Box 26875, San Diego, CA 92126 ... 619-578-7600
E & L Instruments, Inc., 61 First St., Derby, CT 06418 ... 203-735-8774
Electro-Craft, 1600 2nd St. S., Hopkins, MN 55343 ... 612-931-2700
Feedback, 620 Springfield Ave., Berkeley Hghts., NJ 07922 ... 201-464-5181
§ Heath Co., Benton Harbor, MI 49022 ... 616-982-3886
Image Makers of Pittsford, 6 Wood Gate, Pittsford, NY 14534 ... 716-385-4567
Integrated Circuit Engrg. Corp. (ICE), 15022 N. 75th St., Scottsdale, AZ 85260 ... 602-998-9780
† Micro Logic Corp., P.O. Box 174, 100 2nd St., Hackensack, NJ 07602 ... 201-342-6518
§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 ... 602-244-6900
Optical Publishing Co., Inc., Berkshire Common, Pittsfield, MA 01201 ... 413-499-0514
§† Tab Books, Monterey & Pinola Aves., Blue Ridge Summit, PA 17214 ... 717-794-2191
Westinghouse Elec. Corp., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697 ... 412-925-7272
Xycom, 750 N. Maple Rd., Saline, MI 48176 ... 313-429-4971

Telephone Cords & Cord Sets — See Cords & Cord Sets, Telephone

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Tees, Waveguide-3450 — *See Vol. A*

Telecommunication Systems & Equipment — See Communications Systems, Telephone (Vol. D)

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Telephone Handsets — See Handsets, etc. (Vol. D)

Telephone Ringing Generators — See Generators, Signal (Vol. D)

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Temperature Indicators — See Meters, Temperature (Vol. D), Labels, Temperature Indicating (Vol. B)

Temperature Sensors — See Transducers, Temperature (Vol. B)

Tensile Testers — See Testers, Material (Vol. D)

Terminal Blocks (Incl. Barrier Types)-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1146-1147
Arcolectric Corp., 9001 Canoga Ave., Canoga Park, CA 91304, 818-700-1933 ... C•1153
§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 ... C•1168-1169
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ... C•1172
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ... C•1597,1600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... C•1424-1429
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 ... C•1484-1488
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 ... C•1498-1501
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... C•1509
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 ... 617-995-1725
Allied Systems Corp., Box 18077, Greensboro, NC 27419 ... 919-299-2294
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 ... 201-852-1122
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 ... 717-780-7025
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 ... 312-983-3500
A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 ... 216-354-2101
Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718 ... 714-951-8808
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444
§† Bussmann Div., P.O. Box 14460, St. Louis, MO 63178 ... 314-394-2877
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 ... 914-425-7460
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 ... 617-268-2100
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 ... 414-354-1500
Custom Connector, 1738 E. 30th St., Cleveland, OH 44114 ... 216-241-1679
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ... 212-691-9050
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 ... 213-849-6341
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ... 513-681-5424
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 ... 914-592-7322

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Marathon Special Prods., 13300 Van Camp Rd., Bowling Green, OH 43402 419-352-8441
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Relay Specialties, 1300 Plaza Rd., Fair Lawn, NJ 07410 .. 201-797-3313;800-526-5376
Reliance Comm/Tec, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;in OH 800-245-4497
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
Selco Products Co., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
G.T.E. Gov't Sys. Corp., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194 617-449-2000
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Underwriters Safety Device, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877

Terminal Boards-2100

Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155,1157
Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1168-1169
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
G W Three Incorporated, 7623 Fullerton Rd., 2nd Floor, Springfield, VA 22153, 703-451-2043 .... D•1090
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1597,1600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1424-1426,1428-1429
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... C•1442
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1498-1501
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1095,1102-1103, D•1103-1104
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 201-436-2230
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
KMC Systems, Inc., 140 Greenwood Ave. (Bldg. 3), Midland Pk., NJ 07432 201-447-0007
K-Systems, Inc., 3902 Lilac, Las Cruces, NM 88005 505-526-3209
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Reliance Comm/Tec, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;in OH 800-245-4497
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† G.T.E. Gov't Sys. Corp., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194 617-449-2000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Terminal Boards, Blocks, Strips (MIL)-2440 – *See Vol. B*

Terminal Equipment, Digital-2000 – *See Vol. D*

Terminal Strips (Including Barrier Types)-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1146-1147
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1156
§ Beau Products Div., Vernitron Corp., Box 10, Laconia, NH 03247, 603-524-5101 .... C•1168-1169
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... C•1176-1177
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223, 414-354-1500 .... C•1178
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1230
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... C•1600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1424-1429
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 ..... C•1440-1443
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 .... C•1488
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1498-1501
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§ Amerace Corporation, Newburgh Rd., Hackettstown, NJ 07840 201-852-1122
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Reliance Comm/Tec, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;in OH 800-245-4497
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000

§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Communications-2000 — *See Vol. D*

Terminals, Credit Authorization-2000 — *See Vol. D*

Terminals, Crimp-2100

§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1476,1890
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§ Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880

Terminals, Data Display (Incl. Alphanumeric & Graphic)-2000 — *See Vol. D*

Terminals, Data Entry, Multimedia-2000 — *See Vol. D*

Terminals, Display-2000 — *See Vol. D*

Terminals, Feedthru-2800

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ... A•1594,1706
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229,1231
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1424
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Augat/Pylon Co., Inc., P.O. Box 2510, Attleboro Falls, MA 02763 617-699-7646
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Glasseal Products Inc., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436 201-370-9100
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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Terminals, Ferrule, Cable-End-2100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† G.T.E. Gov't Sys. Corp., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194 617-449-2000
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877

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Terminals, Intelligent/Programmable, Interactive-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Multiprogramming-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Multiuser-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Real Time-2000 — *See Vol. D*

Terminals, Intelligent/Programmable, Transaction Processing-2000 — *See Vol. D*

Terminals, Lug (All Types)-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ...... C•1131
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174-1175
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229,1231
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1316
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... C•1448
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1102
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
§ Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660

§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 401-941-6000
§ Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 203-735-9311
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§† Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Miniature & Subminiature-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... C•1131,1148,1152
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1695
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1231
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... C•1473
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1509
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1102
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Control Module, 380 Enfield St., Enfield, CT 06082 203-745-2433
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
§ G. R. Electronics, 1640 5th St., Suite 224, Santa Monica, CA 90401 213-395-4774
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Printed Circuit Board-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ...... C•1152
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... C•1155
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1230
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1102
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
Applied Digital Data Systems Inc., 100 Marcus Blvd., Hauppauge, NY 11787 516-231-5400
† Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 617-667-4111
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
Concord Elctrns., 30 Great Jones St., Dept JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
† G.T.E. Gov't Sys. Corp., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194 617-449-2000
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
Universal Instrs., P.O. Box 825, Binghamton, NY 13902 607-775-1102

§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Point-of-Sale-2000 – See *Vol. D*

Terminals, Push-on, Quick Disconnect – See Connectors & Terminals, Push-on, Quick Disconnect (Vol. C)

Terminals, Solderless-2100

§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1131,1148
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... C•1102
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... C•1571
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 617-263-9100
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245 213-322-6580
§ Cole-Hersee Co., 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237 214-333-3201
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 401-941-6000
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§ Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Sprague Electric Company, Distribution Division, 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 203-735-9311
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Standoff-2100

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229,1231
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1495
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... C•1621
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... C•1696
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Threaded-2100

§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... C•1443
RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1500
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... C•1696
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ..... 617-568-0451;800-225-9228

§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
§ Positronic Industries, Inc., 423 North Campbell, Springfield, MO 65801 .. 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Sterling Instr., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040 516-328-3300
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958 518-298-4810
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Touch — See Touch Terminals

Terminals, Turret-2100

§ **Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1228-1229**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... C•1317**
§† **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... C•1424**
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1495
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... C•1621
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
† D-Cemco, 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451;800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 818-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200

Terminals, Wirewrap-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .. C•1146-1147
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720, 617-263-9100 .... C•1700
† **Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... C•1685**
§† **Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .. C•1188**
Precicontact, Inc., 835 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... C•1494-1495
§ **RDI/Reed Devices, Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... C•1499**
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510-3593 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-428-4880
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ BICC-Vero Elctrns., Inc., 40 Lindeman Drive, Trumbull, CT 06611 203-372-0038
§ Bussco Inc., 119 Standard St., El Segundo, CA 90245 213-322-6580
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 714-855-7887
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek Connector Inc., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-0311
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Miniature Metal Forming Div., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509 213-370-3679
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nepenthe/Yamaichi, 2471 E. Bayshore, #520, Palo Alto, CA 94303 415-856-9332
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
Reliance Comm/Tec, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;in OH 800-245-4497
Reliance Electric Co., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;800-245-4497 In Ohio
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals (MIL), Ground Data-3475 — *See Vol. D*

Terminations, Antenna-Also See Dummy Loads-2800

† Airtron, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
† Alan Inds., P.O. Box 1203, Columbus, IN 47201 812-372-8869
† Arra Inc., 15 Harold Ct., Bay Shore, NY 11706 516-231-8400
§ Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
§† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
Coaxial Dynamics, 15210 Industrial Parkway, Cleveland, OH 44135 216-267-2233
† Connecticut Microwave Corp., 106 Powder Mill Rd., Box 389, Canton, CT 06019 203-693-4247
§† Dielectric Communications, General Signal, Tower Hill Rd., Raymond, ME 04071 .... 207-655-4555;800-341-9678
† Elcom Systems, Inc., 932 Clint Moore Rd., Boca Raton, FL 33431 305-994-1774
† Electro Impulse, Box 870, Red Bank, NJ 07701-0870 201-741-0404
§† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034 609-429-7800
† Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074 207-883-5161
§† JFW Inds., Inc., 2719 E. Troy Ave., Indianapolis, IN 46203 317-783-9875
KDI Electronics, Inc., Engelmann & Pyrofilm Divisions, 60 S. Jefferson Rd., Whippany, NJ 07981 201-887-8100
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 201-992-7700
† Microwave Applications Grp., 3030 Industrial Pkwy., Santa Maria, CA 93455 805-928-5711
Microwave Development Labs., 10 Michigan Dr., Natick, MA 01760 617-655-0060
§† Microwave Filter Inc., 6743 Kinne St., East Syracuse, NY 13057-0486 .... 315-437-3953; 800-448-1666
† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788 516-231-1700
RLC Elctrns., Inc., 83 Radio Cir., Mt. Kisco, NY 10549 914-241-1334
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Sage Laboratories, Inc., 3 Huron Dr., Natick, MA 01778 617-653-0844
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
† G.T.E. Gov't Sys. Corp., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194 617-449-2000
§† Systron-Donner Microwave Div., 14844 Oxnard St., Van Nuys, CA 91409 818-786-1760
† Transco Products, Inc., 4241 Glencoe Ave., Marina del Rey, CA 90295 .. 213-822-0800
§† Waveline, Box 718, W. Caldwell, NJ 07006 201-226-9100

Terminations, Cable-2100

§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475-1476**
§ **WECO Electrical Connectors, Inc., Rt. 11, Mooers, NY 12958, 518-298-4810 .... C•1576-1578**
§ Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
MERET, Inc., 1815 24th St., Santa Monica, CA 90404-4998 213-828-7496
Wide Band Engrg. Co., Inc., Box 21652, Phoenix, AZ 85036 602-254-1570
§ Wiltron, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290 415-969-6500

Terminations, Fiber Optic-2475 – *See Vol. B*

Terminations, Microwave-3450 – *See Vol. A*

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Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... C•1444

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Test Equipment, Color TV-2900 – *See Vol. D*

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Test Equipment, Memory Systems, Disk-2900 – *See Vol. D*

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Test Sets (MIL), Flight Line-3475 – *See Vol. D*

Test Sets (MIL), IRCM-3475 – *See Vol. D*

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Testers, Loopback-2900 – *See Vol. D*

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Timers, Sequence-2200 – *See Vol. D*

Timers, Solid State-2200 – *See Vol. D*

Timing Systems, Oscillators-2300 – *See Vol. A*

Tool Kits & Sets-5400

† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
Bearing Inspection, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670 213-944-6251
§† Beau Tech, P.O. Box 598, Portland, ME 04122 207-775-6139
§ Best Way Tools, 171 Brook Ave., Deer Park, NY 11729 516-586-4702
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Contact East, 7 Cypress Dr., Burlington, MA 01803 617-272-5051
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§† Grover Patent Products, 339 W. Arden Ave., Glendale, CA 91203 213-245-4400
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
† Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Uber Grafic Instrs., Box 4, Palo Alto, CA 94302 415-327-4732
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Tools & Assembly, Permanent Magnet-1850 – *See Vol. A*

Tools & Kits, Contact Insertion/Removal-5400

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ...... C•1131
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1476
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Tools, Alignment & Tuning-5400

§ Quantum Data, Inc., 455 E. Kehoe, Carol Stream, IL 60188, 312-668-3301 .... D•1293
Spectrol Elctrns., 17070 East Gale Ave., City of Industry, CA 91749, 818-964-6565 .... A•2040
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ Best Way Tools, 171 Brook Ave., Deer Park, NY 11729 516-586-4702
§ Fuji-Svea, P.O. Box 3375, Torrance, CA 90510 213-533-1221
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Goldwell Comps., 1815 W. 205th St. Ste. 201, Torrance, CA 90501 213-533-1228
Information Technolgoy A.D.S.C., P.O. Box 470, College Park, MD 20740 301-779-5110
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
§ PTS Electronics Inc., Box 272, Bloomington, IN 47401 812-824-9331
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Tools, Cable Tie-5400

† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511

§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .. 201-245-0033;800-526-4182
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010

Tools, Connector-5400

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ..... C•1155,1157
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1197,1224
§ H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 .... C•1226
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475-1476
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1545,1549,1555
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Cambridge Prods., Tridex, 244 Woodland Ave., Bloomfield, CT 06002 ... 203-243-1761
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Glenair Inc., 1211 Air Way, Glendale, CA 91201-2497 818-247-6000
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 801-537-5237
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .. 201-245-0033;800-526-4182
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963 512-834-6682
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 400-988-0700
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Tools, Crimping & Swaging-5400

† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... C•1197,1224
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 213-875-0213 .... C•1230
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 .... D•1411
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1475
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... C•1554,1557-1558
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 201-831-8300
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 718-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
† Black & Webster, 219 Bear Hill Rd., Waltham, MA 02254 617-890-9100
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 .. 412-746-5500
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Cambridge Prods., Tridex, 244 Woodland Ave., Bloomfield, CT 06002 ... 203-243-1761
Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
D-Cemco, Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 213-849-6341
Du Pont Connector Systems, 30 Hunter La., Camp Hill, PA 17011 800-237-2374
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ MOLEX, Inc., 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-595-7621
Parker Hannifin Corp., 17325 Euclid Ave., Cleveland, OH 44112 216-531-3000
§ Philmore Mfg., 40 Inip Dr., Inwood, NY 11696 516-239-6161
§† Pico Crimping Tools, 9832 Jersey Ave., Santa Fe Springs, CA 90670 213-723-2150
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 203-635-2200
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
United Technologies Automotive, 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
V.I.P. Inds., Inc., 246 Knickerbocker Ave., Paterson, NJ 07503 201-345-5800
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877

§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578	813-371-4242
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549	914-666-2911

Tools, Heat Sealing-5400

§ Harwil, 1548 17th St., Santa Monica, CA 90404	213-829-2310
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303	415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178	815-895-5181
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
§† Master Appliance Corp., 2420 18th St., Box 68, Racine, WI 53403	414-633-7791
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966	215-355-0200
§ Pamran, 1101 Cedar Creek, Racine, WI 53402	414-639-9076
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990

Tools, Lead Bending & Insertion-5400

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841	**C•1156**
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325	213-993-1202
APA Division, 399 Executive Blvd., Elmsford, NY 10523	914-592-7322
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444	201-831-8300
§† Beau Tech, P.O. Box 598, Portland, ME 04122	207-775-6139
† Black & Webster, 219 Bear Hill Rd., Waltham, MA 02254	617-890-9100
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108	603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221	315-454-3237
§ Fancort Industries, Inc., 31 Fairfield Place, W. Caldwell, NJ 07006	201-575-0610
§ Harwil, 1548 17th St., Santa Monica, CA 90404	213-829-2310
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740	800-423-4510
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736	201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220	214-350-4978
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115	803-534-7010

Tools, Magnetic Pickup-5400

Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604	717-665-4557
† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006	818-446-6175
§† Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133	301-655-1400
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701	702-882-6123
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115	803-534-7010

Tools, Marking, Numbering, Engraving-5400

Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604	717-665-4557
Electro Stylus, 31 Cheyenne Blvd., Colorado Springs, CO 80906	303-633-5969
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981	312-532-1800

Tools, Parts Handling, Vacuum Operated-5400

† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460	203-874-2541
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647	714-847-7515
† Black & Webster, 219 Bear Hill Rd., Waltham, MA 02254	617-890-9100
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040	602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701	702-882-6123
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707	301-490-9860
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806	213-595-7621
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484	203-735-9341
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990

Tools, Relay Servicing-5400

GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116	801-537-5237
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164	312-681-7100
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040	602-968-6241
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
Multi-Amp Corp., TBG, 4271 Bronze Way, Dallas, TX 75237	214-333-3201
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990

Tools, Resistance Soldering — See Soldering Equip., Resistance (Vol. C)

Tools, Wire Wrapping-5400

† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161	**C•1741**
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661	**C•1102**
† Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002	415-592-4550
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903	203-322-1913
Burndy Corporation, Richards Ave., Norwalk, CT 06852	203-838-4444
§ Cooper Group, PO Box 30100, Raleigh, NC 27622	919-781-7200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903	201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047	215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
§ Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061	603-889-1121
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649	714-891-5305
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040	602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026	314-392-7174
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475	212-994-6600
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736	201-223-9400
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707	714-979-4770
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510	702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220	214-350-4978
Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137	312-469-8473
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735	516-293-1525

Torches, Soldering, Welding & Accessories-4600

§ Cooper Group, PO Box 30100, Raleigh, NC 27622	919-781-7200
Harris Calorific, Emerson Electric Co., 400 Clark St., Elyria, OH 44036	216-961-5700
Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034	602-275-4126
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040	602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707	914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006	215-355-7200
§ Pamran, 1101 Cedar Creek, Racine, WI 53402	414-639-9076
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036	216-323-5581
§ Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001	800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462	215-825-4990
§ Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501	919-527-4186

Toroids — See Coils, Toroidal (Vol. A)

Torque Control — See Knobs, Torque, Incremental, Ratio Drive (Vol. C)

Torquers, Gyro — See Motors, Torque (Vol. B)

Totalizers, Digital-2200 — *See Vol. D*

Touch Monitors-2000 — *See Vol. D*

Touch Panels-2000 — *See Vol. D*

Touch Terminals-2000 — *See Vol. D*

Tracers, Curve-2900 — *See Vol. D*

Tracers, Signal — See Testers, Signal Tracing (Vol. D)

Trackballs, XY Positioning-2200 — *See Vol. D*

Trackers (MIL), Laser-3475 — *See Vol. D*

Tracking Systems (MIL)-3475 — *See Vol. D*

Trainers (MIL), ECM-3475 — *See Vol. D*

Trainers (MIL), Elint-3475 — *See Vol. D*

Trainers (MIL), EW-3475 — *See Vol. D*

Trainers (MIL), Maritime-3475 — *See Vol. D*

Training Systems (MIL)-3475 — *See Vol. D*

Transceivers-1900 — *See Vol. D*

Transceivers (MIL)-2440 — *See Vol. B*

Transducer Elements-5500 — *See Vol. B*

Transducers, Acceleration — See Accelerometers (Vol. B)

Transducers, Audio-5500 — *See Vol. B*

Transducers, Ceramic-5500 — *See Vol. B*

Transducers, Displacement-5500 — *See Vol. B*

Transducers, Flow-5500 — *See Vol. B*

Transducers, Force-5500 — *See Vol. B*

Transducers, Frequency — See Transducers, Volt, Watt, Current, etc. (Vol. B)

Transducers, Humidity-5500 — *See Vol. B*

Transducers, Tilt - Also see Inclinometers-5500 — *See Vol. B*

Transducers, Incremental Digital Position, Rotary — See Encoders, Shaft Angle (Vol. B)

Transducers, Magnetic Pickup-5500 — *See Vol. B*

Transducers, Piezoelectric-5500 — *See Vol. B*

Transducers, Position, Linear-5500 — *See Vol. B*

Transducers, Position, Rotary-5500 — *See Vol. B*

Transducers, Power – See Transducers, Volt, Watt, Currents, etc. (Vol. B)

Transducers, Pressure-5500 – *See Vol. B*

Transducers, Proximity-5500 – *See Vol. B*

Transducers, Sonic-5500 – *See Vol. B*

Transducers, Strain Gauge-5500 – *See Vol. B*

Transducers, Temperature-5500 – *See Vol. B*

Transducers, Thermoelectric – See Transducers, Temperature (Vol. B)

Transducers, Torque-5500 – *See Vol. B*

Transducers, Ultrasonic-5500 – *See Vol. B*

Transducers, Velocity-5500 – *See Vol. B*

Transducers, Vibration-5500 – *See Vol. B*

Transducers, Volt, Watt, Current VAR, Power Factor, Frequency-5500 – *See Vol. B*

Transformers, Audio-5600 – *See Vol. A*

Transformers, Autotransformer-5600 – *See Vol. A*

Transformers, Bias – See Transformers, Power (Vol. A)

Transformers, Bridging – See Transformers, Matching (Vol. A)

Transformers, Chip-5600 – *See Vol. A*

Transformers, Chopper-5600 – *See Vol. A*

Transformers, Constant Voltage-5600 – *See Vol. A*

Transformers, Control – See Transformers, Power (Vol. A), Transformers, Synchro, Control (Vol. A)

Transformers, Converter, DC To DC-5600 – *See Vol. A*

Transformers, Current – See Transformers, Instrument (Vol. A)

Transformers, Data – See Transformers, Telephone Coupling (Vol. A)

Transformers, Decade-5600 – *See Vol. A*

Transformers, Differential-5600 – *See Vol. A*

Transformers, Discriminator-5600 – *See Vol. A*

Transformers, Donut – See Transformers, Toroidal (Vol. A)

Transformers, Driver-5600 – *See Vol. A*

Transformers, Ferroresonant-5600 – *See Vol. A*

Transformers, Filament-5600 – *See Vol. A*

Transformers, Flyback-5600 – *See Vol. A*

Transformers, Foil Wound – See Coils, Foil Wound (Vol. A)

Transformers, 400 Hz-5600 – *See Vol. A*

Transformers, High Voltage (1,000 Volts & Over)-5600 – *See Vol. A*

Transformers, Horizontal Sweep-5600 – *See Vol. A*

Transformers, Hybrid-5600 – *See Vol. A*

Transformers, IF-5600 – *See Vol. A*

Transformers, Input-5600 – *See Vol. A*

Transformers, Instrument-5600 – *See Vol. A*

Transformers, Interstage-5600 – *See Vol. A*

Transformers, Inverter-5600 – *See Vol. A*

Transformers, Isolation-5600 – *See Vol. A*

Transformers, Line-5600 – *See Vol. A*

Transformers, Linear Variable-Differential – See Transformers, Differential (Vol. A)

Transformers, Magnetic Amplifier-5600 – *See Vol. A*

Transformers, Matching-5600 – *See Vol. A*

Transformers, Microminiature-5600 – *See Vol. A*

Transformers, Microphone-5600 – *See Vol. A*

Transformers, Mixing-5600 – *See Vol. A*

Transformers, Modulation-5600 – *See Vol. A*

Transformers, Output-5600 – *See Vol. A*

Transformers, Plate-5600 – *See Vol. A*

Transformers, Plug-in-5600 – *See Vol. A*

Transformers, Power-5600 – *See Vol. A*

Transformers, Power Distribution-5600 – *See Vol. A*

Transformers, Printed Circuit Mounting-5600 – *See Vol. A*

Transformers, Programmable Ratio-5600 – *See Vol. A*

Transformers, Pulse-5600 – *See Vol. A*

Transformers, Ratio-5600 – *See Vol. A*

Transformers, RF-5600 – *See Vol. A*

Transformers, Reactor – See Reactors, Filter (Vol. A)

Transformers, Rectifier-5600 – *See Vol. A*

Transformers, Reference-5600 – *See Vol. A*

Transformers, Rotary-5600 – *See Vol. A*

Transformers, Scott T-5600 – *See Vol. A*

Transformers, Servo-5600 – *See Vol. A*

Transformers, Split Bobbin-5600 – *See Vol. A*

Transformers, Step Down, Step Up – See Transformers, Power (Vol. A)

Transformers, Synchro Control-5600 – *See Vol. A*

Transformers, Telephone Coupling-5600 – *See Vol. A*

Transformers, Toroidal-5600 – *See Vol. A*

Transformers, Transistor-5600 – *See Vol. A*

Transformers, Trigger – See Transformers, Pulse (Vol. A)

Transformers, Variable-5600 – *See Vol. A*

Transformers, Voltage Dividing-5600 – *See Vol. A*

Transformers, Voltage Regulating-Also See Regulators & Stabilizers, Voltage-5600 – *See Vol. A*

Transformers, Wall Plug-in – See Power Supplies, Plug-in (Vol. D)

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Transformers (MIL), Audio, Power, RF-2440 – *See Vol. B*

Transformers (MIL), Pulse & Variable-2440 – *See Vol. B*

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Transistor, Diode, Thyristor Heat Dissipators – See Heat Sinks, Transistor (Vol. C)

Transistors, Bipolar-Also See Transistors, Silicon-4800 – *See Vol. A*

Transistors, Chip, Unpackaged-4800 – *See Vol. A*

Transistors, Darlington-4800 – *See Vol. A*

Transistors, Dual-4800 – *See Vol. A*

Transistors, Field Effect-4800 – *See Vol. A*

Transistors, Germanium-4800 – *See Vol. A*

Transistors, Low Noise, GaAs, FETs - Also See Transistors, Microwave-4800 – *See Vol. A*

Transistors, Microwave-4800 – *See Vol. A*

Transistors, Photo (Incl. Arrays)-3700 – *See Vol. B*
Transistors, Power-4800 – *See Vol. A*
Transistors, Power, Bipolar-4800 – *See Vol. A*
Transistors, Power, FET-4800 – *See Vol. A*
Transistors, Pressure Sensitive-4800 – *See Vol. A*
Transistors, RF-4800 – *See Vol. A*
Transistors, Silicon-4800 – *See Vol. A*
Transistors, Switching-4800 – *See Vol. A*
Transistors, Unijunction-4800 – *See Vol. A*
Transistors (MIL)-2440 – *See Vol. B*
Translators, Data-2325 – *See Vol. D*
Translators, Frequency Band-2700 – *See Vol. A*
Translators, Time Code-2000 – *See Vol. D*
Transmission Line, Wire & Cable – See Cable, Transmission Line (Vol. C)
Transmission Systems, Data-2000 – *See Vol. D*
Transmitters, Fiber Optic-3700 – *See Vol. B*
Transmitters, Fixed Frequency-1900 – *See Vol. D*
Transmitters, Laser-3700 – *See Vol. B*
Transmitters, Position-1900 – *See Vol. D*
Transmitters, Process Control (Temperature, Pressure, Flow, etc.)-5500 – *See Vol. B*
Transmitters, Radar – See Radar System Components (Vol. A)
Transmitters, Telemetry-1900 – *See Vol. D*
Transmitters, Tone-1900 – *See Vol. D*
Transmitters (MIL), ECM-3475 – *See Vol. D*
Transmitters (MIL), Shipboard Jamming-3475 – *See Vol. D*
Transmitters (MIL), TWTs-3475 – *See Vol. D*
Transponders-1900 – *See Vol. D*
Transports, Tape (all kinds)-2000 – *See Vol. D*
TRIACs-4800 – *See Vol. A*
Triggers, SCR – See Controls, SCR (Vol. D)
Tube Heat Dissipators-5700 – *See Vol. A*
Tubes, Backward Wave-5700 – *See Vol. A*
Tubes, Ballast – See Resistors, Ballast (Vol. A)
Tubes, Cathode Ray, General Purpose-5700 – *See Vol. A*
Tubes, Cathode Ray, Special Purpose-5700 – *See Vol. A*
Tubes, Counting-5700 – *See Vol. A*
Tubes, Electron Multiplier-5700 – *See Vol. A*
Tubes, Flash-5700 – *See Vol. A*
Tubes, Gas-5700 – *See Vol. A*
Tubes, Ignitron-5700 – *See Vol. A*
Tubes, Image Converter-5700 – *See Vol. A*
Tubes, Indicator – See Tubes, Readout (Vol. A)
Tubes, Magnetron – See Tubes, Microwave (Vol. A)
Tubes, Microwave-5700 – *See Vol. A*
Tubes, Noise Source-5700 – *See Vol. A*
Tubes, Photomultiplier-5700 – *See Vol. A*
Tubes, Readout (CRT, Cold-Cathode, Vacuum Fluorescent, Incandescent, etc.)-5700 – *See Vol. A*
Tubes, Receiving-5700 – *See Vol. A*
Tubes, Rectifying-5700 – *See Vol. A*
Tubes, Strobe – See Lamps, Stroboscopic Source (Vol. B)
Tubes, Switching-5700 – *See Vol. A*
Tubes, TV Camera Pickup-5700 – *See Vol. A*
Tubes, Transmitting-5700 – *See Vol. A*
Tubes, Voltage Reference or Regulating-5700 – *See Vol. A*
Tubes, X-ray-5700 – *See Vol. A*
Tubes (MIL), Indicator & Pickup-2440 – *See Vol. B*
Tubes (MIL), Microwave-2440 – *See Vol. B*
Tubes (MIL), Power & Gas, Planar-2440 – *See Vol. B*
Tubes (MIL), Receiving, & Tube Shields-2440 – *See Vol. B*

Tubing, Ceramic-2500

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ...... C•1617
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-8725
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
† Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
† Sohio Engineered Materials Co., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302 716-278-2000
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Tubing, Fiberglass-2800

§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ...... C•1689
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Pannier Corp., Graphics Div., John Fitch Industrial Park, Warminster, PA 18974 215-672-3600
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140

Tubing, Glass-2500

§† Alltech Assocs. Inc., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015 312-948-8600
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-8725
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071

General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
† GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161

Tubing, Heat Shrinkable-Also See Caps, Forms & Tapes, Heat Shrinkable-2800

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1799-1800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1828-1829
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800;800-526-3842 .... C•1697
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§ Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 617-272-1313
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tubing, Metal-2500

† Cabot Berylco, Div. Cabot Corp., PO Box 1296, Reading, PA 19603 215-921-5000
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† ITT-Higbie Mfg., Wagner Rd., Rochester, MI 48063 313-651-5300
† KBI, A Div. of Cabot Corp., PO Box 1462, Reading, PA 19603 215-371-3600
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-5444
§† Micro-Coax Components, Inc., a UTI Company, Box E, Collegeville, PA 19426 215-489-3700
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Parker Hannifin Corp., 17325 Euclid Ave., Cleveland, OH 44112 216-531-3000
Wall, A. T., Co., 55 Service Ave., Warwick, RI 02886 401-739-0740
† Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 213-475-9411

Tubing, Paper-2800

† Paramount Tube, Inc., 1430 Progress Rd., Ft. Wayne, IN 46808 219-484-4111

Tubing, Plastic-Also See Tubing, Spaghetti-2800

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1799-1800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1828-1829,1835
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
Moxness Products, Inc., Versa Technologies, 1914 Indiana St., Racine, WI 53405, 414-554-5050;800-558-5706 .... B•1734
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... C•1885
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800;800-526-3842 .... C•1697
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
§ Bivar, Inc., 4 Thomas, Irvine, CA 92718 714-951-8808
§† Blum, Julius & Co., Inc., Box 292, Carlstadt, NJ 07072 201-438-4600
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121

Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
C. A. Norgren Co., 5400 South Delaware, Littleton, CO 80120-1663 303-794-2611
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§ Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
SL Homalite, Div. of SL Inds., 11 Brookside Dr., Wilmington, DE 19804 .. 302-652-3686
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 .... 507-235-3355; 507-235-9712
§ Thermoplastic Processes, Inc., 1268 Valley Rd., Stirling, NJ 07980 201-647-1000
Thielex Plastics Corp., 201 11th St., Piscataway, NJ 08854 201-968-5300
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tubing, Spaghetti-2800

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... C•1799-1800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1828-1829
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800;800-526-3842 .... C•1697
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006

Tubing, Spiral Wrap-2800

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1835
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... C•1885
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611

† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Paramount Tube, Inc., 1430 Progress Rd., Ft. Wayne, IN 46808 219-484-4111
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869 ... 201-526-0800;800-526-3842

Tubing, Waveguide-3450 — *See Vol. A*

Tubing, Zipper-6000

Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tuners, AM/FM-1300 — *See Vol. D*

Tuners, Microwave-3450 — *See Vol. A*

Tuning Forks-2300 — *See Vol. A*

Tweezers, Manual & Vacuum-5400

† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
§ Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 213-772-0751
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701 702-882-6123
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Ultraviolet Inspection Lighting-Also See Microscopes, Ultraviolet-4100 — *See Vol. D*

Urea Formaldehyde — See Plastic Raw Materials (Vol. C)

Valve Position Indicators/Transmitters-5500 — *See Vol. B*

Valves, Solenoid-4550 — *See Vol. B*

Valves, Vacuum-4100 — *See Vol. D*

Varactors — See Diodes, Varactor (Vol. A)

Varistors — See Resistors, Voltage Sensitive (Vol. D)

VCXO — See Oscillators, Voltage Controlled Crystal

VHF Equipment — See Generators (Vol. D), Receivers (Vol. D), etc.

Vibration Surveys — See Services, Vibration Surveys (Vol. D)

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Vibrators-4050 — *See Vol. D*

Video Components & Equipment — See Specific Component: Amplifiers (Vol. D), Cameras (Vol. D), Networks (Vol. D), etc.

Viewers (MIL), Infrared-3475 — *See Vol. D*

Viewing Hoods, Cathode Ray Tube-2975 — *See Vol. D*

Vinyl Compounds — See Plastic Raw Materials (Vol. C)

Vises-5400

§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-595-7621

VLF Equipment — See Receivers (Vol. D), Transmitters (Vol. D), etc.

VME Bus Cards-2025 — *See Vol. D*

Voice Recognition Equipment — See Recognition Equipment, Speech (Vol. D)

Voltage Selector — See Adaptors, US to European Power

Voltage Sources-4000 — *See Vol. D*

Voltmeter, Electrostatic-2900 — *See Vol. D*

Wafer Fabrication, Semiconductor — See Semiconductor Wafer Fabrication (Vol. D)

Wall Plates — See Boxes, Junction, Outlet & Wall Plates (Vol. C)

Warning Systems, Lightning-4300 — *See Vol. B*

Warning Systems (MIL), Computerized-3475 — *See Vol. D*

Warning Systems (MIL), EW-3475 — *See Vol. D*

Warning Systems (MIL), IR-3475 — *See Vol. D*

Warning Systems (MIL), Laser-3475 — *See Vol. D*

Warning Systems (MIL), SAM Launch-3475 — *See Vol. D*

Washers, Lock-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Elite Electronics, Inc., 1408 Summit - Suite ≠5, Plano, TX 75074 214-881-0026
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Washers, Plain-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1174
§ **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1837**
§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227**
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... C•1696
Alpha-Tek, 7286 Murdy Circle, Huntington Beach, CA 92647 714-847-7515
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Boker's, Inc., 3104 Snelling Ave., Minneapolis, MN 55406 612-729-9365
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Elite Electronics, Inc., 1408 Summit - Suite ≠5, Plano, TX 75074 214-881-0026
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 614-373-4763
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
LEMO U.S.A., Inc., P.O. Box 11488M, Santa Rosa, CA 95406 707-578-8811
† Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 213-245-9121
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Wave Soldering Equipment — See Soldering Equip, Printed Circuit (Vol. C)

Waveguide-Coax Adapters-3450 — *See Vol. A*

Waveguides-3450 — *See Vol. A*

Waveguides (MIL)-2440 — *See Vol. B*

Wave Traps — See Filters, Antenna (Vol. A), Filters, Microwave (Vol. A), etc.

Welding Equipment & Accessories (Excl. Equipment for Semiconductor Devices)-5400

§ Apollo Lasers, Inc., 9201 Independence Ave., Chatsworth, CA 91311 213-709-1111
§ BEA electro-optics, Inc., 690 First Ave., Des Plaines, IL 60016 312-298-1420
† Black & Webster, 219 Bear Hill Rd., Waltham, MA 02254 617-890-9100
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 617-667-4111
Coherent, Inc., 3210 Porter Dr., Palo Alto, CA 94304 415-493-2111
§† Despatch Inds., P.O. Box 1320, Minneapolis, MN 55440 612-331-1873
† Dukane Corp., Communications Sys. Div., 2900 Dukane Dr., St. Charles, IL 60174 312-584-2300
Harris Calorific, Emerson Electric Co., 400 Clark St., Elyria, OH 44036 216-961-5700
Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034 602-275-4126
§† Hughes Aircraft Co., 6155 El Camino Real, Carlsbad, CA 92008 619-931-3000
Hughes Aircraft Co., Indl. Prods. Div. FACT Sys., 6155 El Camino Real, Carlsbad, CA 92008 619-931-3000
Kahle Engrg., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087 201-867-6500
† Laser Inc., Laser Lane, Box 537, Sturbridge, MA 01566 617-347-7314
§ Photon Sources, Inc., 12163 Globe Rd., Livonia, MI 48150 313-591-0101
Nelson Stud Welding TRW Inc., 28th & Toledo Ave., Lorain, OH 44055 216-245-6931
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 404-429-9061
Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
Venable Industries, Inc., 3555 Lomita Blvd., Torrance, CA 90505 213-539-2522
† Weltek Intl., Inc., 760 W. Cotter St., South Bend, IN 46613 219-232-5400

White Noise Generator Modules – See Generators, White Noise (Vol.), Diodes, Noise

Windows, Sapphire-2500

Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Windows, Shielded – See Shields, RF (Vol. C)

Wire & Cable Ties-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... C•1175
§† Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033;800-526-4182 .... C•1227
Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... C•1885
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... C•1888-1889
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800;800-526-3842 .... C•1697
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 717-780-7025
§† Amrad & Transcon Mfg. Co., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097 501-452-3987
Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065-0829 619-789-0900
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
§† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Hanscom, H. F., Co., Inc., 225 Chapman St., Providence, RI 02905 401-941-1455
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
† Independent Cable, Inc., 43 Broad St., Hudson, MA 01749 617-562-9913
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211;800-423-2734
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Micro Plastics Inc., Hwy 178 North, Flippin, AR 72634 ... 501-453-2261;1-800-643-2356
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ New-Tone Electronics, Inc., 44 Farrand St., Bloomfield, NJ 07003 201-748-5089
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Pioner Components, 2352 E. 66th St., Brooklyn, NY 11234 718-444-3880
Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Tyton Corp. Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300
§† Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Airframe-2440 – *See Vol. B*

Wire, Antenna (All Types)-6000

Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 803-359-5501
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 .... 212-775-1395;800-221-3333
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920 .... 914-268-6848; 800-431-2774
Sparkomatic, Rte. 6 & 209, Milford, PA 18337 717-296-6444
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 .... 516-957-8700;800-645-5516
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Wire, Bare, Copper-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... C•1747
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1794
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... C•1823-1825
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... C•1864
Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... C•1896
† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 .... C•1097
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 .... 212-775-1395;800-221-3333
§† Phelps Dodge Magnet Wire, P.O. Box 600, Ft. Wayne, IN 46801 219-456-4444
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161-1793 617-527-1512
† Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050;800-822-4653

Wire, Bare, Nickel-6000

† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... C•1864
† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 .... C•1097
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 ... 516-349-8800
Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050;800-822-4653

Wire, Bare, Nickel-Chrome-6000

† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 .... C•1097
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 ... 516-349-8800
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886

§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161-1793 617-527-1512
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Wire, Bonding-4600

Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 C•1097
Hydrostatics, Inc., 2005 Industrial Dr., Bethlehem, PA 18017 215-694-0121; 1-800-441-7301 Outside PA.

Wire, Braid (Excluding Shielding)-6000

† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 C•1840
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Amphenol, An Allied Co., 43 Commerce Ct., Lisle, IL 60532 312-983-3500
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
† Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Braid (Shielding) — See Braid, Cable (Vol. C)

Wire, Ceramic Insulated-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Ceramawire, Box 1084, Cranford, NJ 07016 201-276-1170
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 203-265-5533;800-243-3959
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800

Wire, Clad (All Types)-6000

§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 C•1864
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 C•1887
† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 C•1097
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 215-682-6361
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816 201-238-1223
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069 619-744-7720
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 814-723-2000;800-221-3333
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800

Wire Cutting & Stripping — See Services, Wire Cutting & Stripping (Vol. D)

Wire, Enamel Insulated — See Wire, Hookup (All Types) (Vol. C)

Wire, Fiberglass Insulated — See Wire, Glass Insulated (Vol. C)

Wire, Flame Retardant-6000

§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 C•1842-1843
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 C•1842-1843
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 C•1689
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 C•1864
§ Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 C•1896
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 717-792-2644
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454

§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 .... 212-775-1395;800-221-3333
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Reliance Fuse, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199 .... 800-245-4501;in OH 800-245-4497
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Wire, Flat Strip — See Cable, Flat (Vol. C)

Wire, Glass Insulated-6000

† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Corning Glass Works, Materials Business, Main Plant, MP 21-3, Corning, NY 14831 607-974-4102
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872

Wire, Gold-2825

Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 .... C•1097

Wire, Guy-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 803-359-5501
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Wire, Heater — See Cable, Heater (Vol. C)

Wire, High Temperature (Over 125°C)-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... C•1747
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... C•1793
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... C•1832
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... C•1842
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... C•1864
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... C•1895
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Atomergic Chemetals Corp., 100 Fairchild Ave., Plainview, NY 11803 516-349-8800
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
Carpenter Techn., Box 662, Reading, PA 19603 215-371-2000
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 717-792-2644
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
† Plastoid Corporation, 45 Gingerbread Castle Rd., Hamburg, NJ 07419 201-827-7141
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4431
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 717-265-2121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Wilco Wire & Cable Co., Inc., 1921 Las Plumas Ave., San Jose, CA 95133 408-926-8880
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 .... 818-889-0050;800-822-4653
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, High Voltage (1000 Volts & Over)-6000

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1832
§ Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1895
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ... 617-448-5485
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 ... 305-894-3351
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ... 212-775-1395;800-221-3333
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296

Wire, Hookup (All Types)-6000

§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... C•1747
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1794
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ...... C•1832
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... C•1839
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... C•1407
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842-1843
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842-1843
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ... C•1869-1870
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1895
§† Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... C•1896
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 ... 1-203-677-2657
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ... 215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ... 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 ... 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
East Penn. Mfg. Co., Inc., Main Office, Lyon Station, PA 19536 ... 215-682-6361
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 ... 212-994-6600
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ... 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4431
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 ... 914-429-3103
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 ... 704-328-2171
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 .. 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 ... 718-939-8300
† Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 ... 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, Irradiated-6000

§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893

§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ... 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, Lead-in & Ground-6000

Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... C•1820,1824-1825
Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 ... 216-266-2451
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 ... 818-367-1811
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ... 212-775-1395;800-221-3333
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Siecor Corp., Box 489, Hickory, NC 28603 ... 704-328-2171
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, Litz-6000

§ Asco Wire & Cable Co., 412 Housatonic Ave., Bridgeport, CT 06608 ... 203-366-5294
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
§ Slepian, Arthur, & Co., 412 Housatonic Ave., Bridgeport, CT 06608 ... 203-366-5294
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006

Wire, Magnet-6000

§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864-1865
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 ... 305-685-8326
§ Asco Wire & Cable Co., 412 Housatonic Ave., Bridgeport, CT 06608 ... 203-366-5294
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 ... 516-746-2310
§ Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
§† Electromech, Inc., 528 Elm Street, Kearny, NJ 07032 ... 201-997-0950
General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
† New Haven Wire & Cable, P.O. Box 266, New Haven, IN 46774 ... 219-493-4489
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ... 212-775-1395;800-221-3333
Phelps Dodge Magnet Wire, P.O. Box 600, Ft. Wayne, IN 46801 ... 219-456-4444
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ... 802-372-4561
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Slepian, Arthur, & Co., 412 Housatonic Ave., Bridgeport, CT 06608 ... 203-366-5294
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 ... 214-350-4978

Wire Markers (All Types)-Also See Strips Marker & Fanning-6000

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 ... C•1838
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 ... C•1840
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ... C•1889,1891
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 ... 414-351-6630
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 ... 914-592-7322
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
Eubanks Engrg., 1307 So. Myrtle Ave., Monrovia, CA 91016 ... 818-357-7011
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 ... 312-262-4781
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
Kensol Wire Marking, Kensol Olsenmark Inc., 40 Melville Park Road, Melville, NY 11747 ... 516-694-7773
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 ... 203-348-7761
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 ... 617-631-7100
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 ... 713-682-5151
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Wire, Multiconductor — See Cable, Multiconductor (Vol. C)

Wire Nuts-2800

Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 ... 201-245-0033;800-526-4182
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 ... 815-895-6501
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Shokai Far East, Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212

Wire, Plastic Insulated — See Wire, Hookup (All Types) (Vol. C)

Wire, Plated (All Types)-6000

Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... C•1820,1823-1824
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 ... C•1860-1862
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 ... C•1097
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000

†Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§†Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§†Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§†Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
†Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
†Handy & Harman Elctrn. Matls. Corp., 72 Elm St. N., Atteboro, MA 02760 ... 617-695-1401
†International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ... 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 ... 502-684-0431
§†King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
†National-Standard Co., 601 N. 8th, Niles, MI 49120 ... 616-683-8100
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§†Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333

Wire, Radiation Resistant-6000

Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842
§†**Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689**
§†Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§†BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491 ... 309-695-2511
§†Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§†Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§†Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
†Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
§General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
†W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§†King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§†Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
†Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§†Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 ... 718-939-8300
Times Fiber Communications, Inc., 358 Hall Ave., P.O. Box 384, Wallingford, CT 06492-0384 ... 203-265-8500
§†Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296

Wire, Resistance-6000

†**Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 ... C•1860-1862**
§†**MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864**
†**Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 ... C•1097**
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 ... 305-685-8326
†Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
†Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
†International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ... 201-891-5800
§†King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§†Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006

Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600

Wire, Ribbon-6000

§**H&T Components Inc., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, 516-567-2282 ... C•1226**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842
†**Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 ... C•1097**
§Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 ... 415-592-4550
§Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
†Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§†Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 ... 201-783-7800
§Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 718-429-0500
§Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ... 215-376-8071
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92718-2703 ... 714-855-7887
§Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§†Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
†Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
†Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ... 201-891-5800
§†King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
†Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
§†MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 ... 503-620-9400
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 213-849-4543
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
§†Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 ... 717-265-2121
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000;800-221-3333
†United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
†Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050;800-822-4653
†Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, Semiconductor Lead-6000

†**Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 ... C•1097**
†Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 ... 201-428-4880
§†Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 ... 201-783-7800
Carpenter Techn., Box 662, Reading, PA 19603 ... 215-371-2000
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
†Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ... 201-321-5900
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 ... 216-266-2451
†GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 ... 412-253-3161
§Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 ... 212-464-8400
§†Hydrostatics, Inc., 2005 Industrial Dr., Bethlehem, PA 18017 ... 215-694-0121; 1-800-441-7301 Outside PA.
†International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ... 201-891-5800
†Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
†National-Standard Co., 601 N. 8th, Niles, MI 49120 ... 616-683-8100
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006

Wire, Shielded-6000

§†**Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1793-1794**
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... C•1823
§†**Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842**
§†**Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842**
§†**Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689**
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
†**Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... C•1895**
§†**Saxton Wire and Cable, 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... C•1896**

§ Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 C•1909-1911
Adirondack Wire & Cable Co., Inc., 1451 New Britain Ave., Farmington, CT 06032 1-203-677-2657
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§ American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Clifford, Inc., 83 Main Street, Bethel, VT 05032 800-451-4381
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† W. L. Gore & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97224 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 213-849-4543
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 212-775-1395;800-221-3333
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 516-957-8700;800-645-5516
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 718-939-8300
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Wilco Wire & Cable Co., Inc., 1921 Las Plumas Ave., San Jose, CA 95133 408-926-8880
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire Shielding-Also See Braid, Cable-4525

Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 C•1790,1792
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 C•1794
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 C•1823-1824
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 C•1830
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 C•1729
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 C•1730-1734,1736-1737
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 C•1909
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Astrolab Inc., 4 Powder Horn Drive, Warren, NJ 07060 1-201-560-3800
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 714-751-7733
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 401-821-1700;SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Stainless Steel-6000

Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 C•1860-1862
International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100

Wire, Strain Gauge-6000

† Semiconductor Packaging Matls. Co. Inc., 431 Fayette Ave., Mamaroneck, NY 10543, 914-698-5353 C•1097
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 203-265-5533;800-243-3959
§† Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Wire Strippers, Automatic-4100 — See *Vol. D*

Wire Strippers, Chemical — See Chemicals, Wire Stripping (Vol. C)

Wire Strippers, Manual-5400

† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809, 305-855-6161 .. C•1741
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
§ AMP Distributor Marketing Div, A Division of AMP Products Corporation, Harrisburg, PA 17105 ... 717-780-7025
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 ... 408-267-1168
Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 ... 201-831-8300
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
Carpenter Mfg. Co., Inc., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188 ... 315-682-9176
§† Clauss Cutlery Co., Box 667, Fremont, OH 43420 ... 419-332-7344
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 ... 919-781-7200
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 ... 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 ... 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 ... 315-454-3237
Erem Corp., 3740 Skypark Dr., Torrance, CA 90505 ... 213-772-0751
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 ... 212-431-6100
§ Greenlee Tool Co., 2330 23rd Ave., Rockford, IL 61108 ... 815-399-3903
GTE SUPPLY, GTE Communications Systems, 5225 Wiley Post Way, Salt Lake City, UT 84116 ... 801-537-5237
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 ... 516-293-5244
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 ... 603-889-1121
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 ... 815-895-6501
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 ... 301-760-2200
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 ... 602-968-6241
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 ... 212-994-6600
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 ... 805-499-0318
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 ... 203-635-2200
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 ... 713-682-5151
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Teledyne Ansonia, One Riverside Dr., Ansonia, CT 06401 ... 203-735-9311
† Trans American Transformer, 142 Peconic Ave., Medford, NY 11763 ... 516-654-1880
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 ... 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 ... 312-564-3300
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
† Western Elctrn. Prods., 107 Los Molinos, San Clemente, CA 92672 ... 714-492-4677
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242

Wire Strippers, Thermal-5400

Automated Production Concepts, 8 E. Garden Pl., Pompton Plains, NJ 07444 ... 201-831-8300
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 ... 603-883-7708
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 ... 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 ... 315-454-3237
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ... 815-895-5181
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
† Laser Inc., Laser Lane, Box 537, Sturbridge, MA 01566 ... 617-347-7314
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 ... 301-490-9860
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 ... 404-429-9061
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Teledyne Kinetics, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075 ... 619-755-1181
† Trans American Transformer, 142 Peconic Ave., Medford, NY 11763 ... 516-654-1880
† Western Elctrn. Prods., 107 Los Molinos, San Clemente, CA 92672 ... 714-492-4677

Wire, Test Lead-6000

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1832
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... C•1839
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ... C•1470,1472
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... C•1864
† A.E.S Interconnects, Box 248, Plainfield, IN 46168 ... 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 ... 714-623-3463
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-0700
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933

Wire, TFE Insulated-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... C•1793-1794
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... C•1832
§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 ... C•1689
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... C•1909
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-456-8000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§† Consolidated Electronic Wire & Cable, 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§ Malco, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 ... 201-696-4700
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 ... 617-366-0830
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ... 802-372-4561
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 ... 206-365-3535
† Santa Fe Textiles, Barcel Wire & Cable, 3151 W. Adams St., Santa Ana, CA 92704-5863 ... 714-751-7733
Spectra-Strip Operations, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415 ... 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire Corp., 32-02 Linden Pl., Flushing, NY 11354-2897 ... 718-939-8300
Thermo Electric, 109 Fifth St., Saddle Brook, NJ 07662 ... 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
§† Wilco Wire & Cable Co., Inc., 1921 Las Plumas Ave., San Jose, CA 95133 ... 408-926-8880
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, Thermocouple-6000

Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... C•1842
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... C•1842

§† Markel Corp., P.O. Box 752, Norristown, PA 19404, 215-272-8960 .... C•1689
† Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727, 201-938-9473 .. C•1860-1862
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 .... C•1887
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
§ Amperex Electronic Corp., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802 516-931-6200
Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 815-877-0241
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-456-8000
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Bristol Babcock Inc., 40 Bristol St., Waterbury, CT 06708 203-575-3000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Continental Wire & Cable, Gulton Rd., P. O. Box 1863, York, PA 17405 .. 717-792-2644
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ EDL, Inc., 385 Oser Ave., Hauppauge, NY 11788 .... 516-435-2808;1-800-DIAL EDL
† Electro Weave, 425 Shrewsbury St., Worcester, MA 01604 617-752-8932
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 313-280-1648
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 815-678-2211
† W. L. Gore & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 .... 800-321-5111, Ext. 596
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
ITT Cannon, 666 E. Dyer Road, Santa Ana, CA 92705-5684 714-557-4700
Leeds & Northrup Instrs., A Unit of General Signal Corp., Sumneytown Pike, North Wales, PA 19454 215-643-2000
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 312-541-3232
Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
† NANMAC Corp., 9 Mayhew St., Framingham, MA 01701 617-872-4811
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Phalo Corp., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581 617-366-0830
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161-1793 617-527-1512
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761

Wire, Transmission — See Cable, Transmission Line (Vol. C)

Wire, Twisted Pair — See Cable, Twisted Pair (Vol. C)

Wire (MIL)-2440 — *See Vol. B*

Wire Twisters, Automatic-5400

Blanck, A. R., Co., Box 249, Rutherford, NJ 07070 201-933-2091
Carpenter Mfg. Co., Inc., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188 315-682-9176
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Linemaster Switch, Box 52, Woodstock, CT 06281 203-974-1000
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Rutherford Resch. Prods., Box 249, Rutherford, NJ 07070 201-933-2091

Wire Twisters, Manual-5400

Blanck, A. R., Co., Box 249, Rutherford, NJ 07070 201-933-2091
Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Ostby & Barton, 487 Jefferson Blvd., Warwick, RI 02886 401-739-7310

Wire Ways-6000

Breeze-Illinois, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... C•1790,1792
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ... 414-355-1130
§ The Wadsworth Elec. Mfg. Co., Inc., 20 W. 11th St., Covington, KY 41012 606-431-0900

Wirewrapping Services — See Services, Wirewrapping (Vol. D)

Wiring Panels & Boards, Computer — See Boards, Programming (Vol. C)

Word Processors, Shared Logic Systems-2025 — *See Vol. D*

Word Processors, Standalone Systems-2025 — *See Vol. D*

Work Positioners, Circuit Board & Chassis — See Holders, Circuit Board (Vol. D), Jigs (Vol. D)

Work Stations/Decks, Data Entry-1400

General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064
Kalamazoo Technical Furniture, P.O. Box 1165, Kalamazoo, MI 49005, 616-385-2255 .... C•1068
§ Production Industries, Inc., 12880-E Pierce Street, Pacoima, CA 91331, 818-896-0555;800-423-5618 .... C•1075-1077
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .. C•1083
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... C•1064
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 .... 215-DE8-7300
BMS Data Handling, Inc., 12155 Magnolia, Riverside, CA 92503 714-359-8824
§ Borroughs, Lear Siegler, Inc., 3002 N. Burdick St., Kalamazoo, MI 49007 616-342-0161
§† Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Cadnetix Corporation, 5757 Central Ave., Boulder, CO 80301 303-444-8075
Compucart, Versa Tec Corp., 107 N. Rome Ave., Tampa, FL 33606 ...... 800-237-9024; 813-251-2431
Distributed Computer Sys., 223 Crescent St., Waltham, MA 02154 617-899-6619
§† Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
Harris Corp., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309 305-974-1700
† Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .. Call Local Sls. Off.
Jupiter Systems, 1100 Marina Village Parkway, Alameda, CA 94501 415-523-9000
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-546-0884
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
Skan-A-Matic, Box S, Elbridge, NY 13060 315-689-3961
Systems Furniture Co., 2727 Maricopa St., Torrance, CA 90503 213-533-1212
Terminal Data Corp., 15733 Crabbs Branch Way, Rockville, MD 20855 .. 301-921-8282
Wire Graphics, Inc., 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525
§ Zero-East Div., 288 Main St., Monson, MA 01057

Work Room, Shielded-1400

† Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100 .... C•1726
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988

Wrenches-5400

§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
§ Best Way Tools, 171 Brook Ave., Deer Park, NY 11729 516-586-4702
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Industries Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§† Raymond Engrg. Inc., Raycorder Prods. Div., 217 Smith St., Middletown, CT 06457 203-632-1000
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Utica Tool Co., Inc., Cameron Rd., P.O. Box 1807, Orangeburg, SC 29115 803-534-7010
§ Vaco Prods., 1510 Skokie Blvd., Northbrook, IL 60062 312-564-3300

X-ray Detector Arrays (For Industrial Inspections)-4100 — *See Vol. D*

X-ray Inspection Equipment-4100 — *See Vol. D*

X-Y Axis Tables — See Simulators, Motion (Vol. D)

Yokes, Deflection, Oscilloscope-1800 — *See Vol. A*

Yokes, Deflection, Radar PPI-1800 — *See Vol. A*

Yokes, Deflection, CRT-1800 — *See Vol. A*

Yokes, Deflection, TV Camera-1800 — *See Vol. A*

Zener Diodes — See Diodes, Zener

Zone Boxes, Thermocouple — See Thermocouples, Elements & Accessories (Vol. B)

85
86 Manufacturers and Sales Offices Directory

Each manufacturer is listed alphabetically with complete address and telephone number of main offices. The names of those with data pages in this edition of EEM are shown in boldface.

Many manufacturers also show TWX and Telex numbers, FSC (Federal Supply Code), other pertinent company data, their sales and/or local distributor offices and phones. The page numbers of their data pages in this edition are shown in all volumes.

AABA COMPONENTS CORP., P.O. Box 171, Baldwin Place, NY 10505, Tel: 914-628-6952; Empl.: 15; *Sls. Mgr.:* D. McVey; *Dist. Mgr.:* D. McVey

AAK CORP, 747 River St., Haverhill, MA 01830, Tel: 617-373-3769; FSC No.: 04 26 3109-1; Empl.: 10; *Sls. Mgr.:* S. Musumeci

A & B TECHNICAL SERVICES, 11300 Hartland St., N. Hollywood, CA 91605, Tel: 213-769-6772, Telex: 66-2497, TWX: 910-499-2675; Empl.: 40; *Sls. Mgr.:* V. A. Littlefield; *Dist. Mgr.:* C. Cloud

A & D ELEC. INSTRS., 73-07 88th St., Glendale, NY 11385, Tel: 718-275-6516; Empl.: 7

A&M INSTRUMENT, INC., 5 Nassau St., Rockville Centre, NY 11571, Tel: 516-678-6960

AAVID ENGRG., One Kool Path, Laconia, NH 03246, Tel: 603-524-4443, TWX: 510-298-1127; FSC No.: 30161; Empl.: 300; *Sls. Mgr.:* Philip Johnson; *Dist. Mgr.:* Philip Johnson

abacus controls inc.

ABACUS CONTROLS INC., 89 Readington Rd., Somerville, NJ 08876, Tel: 201-526-6010, Telex: 888186 ABACUS CONT UD; FSC No.: 54241; Empl.: 45; *Sls. Mgr.:* L. Albrecht **D•1880-1882**

Local Sales Offices & Reps

AL	Huntsville, Scientific Dvcs.	205-536-1969
CA	Los Angeles, Power Partners	800-468-5400
CA	San Diego, Power Partners	800-468-5400
CT	New London, Elctrn. Sls. of New England	203-443-2646
FL	Ft. Walton Beach, Scientific Dvcs.	904-651-4407
FL	Orlando, Scientific Dvcs.	305-841-8180
GA	Atlanta, Scientific Dvcs.	205-536-1969
GA	Savannah, Scientific Dvcs.	904-651-4407
MA	Wareham, Elctrn. Sls. of New England	617-295-7634
NC	Raleigh, Scientific Dvcs.	919-846-7319
NC	Winston-Salem, Scientific Dvcs.	919-765-5776
TX	Dallas, True Techn.	214-691-7870

ABA ELECTROMECHANICAL SYS. INC., Box 500, Pinellas Pk., FL 34290-0500, Tel: 813-541-6681, TWX: 810-866-0433; FSC No.: 26795; Empl.: 485; *Sls. Mgr.:* Bruce W. Harting

ABALON PRECISION MFG., 1040 Home Street, Bronx, NY 10459, Tel: 212-589-5682; Empl.: 25; *Sls. Mgr.:* Norman C. Orent

abbott

WHEN RELIABILITY IS IMPERATIVE

ABBOTT TRANSISTOR LABS., Industrial Products Div., 8203 Vineland Ave., Sun Valley, CA 91352, Tel: 818-504-0644, Telex: 91-6101; Empl.: 30; *Sls. Mgr.:* Peter Batte **D•1449, 1884-1885**

Local Sales Offices & Reps

CT	Stamford, Dynamic Sls.	203-693-6567
MA	Burlington, Dynamic Sls. of New England	617-272-5676
NJ	Fort Lee, Abbott Transistor Labs.	201-461-4411
TX	Richardson, Abbott Transistor Labs.	214-437-0697
VT	S. Burlington, Dynamic Sls.	802-863-3928
Can	North Vancouver, BC, Jerome & Francis Co.	604-986-1286

ABBOTT TRANSISTOR LABS., Power Supply Div., 5200 W. Jefferson Blvd., Los Angeles, CA 90016, Tel: 213-936-8185, Telex: 69-1398; FSC No.: 15755; Empl.: 500 **D•1449-1461**

Local Sales Offices & Reps

FL	Altamonte Springs, Gugel-Tuttle Assocs. Inc.	305-788-0845
NJ	Ft. Lee, Abbott Transistor Labs.	201-461-4411
TX	Richardson, Abbott Transistor Labs.	214-437-0697

ABBOTT TRANSISTOR LABS., Transformer Div., 639 So. Glenwood Pl., Burbank, CA 91506, Tel: 818-841-3630, Telex: 69-6282; FSC No.: 58910; Empl.: 50; *Sls. Mgr.:* P. Ferrari **A•2102-2108**

Local Sales Offices & Reps

AL	Huntsville, The Novus Grp.	205-881-2207
CT	Stamford, Dynamic Sls.	203-693-6567
FL	Altamonte Springs, Gugel-Tuttle Assocs. Inc.	305-788-0845
GA	Norcross, The Novus Grp.	404-939-1135
IL	Hinsdale, Palatine Engrg. & Sls. (CKC)	312-655-0668
IA	Cedar Rapids, Palatine Engrg. & Sls., Inc.	319-365-8071
KS	Mission, Palatine Engrg. & Sls., Inc.	913-831-0555
MA	Burlington, Dynamic Sls.	617-272-5676
MN	Spring Lake Park, Holmgren Assocs., Inc.	612-786-7641
MO	Hazelwood, Palatine Engrg. & Sls., Inc.	314-839-0800
NJ	Ft. Lee, Abbott Transistor Labs.	201-461-4411
TX	Richardson, Abbott Transistor Labs.	214-437-0697
VT	S. Burlington, Dynamic Sls.	802-863-3928
Can	Rexdale, Ontario, Source Elctrns., Ltd.	416-675-6235

ABLE POWER AND ENGINEERING INC., 335 S. New Ave., # H, Monterey Park, CA 91754, Tel: 714-891-3568; *Sls. Mgr.:* Joe Chou; *Dist. Mgr.:* Bob Barrio

ABLESTIK LABORATORIES, 833 W. 182nd St., Gardena, CA 90248, Tel: 213-532-9341, TWX: 910-346-7606; FSC No.: 21109; Empl.: 100; *Sls. Mgr.:* D. W. Lefever

ABRAMS INSTR. CORP., P.O. Box 26007, Lansing, MI 48909, Tel: 517-332-6405, TWX: 810-251-0785; FSC No.: 00048; *Sls. Mgr.:* Merlyn Gates

ACCARDI LABORATORIES, 66-45 69th St., Middle Village, NY 11379, Tel: 212-326-0570; *Sls. Mgr.:* Leonard Carney

ACC ELECTRONICS, 1300 W. Oak, Independence, KS 67301, Tel: 316-331-1000, Telex: 436483; FSC No.: 316-331-0660; Empl.: 1000; *Sls. Mgr.:* Leon Allen **A•1659**

Local Sales Offices & Reps

MI	Troy, C. B. Jensen & Assoc.	313-643-0506

ACCESSORIES FOR ELCTRNS., INC., 800 Merrick Rd., Baldwin, NY 11510-3593, Tel: 516-546-1751; FSC No.: 54355; Empl.: 20; *Sls. Mgr.:* Angela Calabro

ACCUDYNE CORP., P.O. Box 1429, Janesville, WI 53547, Tel: 608-752-9081; FSC No.: 18356; Empl.: 276; *Sls. Mgr.:* R. E. Mowris; *Dist. Mgr.:* R. E. Mowris

ACCUGRAPH CORP., 50 Gervais Drive, Suite 204, Don Mills, ONT, Canada M3C 1Z3, Tel: 416-441-2211, TWX: 06 986 766 TOR; Empl.: 23; *Sls. Mgr.:* Mr. David V. McDonald

ACCUMET ENGRG., 518 Main St., Hudson, MA 01749, Tel: 617-568-8311; *Sls. Mgr.:* J. B. Snook

Local Sales Offices & Reps

CA	Los Altos, Stout Inds.	415-949-0440
CA	Malibu, R. L. Comps.	213-456-9021
MD	Pasadena, Spectro-Lambda	301-437-7633
NJ	East Windsor, Micro-Lambda	609-443-3113
NY	Chappaqua, Micrel	914-238-4961

ACCUPROBE, INC., 1 Harrison Ave, Box 1044, Salem, MA 01970, Tel: 617-745-7878, Telex: 882194 Accuprobe UD; Empl.: 26; *Sls. Mgr.:* Dana B. Lee; *Dist. Mgr.:* T. H. Murphy

ACCURASSEMBLY, 9525 Cozycroft Ave., Chatsworth, CA 91311, Tel: 818-700-0708

ACCURATE ELCTRNS., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036, Tel: 216-365-1211, Telex: 469705; FSC No.: 11375;13625; Empl.: 35

ACCURIDE, 12311 S. Shoemaker, Santa Fe Springs, CA 90670, Tel: 213-944-0921; *Sls. Mgr.:* Mike Hart; *Dist. Mgr.:* Bill Kniegge

ACCUSONIC SYSTEMS CORP., 12 Kulick Rd., Fairfield, NJ 07006, Tel: 201-575-1570; FSC No.: 5965;12606; Empl.: 45; *Sls. Mgr.:* Dennis Goodman

ACCUTEST, 25 Industrial Ave., Chelmsford, MA 01824, Tel: 617-256-8124, TWX: 710-347-0620; Empl.: 300; *Sls. Mgr.:* Tom Emery

ACCUTRONICS/CONNOR-WINFIELD, See Connor-Winfield

ACDC ELECTRONICS, 401 Jones Rd., Oceanside, CA 92054, Tel: 619-757-1880, TWX: 910-322-1470; Empl.: 750; *Sls. Mgr.:* Larry Slagal; *Dist. Mgr.:* Ray Brown

ACD-ELCOR PRODUCTS, P.O. Box 244, Bethel, CT 06801, Tel: 203-743-3510; Empl.: 3

ACHESON COLLOIDS, P.O. Box 288, Port Huron, MI 48060, Tel: 313-984-5581, TWX: 810-231-5265; Empl.: 150; *Sls. Mgr.:* Richard Doehring

ACI DATA PRODUCTS, 17921 Sampson Ln., Huntington Beach, CA 92647, Tel: 714-842-2945, Telex: 655328; Empl.: 10; *Sls. Mgr.:* J. Rogers

A.C. INTERFACE, 17911 Sampson, Huntington Beach, CA 92647, Tel: 714-841-6090, Telex: 655-328; Empl.: 23; *Sls. Mgr.:* R. D. Henwood; *Dist. Mgr.:* Wayne Neal

ACL INC., 1960 E. Devon Ave., Elk Grove, IL 60007, Tel: 312-981-9212; Empl.: 8

ACME CHEMICALS & INSULATION CO., Div. of Allied Products Corp., 166 Chapel St., New Haven, CT 06513, Tel: 203-562-2171, Telex: 295503 Acme UR; Empl.: 75; *Sls. Mgr.:* Marvin Leonard

ACME ELEC. HEATING CORP., 4685 E. 11th, Hialeah, FL 33013, Tel: 305-685-8326; Empl.: 12

ACME MODEL ENGRG. CO., 654 Bergen Blvd., Ridgefield, NJ 07657, Tel: 201-943-7650; Empl.: 29

ACOPIAN, Box 638, Easton, PA 18044, Tel: 215-258-5441, TWX: 510-651-4919; FSC No.: 14749; *Sls. Mgr.:* T. Skopal .... **D•1463-1497**

Local Sales Offices & Reps

FL	Melbourne, Acopian	305-727-1172
MD	Ellicott City, Doss Elctrns.	301-465-1336

ACOUSTIC POWER SYS., 2151 Las Palmas Dr., Ste. G, Carlsbad, CA 92008, Tel: 619-438-4848, Telex: 67-8401; Empl.: 5

ACQUIS COMMUNICATIONS, 17192 Gillette Ave., Irvine, CA 92714, Tel: 714-250-4964; *Sls. Mgr.:* Patrice Garner

ACRODYNE CONTROLS, See Accudyne Corp.

ACROMAG, 30765 Wixom Rd., Wixom, MI 48096, Tel: 313-624-1541, Telex: 247354; Empl.: 110; *Sls. Mgr.:* Bill Carey

Local Sales Offices & Reps

AZ	Tempe, Aldrich Indl. Controls, Ltd.	602-945-8598
CA	Costa Mesa, FLW, Inc.	714-751-7512
CA	Walnut Creek, Sharman, Inc.	415-947-5757
CO	Lakewood, Technical Mktg. Mfg.	303-232-1516
FL	Ruskin, Leroy E. Rogers	813-645-1453
GA	Atlanta, R. Freeman Assocs.	404-938-1227
IL	Hoffman Estates, Carvel Engrg. & Sls. Co.	312-885-8800
IN	Indianapolis, Process Controls Corp.	317-259-1316
IA	Cedar Rapids, Dy-Tronix	319-377-8275
KS	Shawnee Mission, D. Allert Co.	913-831-4244
LA	Baton Rouge, Devitt Pancoast Controls Co.	504-291-0074
MD	Cockeysville, Koch/Assoc.	301-666-7400
MA	Norwell, Bordewieck Engrg. & Sls. Co.	617-659-4915
MI	Negaunee, The Shertron Co.	906-475-5234
MI	Troy, George R. Peters & Assocs.	313-362-1200
MN	Cedar, Bican Co.	612-434-7733
MO	Bridgeton, Dy-Tronix	314-291-4777
NJ	Blackwood, J. Koch/Assocs.	609-227-5000
NY	Buffalo, Chippewa Instrs., Inc.	716-838-5050
NY	E. Syracuse, Analog Instrs., Inc.	315-437-8413
NY	New York, Flowmaster Controls Co.	212-741-9675
NC	Matthews, W.K. Hile Co.	704-847-9125
OH	Cincinnati, George Drysdale & Assocs.	513-528-2200
OH	Cleveland, Jay Indl. Sls. Co.	216-831-9393
OK	Tulsa, Dave Allert Co.	918-743-7705
OR	Portland, McLaren, Inc.	503-297-2248
PA	Bridgeville, Instr. Svcs.	412-221-3601
PA	Erie, Instrument Svcs.	814-455-1969
TN	Knoxville, Hile Controls of Tenn.	615-584-0208
TN	Memphis, Mel Watson Co.	901-345-0890
TX	Corpus Christi, Collier Equip. Co.	512-289-6181
TX	Irving, DACO/Dave Allert Co.	214-986-1506
TX	Sugar Land, Pan-Tech Engrg. Co.	713-240-1220
UT	West Jordan, Specialty Sls. Co.	801-561-0222
VA	Chester, Hile Controls of Virginia	804-796-3001
WA	Bellevue, McLaren, Inc.	206-454-3400
WV	Charleston, Instr. Svcs.	304-345-0348
WI	New Berlin, Carvel Engrg. & Sls. Co.	414-784-7007

ACROMARK, 60 Locust/Dept. 397, Berkeley Hgts., NJ 07922, Tel: 201-464-6474; Empl.: 50

ACTION INSTRS., 8601 Aero Dr., San Diego, CA 92123, Tel: 619-279-5726, TWX: 910-335-2030; Empl.: 230; *Sls. Mgr.:* Frank Williams

ACTIVAIR, Duracell, Inc., 2777 Eagandale Blvd., Eagan, MN 55121, Tel: 612-681-4200, Telex: 297-486; Empl.: 100; *Sls. Mgr.:* H. T. Ross; *Dist. Mgr.:* H. T. Ross

ACTIVE CONTROL INSTRMN., P.O. Box 243-Wildwood Circle, Key Largo, FL 33037, Tel: 305-451-1000; FSC No.: 55116; Empl.: 6 .... **D•1109**

AC TRANSFORMER, 89 Madison St., Newark, NJ 07105, Tel: 201-589-8574; Empl.: 13; *Sls. Mgr.:* George Giangrande

ACUREX-AUTODATA, 555 Clyde, Mountain View, CA 94039, Tel: 415-964-3200, Telex: 34-6391, TWX: 910-379-6593; Empl.: 1000; *Sls. Mgr.:* Don Willett

ACUSHNET CAPACITOR CO., INC., 720 Belleville, New Bedford, MA 02741, Tel: 617-999-3291, TWX: 710-344-6451; FSC No.: 61152; Empl.: 300

ACUSHNET ELCTRNS. CO., INC., 8700 E. Thomas Rd., Scottsdale, AZ 85252, Tel: 602-947-7474, TWX: 910-950-1320

ADAC CORP., 70 Tower Office Pk., Woburn, MA 01801, Tel: 617-935-6668, Telex: 951802; Empl.: 80; *Sls. Mgr.:* Les Silvern .... **D•1135**

Local Sales Offices & Reps

AZ	Phoenix, RML Assocs.	602-246-0321
CA	Los Angeles, ADAC Corp.	213-476-6535
CA	Redwood City, ADAC Corp.	415-366-4300
CO	Denver, RML Assocs.	303-757-6654
FL	Orlando, E. G. Holmes & Assocs.	305-894-8901
FL	Palm Bay, E. G. Holmes & Assocs.	305-723-7339
GA	Chamblee, E. G. Holmes & Assocs.	404-451-6161
IL	Bloomingdale, ADAC Corp.	312-980-3191
IL	Hoffman Estates, Carvel Engrg. & Sls. Co.	312-885-8800
KS	Overland Park, Ramsey Assocs.	913-649-6996
MI	Madison Hgts., WKM Assocs.	313-588-2300
MN	Edina, Carvel Engrg. & Sls. Co.	612-835-7929
MO	St. Louis, Ramsey Assocs.	314-878-5042
NJ	Pennsauken, Sci-Reps	609-662-5222
NM	Rio Ranch, RML Assocs.	505-892-2385
NY	DeWitt, DB Assocs.	315-446-0220
NY	White Plains, Cane Tech Sls.	914-694-9240
NC	Carey, E. G. Holmes & Assocs.	919-469-8850
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Portland, Brett-Ross	503-256-9727
PA	Pittsburgh, WKM Assocs.	412-892-2953
TX	Houston, ADAC Corp.	713-771-9347
UT	Salt Lake City, RML Assocs.	801-942-4468
VA	Fairfax, Sci-Reps	703-385-0600
WA	Redmond, Brett-Ross	206-882-4822
WI	New Berlin, Carvel Engrg. & Sls. Co.	414-784-7007

ADALET-PLM DIV, Div. Scott & Fetzer Co., 4801 W. 150th St., Cleveland, OH 44135, Tel: 216-267-9000, Telex: 98-5349; FSC No.: 73389; Empl.: 177; *Sls. Mgr.:* J. L. Smelko

ADAMS-MAXWELL DIVISION, Coast Magnetics, 1207 North La Brea Ave., Inglewood, CA 90302, Tel: 213-673-3245, Telex: 686103; FSC No.: 22558; Empl.: 55; *Sls. Mgr.:* H. Adams

ADAMS RITE PRODS., INC., 540 W. Chevy Chase Dr., Glendale, CA 91204, Tel: 818-241-5121, TWX: 910-497-2276; Empl.: 130

ADAMS-RUSSELL, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913, Tel: 617-388-5210, TWX: 710-347-6360; FSC No.: 11556; Empl.: 350; *Sls. Mgr.:* David W. Ryan

ADAMS-RUSSELL, Anzac Div., 80 Cambridge St., Burlington, MA 01803, Tel: 671-273-3333, Telex: 200155, TWX: 710-332-0258; FSC No.: 21912; Empl.: 300; *Sls. Mgr.:* Julian D. Parker

ADAMS RUSSELL, Modpak Div., 80 Cambridge St., Burlington, MA 01803, Tel: 617-273-3333, TWX: 710-332-0258; FSC No.: 21912; Empl.: 1; *Sls. Mgr.:* Pat Corrigan

ADAMS-RUSSELL, Parisi Div., 280 Bear Hill Rd., Waltham, MA 02154, Tel: 617-890-0055, TWX: 710-324-6450; FSC No.: 27965; Empl.: 8; *Sls. Mgr.:* J. M. Caputo

ADAPTER/CHARGER PRDTS., Box 3218, Peoria, IL 61614, Tel: 309-691-0810; Empl.: 50

ADAPTIVE INTELLIGENCE, 1401 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-262-7222; *Sls. Mgr.:* Jim Breen

ADAPTIVE SCIENCE, 4700 San Pablo Ave., Emeryville, CA 94608, Tel: 415-652-1805; FSC No.: 7379; Empl.: 26; *Sls. Mgr.:* Jesse Huffman

ADATEK, INC., P.O. Box 1339, Sandpoint, ID 83864, Tel: 208-263-1471, 800-323-3343; Empl.: 13; *Sls. Mgr.:* Kim Jones or Ray Pelland; *Dist. Mgr.:* Janis Chilton

ADC MAGNETIC CONTROLS CO., 4900 W. 78th St., Minneapolis, MN 55435, Tel: 612-835-6800, Telex: 290321; Empl.: 2000; *Sls. Mgr.:* Jack Brandmueller

ADCOTECH, 1980 Tarob Ct., Milpitas, CA 95035, Tel: 408-943-9430, TWX: 910-338-2333; Empl.: 125; *Sls. Mgr.:* Bill Sendell

ADC PRODS., 4900 W. 78th St., Minneapolis, MN 55435, Tel: 612-835-6800, TWX: 910-576-2832; Empl.: 1,435

ADDACON, INC., 3702-C Alliance Dr., Greensboro, NC 27407, Tel: 919-852-6200, TWX: 510-922-7361; *Sls. Mgr.:* Lynn Cummings

A.D. DATA SYS., Techtran Industries, 200 Commerce Dr., Rochester, NY 14623, Tel: 716-334-9649, TWX: 510-253-3246; Empl.: 35; *Sls. Mgr.:* Jack Petz

ADDELCO CORP., Advanced Dev. Elctrns. Div., 20 Freeman Pl., Needham, MA 02192, Tel: 617-444-4754, TWX: 710-325-0370; Empl.: 23; *Sls. Mgr.:* Alan LeMay; *Dist. Mgr.:* M. B. Polayes

ADDINGTON LABS. INC., SOLID STATE PRODS DIV., See Eaton Corp. Comm. Prods. Div.

ADDITIVE PRODUCTS DIV., Kollmorgen Corp., P.O. Box 700, West La., Aquebogue, NY 11931, Tel: 516-722-4100, TWX: 510-220-0022; Empl.: 450

ADDMASTER CORP., 416 Junipero Serra Dr., San Gabriel, CA 91776, Tel: 818-285-1121, Telex: 67-4770; Empl.: 200; *Sls. Mgr.:* Larry Wirtz

ADE, INC., 1560 E. 98th St., Chicago, IL 60628, Tel: 312-221-3400; FSC No.: 62049

ADELIE CORPORATION, 288 Walnut Street, Newtonville, MA 02160, Tel: 617-965-8480; Empl.: 35; *Sls. Mgr.:* Albert R. Vandam

ADI ELECTRONICS, INC., 160 Wilbur Place, Bohemia, NY 11716, Tel: 516-567-3555

ADHESIVE PRODS., 1660 Boone Ave., Bronx, NY 10460, Tel: 212-542-4600; *Sls. Mgr.:* M. S. Peters

ADIRONDACK WIRE & CABLE CO., INC., 1451 New Britain Ave., Farmington, CT 06032, Tel: 1-203-677-2657; Empl.: 150; *Sls. Mgr.:* Kenneth Stowell; *Dist. Mgr.:* Mary Anne Violette

ADRET/COMSTRON, See Comstron/Adret

ADTECH POWER INC., 1620 S. Sunkist St., Anaheim, CA 92806, Tel: 714-634-9211, Telex: 68-1498; FSC No.: 56410; Empl.: 70; *Sls. Mgr.:* C. C. O'Reilly; *Dist. Mgr.:* C. C. O'Reilly .... **D•1499**

Local Sales Offices & Reps

CA	Anaheim, Galaie Sls. Intl.	714-937-5622
CA	Brea, Synertech	714-691-6123
CA	Campbell, Sedillo Co.	408-374-5220
FL	Melbourne, Reynolds & Assocs.	305-259-7000
MA	Stoughton, Elctrn. Meas. Labs	617-341-0781
NY	New York, Elctrn. Meas. Labs	212-706-4059
TX	Garland, Carey, McMahill & Zerbe Co.	214-681-1414
TX	Houston, Carey, McMahill & Zerbe Co.	713-771-1500
TX	Round Rock, Carey McMahill & Zerbe Co.	512-255-1663
WA	Bellevue, Al Smith Co.	206-746-6770
WA	Vancouver, Al Smith Co.	206-892-9912

ADVANCE CONVERSION DEVICES CO., 274 S. Salem St., Randolph, NJ 07869, Tel: 201-989-0095; FSC No.: 52298; Empl.: 24; *Sls. Mgr.:* D. J. Fedderly .... **D•1886-1887**

ADVANCED AUTOMATION CONCEPTS, INC., 3760 Lower Roswell Rd., Marietta, GA 30067, Tel: 404-973-0027, Telex: 703452; Empl.: 12; *Sls. Mgr.:* Bob Pap

ADVANCED CIRCUITRY, Litton Inds., 4811 W. Kearney, Springfield, MO 65803, Tel: 417-862-0751, TWX: 910-775-4705; Empl.: 1000; *Sls. Mgr.:* Steve Fadler

ADVANCED CIRCUIT TECHNLG., 118 N. Eastern Blvd., Nashua, NH 03062, Tel: 603-880-6000, TWX: 710-228-8961; FSC No.: 57034; Empl.: 125

Local Sales Offices & Reps

CA	Mission Viejo, Advanced Circuit Technlg.	714-770-2637
FL	Crystal River, Advanced Circuit Technlg.	904-795-3200

ADVANCED COATINGS & CHEM., Philip A. Hunt Chemical Corp., 4343 Temple City Blvd., Temple City, CA 91780, Tel: 818-579-6270, Telex: 675594; *Sls. Mgr.:* Tim Hughes

ADVANCED COLOR TECHNLG., 21 Alpha Rd., Chelmsford, MA 01824, Tel: 617-256-1222, Telex: 951-419; *Sls. Mgr.:* Jack Flynn

ADVANCED COMPONENTS INDS., INC., 114 Center St., El Segundo, CA 90245, Tel: 213-322-4249; *Sls. Mgr.:* Irma Spreitzer

ADVANCED CONTROL SYS., 24 Teed Dr., Randolph, MA 02368, Tel: 617-963-4543; Empl.: 6; *Sls. Mgr.:* Kenneth Egan

ADVANCED DETECTOR CORP., Applied Solar Energy Corp., 15251 E. Don Julian Rd., Industry, CA 91746, Tel: 818-369-6886, TWX: 910-584-4890; *Sls. Mgr.:* T. Scott Thorpe .... **B•1203**

Local Sales Offices & Reps

AZ	Tempe, Piper Sls.	602-949-0048
CA	City of Industry, Advanced Detector Corp.	818-369-6886
CA	Mountain View, Weseloh/Swanson Assocs.	415-961-0565
CO	Longmont, Piper Sls.	303-651-2378
GA	Norcross, Hollingsworth & Still, Inc.	404-447-1700
IL	Buffalo Grove, Hill Sls. Corp.	312-541-0661
MA	Sudbury, Poulin Assocs., Inc.	617-443-7333
MI	Brooklyn, Engineered Comps., Inc.	517-592-3236
MN	Minneapolis, Furber Sls.	612-881-3620
NJ	Montclair, Controlyne, Inc.	201-746-8900
NC	Fayetteville, Zim-Tek	919-488-4101
OR	Portland, Component Technlg.	503-292-1518
PA	Pittsburgh, Covert & Newman	412-531-2002
TX	Richardson, Moore Assocs.	214-690-4929
UT	Salt Lake City, Piper Sls.	801-466-9336
VA	Fairfax, Beacon North, Inc.	703-591-1300

Local Distributors

AZ	Tempe, Piper Sls.	602-949-0048
CA	City of Industry, Advanced Detector Corp.	818-369-6886
CA	Mountain View, Weseloh/Swanson Assocs.	415-961-0565
CO	Longmont, Piper Sls.	303-651-2378
GA	Norcross, Hollingsworth & Still, Inc.	404-447-1700
IL	Buffalo Grove, Hill Sls. Corp.	312-541-0661
MA	Sudbury, Poulin Assocs., Inc.	617-443-7333
MI	Brooklyn, Engineered Comps., Inc.	517-592-3236
MN	Minneapolis, Furber Sls.	612-881-3620
NJ	Montclair, Controlyne, Inc.	201-746-8900
NC	Fayetteville, Zim-Tek	919-488-4101
OR	Portland, Component Technlg.	503-292-1518
PA	Pittsburgh, Covert & Newman	412-531-2002
TX	Richardson, Moore Assocs.	214-690-4929
UT	Salt Lake City, Piper Sls.	801-466-9336
VA	Fairfax, Beacon North, Inc.	703-591-1300

ADVANCED DEVICES, 1618 Camino Uva, Los Alamos, NM 87544, Tel: 505-662-7729

ADVANCED DIGITAL TECH, 13400 Northrup Wy Ste 27, Bellevue, WA 98005, Tel: 206-643-2382, TWX: 296 352 ADT UR; Empl.: 14; *Sls. Mgr.:* Brian T. Best; *Dist. Mgr.:* Matt Astengo

ADVANCED ELCTRNS. DESIGN, INC., 440 Potrero Ave., Sunnyvale, CA 94086, Tel: 408-733-3555, 800-538-1730 (outside CA), Telex: 357-498; *Sls. Mgr.:* Leon Drozdowski

ADVANCED ELECTRONIC PACKAGING, 2159 Bay St., Los Angeles, CA 90021, Tel: 213-622-9042; *Sls. Mgr.:* Douglas A. Hill

ADVANCED FILTER DEVICES, INC., 6241 Yarrow Dr., Ste. D, Carlsbad, CA 92008, Tel: 619-438-2074; FSC No.: 56620; Empl.: 45; *Sls. Mgr.:* Herbert Johnson

ADVANCED HIGH VOLTAGE CO., INC., P.O. Box 2136, Lancaster, CA 93539-2136, Tel: 213-997-7222; *Sls. Mgr.:* J. Richardson

ADVANCED INPUT DEVICES, W. 250 A.I.D. Dr., Coeur d'Alene, ID 83814, Tel: 208-765-8000, TWX: 510-776-0584; FSC No.: 95666; Empl.: 550; *Sls. Mgr.:* Larry May

ADVANCED INTERCONNECTIONS CORP., 5 Division St., Warwick, RI 02818, Tel: 401-885-0485, TWX: 710-382-0400; FSC No.: 05-0394638; *Sls. Mgr.:* Max E. Rice

ADVANCED KINETICS, 1231 Victoria St., Costa Mesa, CA 92627, Tel: 714-646-7165, Telex: 18-2714; Empl.: 32; *Sls. Mgr.:* R. L. Gradishar

ADVANCED MATERIALS SYSTEMS, See Handy & Harman Electronic Materials Corp.

ADVANCED MICROCOMPUTERS, 3340 Scott Blvd., Santa Clara, CA 95051, Tel: 408-732-2400, Telex: 34-6306, TWX: 910-339-9280; *Sls. Mgr.:* Steve Zelencik; *Dist. Mgr.:* Rick Marz

ADVANCED MICRO DEVICES, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088, Tel: 408-732-2400, Telex: 34-6306, TWX: 910-339-9280; Empl.: 11000; *Sls. Mgr.:* Steve Zelencik; *Dist. Mgr.:* Michael Furman

ADVANCED SYS. CONCEPTS, 435 N. Lake Ave., Pasadena, CA 91101, Tel: 818-793-8971, Telex: 701 215 ASCI; *Sls. Mgr.:* Wesley Ferris; *Dist. Mgr.:* B. Lee .... **D•1137**

Local Sales Offices & Reps

IA	Des Moines, Beams Co.	515-255-1148
MN	Edina, Integrated Peripheral Sys.	612-831-0349
OH	Dayton, Ashby Assocs.	513-252-5627
VA	Vienna, Advanced Technlg. Assocs.	703-556-0500

ADVANCED TECHN. RESEARCH LABS., 5645 K General Washington Dr., Alexandria, VA 22312, Tel: 703-750-2920; Empl.: 12; *Sls. Mgr.:* Bob Palma, Sr.; *Dist. Mgr.:* Bob Palma, Sr.

ADVANCED TOOL TECHNOLOGY, INC., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325, Tel: 213-993-1202, Telex: 181011; *Sls. Mgr.:* Lou Davis

ADVANCE ENGRG., 18225 So. Hoover St., Gardena, CA 90248, Tel: 213-321-3100

AD-VANCE MAGNETICS, INC., 625 Monroe St., Rochester, IN 46975, Tel: 219-223-3158, TWX: 810-290-0294; FSC No.: 50788; Empl.: 30; *Sls. Mgr.:* Kay Nixon .... **C•1720**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
CA	El Cajon, A-Tronics	619-444-1501
CA	Los Altos, Frauman Assoc.	415-941-0660
CA	Woodland Hills, A-Tronics	213-703-7212
CT	Meriden, A. Allison	203-481-0405
FL	Orlando, Gillum Sales	305-857-2110
GA	Atlanta, Remco	404-447-6937
IL	Westchester, Brouillette	312-345-6500
MN	Edina, J. H. Hanson	612-893-9960
NY	Commack, RC Engrg.	516-543-3325
NC	Raleigh, Remco	919-847-5079
OH	Cincinnati, Makin Assocs.	513-871-2424
PA	W. Conshohocken, Eastern Comps.	215-825-8610
TX	Houston, Space Elctns.	713-266-9245
TX	Irving, Space Elctns.	214-251-3636
VA	Herndon, Eastern Comps.	703-368-3936

ADVANCE WIRE & CABLE, 1661 Industrial Way, Belmont, CA 94002, Tel: 415-592-4550, Telex: 334475; FSC No.: 57775; Empl.: 158; *Sls. Mgr.:* Ed Mittelbusher; *Dist. Mgr.:* Ed Mittelbusher

Local Sales Offices & Reps

AL	Decatur, Tenn Tech, Inc.	205-350-0630
AZ	Phoenix, Advance Elctrl. Sls.	602-243-4326
CA	Belmont, Advance Elctrl. Sls.	415-592-4550
CO	Denver, Advance Elctrl. Sls.	303-388-0923
FL	Palm Bay, R-Rep Co.	305-725-6993
GA	Atlanta, Tenn Tech, Inc.	404-622-5784
IL	Arlington Heights, Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
KY	Fort Mitchell, G. W. Thelen Co.	606-341-8181
MD	Hunt Valley, Phoenix Elctrn. Sls.	301-628-2066
MA	Sharon, Adcour, Inc.	617-784-8123
MI	Pontiac, Matrix Elec.	313-338-7770
MN	Minneapolis, Jos-Co/Melius, Inc.	612-861-3343
NJ	Parlin, JMR Sls.	201-727-5335
NJ	Sicklerville, Brown Assocs.	609-629-2240
NY	Camillus, Ontec	315-672-8409
NY	East Setauket, JMR Sls., Inc.	516-689-8871
NY	Rochester, Ontec	716-464-8636
NY	Wappingers Falls, Ontec	914-462-7374
NC	Raleigh, Tenn-Tech, Inc.	919-266-3610
OH	Medina, G. W. Thelen Co.	216-723-1293
TN	Nashville, Tenn-Tech, Inc.	615-646-9811
TX	Houston, Advance Elctrl. Sls.	713-956-5436
WA	Seattle, Advance Elctrl. Sls.	206-575-4323
WI	Waukesha, Brainard-Wilson Mktg.	414-797-7940

A E CORP., 65 Wellesley Ave., Needham, MA 02194, Tel: 617-449-3142; Empl.: 10; *Sls. Mgr.:* H. Harrison

A E G TELEFUNKEN, High Power Grp., Rte. 22, Orr Dr., Somerville, NJ 08876, Tel: 201-722-9800, Telex: 833409; *Sls. Mgr.:* John Szafranski

A E G TELEFUNKEN, Semiconductor Grp., Rte. 22, Somerville, NJ 08876, Tel: 201-722-9800, Telex: 833409; *Sls. Mgr.:* Carl Golasa; *Dist. Mgr.:* Thomas Carlisle

AEL, INC, See American Electronic Labs

AEMC, 99 Chauncy, Boston, MA 02111, Tel: 617-451-0227, 800-343-1391, Telex: 95-1073; *Sls. Mgr.:* Jon Henderson

AERCOM, 405 Tasman Dr., Sunnyvale, CA 94086, Tel: 408-744-1320, TWX: 910-339-9308; Empl.: 50; *Sls. Mgr.:* H. Putnam

AEROCOM, 3090 S.W. 37th Ave., Miami, FL 33133, Tel: 305-448-6503, Telex: 51-9209; FSC No.: 81535; Empl.: 100; *Sls. Mgr.:* Thomas A. Coleman

AEROFLEX LABS., INTEGRATED MICROSYSTEMS DIV., See Aeroflex Labs., Microelectronics Div.

AEROFLEX LABS., MAGNETIC PRODS. DIV.,, 35 South Service Road, Plainview, NY 11803, Tel: 516-694-6700, TWX: 510-224-6417; Empl.: 490; *Sls. Mgr.:* Robert M. Slatkin .... **B•1131, 1779**

Local Sales Offices & Reps

EXP	New York, Henley Overseas Sls., Inc.	212-687-9390

AEROFLEX LABS., MICROELCTRNS. DIV., 35 S. Service Rd., Plainview, NY 11803, Tel: 516-694-6700, TWX: 510-224-6417; FSC No.: 88379; Empl.: 100; *Sls. Mgr.:* Melvin D. Schwartz .... **A•1660**

Local Sales Offices & Reps

AZ	Phoenix, The Knight Co.	602-994-1311
CA	Los Altos Hills, HB Mktg.	415-941-4080
CA	Los Angeles, The Knight Co.	213-670-2833
CA	San Diego, The Knight Co.	714-451-0529
CO	Parker, Parker Webster Co.	303-841-4888
CT	Simsbury, Multitronics Sls. Co.	203-651-0140
FL	Altamonte Springs, R. W. Mitscher Co., Inc.	305-788-6844
FL	Boca Raton, R. W. Mitscher Co., Inc.	305-368-3841
IL	Northfield, Feller Assocs., Inc.	312-446-8065
IA	Cedar Rapids, Feller Assocs., Inc.	319-364-0566
MD	Baltimore, Micro Comp, Inc.	301-247-0400
MI	Detroit, Electro Sls.	313-474-7320
MI	Kalamazoo, Electro Sls.	616-323-2416
MN	Minneapolis, International Elctrns, Inc.	612-571-0000
NJ	Cherry Hill, Danco Elctrn. Sls. Corp.	609-424-5590
NJ	Teaneck, T.J. Squared	516-864-2263
NY	Albany, Nu-Tekneex Mktg.	518-355-1829
NY	Hartsdale, T.J. Squared	516-864-2263
OH	Dayton, Electro Sls.	513-426-5551
TX	Garland, Tesco Inc.	214-681-1376
UT	Salt Lake City, Parker Webster Co.	801-266-9939
EXP	New York City, New York, Henley & Co.	212-687-9390

AEROSPACE OPTICS, INC., 3201 Sandy La., Fort Worth, TX 76112, Tel: 817-451-1141, Telex: 75-8461; Empl.: 83; *Sls. Mgr.:* R. E. Borkowski

AEROTECH, INC., 101 Zeta Dr., Pittsburgh, PA 15238, Tel: 412-963-7470, TWX: 710-795-3125; Empl.: 150; *Sls. Mgr.:* Robert Mitchell

Local Sales Offices & Reps

CA	Hermosa Beach, Aerotech West	213-376-9698
CA	Sunnyvale, Aerotech Northwest	408-738-1220
CT	Farmington, Aerotech Northeast	203-673-3330
FL	Winter Park, McMahan Assocs.	305-645-0463
MD	Rockville, Spectro Assoc.	301-279-2010
NM	Albuquerque, G. Moore Assocs.	505-262-1416
NC	Raleigh, McMahan/Zellman Assoc.	919-848-1965
OH	Columbiana, Aerotech Midwest	216-482-9957
TX	Richardson, John Moore Assocs.	214-690-4929

AEROTRONIC ASSOCS., INC., Riverside Dr., Contoocook, NH 03229, Tel: 603-746-4631; FSC No.: 67272; Empl.: 225; *Sls. Mgr.:* Gary Moravchik

AERTECH INDS., See TRW Microwave

AES CORP., 285 Newbury St., P.O. Box 2093, Peabody, MA 01960, Tel: 617-535-7310, Telex: 387852 AES CORP INTL; *Sls. Mgr.:* James F. West

A.E.S INTERCONNECTS, Box 248, Plainfield, IN 46168, Tel: 317-272-2551; FSC No.: 00529; Empl.: 150; *Sls. Mgr.:* Jim Barnes

AETNA ENGRG., P.O. Box 7749, Van Nuys, CA 91409-7749, Tel: 818-341-9409; Empl.: 6; *Sls. Mgr.:* T. W. Collins

AETNA TELECOMMUNICATIONS LABS., P.O. Box 723, 131 Flanders Rd., Westborough, MA 01581, Tel: 617-366-0400, Telex: 951356; *Sls. Mgr.:* Marjorie Katz

AFI/DATATROL, Addressograph Farrington, Inc., Brent Dr., Hudson, MA 01749, Tel: 617-568-1411; Empl.: 350; *Sls. Mgr.:* Tom Galloway

AGFA-GEVAERT, INC., 275 North St., Teterboro, NJ 07608, Tel: 201-288-4100, TWX: 710-990-6137; Empl.: 750

AHAM TOR INC (ATI), 999, 27901 Front St., Rancho California, CA 92390, Tel: 714-676-4151

AIE MAGNETICS, Div. of Vernitron, 701 Murfreesboro Rd., Nashville, TN 37210, Tel: 615-244-9024, Telex: 554466; FSC No.: 06978; Empl.: 300; *Sls. Mgr.:* J. Holeman

AIKEN ADVANCED SYS., Amstar Technical Products Company, Inc., 5901 Edsall Rd., Alexandria, VA 22304-4197, Tel: 703-370-0900, TWX: 710-832-0612; FSC No.: 60590; Empl.: 250; *Sls. Mgr.:* C. G. Gilmer

Local Sales Offices & Reps

AZ	Tucson, Aiken Advanced Sys.	602-886-3219
CA	Saratoga, Interface Intl.	408-741-0265
CO	Colorado Springs, J. Smith & Assocs.	303-597-5343
FL	Melbourne, Barkman & Assocs. Mktg.	305-254-1863
EXP	MALexington, R.J. Sickles Assocs.	617-682-5100
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NY	Brooklyn, Pensky Assocs.	718-763-4936
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
Can	Guelph, Ont., VALCOM	519-824-3220

AIL, DIV. CUTLER-HAMMER, See Eaton Corp. AIL Div.

AILTEC DIV. CUTLER-HAMMER, See Eaton Corp., Elctrn. Instrmn. Div.

AIMSCO INC., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056, Tel: 206-284-5563, TWX: 910-444-1333; Empl.: 30; *Sls. Mgr.:* C. Ernst; *Dist. Mgr.:* E. Chadwick

AIPHONE, 1700 130th St. NE, Bellevue, WA 98005, Tel: 206-455-0510, Telex: 32-0288; Empl.: 42; *Sls. Mgr.:* Jim Morrison

AIRBORN, INC., 4321 AirBorn Dr., Addison, TX 75001, Tel: 214-931-3200, Telex: 79-4200, TWX: 910-860-5230; FSC No.: 10400;Multiple; Empl.: 350; *Sls. Mgr.:* J. L. Wolbrink .... **C•1111-1118**

Local Sales Offices & Reps

AZ	Tempe, Piper Sls. Co.	602-949-0048
CA	Los Angeles, Air Born	213-670-7983
CA	Mountain View, Serra Assocs.	415-964-4300
CA	No. Hollywood, R. A. Strassner	213-761-1231
CA	San Diego, Ohm Spun Elctrns.	619-695-8102
FL	Melbourne, Reynolds & Assoc.	305-259-7000
IL	Des Plaines, ESCO Assoc.	312-298-5310
IA	Cedar Rapids, Dytronix	319-377-8275
KS	Wichita, Dytronix	316-838-0884
MN	Bloomington, PWC	612-831-5999
MO	Bridgeton, Dytronics, Inc.	314-291-4777
NH	Nashua, Solla - Tronics	603-882-7146
NJ	Manville, Dynorep	201-685-0135
NM	Albuquerque, Piper Sls. Co.	505-883-9090
NY	Kingston, R.P. Kennedy Co.	914-876-2700
NY	Rochester, R.P. Kennedy Co.	716-271-6322
OH	Dayton, Electro-Com	513-898-5140
OR	Beaverton, Don Smith Sls. Co.	503-643-8020
WA	Seattle, Don Smith Sls. Co.	206-633-3160
Can	Montreal, Que., Willagen Elctrns.	514-331-4283
Can	Rexdale, Ont., Willagen Elctrns.	416-675-1821

Local Distributors

TX	Addison, AirBorn Distribution Service	214-931-3200

CONTINENTAL WIRT, 130 Jamesway, South Hampton, PA 18966, Tel: 215-355-7080

AIR ELECTRO SUPPLY, INC., 7700 Gloria Ave., Van Nuys, CA 91406, Tel: 213-873-6400, 818-988-4400, Telex: 66-2459, TWX: 910-495-1794

AIR/FLEX INDS. INC., 2422 Merced Ave., S. El Monte, CA 91733, Tel: 818-579-7060; FSC No.: 22782; *Sls. Mgr.:* Karl Thorp

Airflyte ELECTRONICS CO.

AIRFLYTE ELCTRNS. CO., 56 New Hook Rd., Bayonne, NJ 07002, Tel: 201-436-2230, TWX: 710-729-4489; Empl.: 70; *Sls. Mgr.:* John Piret .... **B•1128, 1132-1137**

Local Sales Offices & Reps

CA	Culver City, Westaironics	213-641-4122
CA	Los Altos, Poltronics	415-941-3020
CT	No. Haven, Kitchen & Kutchin	203-239-0212
IL	Park Ridge, Probe Elctrns.	312-698-2044
MA	Lexington, Kitchen & Kutchin	617-862-8230
NJ	Kinnelon, Avionics Equip.	201-838-8105
NY	Rochester, R. P. Kennedy Co.	716-271-6322
PA	Philadelphia, R. P. Luce & Co.	215-884-8365
TX	Dallas, Jacobson Co.	214-363-7584

AIR LAND SYSTEMS CORPORATION, 2710 Prosperity Ave., Fairfax, VA 22031, Tel: 703-573-1100, Telex: 710-833-1174, TWX: Airland Frax; Empl.: 35; *Sls. Mgr.:* Frank Glaspell

AIRMATIC-ALLIED, 185 Park Dr., Wilmington, OH 45177, Tel: 513-382-1691; Empl.: 150

AIR MAZE CORP., 25000 Miles Rd., Cleveland, OH 44128, Tel: 216-292-6800, Telex: 98-5413; Empl.: 300; *Sls. Mgr.:* John Cummings; *Dist. Mgr.:* Bob Glasier

AIR-O-TRONICS PRODS., Box K, Morrisville, NY 13408, Tel: 315-684-3705; FSC No.: 16663; Empl.: 10; *Sls. Mgr.:* G. M. Trush

AIRPAX CORP., Woods Rd., Cambridge, MD 21613, Tel: 301-228-4600, Telex: 8-7715, TWX: 710-865-9655; FSC No.: 81541; Empl.: 550; *Sls. Mgr.:* D. Marshall ...**B•1226**

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
AZ	Phoenix, Westrep	602-997-8899
CA	Pico Rivera, Westrep	213-949-2551
CA	San Diego, Westrep	714-276-0751
CO	Littleton, Lange Sls.	303-795-3600
CT	Wallingford, Selmark Assocs.	203-573-9088
FL	Ft. Lauderdale, ElectroComp	305-491-4141
GA	Chamblee, BCI	404-455-0405
IL	Palatine, Somers-Reagan, Inc.	312-991-1108
IN	Indianapolis, Leslie M. Devoe	317-842-3245
IA	Marion, Rep Assocs.	319-373-0152
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Millis, Selmark	617-376-2914
MI	Troy, Pine Sls.	313-589-0350
MN	Hopkins, Peterson & Wolff	612-941-5400
MO	St. Louis, Delltron	314-869-4779
NY	Jericho, Airpax Corp.	516-822-2410
NY	Poughkeepsie, C. W. Floring	914-471-2973
NY	Rochester, Airpax Corp.	716-654-7470
NY	Syracuse, C.W. Floring & Assoc.	315-478-2144
NC	Winston-Salem, L.G. White	919-725-3612
OH	Cincinnatti, Baehr, Greenleaf	513-891-3826
OH	Cleveland, Baehr, Greenleaf	216-221-9030
OH	Columbus, Baehr, Greenleaf	614-486-4046
PA	Harleysville, T. Jackson	215-643-5560
PA	Pittsburgh, Russell F. Clark	412-242-9500
SC	Greenville, L.G. White	803-271-0630
TX	Dallas, Airpax Corp.	214-733-4377
UT	Salt Lake City, Lange Sls.	801-487-0843
VA	Richmond, L.G. White	804-740-7093
WA	Seattle, Don Smith	206-633-3160

AIRPAX CORP., Cheshire Div., Cheshire Indl. Pk., Box E, Cheshire, CT 06410, Tel: 203-272-0301, Telex: 962421, TWX: 710-455-4048; Empl.: 800; *Sls. Mgr.:* John Ricardi .... **B•1138; D•1110**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Airpax Corp.	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
CT	Wallingford, Selmark Assocs.	203-573-9088
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
GA	Chamblee, B.C.I.	404-455-0405
IL	Palatine, Somers-Reagan, Inc.	312-991-1108
IN	Indianapolis, Leslie M. Devoe	317-842-3245
IA	Marion, Rep Assocs.	319-373-0152
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Millis, Selmark Assocs.	617-376-2914
MI	Madison Heights, Pine Sls, Inc.	313-589-0350
MN	Bloomington, PWC	612-831-5999
MO	St. Louis, Delltron	314-869-4779
NH	Hopkinton, Selmark Assocs.	603-746-3299
NY	Jericho, Airpax Corp.	516-822-2410
NY	Rochester, Airpax Corp.	716-654-7470
NY	Syracuse, C.W. Floring & Assocs.	315-478-2149
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
PA	Harleysville, Thomas Jackson Assocs.	215-256-8877
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
SC	Greenville, L.G. White Southern, Inc.	803-271-0630
TX	Dallas, Airpax Corp.	214-733-4377
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Seattle, Don Smith Sls Co.	206-633-3160
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX CORP., Ft. Lauderdale Div., 6801 W. Sunrise Blvd., Ft. Lauderdale, FL 33313, Tel: 305-587-1100, Telex: 51-4448, TWX: 510-955-9866; Empl.: 200

AIRPAX CORP., FREDERICK DIV., A North American Philips Co., Husky Park P.O. Box 500, Frederick, MD 21701, Tel: 301-663-5141, TWX: 710-862-0901; Empl.: 600; *Sls. Mgr.:* Al Knezevich; *Dist. Mgr.:* B. L. Reeder .... **B•1263, 1742**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411

AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Airpax Corp.	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
CT	Clinton, Selmark Assocs.	203-573-9088
FL	Deerfield Beach, Electrocomp Assocs.	305-429-0802
GA	Chamblee, B.C.I.	404-455-0405
IL	Palatine, Somers-Reagan	312-991-1108
IN	Indianapolis, Leslie M. De Voe Co.	317-842-3245
IA	Marion, Rep Assocs., Inc.	319-373-0152
MD	Columbia, Pro-Rep, Inc.	301-992-7460
MA	Millis, Selmark Assocs.	617-376-2914
MI	Madison Heights, Pine Sls.	313-589-0350
MN	Edina, PWC, Inc.	612-831-5999
MO	St. Louis, Delltron Co.	314-869-4779
NH	Hopkinton, Selmark Assocs.	603-746-3299
NY	Jericho, Airpax Corp.	516-822-2410
NY	Poughkeepsie, C.W. Floring Assocs.	914-471-2973
NY	Rochester, Airpax Corp.	716-654-7470
NY	Syracuse, C.W. Floring Assocs.	315-478-2149
NC	Winston-Salem, L. G. White Southern	919-725-3612
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
PA	Harleysville, Thomas Jackson Assocs.	215-256-8877
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
TX	Dallas, Airpax Corp.	214-867-7741
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Seattle, Don Smith Sls.	206-633-3160
WI	Wauwatosa, Larson Assocs.	414-258-0529

Local Distributors

CA	Santa Ana, Norstan Elctrns.	714-540-4165
OK	Tulsa, Altair	918-665-0524
TX	Houston, Altair	713-462-3029
TX	Richardson, Altair	214-231-5166

AIRPOT, 27 Lois St., Norwalk, CT 06851, Tel: 203-846-2021, Telex: 643-688; *Sls. Mgr.:* Mark A. Gaberman

AIRTRON, Litton Industries, Inc., 200 E. Hanover Ave., Morris Plains, NJ 07950, Tel: 201-539-5500, TWX: 710-986-7473; FSC No.: 80006; Empl.: 350

AIR-VAC ENGRG., 100 Gulf St., Milford, CT 06460, Tel: 203-874-2541; Empl.: 30

AJAX MAGNETHERMIC CORP., 1745 Overland Ave., N.E., Warren, OH 44482, Tel: 216-372-8511, Telex: 098-2482; Empl.: 500

AKG ACOUSTICS, INC., 77 Selleck St., Stamford, CT 06902, Tel: 203-348-2121; Empl.: 40; *Sls. Mgr.:* Peter Wellikoff

AKRO-MILS, 1293 S. Main St., Akron, OH 44301, Tel: 216-253-5593, Telex: 98-6321; Empl.: 200; *Sls. Mgr.:* W. J. Tonachio; *Dist. Mgr.:* D. Martin

ALADDIN ELCTRNS., See AIE Div. of Vernitron

ALAN GORDON ENTPRS., INC., P.O. Box 3914, 5362 Cahuenga Blvd., N. Hollywood, CA 91605, Tel: 818-985-5500, Telex: 662532 A-GB FOTO. LSA, TWX: 910-321-4526 GORDON NT LSA; *Sls. Mgr.:* D. Sahlenn

ALAN INDS., P.O. Box 1203, Columbus, IN 47201, Tel: 812-372-8869; FSC No.: 52750; Empl.: 36

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Palo Alto, RF Assocs.	415-494-3331
FL	Bradenton, Saber Assocs.	800-327-0853
FL	Longwood, Saber Assocs.	800-327-0853
FL	Melbourne, Saber Assoc.	800-327-0853
GA	Griffin, Saber Assocs.	800-327-0853
MD	Randallstown, C. L. Malinow & Co.	301-922-2092
MA	Needham, Addelco Corp.	617-444-4754
NY	Liverpool, R. & D. Assocs.	315-457-0100
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NC	Clayton, Saber Assocs.	800-327-0853
OH	Dayton, Frederic L. Ohmer	513-434-1454
PA	Lafayette Hill, M. Lader Co.	215-825-3177
SC	Columbia, Saber Assoc.	800-327-0853
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
EXP	CT, Stamford, Dage Corp.	203-324-3123

ALARM CONTROLS, 19 Brandywine Dr., Deer Park, NY 11729, Tel: 516-586-4220; FSC No.: 55042; Empl.: 50; *Sls. Mgr.:* Howard Berger

ALASCO RUBBER & PLASTICS CORP., 617 Mountain View Ave. #7, Belmont, CA 94002, Tel: 415-595-4100; FSC No.: 13862; Empl.: 25; *Sls. Mgr.:* Philip K. Nordberg

ALBAR, INC., 19013 36th Ave. W., Lynnwood, WA 98036, Tel: 206-771-4006; Empl.: 20; *Sls. Mgr.:* Merv Eaton

ALBEROX, New Bedford Ind'l. Pk., New Bedford, MA 02745, Tel: 617-995-1725; Empl.: 140 **C•1617**

Local Sales Offices & Reps

CA	Los Gatos, Alberox Corp.	408-358-1714
IL	Chicago, Karl D. Engle Co.	312-539-1820
IN	Indianapolis, Butler Components	317-253-5143
MA	Weston, J. Goode Assocs.	617-235-3900
MI	Birmingham, Clifford Armstrong Co.	313-851-1404
MN	Minneapolis, Magner & Assocs.	612-483-0656
NY	Fayetteville, S. F. Foster Co.	315-637-5427
NY	Valley Stream, Levison Sls.	516-561-9696
OH	Cleveland, Greenleaf & Assocs.	216-333-5480
PA	Philadelphia, Shelton Sls. Corp.	215-248-0131
TX	Dallas, C. M. Farmer Co., Inc.	214-339-4970
WA	Seattle, Demarest Assocs.	206-523-3210

ALCO ELCTRN. PRODS., INC., 1551 Osgood St., N. Andover, MA 01845, Tel: 617-685-4371, TWX: 710-342-0552; Empl.: 300 **B•1481-1483**

Local Sales Offices & Reps

AL	Huntsville, Glen White Assocs. Inc.	205-883-7938
AZ	Phoenix, Knight Co.	602-582-8506
CA	Los Angeles, Knight Co.	213-670-2833
CA	Redwood City, J. Heaton Co.	415-367-9000
CA	San Diego, Knight Co.	619-571-7903
CO	Littleton, Simpson & Assocs.	303-794-8381
FL	Safety Harbor, Augat/ALCO	813-725-1037
FL	Tamarac, Augat/ALCO	305-721-6021
GA	Norcross, Glen White Assocs. Inc.	404-441-1447
IN	Indianapolis, Rockford Controls	317-248-2518
MA	Norwood, Augat Sls.	617-762-3164
MI	Livonia, Luebbe Sls. Co.	313-477-3131
MN	St. Paul, Countryman Assocs.	612-645-9151
NM	Albuquerque, C. T. Carlberg & Assoc.	505-888-3883
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	Great Neck, Cooper-Simon & Co. Inc.	516-487-1142
NC	Raleigh, Glen White Assocs. Inc.	919-787-7023
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Luebbe Sls. Co.	216-333-0425
OH	Columbus, Luebbe Sls. Co.	614-431-0474
OH	Dayton, Luebbe Sls. Co.	513-294-0426
OR	Beaverton, D. Smith Sls. Co.	503-643-8020
PA	Pittsburgh, Luebbe Sls. Co.	412-931-0414
PA	Trevose, P.S.A., Inc.	215-245-0513
TN	Gray, Glen White Assocs. Inc.	615-477-8850
TX	Dallas, Augat/ALCO	214-788-4211
TX	Georgetown, Augat/ALCO	512-479-9447
TX	Houston, Augat/ALCO	713-495-3100
UT	Midvale, Simpson Assocs. Inc.	801-566-3691
VA	Lynchburg, P.S.A. Inc.	800-233-4242
VA	McLean, P.S.A. Inc.	800-233-4242
WA	Seattle, D. Smith Sls. Co.	206-633-3160

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Hall-Mark Elexs.	205-837-8700
AZ	Phoenix, Hall-Mark Elexs.	602-437-1200
AZ	Phoenix, Kachina Elctrns.	602-269-6201
AZ	Tempe, Acacia Sls.	602-894-2874
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Burbank, Switching Devices	213-849-3211
CA	Chatsworth, Arrow Elexs.	213-701-7500
CA	Gardena, CA Switch & Signal	213-770-2330
CA	Hollywood, Yale Radio Electric	213-465-3186
CA	Irvine, Acacia Sales	714-660-0834
CA	Los Angeles, Electric Switch	213-664-1141
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Newport Beach, Arrow Elexs.	714-851-8961
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-793-1195
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Arrow Elexs.	619-565-4800
CA	San Diego, El-Com Inc.	619-578-0900
CA	San Diego, Hall-Mark Elexs.	619-268-1201
CA	San Francisco, Steven Engrg.	415-588-9200
CA	San Jose, Hall-Mark Elexs.	408-946-0900
CA	San Jose, Ratel Inc.	408-946-4300
CA	Santee, Mouser Elexs.	619-449-2300
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Arrow Elexs.	408-745-6600
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CO	Denver, Arrow Elexs.	303-758-2100
CO	Denver, Ragon Elexs.	303-744-1992
CO	Englewood, Hall-Mark Elexs.	303-694-1662
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Greenwich, Wise Comps.	203-531-4880
CT	Hartford, Wes-Garde	203-525-6907
CT	Stratford, Utronics	203-378-4201
CT	W. Hartford, Atlantic Switch Controls	203-527-7705
CT	Wallingford, Arrow Elexs.	203-265-7741
FL	Ft. Lauderdale, Arrow Elexs.	305-776-7790
FL	Ft. Lauderdale, Hall-Mark Elexs.	305-971-9280
FL	Lakeland, Switch Controls	813-644-7564
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Orlando, Hall-Mark Elexs.	305-855-4020
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Palm Bay, Arrow Elexs.	305-725-1480
FL	Pompano Beach, Components South	305-971-0350
GA	Norcross, Arrow Elexs.	404-449-8252
GA	Norcross, Hall-Mark Elexs.	404-447-8000
IL	Arlington Heights, Lo Dan Elctrns.	312-398-5311
IL	Bensenville, Diplomat/Illinois	312-595-1000
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
IL	Itasca, Voyager Elexs. Corp.	312-773-4900
IL	Palatine, OHM Elexs.	312-359-5500
IL	Rockford, Midwest Assocs. Inc.	815-962-8036
IL	Rosemont, Advent Elctrns.	312-298-4210
IL	Schaumberg, Arrow Elexs.	312-397-3440
IL	Wheaton, Conectrix	312-653-1460
IN	Indianapolis, Arrow Elexs.	317-243-9353
IN	Indianapolis, Graham Elexs.	317-634-8202
IN	Indianapolis, Neunier Elex. Supply	317-635-3511
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Arrow Elexs.	319-395-7230
IA	Cedar Rapids, Deeco Inc.	319-365-7551
KS	Lenexa, Hall-Mark Elexs Corp.	913-888-4747
KS	Witchita, Lee Products	316-264-2172
MD	Baltimore, A. S. I.	301-265-5100
MD	Baltimore, Arrow Elexs	301-247-5400
MD	Gaithersburg, Pioneer Wash.	301-921-0660
MD	Kensington, Marine Air Supp.	301-949-9560
MD	Rockville, Arrow Elexs	301-251-0644
MA	Burlington, Heilind Elexs	617-272-5610
MA	Canton, H. Young Jr. Co.	617-828-4880
MA	Canton, Impact Sls.	617-821-1500
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Lynn, Land Elctrns.	617-592-2220

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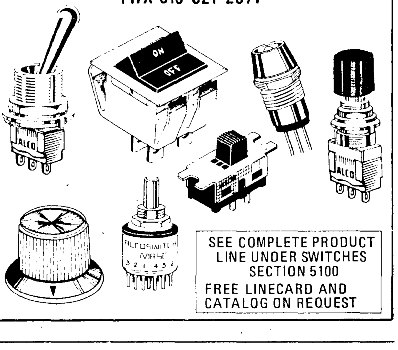

SEE COMPLETE PRODUCT LINE UNDER SWITCHES SECTION 5100
FREE LINECARD AND CATALOG ON REQUEST

MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Woburn, Arrow Elexs	617-933-8130
MA	Woburn, CNC	617-933-5017
MI	Ann Arbor, Arrow Elexs	313-971-8220
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, Arrow Elexs	616-243-0912
MI	Zeeland, Tubergen & Assocs. Inc.	616-772-1548
MN	Edina, Arrow Elexs	612-830-1800
MN	Minneapolis, Newark Elexs	612-331-6350
MN	St. Paul, Ragon	612-642-2828
MO	Kansas City, Walter's Radio Supply	816-531-7015
MO	Maryland Heights, Hall-Mark Elexs.	314-291-5350
MO	St. Louis, Arrow Elexs.	314-426-4500
MO	St. Louis, Olive Elctrn. Supp.	314-426-4500
MO	St. Louis, Van Sickle Elexs.	314-621-5000
NH	Manchester, Arrow Elexs.	603-668-6968
NJ	Bellmawr, Mid Atlantic Elctrns.	609-931-5303
NJ	Camden, General Radio	609-961-8560
NJ	Clifton, J-Mar Elexs. Inc.	201-772-6400
NJ	E. Marlton, Arrow Elexs.	609-596-8000
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Springfield, Federated Purchaser	201-272-0505
NM	Albuquerque, Arrow Elexs.	505-243-4566
NM	Albuquerque, Walker Elex. Sup.	505-242-2288
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Arrow Elctrns.	516-293-4020
NY	Hauppauge, Arrow Elexs.	516-231-1000
NY	Hauppauge, Broadline Elexs.	516-231-4100
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Liverpool, Arrow Elexs.	315-652-1000
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Melville, Arrow Elexs.	516-694-6800
NY	Rochester, Arrow Elexs.	716-275-0300
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Vestal, Pioneer/Harvey	607-748-8211
NC	Raleigh, Arrow Elexs.	919-725-8711
NC	Raleigh, Hall-Mark Elex. Inc.	919-722-9131
NC	Winston-Salem, Arrow Elexs.	919-725-8711
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Centerville, Arrow Elexs.	513-435-5563
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Pruitt Energy Sources Inc.	216-566-1545
OH	Columbus, Arrow Elexs.	614-885-8362
OH	Columbus, Hughes-Peter	614-294-5351
OH	Columbus, Ohioswitch	614-885-0319
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Solon, Arrow Elexs.	216-248-3990
OK	Tulsa, Arrow Elexs.	918-665-7700
OK	Tulsa, Hall-Mark Elexs.	918-665-3200
OR	Beaverton, Acacia Sales	503-646-3377
OR	Beaverton, Component Resources Inc.	503-641-8188
PA	Allentown, A.A. Peters	215-434-5237
PA	Braddock, Leff Elexs.	412-351-5000
PA	McKean, Advacom	814-476-7774
PA	Monroeville, Arrow Elexs.	412-856-7000
PA	Norristown, Century Elctrns.	215-631-5400
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Philadelphia, Philadelphia Elexs.	215-568-7400
TN	Knoxville, Indl. Elctrns.	615-573-7135
TX	Austin, Arrow Elexs.	512-835-4180
TX	Austin, Hall-Mark Elex. Corp.	512-258-8848
TX	Dallas, Arrow Elexs.	214-386-7500
TX	Dallas, Hall-Mark Elex. Corp.	214-341-1147
TX	Dallas, Texaswitch	214-357-1768
TX	El Paso, Ideal Industrial Elexs.	915-779-6643
TX	Garland, Newark Elexs.	214-494-5911
TX	Houston, Hall-Mark Elexs. Corp.	713-781-6100
TX	Midland, E.S.I.	915-694-9657
TX	Stafford, Arrow Elexs.	713-491-4100
TX	Stafford, Southwest Elctrns.	713-240-4000
UT	Salt Lake City, Arrow Elexs.	801-539-1135
UT	Salt Lake City, Standard Supply	801-486-3371
VA	Arlington, Arlington Elctrns.	703-524-2412
VA	Arlington, Arrow Elexs.	804-282-0413
WA	Bellevue, Almac/Stroum Elctrns.	206-643-9992
WA	Bellevue, Arrow Elexs.	206-643-4800
WA	Seattle, Zepher Elctrns.	206-241-1980
WI	Madison, Arrow Elexs.	608-273-4977
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oak Creek, Arrow Elexs.	414-764-6600

ALCOSWITCH, See Alco Elctrn. Prods., Inc.

ALDEN COMPUTER SYSTEMS, 27 Strathmore Rd., Natick, MA 01760, Tel: 617-655-6610; *Sls. Mgr.:* Bob Whitten

ALDEN ELECTRONICS, INC., 40 Washington Street, Westboro, MA 01581, Tel: 617-366-8851, Telex: 94-8404; Empl.: 125; *Sls. Mgr.:* L. A. Farrington

ALDEN

ALDEN PRODUCTS CO., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, Tel: 617-583-0160, Telex: 28-7793 ALDN UR; FSC No.: 01009; Empl.: 150; *Sls. Mgr.:* Donald J. Paul .... **C•1119-1124**

Local Sales Offices & Reps

CA	Tarzana, High Voltage Sales	213-881-9194
NY	Babylon, Astrorep, Inc.	516-422-2500
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301

ALDES SYS., Alden Products Co., 262 N. Main St., P.O. Box 860, Brockton, MA 02403, Tel: 617-583-0160, Telex: 287 793 ALDN UR DDD, TWX: 617-583-7618; Empl.: 150; *Sls. Mgr.:* G. Morrison

A. L. DESIGN, INC., 4232 Ridge Lea Rd., Amherst, NY 14226, Tel: 716-833-6272; Empl.: 9

ALESSI INDS., INC., 3195-C Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-979-8912, TWX: 910-595-1528; *Sls. Mgr.:* Tim McFadden

ALFORD MFG. CO., P.O. Box 2116, 32 Sixth Rd., Woburn, MA 01888, Tel: 617-935-8610, TWX: 710-348-1063; FSC No.: 07177; Empl.: 30; *Sls. Mgr.:* Fred Abel

ALGO, INC., 9198-C Red Branch Rd., Columbia, MD 21045, Tel: 301-730-7442; Empl.: 12; *Sls. Mgr.:* C.W. "Chuck" Alexander

Local Sales Offices & Reps

CA	Novato, Ed Driscoll Assoc.	415-883-0353
FL	Sarasota, Ram-Z Assoc.	813-951-9900
IL	Park Ridge, Adtech Inc.	312-692-7320
MA	Framingham, J.M. Lancaster Assoc.	617-875-8893
MO	Grandview, Digital Sys. Sls.	316-685-9725
NJ	Teaneck, Sci. Dvs. East	201-871-3916
OH	Chesterland, EQS, Sys. Inc.	216-729-2222
TX	Houston, Knox Mktg.	713-780-2516
VA	Alexandria, Dyna-Repco	703-354-1222
WA	Bellevue, Gerry Mara Assoc.	206-614-3535

ALINABAL, 28 Woodmont Rd., Milford, CT 06460, Tel: 203-877-3241, TWX: 710-462-1178; Empl.: 255

ALLACO PRODS. DIV., Bacon Industries, Inc., 192 Pleasant St., Watertown, MA 02172-2399, Tel: 617-926-2550, TWX: 710-327-6518; FSC No.: 99098; Empl.: 23; *Sls. Mgr.:* R.S. Cass

ALLEN AVIONICS, INC.

ALLEN AVIONICS, 224 E. 2nd St., Mineola, NY 11501, Tel: 516-248-8080 .... **A•1460-1463, 1584-1589, 2109**

Local Sales Offices & Reps

AZ	Phoenix, J. F. Hurlbut Co.	602-952-2079
CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Palo Alto, Adtek Assocs.	415-323-5414
CA	San Diego, Van Gott & Assocs.	619-286-3633
CO	Golden, J. F. Hurlbut Co.	303-279-7796
IL	Elmhurst, Utronix Sls., Inc.	312-834-1100
MA	Wayland, High-Tech Sls.	617-653-3838
MN	Anoka, Ken Haugen & Assocs.	612-421-3395
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NY	Rochester, J. G. Welch Assocs.	716-244-1100
NY	Utica, J. G. Welch Assocs.	315-736-7821
OR	Portland, Blum & Assocs., Inc.	503-643-8430
PA	Huntingdon Valley, Rabal Assocs.	215-947-4825
TX	Dallas, Bradenco Corp.	214-243-7261
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
VA	Alexandria, Vanguard Engrg. Sls.	703-768-1660
WA	Lynnwood, Blum & Assocs., Inc.	206-775-6656
EXP	CT, Stamford, Dage Corp.	203-324-3123

A-B QUALITY ALLEN-BRADLEY

ALLEN-BRADLEY CO., ELECTRONICS GROUP, Rockwell Corporation, 1201 S. Second St., Milwaukee, WI 53204, Tel: 414-671-2000, Telex: 26699 or 4311016; Empl.: 6500; *Sls. Mgr.:* Jack Kacsur; *Dist. Mgr.:* Chestley Grimsley .... **A•1298-1301, 1784, 1787-1799, 1993-1995, 2068-2069**

Local Sales Offices & Reps

AL	Birmingham, A-B Co.	205-988-4280
AK	Anchorage, J. A. Tudor & Assocs.	907-344-5852
AZ	Phoenix, A-B Co.	602-944-3303
AR	Little Rock, C. H. Stout, Inc.	501-372-2555
CA	City of Commerce, A-B Co.	213-724-5713
CA	Hayward, A-B Co.	415-887-7888
CA	Sacramento, A-B Co.	916-446-4064
CA	San Diego, A-B Co.	619-292-4016
CO	Denver, A-B Co.	303-985-8787
CT	Stratford, A-B Co.	203-378-7364
FL	Ft. Lauderdale, A-B Co.	305-771-0400
FL	Jacksonville, A-B Co.	904-396-6010
FL	Orlando, A-B Co.	305-894-9715
FL	Tampa, Van & Smith Co.	813-877-8393
GA	Doraville, A-B Co.	404-455-7422
ID	Cedar Rapids, A-B Co.	319-377-3802
IL	Chicago, A-B Co.	312-325-6750
IL	Peoria, A-B Co.	309-697-8191
IL	Rockford, A-B Co.	815-229-0920
IN	Fort Wayne, A-B Co.	219-432-9538
IN	Indianapolis, A-B Co.	317-872-2620
IN	Merrillville, A-B Co.	219-769-7770
IA	Bettendorf, A-B Co.	319-355-5316
KS	Wichita, A-B Co.	316-267-1146
KY	Louisville, A-B Co.	502-893-2571
LA	Baton Rouge, A-B Co.	504-292-9028
LA	Metairie, A-B Co.	504-888-2281
LA	Shreveport, C. H. Stout	318-636-7777
ME	Portland, A-B Co.	207-781-5402
MD	Baltimore, A-B Co.	301-265-5600
MA	Framingham, A-B Co.	617-879-5900
MA	Holyoke, A-B Co.	413-533-3962
MI	Flint, A-B Co.	313-733-3560
MI	Grand Rapids, A-B Co.	616-455-2250
MI	Kalamazoo, A-B Co.	616-344-6163
MI	Lansing, A-B Co.	517-349-6903
MI	Madison Heights, A-B Co.	313-583-9400
MN	Minneapolis, A-B Co.	612-781-3406
MS	Jackson, A-B Co.	601-969-1811
KS	Kansas City, A-B Co.	913-371-5668
MO	Maryland Heights, A-B Co.	314-291-0083
NE	Omaha, A-B Co.	402-592-2010
NJ	Bloomfield, A-B Co.	201-338-4600
NM	Albuquerque, A-B Co.	504-881-7270
NY	Albany, A-B Co.	518-869-5373
NY	Buffalo, A-B Co.	716-634-2711
NY	Plainview, A-B Co.	516-349-1445
NY	Rochester, A-B Co.	716-235-0080
NY	Syracuse, A-B Co.	315-463-4501
NC	Charlotte, A-B Co.	704-394-9341
NC	Greensboro, A-B Co.	919-852-4961
ND	Bismark, A-B Co.	701-222-3155
OH	Akron, A-B Co.	216-253-2106
OH	Cincinnati, A-B Co.	513-793-7580
OH	Cleveland, A-B Co.	216-442-0000
OH	Columbus, A-B Co.	614-882-7722
OH	Dayton, A-B Co.	513-435-7220
OH	Toledo, A-B Co.	419-841-7726
OK	Tulsa, A-B Co.	918-663-5120
OR	Eugene, J. A. Tudor & Assoc.	503-686-1252
OR	Portland, J. A. Tudor & Assoc.	503-288-5154
PA	Bethlehem, A-B Co.	215-868-3131
PA	Erie, A-B Co.	814-864-3066
PA	King of Prussia, A-B Co.	215-337-1990
PA	Pittsburgh, A-B Co.	412-923-1844
PA	York, A-B Co.	717-848-2239
SC	Charleston, A-B Co.	803-722-4073
SC	Greenville, A-B Co.	803-268-9200
TN	Knoxville, A-B Co.	615-588-0591
TN	Memphis, C. H. Stout Co.	901-362-1616
TN	Nashville, A-B Co.	615-366-7340
TX	Austin, A-B Co.	512-467-0569
TX	Dallas, A-B Co.	214-258-7767
TX	Houston, A-B Co.	713-590-8282
TX	San Antonio, A-B Co.	512-732-4362
UT	Salt Lake City, Stevens Sls. Co.	801-487-8971
VA	Richmond, A-B Co.	804-794-6900
WA	Seattle, J. A. Tudor & Assoc.	206-682-7444
WA	Spokane, J. A. Tudor & Assoc.	509-327-3328
WV	Nitro, A-B Co.	304-755-8193
WI	Appleton, A-B Co.	414-731-3202
WI	Milwaukee, A-B Co.	414-671-2000
WY	Casper, A-B Co.	307-266-4336

Local Distributors

AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Phoenix, Wyle Labs.	602-249-2232
CA	Canoga Park, Marshall Inds. Elctrns. Grp.	818-999-5001
CA	El Monte, Marshall Inds. Elctrns. Grp.	818-442-7204

CA	El Segundo, Wyle Labs.	213-322-8100
CA	Irvine, Marshall Inds. Elctrns. Grp.	714-556-6400
CA	Irvine, Schweber Elctrns.	714-863-0200
CA	Irvine, Wyle Labs.	714-863-9953
CA	Rancho Cordova, Wyle Labs.	916-638-5282
CA	San Diego, Wyle Labs.	619-565-9171
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	Santa Clara, Wyle Labs.	408-727-2500
CA	Sunnyvale, Marshall Inds. Elctrns. Grp.	408-732-1100
CO	Thornton, Wyle Distbn. Grp.	303-457-9953
CT	Danbury, Schweber Elctrns.	203-748-7080
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hammond Elctrns., Inc.	305-849-6060
GA	Atlanta, Schweber Elctrns.	404-449-9170
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Palatine, Ohm Elctrns., Inc.	312-359-5500
IN	Ft. Wayne, Graham Elctrns. Supp., Inc.	219-423-3422
IN	Indianapolis, Graham Elctrns. Supp., Inc.	317-634-8202
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Burlington, Marshall Inds. Elctrns. Grp.	617-272-8200
MI	Livonia, Schweber Elctrns.	313-525-8100
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Independence, Ragon Elctrns.	816-254-3410
MO	St. Louis, Olive Elctrns., Inc.	314-426-4500
NJ	Fairfield, Marshall Inds. Elctrns. Grp.	201-882-0320
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NY	Hauppauge, Fairmont Elctrns. Sls. Corp.	516-231-3313
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Westbury, Schweber Elctrns.	516-334-7474
NC	Greensboro, Hammond Elctrns., Inc.	919-275-6391
OH	Cleveland, Schweber Elctrns.	216-464-2970
OH	Columbus, Electronics Mktg. Corp.	614-229-4161
OR	Hillsboro, Wyle Labs.	503-640-6000
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
TX	Fort Worth, TTI, Inc.	817-831-0441
TX	Houston, Harrison Equip. Co., Inc.	713-879-2600
TX	Richardson, Wyle Labs.	214-235-9953
UT	Salt Lake City, Wyle Labs.	801-974-9953
WA	Bellevue, Wyle Labs.	206-453-8300
WI	Milwaukee, Marsh Elctrns., Inc.	414-475-6000
Can	Montreal, Quebec, Cesco Elctrns. Ltd.	514-735-5511
Can	Quebec, Cesco Elctrns. Ltd.	418-524-4641
Can	Toronto, Ont., Cesco Elctrns. Ltd.	416-661-0220

ALLEN-BRADLEY CO., Industrial Control Div., 1201 S. Second St., Milwaukee, WI 53201, Tel: 414-671-2000, Telex: 26699, TWX: 4311016; Empl.: 1600; *Dist. Mgr.:* Bob Anderson

ALLEN-BRADLEY CO., ELECTRONICS GROUP, Div. of Rockwell Corp., Magnetic Products Div., 5900 N. Harrison St., Shawnee, OK 74801, Tel: 405-275-2100, Telex: 796-208; *Sls. Mgr.:* Carl Tufts .... **A•1298-1301**

ALLEN-BRADLEY CO., ELECTRONICS GROUP, Div.of Rockwell Corp., Microelectronic Products Div., Highway 29 N. Bryan Pk. Exit, Greensboro, NC 27410, Tel: 919-621-9010; *Sls. Mgr.:* Jack Polakowski .... **A•2068-2069**

ALLEN-BRADLEY CO., ELECTRONICS GROUP, Div. of Rockwell Corp., Resistive Products Div., 1414 Allen-Bradley Dr., El Paso, TX 79935, Tel: 915-592-4888, Telex: 749-400; *Sls. Mgr.:* Jim Hadfield .... **A•1993-1995**

ALLEN CO., INC., ROBERT G., 7267 Coldwater Canyon, N. Hollywood, CA 91605, Tel: 818-765-8300, 800-423-3186, Telex: 18-2699; *Sls. Mgr.:* Carl M. Witas

ALLEN DATAGRAPH, INC., 24 Keewaydin Dr., Salem, NH 03079, Tel: 603-893-1983, TWX: 710-366-0504; *Sls. Mgr.:* David Colinan

ALLEN MFG., 22 E. Dudley Town Rd., Bloomfield, CT 06002, Tel: 203-242-8511, Telex: 710-425-0099; Empl.: 420; *Sls. Mgr.:* M. Kubick; *Dist. Mgr.:* M. Kubick

ALLIED CORP. AEROSPACE SECTOR, Bendix Communications Div., East Joppa Rd., Towson, MD 21204, Tel: 301-583-4000, TWX: 710-232-1823; Empl.: 1350; *Sls. Mgr.:* Palmer H. Arnold

ALLIED PRECISION ELCTRNS., 1816 C. Ponderosa, College Station, TX 77840, Tel: 409-693-5397; Empl.: 10; *Sls. Mgr.:* Charles Johnson/Dewey Liccioni

ALLIED SYSTEMS CORP., Box 18077, Greensboro, NC 27419, Tel: 919-299-2294; Empl.: 25; *Sls. Mgr.:* E. V. Saude

ALLMETAL SCREW PRODUCTS CO., INC., 821 Stewart Ave., Garden City, NY 11530, Tel: 516-222-1200, TWX: 510-222-8132; Empl.: 200; *Sls. Mgr.:* Fred C. Sidebotham

ALL-STATES, INC., 1801 W. Foster Ave., Chicago, IL 60640, Tel: 312-728-0525; FSC No.: 26863; *Sls. Mgr.:* E. J. Marinelli; *Dist. Mgr.:* E. J. Marinelli

ALLTECH ASSOCS. INC., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015, Tel: 312-948-8600, Telex: 687-1132; FSC No.: 36-2696920; *Sls. Mgr.:* Pat Krebs

ALMOND INSTRUMENTS, See EG & G Almond Instruments

ALMOR CO., INC., PO Box 1790, 155 Crescent St., Brockton, MA 02403, Tel: 617-586-5406; *Sls. Mgr.:* Bill Wolfreys

ALPHA COMPS., 115 Eucalyptus Dr., El Segundo, CA 90245, Tel: 213-322-7780; Empl.: 12

ALPHA COMPS., 1106 E. Simpson Rd., Mechanicsburg, PA 17055, Tel: 717-697-8595, TWX: 510-650-4930; FSC No.: 52748

ALPHA DATA, 20750 Marilla St., Chatsworth, CA 91311, Tel: 818-882-6500, TWX: 910-494-4914; FSC No.: 7025; Empl.: 30; *Sls. Mgr.:* James S. Howard

Distributor

ALPHA DISTR. CORP., 550 E. Royalton Rd., Cleveland, OH 44147, Tel: 216-526-3716 .... pgs. **643, 713, 815**

ALPHA INDS., INC.-MICROELECTRONIC DIV., 2800 Crystal Drive, Hatfield, PA 19440, Tel: 215-822-1311, TWX: 510-661-7370; FSC No.: 17540; *Sls. Mgr.:* Joe Diesso

ALPHA INDS., INC., Microwave Comp. Div., 90 Glenn St., Lawrence, MA 01843, Tel: 617-681-8520, Telex: 949436, TWX: 710-342-8033; FSC No.: 17540; *Sls. Mgr.:* Frank Tarr

ALPHA INDS., INC.-MSD DIV., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; *Sls. Mgr.:* Peter K. Butler; *Dist. Mgr.:* Nicholas Bishop

ALPHA INDS., INC., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; Empl.: 1200

ALPHA INDS., INC. - TRG MILLIMETER COMP., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; *Sls. Mgr.:* Peter K. Butler; *Dist. Mgr.:* Nicholas Bishop

ALPHA-M CORP., 3009 Wildflower Dr., Dallas, TX 75229, Tel: 214-620-0021; Empl.: 8; *Sls. Mgr.:* W. L. Cowley

Local Sales Offices & Reps

CA	Panarama City, Viking Sls.	213-997-3933
FL	Clearwater, Brennan Assocs.	313-446-5006
IN	Indianapolis, Sukop & Cox	317-253-5501
MN	Minneapolis, Heilites	612-861-6051
TX	Dallas, Merit Co.	214-620-0021
WA	Bellevue, Topp Engr. Sls.	206-747-5400

ALPHA MERICS CORP., 20931 Nordhoff St., Chatsworth, CA 91311, Tel: 818-709-1155, Telex: 182314, TWX: ALPHA-MER-CHCA 910-494-1931; *Sls. Mgr.:* Mark McGrew; *Dist. Mgr.:* Mark McGrew

ALPHA METALS, 600 Rte 440, Jersey City, NJ 07304, Tel: 201-434-6778, Telex: 12-5798; Empl.: 400; *Sls. Mgr.:* T. Marks

ALPHA PRODUCTS, INC., 5740 Corsa Ave. #104, Westlake Village, CA 91362, Tel: 818-889-9304

ALPHA-TEK, 7286 Murdy Circle, Huntington Beach, CA 92647, Tel: 714-847-7515

ALPHA WIRE CORP., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, Tel: 201-925-8000, Telex: 6853017, TWX: 710-996-5895; Empl.: 575; *Sls. Mgr.:* Paul Dietlin

ALPS ELECTRIC (USA), INC., 3553 N. First St., San Jose, CA 95134, Tel: 408-946-6000, Telex: 157061; Empl.: 62 .... **D•1057**

Local Sales Offices & Reps

AL	Huntsville, Jack Harvey & Assocs.	205-536-4414
AZ	Phoenix, Eltron	602-266-2164
CA	Garden Grove, West Electronic Sls. Co.	714-829-0120
CA	San Diego, Harvey King, Inc.	619-566-5252
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Englewood, Nelligan Co.	303-761-2121
CT	Yalesville, Technology Sls.	203-269-8853
FL	Clearwater, Jack Harvey & Assocs.	813-725-1841
FL	Ft. Lauderdale, Jack Harvey & Assocs.	305-763-1945
GA	Norcross, Jack Harvey & Assocs.	404-449-4643
IL	Arlington Hgts., Micro Sls.	312-956-1000
IN	Indianapolis, Alps Elec. (USA)	317-248-2577
IN	Indianapolis, Jack Harvey & Assocs.	317-872-1031
IN	Kokomo, Jack Harvey & Assocs.	317-453-4260
KS	Kansas City, BC Electronic Sls.	913-342-1211
KS	Wichita, BC Elctrn. Sls.	316-942-9840
KY	Prospect, Jack Harvey & Assocs.	502-228-4100
MD	Baltimore, Burgin-Kreh Assocs., Inc.	301-265-8500
MA	Waltham, Technology Sls.	617-647-5700
MI	Oak Park, A. Blumenberg Assocs.	313-968-3230
MN	Minneapolis, PSI	612-944-8545
MO	St. Louis, BC Elec. Sls.	314-291-1101
NJ	Boonton, PAF Assocs.	201-335-0680
NY	Albany, Reagan/Compar Albany	518-489-4777
NY	Endwell, Reagan/Compar	607-723-8743
NY	Fairport, Reagan/Compar	716-271-2230
NY	New Hartford, Reagan/Compar	315-732-3775
NY	Rockville Centre, Alps Elec. (USA)	516-766-3636
NY	Smithtown, PAF Assocs.	516-360-0940
NC	Greensboro, Wallace Elctrn. Sls.	919-996-2742
OH	Rocky River, Norm Case Assocs.	216-333-0400
OK	Tulsa, Norcom	918-832-7747
OR	Aloha, Venture Elctrns.	503-642-9090
PA	Willow Grove, Harry Nash Assocs.	215-657-2213
TN	Johnson City, Jack Harvey & Assocs.	615-928-7588
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-778-0392
UT	Salt Lake City, Nelligan Co.	802-261-1121
VA	Lynchburg, Burgin-Kreh Assocs., Inc.	804-239-2626
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, Micro Sls., Inc.	414-782-1171

ALTEC LANSING, Altec Corp., 1250 N. Red Gum St., Anaheim, CA 92806, Tel: 714-632-7117, Telex: 665415; Empl.: 200; *Sls. Mgr.:* Gayle Campbell

ALTEK CO., P.O. Box 1128, Torrington, CT 06790, Tel: 203-482-7626; FSC No.: 53939; Empl.: 34; *Sls. Mgr.:* Stephen Altschuler

ALTEK CORP., 2150E Indl. Pkwy., Silver Spring, MD 20904, Tel: 301-622-3906, TWX: 710-825-0422; Empl.: 55; *Sls. Mgr.:* Lowell Nerenberg; *Dist. Mgr.:* Lowell Nerenberg

ALTUS CORP., 1610 Crane, San Jose, CA 95112; *Sls. Mgr.:* Don Keil

ALUMA TOWER CO., 1639 Old Dixie Hwy., Box 2806, Vero Beach, FL 32960, Tel: 305-567-3423, Telex: 803405

ALUMINUM FILTER, P.O. Box 1311, Santa Barbara, CA 93102, Tel: 805-684-7651, Telex: 658325, TWX: 910-336-1113; FSC No.: 17504; Empl.: 120; *Sls. Mgr.:* B. L. Baker

Local Sales Offices & Reps

CA	Fremont, Vontek	415-651-7966
CA	Reseda, Jerry Budenz & Assocs.	818-342-4276
CO	Louisville, X-O Sales Inc.	303-666-7690
MA	Brookline, Harman & Assocs.	617-232-6687
MN	Edina, Peterson & Wolff	612-941-5400
OK	Tulsa, NTR/Data Comp., Inc.	918-664-2180

Local Distributors

AZ	Tucson, Air Filtration Prds.	800-528-1585

ALZBEAR CORP., 15411 Red Hill Ave., Unit F, Tustin, CA 92680, Tel: 714-557-0910; Empl.: 45; *Sls. Mgr.:* Al Robinson; *Dist. Mgr.:* Al Robinson

AMATOM ELCTRN. HARDWARE, 446 Blake St., New Haven, CT 06515, Tel: 203-397-3311, Telex: 963-419; FSC No.: 06540; Empl.: 55; *Sls. Mgr.:* Vince Maida

AMBER ELECTRO DESIGN INC., 4810 Jean Talon Blvd. W Ste 321, Montreal, Quebec, Canada H4P2N5, Tel: 514-735-4105, Telex: 05-827598; Empl.: 12; *Sls. Mgr.:* Wayne Jones

AMBI-TECH INDS., 319 Knickerbocker Ave., Hillsdale, NJ 07642, Tel: 201-666-0504; Empl.: 20; *Sls. Mgr.:* Al Nagler; *Dist. Mgr.:* Al Nagler

AMBROID CO., P.O. Box 1089, Taunton, MA 02780, Tel: 617-823-1726; Empl.: 10; *Sls. Mgr.:* J. F. Strauss

AMCO ENGRG., 3801 N. Rose St., Schiller Pk., IL 60176, Tel: 312-671-6670, TWX: 910-227-3152; Empl.: 350; *Sls. Mgr.:* F. A. Johnson .... **C•1006-1007, 1625**

Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs.	205-837-4304
AZ	Phoenix, The Knight Co.	602-994-1311
CA	Burlingame, The Knight Co.	415-697-2525
CA	Escondido, The Knight Co.	619-743-5136
CA	Los Angeles, Knight Co.	213-670-2833
CA	Orange County, Knight Co.	714-833-8250
CA	San Diego, Knight Co.	619-743-5136
CO	Englewood, FG Mktg. Co.	303-795-9176
CT	Stratford, Instr. Dynamics	203-378-6019
FL	Clearwater, WMM Assocs.	813-461-7074
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	Schiller Park, R. L. Lang & Assocs.	312-671-3228
IN	Ft. Wayne, Aktron Corp.	219-747-3650
IA	Davenport, Rush & West	319-326-3091
KS	Olathe, Rush & West	913-764-2700
LA	Lafayette, Kemp Engrg.	318-269-9452
MD	Silver Spring, L. G. White & Co.	301-434-1555
MA	Wakefield, Instr. Dynamics	617-245-5100
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MN	St. Paul, Bonament Heyda Co.	612-484-8531
MO	Ballwin, Rush & West	314-394-7271
NJ	Woodcliff Lake, J. Freid & Assocs.	201-391-6792
NM	Albuquerque, C. T. Carlberg Assocs.	505-888-3883
NY	Fairport, Naco Elctrns.	716-223-4490
NY	Great Neck, F & F Metro, Inc.	516-482-4080
NY	Syracuse, NACO Elctrns.	315-699-2651
NY	Utica, Naco Elctrns.	315-732-1801
NC	Winston Salem, L. G. White & Co.	919-725-3612
OH	Cleveland, Electro Sls. Assocs.	216-261-5440
OH	Dayton, Electro Sls. Assocs.	513-426-5551
OK	Tulsa, Don Shuhart Co.	918-747-4136
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
PA	Allison Park, Electro Sls. Assocs.	412-487-3801
PA	Edgemont, White/Whiddett Co.	215-353-6343
SC	Greenville, L. G. White & Co.	803-271-0630
TX	Dallas, Don Shuhart Co.	214-349-6000
TX	Houston, Kemp Engrg.	713-466-1465
VA	Richmond, L. G. White & Co.	804-740-7093
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
EXP	NJ, Mahwah, Intl. Sls. Div.	201-825-0473

AMDAHL COMMUNICATIONS SYS. DIV., Amdahl Corp., 2500 Walnut Ave., Marina del Rey, CA 90291, Tel: 213-822-3202; Empl.: 350

AMECON, INC., 1900 S. Chris La., Anaheim, CA 92805, Tel: 714-634-2220, 800-392-2292, TWX: 510-1000-364; *Sls. Mgr.:* Frank Carleone .... **A•2110-2117**

AME CORP., 101 E. Main St., Little Falls, NJ 07424, Tel: 201-256-3939; Empl.: 12; *Sls. Mgr.:* Edward Dimitry .... **B•1485**

Local Sales Offices & Reps

FL	Orlando, EAB,Inc.	305-898-7444
NJ	Wyckoff, Chanco, Inc.	201-891-7866
TX	Dallas, Control Comps. Corp.	214-458-8877
Can	Scarborough, Ont., Leecraft Inds.	416-439-6320

Local Distributors

Can	Scarborough, Ont., Leecraft Inds.	416-439-6320

AMERACE CORPORATION, Newburgh Rd., Hackettstown, NJ 07840, Tel: 201-852-1122, Telex: 6853377 AMERACE or 136435 HACK; FSC No.: 3L154;2270; Empl.: 275; *Sls. Mgr.:* J. Cooper

AMERACE CORP., Elastimold Div., Newburg Rd., P.O. Box 503, Hackettstown, NJ 07840, Tel: 201-852-1122 .... **D•1111**

AMEREX, P.O. Box 2815, Riverside, CA 92516, Tel: 714-686-1400; *Sls. Mgr.:* Roger D. Orton

AMERICAN AEROSPACE CONTROLS, 570 Smith St., Farmingdale, NY 11735, Tel: 516-694-5100; Empl.: 48; *Sls. Mgr.:* Gregory D'Abramo .... **B•1780-1781**

Local Sales Offices & Reps

CA	Los Angeles, Dyna Sls. Co.	213-268-1175

AMERICAN ALUMINUM, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092, Tel: 201-233-3500; Empl.: 125

american automation

AMERICAN AUTOMATION, 14731 Franklin Avenue, Tustin, CA 92680, Tel: 714-731-1661, TWX: 910-595-2670 AMAUTO TSTN; *Sls. Mgr.:* Paul Niquette ...... **D•1179**

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Grp.	714-897-0319
MA	Boston, Resolve Technlg.	617-527-8834

AMERICAN CAPACITOR, 2080 Central Ave, Duarte, CA 91010, Tel: 818-357-8806, Telex: 910 333 9810; FSC No.: 59366; Empl.: 65; *Sls. Mgr.:* John Williams; *Dist. Mgr.:* John Williams

AMERICAN CHEMICAL ETCHING, See American Etching & Mfg.

AMERICAN COMPUTER HARDWARE CORP., 2205 S. Wright St., Santa Ana, CA 92705, Tel: 714-549-2688, Telex: 330038; Empl.: 30; *Dist. Mgr.:* Thomas Allen

AMERICAN CONTROL PRODUCTS, Div. of Precision Timer Co., Inc., 13 Westbrook Ind'l. Pk., Westbrook, CT 06498, Tel: 203-399-6253; Empl.: 35; *Sls. Mgr.:* F. F. Coulom

AMERICAN CYANAMID CO., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470, Tel: 201-831-3148, Telex: 219-136, TWX: 710-988-3045; *Sls. Mgr.:* James Tonges

AMERICAN ELECTRIC CABLE CO., 181 Appleton St., Holyoke, MA 01040, Tel: 413-539-9893; Empl.: 125; *Sls. Mgr.:* Michael A. Bousquet

AMERICAN ELECTRONIC LABS., Box 552, Lansdale, PA 19446, Tel: 215-822-2929, TWX: 510-661-4976; Empl.: 1300

AMERICAN ELCTRN. LABS., INC., Antenna Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Govt. Grp. Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Hybrid/MIC Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Special Prods. Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRNS., 1600 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-3020, TWX: 910-592-1256; FSC No.: 89321; Empl.: 200; *Sls. Mgr.:* B. G. Guy

AMERICAN ETCHING & MFG., 13730 Desmond St., Pacoima, CA 91331, Tel: 213-896-1187; Empl.: 90

AMERICAN HV TEST SYSTEMS INC., Central Garrett Ind'l. Pk., Accident, MD 21520, Tel: 301-826-8651, Telex: 86223; Empl.: 45; *Sls. Mgr.:* Rolf B. Persson

AMERICAN INSULATED WIRE CORP., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, Tel: 401-726-0700, TWX: 710-384-0150; Empl.: 1300; *Sls. Mgr.:* Al Beauvais; *Dist. Mgr.:* Michael Koshgarian ...... **C•1747**

Local Sales Offices & Reps

CA	Los Angeles, Leviton/American	213-949-6575
FL	Coral Springs, EPM Corp.	305-755-5387
GA	Atlanta, Leviton/American	404-691-9303
IL	Chicago, Leviton/American	312-766-4100
LA	New Orleans, Leviton/American	504-834-9415
MA	Andover, Richard Purinton, Inc.	617-475-7055
MA	Boston, Associated Agencies	617-423-9880
MI	Detroit, Jim Groff Sls. Co.	313-933-3100
NY	New York, Leviton Corp. Headquarters	212-229-4040
NY	West Hempstead, Schmitt Indl. Mktg. Corp.	516-486-3510
NC	Charlotte, Over & Over, Inc.	919-872-2262
OH	Cleveland, Leviton/American	216-831-0615
TX	Houston, Leviton/American	713-956-2816
UT	Salt Lake City, Chuck Fields & Assocs.	801-531-6177
WA	Seattle, Leviton/American	206-576-0242

AMERICAN LASER SYS., INC., 106 Fowler Rd., Goleta, CA 93117, Tel: 805-967-0423, Telex: 4941760ALS; Empl.: 14; *Sls. Mgr.:* L. Shallenberger

AMERICAN MAGNETICS, 740 Watson Center Rd., Carson, CA 90745, Tel: 213-775-8651, TWX: 910-345-6258; Empl.: 175; *Sls. Mgr.:* Robert Mos

AMERICAN MAGNETICS, P.O. Box 8, Carterville, IL 62918, Tel: 618-985-4838; Empl.: 120

AMERICAN MAGNETICS, P.O. Box 2509, Oak Ridge, TN 37831-2509, Tel: 615-482-1056, Telex: 557-592; Empl.: 16; *Sls. Mgr.:* E. T. Henson

AMERICAN MICROSEMICONDUCTOR, INC., 133 Kings Rd., Madison, NJ 07940, Tel: 201-377-9566, TWX: 710-986-8500; Empl.: 15; *Sls. Mgr.:* W. M. Foley; *Dist. Mgr.:* D. B. Wilson .... **A•1661, 2070-2071**

AMERICAN MICROSIGNAL, 8431 Monroe Ave., Stanton, CA 90680, Tel: 714-761-1222, TWX: 910-591-1202; Empl.: 80; *Sls. Mgr.:* Pat Nelson

AMERICAN MICROSYSTEMS, INC., See GOULD AMI

AMERICAN MONARCH, 2801-37th Ave., N.E., Minneapolis, MN 55421, Tel: 612-788-9161; Empl.: 300; *Sls. Mgr.:* B. Sutherland

AMERICAN PHOTONICS INC., 71 Commerce Dr., Brookfield Center, CT 06805, Tel: 203-775-8950; *Sls. Mgr.:* James A. Walyus

AMERICAN PLASTICRAFT CO., 814 N. Sacramento Blvd., Chicago, IL 60622, Tel: 312-722-7727, Telex: 910-221-6068; Empl.: 250; *Sls. Mgr.:* Larry J. Ferguson

AMERICAN POWER DEVICES, 7 Andover St., Andover, MA 01810, Tel: 617-475-4074, Telex: 951206; Empl.: 140; *Sls. Mgr.:* Robert Dimodana

AMERICAN RADIO RELAY LEAGUE, 225 Main St., Newington, CT 06111, Tel: 203-666-1541; Empl.: 120; *Sls. Mgr.:* Bobbie Chamalian

AMERICAN RESEARCH & ENGINEERING, 1500 Executive Dr., Elgin, IL 60120, Tel: 312-888-7245, TWX: 910-251-3008 .... **B•1486-1487**

ASC American Switch Corp.

AMERICAN SWITCH CORP., 134 Water St., Wakefield, MA 01880, Tel: 617-246-1007, TWX: 710-348-6756; FSC No.: 54659; Empl.: 40; *Sls. Mgr.:* Mike Palmerino; *Dist. Mgr.:* Mike Palmerino .... **B•1488-1491**

Local Sales Offices & Reps

MI	Grand Blanc, Intercomm	313-695-0665
AZ	Scottsdale, Bill Earl Assoc.	602-994-3813
CA	Arcadia, HMC, Inc.	818-447-0958
CA	Mountain View, Serra Assocs.	415-964-4300
CO	Lakewood, Andale	303-693-4331
FL	Orlando, OEM Mktg.	305-299-1000
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
IL	Wheaton, Chadra-Schilke & Assoc.	312-653-8126
IN	Carmel, Nationwide Comps.	317-872-7207
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MA	Woburn, Boston Elctrn. Assocs.	617-938-3727
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Charles, M-S-B Assocs.	314-946-5577
NJ	Manville, Dyno Rep.	201-685-0135
OH	Willoughby, Nationwide Comps.	216-946-3226
PA	Elkins Park, Arnold Assocs.	215-742-0600
TX	Arlington, Comptech	817-265-6007
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Bellevue, Comtec	206-453-1188
EXP	CT, Litchfield, Intrade	203-567-5901
Can	Nepean, Ont., Reptronics	613-828-9274

Local Distributors

IN	Terre Haute, Midwest Supp.	812-232-0187
AL	Birmington, Forbes Distr.	205-251-4104
AL	Huntsville, Contact Elec.	205-881-9321
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Phoenix, Electro Comps.	602-258-2665

CA	Buena Park, RPS Elctrns.	213-744-0355
CA	Los Angeles, Elec. Switches	213-660-1310
CA	San Diego, Deco Elec.	619-693-1595
CA	San Jose, Rose Elctrns.	408-263-9700
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Sierra West	408-747-1188
CA	Tustin, Western Switch & Controls	714-731-4333
CA	Van Nuys, Patane Avionics	818-988-4455
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Indl. Elctrns.	303-694-9444
CT	Greenwich, Wise Comps.	203-531-4880
CT	Norwalk, Park Distr.	203-853-2011
CT	Wallingford, Mid-State Elctrns.	203-265-9900
FL	Clearwater, Electronics Precepts	813-596-2742
FL	Longwood, Intertec Comps.	305-834-7777
FL	Oakland Pk., Zelcon	305-565-2555
GA	Atlanta, Specialty Distr.	404-873-2521
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Wheeling, Hawk Elec.	312-459-4030
IN	Lafayette, CWY Elec.	317-448-1611
IA	Cedar Rapids, Iowa Radio Supply	319-393-4510
IA	W. Des Moines, Ramco Co.	515-225-6933
KS	Wichita, Radio Inc.	316-264-2798
MD	Beltsville, Petricko Sls.	301-937-4960
MD	Beltsville, Treeko Sls.	301-937-8260
MD	Kensington, Marine Air Supp.	301-949-9560
MI	Grand Rapids, Calder Elec.	616-698-7400
MI	St. Clair Shores, Spemco	313-771-2700
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Fridley, Voyager Elec.	612-571-7766
MN	Minneapolis, Tortec Corp.	612-866-3662
NH	Astrum Elctrns.	603-329-5656
NJ	E. Brunswick, Brothers Elctrns.	201-238-2200
NJ	Fair Lawn, Relay Specialties	201-797-3313
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Bohemia, Key Comps.	516-567-7500
NY	E. Syracuse, Add Elctrns.	315-437-0300
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Mt. Vernon, QAR	914-699-2224
NC	Winston-Salem, Kirkman Elect.	919-722-9131
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Dayton, Stotts-Friedman	513-298-5555
OK	Tulsa, Radio Inc.	918-587-9123
PA	Erie, Duncombe Elctrn.	814-454-5278
PA	Norristown, Kimberly James Co.	215-666-7286
PA	Philadelphia, Shap Elctrns.	215-969-3300
RI	Pawtucket, MAJOR/Edwards	401-725-7400
TN	Chattanooga, Specialty Distr.	615-267-9531
TN	Knoxville, Curle Elctrn.	615-266-4727
TX	Arlington, Bell Comp. Sls.	817-461-5303
TX	Austin, Galtronics	512-837-7470
TX	Dallas, Force/Solid State	214-438-5700
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Ft. Worth, Industrial Elctrns.	817-731-7321
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Kent, Pyramid Elctrn.	206-872-5800
WV	Huntington, Electronic Supp.	304-523-6443
WI	Mequon, Lakeview Elctrns.	414-377-8250
WI	New Berlin, Nep Elctrn.	414-785-9100
Can	Montreal, Prelco Elctrn.	514-389-8051

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AMERICAN TECHNICAL CERAMICS CORPORATION, 1 Norden La., Huntington Sta., NY 11746, Tel: 516-271-9600, Telex: 221201, TWX: 510-226-6993; FSC No.: 29990;11272-868-73; Empl.: 497; *Sls. Mgr.:* R. Blumkin .... **A•1007-1009**

Local Sales Offices & Reps

AZ	Scottsdale, Faser Tech. Sls.	602-948-4404
CA	El Segundo, Fetty/Schoenduve	213-322-4991
CA	Mtn. View, Fetty/Schoenduve	415-962-8330
CA	San Diego, Fetty/Schoenduve	619-292-5136
CO	Englewood, FG Mktg.	303-795-9176
DC	Washington, M. Lader Co.	202-296-2497
FL	Lighthouse Point, R. C. Simon & Co.	305-941-2757
GA	Norcross, Mountain Electro Prods.	404-448-5594
IL	Chicago, Tech. Sls.	312-237-7210
MA	Topsfield, R.F. Assocs.	617-887-9762
MN	New Brighton, TWC Sls.	612-636-1770
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NY	Rochester, Sweetco Assocs.	716-225-2383
NY	Utica, Sweetco Assocs.	315-797-6721
PA	Lafayette Hill, M. Lader Co.	215-825-3177
TX	Richardson, Vector Sls. Co.	214-234-4291
WA	Bellevue, SD-R2	206-747-9424

AMERICAN TIME PRODS. DIV., See Frequency Control Prods., Inc.

AMERICAN ULTRAVIOLET, 320 Commerce St., Chatham, NJ 07928, Tel: 201-635-8355, Telex: 13-9266; Empl.: 14; *Sls. Mgr.:* M. C. Stines; *Dist. Mgr.:* M. C. Stines

AMERICAN VOLPI CORP., 26 Aurelius Ave., Auburn, NY 13021, Tel: 315-253-9707; Empl.: 18; *Sls. Mgr.:* Bill Meeks

AMERICAN ZETTLER, 16881 Hale Ave., Irvine, CA 92714, Tel: 714-660-1670, Telex: 67-8472; Empl.: 200; *Sls. Mgr.:* D. O. Barkhurst .... **B•1264-1274**

Local Sales Offices & Reps

AL	Huntsville, Electro-Wise, Inc.	205-830-4764
AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
AZ	Scottsdale, Thorson Desert States, Inc.	602-998-2444
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Fullerton, Groh Assocs.	714-738-7105
CA	Mountain View, G.C. Woempner	415-964-5454
CO	Englewood, Delta Sls. Assocs.	303-799-0646
FL	Boca Raton, Perrott Assocs.	305-792-2211
FL	Clearwater, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assocs.	305-298-7748
GA	Norcross, McKay, Smith & Assocs.	404-449-7444
IL	Rolling Meadows, KMA Sls.	312-398-5300
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Wichita, Baka Corp.	316-682-8411
MA	Brockton, Forsberg Sls.	617-522-6300
MN	Minneapolis, R.W. Marshall Co.	612-929-0457
MN	New Brighton, Chris Elctrns. Distr.	612-631-2647
MO	Ferguson, Baka Corp.	314-878-4224
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NM	Albuquerque, Thorson Desert States, Inc.	505-293-8555
NY	Alexander, B.H. Tollefson Assocs.	716-591-1219
NY	Auburn, B.H. Tollefson Assocs.	315-253-4109
NY	Rochester, B.H. Tollefson Assocs.	716-271-4141
NC	Raleigh, J & B Sls.	919-878-8600
NC	Raleigh, Resco/Raleigh	919-781-5700
OH	Cincinnati, Makin Assocs.	513-871-2424
OR	Beaverton, Thorson Co. N.W.	503-644-5900
PA	Montgomeryville, Pyttronics Inds.	215-643-2850
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Houston, AID Elctrns.	713-955-6204
TX	Irving, AID Elctrns.	214-790-4761
UT	Salt Lake City, Delta Sls. Assocs.	801-487-7571
WA	Bellevue, Thorson Co. N.W.	206-455-9180
WI	Milwaukee, KMA Sls. Co.	414-259-1771

Local Distributors

CA	Irvine, Acacia Sls.	714-660-0834
CA	Los Angeles, Master Distrs.	213-452-1229
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Lakewood, Acacia Sls.	303-232-2882
CT	New Haven, The Green-Shaw Co.	203-397-0710
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns.	317-848-1323
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Woburn, Time Elctrns./New Eng.	617-935-8080
MI	Ypsilanti, Tamco, Inc.	313-572-1950
NJ	Fairlawn, Relay Spec.	201-797-3313
NJ	Rahway, R. E. Breuer Co., Inc.	201-388-5045
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	South Farmingdale, R. E. Breuer Co., Inc.	516-694-6597
OR	Beaverton, Acacia Sls.	503-646-3377
TX	Austin, AID Elctrns., Inc.	512-450-1938
TX	Dallas, Wallace Elctrns.	214-340-0400
Can	Richmond, B.C., Macom Agy.	604-271-2661
Can	Vancouver, B.C., Intek	604-324-6831
Can	Winnipeg, Man., L. A. Varah, Ltd.	204-633-6190

AMETEK, 2 Station Square, Paoli, PA 19301, Tel: 215-355-6900; Empl.: 100

AMETEK, DYNAMICS DIVISION, AMETEK, Inc., 5649 Peck Rd., Arcadia, CA 91006, Tel: 818-442-5981, TWX: 910-587-3534; FSC No.: 18098; Empl.: 105

AMETEK, INC, Hunter Spring Division, 1 Spring Ave., Hatfield, PA 19440, Tel: 215-822-2971, TWX: 510-661-4888; FSC No.: ;43560; Empl.: 270; *Sls. Mgr.:* F. J. York

AMETEK/RODAN DIV., 2905 Blue Star St., Anaheim, CA 92806, Tel: 714-630-0081, TWX: 910-591-1684; FSC No.: 15454;DESC-EQP-75-1387; Empl.: 100; *Sls. Mgr.:* Steve Iovin

Local Sales Offices & Reps

AL	Huntsville, Alpha Mktg.	205-533-0766
CA	Mountain View, Gene Woempner Co.	415-964-5454
CO	Westminster, Straube Assocs.	303-426-0890
FL	Coral Springs, H.A., Inc.	305-752-7520
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	Ft. Wayne, Menze Sls. Co.	219-747-5616
IA	Cedar Rapids, Snider Sls.	319-362-4410
KS	Overland Park, S. W. Wollard Co.	913-898-6552
MI	Lathrup Village, R. C. Nordstrom Co.	313-559-7373
MI	Southfield, R. A. Casalou	313-559-0350
MN	Mendota Hgts., G-II Sls.	612-454-3086
MO	St. Louis, Abrams & Assocs.	314-569-0447
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NM	Albuquerque, Straube Assocs.	505-265-7759
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Syracuse, Canavah-Scanlon Assocs.	315-437-1271
TX	Dallas, Cunningham Comps. Corp.	214-233-4303
TX	Houston, Cunningham Comps. Corp.	713-461-4197
UT	Salt Lake City, Straube Assocs.	801-486-5473
VA	Gladys, Ralley Entprs.	804-283-5656
WA	Vancouver, R. Over Sls.	206-695-6179
EXP	NY, Westbury, CPS Intl.	516-334-8500

AMF INC., AMF Cuno/General Filter Products Division, 400 Research Pkwy., Meriden, CT 06450, Tel: 203-237-5541, Telex: 962457; Empl.: 700; *Sls. Mgr.:* Gregg Samal

AMF/ELECTRO COMPS. DIV., AMF, 2713 Gateway Dr., Pompano Beach, FL 33060, Tel: 305-973-8620, TWX: 510-956-9400; Empl.: 900; *Sls. Mgr.:* C. Smith; *Dist. Mgr.:* C. Smith

AMF POTTER & BRUMFIELD, See Potter & Brumfield

AMGLO, 5265 Michigan Ave., Rosemont, IL 60018, Tel: 312-671-4321; Empl.: 21

AMICON CORP., 25 Hartwell Ave., Lexington, MA 02173, Tel: 617-861-9600; Empl.: 300; *Sls. Mgr.:* James Gilliland

AMILON CORP., 49-12 30th Ave., Woodside, NY 11377, Tel: 718-274-1794; Empl.: 50; *Sls. Mgr.:* L. Rosenblatt

AMKEY, INC., Sub. American Pwr. Dvs., Inc., 220 Ballardvale St., Wilmington, MA 01887, Tel: 617-658-7800; *Sls. Mgr.:* P. D. Prevett

AMLAN, INC., 97 Thornwood Rd., Stamford, CT 06903, Tel: 203-322-1913, Telex: 643647; *Sls. Mgr.:* Mark Landeweer; *Dist. Mgr.:* Mark Landeweer .... **C•1125-1128**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs., Inc.	205-533-1730
CA	Brea, Astralonics	213-691-6123
CA	Santa Cruz, Krippner & Assocs.	408-429-9798
CA	Westlake Village, Astralonics	818-706-0488
FL	Oakland Park, Zelcon, Inc.	305-565-2555
FL	Orlando, J-R Controls, Inc.	305-282-6920
FL	Tampa, J-R Controls	813-961-9478
GA	Norcross, Interep Assocs., Inc.	404-449-8680
IL	Chicago, Electro-Tech Mktg. Assocs.	312-676-3151
MA	Quincy, Marketing Svcs., Inc.	617-545-3031
MN	St. Paul, Complete Sls.	612-644-0484
MO	Grandview, R. R. Burton & Assocs.	816-763-5385
MO	Maryland Heights, R. R. Burton & Assocs.	314-434-1628
MO	St. Louis, R. R. Burton & Assocs.	314-647-6353
NJ	Parlin, JMR Sls., Inc.	201-254-8484
NY	E. Setauket, JMR Sales, Inc.	516-689-8871
NY	N. Syracuse, JMR Sales, Inc.	315-458-6576
PA	Phildelphia, Check Assocs.	205-487-3007
TN	Greeneville, Interep Assocs., Inc.	615-639-3491
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WA	Mukilteo, Krippner & Assocs.	206-743-3579
WI	Brookfield, Electro-Tech Mktg. Assocs.	414-785-9554

Local Distributors

CA	Sacramento, The Supp. Sta.	916-920-2919
CA	San Jose, Sundown Sls.	408-995-6327
CA	Westlake Village, Bond Electro Sls.	818-706-0322
CT	New Haven, Greene-Shaw Co., Inc.	203-397-0710
CT	Torrington, Northeast Connectors	203-482-2817
FL	Oakland Park, Zelcon, Inc.	305-565-2555
FL	Orlando, Southeast Comp. Svc., Inc.	305-298-0321
GA	Atlanta, Trans-Southern Elctrns.	404-451-4425
MA	Chelmsford, Dynamic Engrg.	617-250-0200
MA	Melrose, Hollex, Inc.	617-665-2413
MA	Norwood, Emtel Elctrns.	617-769-9500
MA	Waltham, Vantage Elctrns. Corp.	617-894-8690

MA	Westford, ESI	617-486-8495
MA	Woburn, EPC	617-935-0400
MA	Woburn, The Supp. Stat.	617-935-0400
MN	New Brighton, Chris Elctrns.	612-631-2647
NY	Mt. Sinai, KC Elctrns.	516-473-3347
OR	Aloha, Pacific Elctrns.	503-642-3591
OR	Pendleton, Round-Up Elctrns.	503-276-3152
PA	Wayne, Peak Elctrns.	215-293-9000
RI	Warwick, Cal-Greg Comps., Inc.	401-738-6170
VT	South Burlington, Hooker Elctrns., Inc.	802-864-0885
WA	Auburn, West-Air Intl.	206-631-1000
WA	Kirkland, Priebe Elctrns., Inc.	206-821-4695
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Signal Comm., Inc.	206-324-8400
Can	Montreal West, Que., Hooker Elctrns. Can., Ltd.	514-487-5151

AMP

AMP INCORPORATED, Box 3608, Harrisburg, PA 17105, Tel: 717-564-0100, TWX: 510-657-4110; Empl.: 19,650; *Dist. Mgr.:* Niel Spatz ....**A•1590; B•1118-1120, 1492-1493, 1706; C•1131-1152, 1748**

Local Sales Offices & Reps

CA	Compton, AMP, Inc.	213-537-4490
CA	Cupertino, AMP, Inc.	408-255-3830
CO	Englewood, AMP, Inc.	303-773-0422
CT	Windsor, AMP, Inc.	203-683-2715
FL	Altamonte Springs, AMP, Inc.	305-869-6766
FL	Boca Raton, AMP, Inc.	305-997-7005
GA	Atlanta, AMP, Inc.	404-934-6363
IL	Schaumburg, AMP, Inc.	312-351-5020
IN	Carmel, AMP, Inc.	317-848-1250
MA	Boston, AMP, Inc.	617-891-7500
MA	Framingham, AMP, Inc.	617-879-3255
MI	Southfield, AMP, Inc.	313-645-5590
MN	Minneapolis, AMP, Inc.	612-831-8242
NJ	Parsippany, AMP, Inc.	201-334-6664
NY	Holbrook, AMP, Inc.	516-588-4430
NY	Pittsford, AMP, Inc.	716-385-2860
NC	Winston- Salem, AMP, Inc.	919-725-8968
OH	Dublin, AMP, Inc.	614-764-8866
PA	Berwyn, AMP, Inc.	215-647-6060
PA	Malvern, AMP, Inc.	215-296-5303
TN	Knoxville, AMP, Inc.	615-691-5711
TX	Irving, AMP, Inc.	214-258-1114
VA	Alexandria, AMP, Inc.	703-683-5955
WA	Renton, AMP, Inc.	206-255-0064

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2626
AZ	Phoenix, Sterling Elctrns. Corp.	602-258-4531
CA	Buena Park, RPS Elctrns.	213-744-0355
CA	Canoga Park, Marshall Elctrns. Grp.	213-999-5001
CA	El Monte, Marshall Ind.	213-422-6204
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Hawthorne, Electro-Sonic Comps.	213-679-9781
CA	Irvine, Marshall Elctrns. Grp.	714-556-6400
CA	San Diego, Marshall Elctrns. Grp.	619-578-9600
CA	San Diego, RPS Elctrns.	619-292-5611
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Denver, CSID, Inc.	303-292-9594
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, Schweber Elctrns. Corp.	404-449-9170
IL	Elk Grove, Schweber Elctrns. Corp.	312-364-3750
IL	Elmhurst, Semiconductor Spec.	312-279-1000
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Edwardsville, C. Tennant, Sons & Co.	913-441-1801
MD	Columbia, Powell Elctrns.	301-631-4070
MD	Gaithersburg, MS Elctrns.	301-921-0200
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Winchester, Rush Industries, Inc.	617-729-5800
MI	Grand Rapids, RS Elctrns.	616-241-3483
MI	Livonia, RS Elctrns.	313-525-1155
MO	St. Charles, Lectronix	314-946-6424
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Buffalo, Summit Distrs.	716-884-3450
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Farmingdale, Harrison Radio Corp.	516-293-7990
NY	Lynbrook, Peerless Elctrns.	516-593-2121
NY	Westbury, Schweber Elctrns. Corp.	516-334-7474
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp. Co.	216-762-8818
OH	Columbus, Hughes-Peters Inc.	614-294-5351
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Philadelphia, Powell Elctrns.	215-365-1900
TN	Nashville, Graham Elctrns.	615-242-2682
TX	Austin, Kent Elctrns. Corp.	512-834-1900
TX	Houston, Kent Elctrns.	713-780-7770
TX	Irving, Hamilton-Avent Elctrns.	214-659-4157
TX	Richardson, Kent Elctrns. Corp.	214-669-2600
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
WA	Kent, Pyramid Elctrns. Supp., Inc.	206-872-5800

AMP DISTRIBUTOR MARKETING DIV, A Division of AMP Products Corporation, Harrisburg, PA 17105, Tel: 717-780-7025; Empl.: 24,500; *Sls. Mgr.:* Larry Backus .... **B•1495; C•1130, 1683, 1749**

Local Sales Offices & Reps

Northern Wire & Cable, Inc.

CA	Los Angeles	213-639-1691
CA	Sacramento, Zack Elctrns.	916-446-3131
CA	San Francisco	415-574-6006
IL	Chicago	312-439-7800
PA	Valley Forge	215-647-1000
TX	Dallas (Irving)	214-258-1911

Local Distributors

EMSCO

AL	Birmingham, Ack Radio Supp. Co.	205-322-0588
AL	Birmingham, Forbes Distrbg.	205-251-3941
AL	Decatur, Forbes Distrbg.	205-353-4546
AL	Huntsville, Forbes Distrbg.	205-533-4150
AL	Huntsville, Powell Elctrns., Inc.	205-539-2731
AL	Mobile, Forbes Distrbg.	205-479-4535
AL	Mobile, Specialty Distrs.	205-344-0450
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2626
AZ	Phoenix, Electronic Parts Co., Inc.	602-277-7281
AZ	Phoenix, Sterling Elctrns.	602-268-2121
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
AR	Little Rock, Carlton-Bates Co.	501-562-9100
AR	Little Rock, Electro Entprs., Inc.	501-664-9207
AR	Little Rock, Inter-Conn Elctrns., Inc.	501-753-7264
AR	Pine Bluff, Carlton Bates Co.	501-535-1354
CA	Bakersfield, Jack C. Arbuckle Co.	805-325-5816
CA	Buena Park, RPS Elctrns., Inc.	213-744-0355, 714-521-5230
CA	Canoga Park, Marshall Inds.	819-999-5001
CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Costa Mesa, Mar Vac Elctrns., Inc.	714-540-3280
CA	El Monte, Marshall Inds.	818-442-7204
CA	Fountain Valley, Components Ctr., Inc.	714-979-0433
CA	Fresno, Jack C. Arbuckle Co.	209-264-6554
CA	Fullerton, Pyramid Elctrns., Inc.	714-773-0781
CA	Gardena, California Switch & Signal	213-770-2300
CA	Hawthorne, Electro-Sonic Comps., Inc.	213-679-9781
CA	Irvine, Marshall Inds.	714-556-6400
CA	Manhattan Bch., Prime Electro Prods. Co.	213-379-3642
CA	Monrovia, Erik-A-Elctrn. Distr.	213-574-1020
CA	North Hollywood, Alatec Prods.	213-875-1790
CA	Northridge, Acort Inds., Inc.	213-993-6444
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Sacramento, Hamilton/Avnet Elctrns.	916-925-2216
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CA	San Bernardino, Hurley Elctrns.	714-885-0721
CA	San Diego, El-Com, Inc.	619-578-0900
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Diego, Ryno Elctrns.	619-543-8430
CA	San Diego, RPS Elctrns., Inc.	619-292-5611
CA	San Diego, Western Radio, Inc.	619-268-4400
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Powell Elctrns., Inc.	408-943-9020
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Ana, C R Elctrns.	714-556-2040
CA	Santa Clara, Components Ctr., Inc.	408-988-3751
CA	Santa Clara, Cypress Elctrns., Inc.	408-945-8400
CA	Santa Clara, Pyramid Elctrns. Supp., Inc.	408-727-9810
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CO	Arvada, Denver Wintronics	303-431-7161
CO	Denver, CSID, Inc.	303-292-9594
CO	Denver, Marshall Inds.	303-427-1818
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	E. Hartford, R & S Elctrn. Distrs.	203-528-9901
CT	Norwalk, Park Distrs.	203-853-2010
CT	Stratford, Electro/Comp, Inc.	203-375-5811
CT	Wallingford, Cronin Elctrns.	203-265-3134
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Casselberry, AFCOM	305-831-6630
FL	Dania, Summit Elctrns. of Florida, Inc.	305-920-6263
FL	Ft. Lauderdale, EMSCO	305-973-7103
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Jacksonville, EMSCO	904-356-4851
FL	Miami, Electro Std. Labs., Inc.	305-633-6973
FL	Miami, Electronic Equip., Inc.	305-871-3500
FL	Orlando, EMSCO	305-849-6362
FL	Orlando, Hammond Elctrns., Inc.	305-849-6060
FL	Pensacola, Pensacola Elctrns.	904-478-3771
FL	Tampa, EMSCO Div. Hammond Elctrns.	813-253-0104
FL	Tampa, Leader Elctrns.	813-870-3315
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
GA	Atlanta, Specialty Distrbg. Co.	404-873-2521
GA	Norcross, Schweber Elctrns.	404-449-9170
HI	Honolulu, Electrical Equip.	808-533-3884
HI	Honolulu, Technical Mktg. Corp.	808-841-4175
ID	Spirit Lake, A-I Elctrn. Supp.	208-623-3111
IL	Addison, LCOMP, Inc.	312-628-1400
IL	Chicago, Electronic Connector Corp.	312-767-2200
IL	Chicago, NEP Elctrns., Inc.	312-625-8400
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IL	Elmhurst, Semiconductor Specialists, Inc.	312-279-1005
IL	Melrose Park, Belford Elctrns., Inc.	312-865-2400
IL	Mt. Prospect, Tri-State Elctrn. Corp.	312-255-0600
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IL	Palatine, Ohm Elctrns.	312-259-5500
IL	Peoria, Warren Radio Co.	309-674-5998
IL	Rosemont, Advent Elctrns., Inc.	312-297-6200
IL	Villa Park, Melvin Elctrns., Inc.	312-279-5015
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Evansville, Hutch & Son, Inc.	812-425-7201
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Advent Elctrns., Inc.	317-872-4910
IN	Indianapolis, Meunier Elctrns.	317-635-3511
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Edwardsville, C. Tennant, Sons & Co.	913-441-1801
KY	Louisville, Peerless Elctrn. Equip. Co., Inc.	502-637-7674
LA	Baton Rouge, Industrial Elctrn. Supp.	504-357-4249
LA	Baton Rouge, Ralph's Elctrns. Supp.	318-344-3761
LA	Harvey, AFG Elctrn. Supp.	504-368-9696
LA	Lafayette, Ralph's Elctrns. Supp.	318-233-0105
LA	New Orleans, Southern Radio Supp. Co., Inc.	504-524-2343
LA	New Orleans, Wm. B. Allen Supp. Co., Inc.	504-525-8222
LA	Shreveport, Industrial Elctrn. Supp.	318-222-9459
MD	Aberdeen, Harco Elctrns., Inc.	301-838-7990
MD	Baltimore, Whitney Distrs., Inc.	301-944-8080
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MD	Columbia, Powell Elctrns., Inc.	301-621-4070
MD	Hagerstown, Allegheny Elctrn.	301-739-6460
MD	Rockville, Capitol Radio Whlsrs., Inc.	301-881-2270
MD	Rockville, MS Elctrns., Inc.	301-340-6400
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Burlington, QPL Elctrn.	617-891-0460
MA	Canton, Impact Sls. Co., Inc.	617-821-1500
MA	Holliston, Add Elctrns.	617-478-4200
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	N. Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Needham, Cronin Elctrns.	617-449-0500
MA	Needham, You Do It Elctrns.	617-449-1005
MA	Newton, In-Stock Prods. Co.	617-964-6200
MA	Waltham, Vantage Elctrns. Corp.	617-894-8690
MA	Westborough, Future Elctrns. Corp.	617-366-2400
MA	Westborough, Powell Elctrns./NE	617-366-6100
MA	Wilmington, Aved Elctrns., Inc.	617-657-8310
MA	Wilmington, J. V. Elctrns.	617-273-4300
MA	Winchester, Rush Inds.	617-629-5800
MA	Woburn, ACI Elctrns.	617-935-7230
MA	Woburn, Hamilton/Avnet Elctrns.	617-273-7500
MI	Flint, Shand Elctrns., Inc.	313-743-8940
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Grand Rapids, RS Elctrns.	616-241-3483
MI	Grand Rapids, S-F Elctrn. Supp., Inc.	616-459-0126
MI	Livonia, RS Elctrns.	313-525-1155
MI	Troy, Northern Wire & Cable	313-589-0510
MN	Edina, Schweber Elctrns.	612-941-5280
MN	Minneapolis, Electronic Ctr., Inc.	612-371-5200
MN	Minneapolis, Stark Elctrn. Supp., Inc.	612-332-1325
MN	St. Paul, Gopher Elctrns. Co.	612-483-3322
MO	Kansas City, Electronic Supp. Co., Inc.	816-931-0250
MO	St. Charles, Lectronix, Inc.	314-946-6424
MO	St. Louis, Franklin Elctrns.	314-993-5333
MO	St. Louis, Olive Elctrns., Inc.	314-426-4500
MO	St. Louis, Van Sickle Radio Elctrns., Inc.	314-621-5000
NE	Lincoln, Scott Elctrns. Supp. Corp.	402-466-8221
NV	Las Vegas, CRW, Inc.	702-384-1500
NH	Hudson, C & H Elctrns.	603-882-1133
NH	Manchester, Yankee Elctrn. Supp., Inc.	603-625-9746
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	201-424-0110
NJ	East Hanover, State Elctrns.	201-887-2550
NJ	Edison, William Elctrns.	201-985-3700
NJ	Fairfield, Marshall Inds.	201-882-0320

NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Pine Brook, Alatec Prods.	201-227-8140
NJ	Prospect Park, Kapp Inds., Inc.	201-790-1999
NJ	Springfield, Route Elctrns. 22, Inc.	201-379-7710
NM	Albuquerque, Connecting Comps.	505-345-8921
NM	Albuquerque, Electronic Parts Co.	505-293-6161
NY	Buffalo, Genesee Radio & Parts Co., Inc.	716-873-9661
NY	Buffalo, Summit Distrs., Inc.	716-884-3450
NY	Elmsford, Ancar Elctrns. Supp.	914-592-7100
NY	Farmingdale, Harrison Radio Corp.	516-293-7990
NY	Hempstead, Davis Elctrns. Corp.	516-483-9200
NY	Johnson City, Help Elctrns., Inc.	607-729-3528
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Pleasantville, Wise Comps., Inc.	914-939-8600
NY	Poughkeepsie, Chief Elctrns.	914-471-1300
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Rochester Radio Supp. Co.	716-454-7800
NY	Rome, Rome Elctrns., Inc.	315-337-5400
NY	Schenectady, Grimmer's Elctrn. Supp.	518-374-8480
NY	West Babylon, Delmar Elctrns., Inc.	516-410-1234
NY	West Hempstead, March Elctrns.	516-486-6511
NY	Westbury, Schweber Elctrns.	516-334-7474
NC	Cary, Powell Elctrns.	919-467-1212
NC	Charlotte, Dixie Elctrns.	704-337-5413
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Morrisville, Anixter-Raleigh	919-469-8303
NC	Raleigh, Schweber Elctrns.	919-876-0000
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp. Co.	216-762-8818
OH	Cincinnati, Hughes-Peters, Inc.	513-351-2000
OH	Cincinnati, U.R.I. Elctrns.	513-761-4030
OH	Columbus, Hughes-Peters, Inc.	614-294-5351
OH	Columbus, Thompson Elctrns.	614-228-6191
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Dayton, Stotts-Friedman Co., Inc.	513-298-5555
OH	Lima, LPR Elctrns., Inc.	419-228-1220
OH	Marion, Servex Elctrns. Distr., Inc.	614-383-3117
OH	Solon, Repco Elctrns.	216-248-8900
OH	Solon, Targetronix Corp.	216-248-7930
OH	Twinsburg, Schuster Elec. Co., Inc.	216-425-8134
OH	Warren, REM Elctrns. Supp. Co., Inc.	216-373-1300
OK	Oklahoma City, Electro-Enterprise	405-427-6591
OK	Oklahoma City, Radio Supp., Inc.	405-232-6127
OK	Tulsa, Carlton Bates	918-250-1626
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Radar Elec. Co., Inc.	503-233-3691
PA	Allentown, P.A. Peters, Inc.	215-434-5237
PA	Altoona, Allegheny Elctrns.	814-946-0871
PA	Braddock, Leff Radio Parts Co.	412-351-5000
PA	Drexel Hill, Kass Elctrns. Distrs.	215-449-2300
PA	Erie, REM Elctrn. Supp.	814-453-5626
PA	Essington, Tri-Com, Inc.	215-521-3080
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Philadelphia, Arch Elctrns. Co.	215-563-4660
PA	Philadelphia, Powell Elctrns., Inc.	215-365-1900
PA	Reading, Barbey Elctrns.	215-376-6116
PA	Wayne, Peak Elctrns. Corp.	215-293-9000
RI	Pawtucket, Jabbour Elctrns.	401-728-4600
RI	Pawtucket, Major Edward's Elctrn. Supp., Inc.	401-725-7400
SC	Charleston, Wholesale Indl. Elctrns.	803-722-2634
SC	Columbia, Dixie Elctrns., Inc.	803-779-5332
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Knoxville, Dixie Elctrns.	615-938-4131
TN	Memphis, Carlton-Bates Co.	901-365-3539
TN	Nashville, Electra Distrib. Co.	615-329-3971
TN	Nashville, Graham Elctrns.	615-242-2682
TX	Addison, Connec/Tek, Inc.	214-733-4411
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Austin, Kent Elctrns.	512-834-1900
TX	Beaumont, Ralph's Elctrns.	409-833-9443
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Dallas, LBI Electro-Optics	214-358-4251
TX	Dallas, Wallace Elctrns. Co., Inc.	214-340-0400
TX	El Paso, Ideal Indl. Elctrn. Supp., Inc.	915-779-6647
TX	Fort Worth, Industrial Elctrns., Inc.	817-731-7321
TX	Fort Worth, Swieco, Inc.	817-335-6521
TX	Fort Worth, Texas Connector Corp.	817-246-0109
TX	Houston, Electronic Pkg. Comps., Inc.	713-447-5800
TX	Houston, Electrotex	713-526-3456
TX	Houston, Geophysical Supp. Co., Inc.	713-666-4100
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1971
TX	Houston, Kent Elctrns.	713-780-7770
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4100
TX	Midland, ESI Supp.	915-694-9657
TX	Richardson, Kent Elctrns.	214-669-2600
TX	San Antonio, Sherman Elctrns. Supp., Inc.	512-224-1001
TX	San Antonio, Texas Intl. Cable	512-366-3648
UT	Salt Lake City, Kimball Elctrns., Inc.	801-328-2075
VT	Rutland, S.A.I. Semispecialists of Amer.	802-775-7126
VA	Norfolk, Priest Elctrns., Inc.	804-855-0105
VA	Richmond, Avec Elctrns. Corp.	804-359-6071
VA	Richmond, Sterling Elctrns.	804-226-2190
VA	Roanoke, Mexitronics	703-342-4444
WA	Bellevue, Marshall Inds.	206-747-9100
WA	Kent, Pyramid Elctrns. Supp. Co., Inc.	206-872-5800
WA	Seattle, Connector World Supp.	206-767-6773
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Radar Elctrn. Co., Inc.	206-282-2511
WA	Seattle, Radar Elec. Co., Inc.	206-282-2511
WV	Huntingdon, State Elec. Supp. Co.	304-523-7491
WV	Kenova, Burco Distrs.	304-453-6387
WV	Morgantown, State Elctrns. Co.	304-292-1641
WI	Fond du Lac, Fedco, Elctrns., Inc.	414-922-6490
WI	Madison, Superior Elctrn. Parts Co.	608-257-1477
WI	Milwaukee, Industrial Elctrns. Corp. of WI	414-276-1212
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oshkosh, Electronics Inds.	414-235-8930

AMPEREX ELECTRONIC CORP., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477, Tel: 914-246-2811, TWX: 510-247-5410; Empl.: 600; *Sls. Mgr.:* R. Denison; *Dist. Mgr.:* Ed Hellenschmidt

Refer to Amperex, Slatersville Div. for sales office information.

AMPEREX ELECTRONIC CORP., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802, Tel: 516-931-6200, TWX: 510-221-1839; Empl.: 270; *Sls. Mgr.:* Robert Carlin; *Dist. Mgr.:* Robert Carlin

AMPEREX ELCTRN. CORP., Slatersville Div., Providence Pike, Slatersville, RI 02876, Tel: 401-762-3800, Telex: 927584, TWX: 710-382-6332; FSC No.: 73445; Empl.: 565; *Sls. Mgr.:* Robert Carlin

AMPEREX ELECTRONIC INDS., Smithfield Div., George Washington Hwy., Smithfield, RI 02917, Tel: 401-232-0500, Telex: 92 76 43

Refer to Amperex, Slatersville Div. for sales office information.

AMPERITE CO., INC., 600 Palisade Ave., Union City, NJ 07087, Tel: 201-864-9503, TWX: 710-992-8834; FSC No.: 70563; Empl.: 76; *Sls. Mgr.:* T. Whalen; *Dist. Mgr.:* T. Whalen

AMPEX CORP., 401 Broadway, Redwood City, CA 94063, Tel: 415-367-2011, TWX: 910-364-9034; Empl.: 9,800

AMPHENOL, 2801 South 25th Ave., Broadview, IL 60153, Tel: 312-345-9000

AMPHENOL, An Allied Co., 43 Commerce Ct., Lisle, IL 60532, Tel: 312-983-3500, TWX: 910-651-0191

AMPHENOL R F OPERATIONS, 33 E. Franklin St., Danbury, CT 06810, Tel: 203-743-9272

ar amplifier research

AMPLIFIER RESEARCH, 160 School House Rd., Souderton, PA 18964-9990, Tel: 215-723-8181, TWX: 510-661-6094; FSC No.: 30639; Empl.: 42; *Sls. Mgr.:* D.W. Roth D•1002-1003

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Mar Tech Assocs.	602-968-4944
CA	N. Hollywood, O'Halloran Assoc.	213-877-0173
CA	Palo Alto, O'Halloran Assoc.	415-969-1600
CA	Santa Ana, Shoshin, U.S.A.	714-641-0417
CO	Boulder, H. Bass. Assoc.	303-530-7509
CT	Hamden, J.B.L. Assoc.	203-281-3161
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Park Ridge, Elctrn. Instr. Assocs.	312-298-2290
IN	Indianapolis, Elctrn. Instr. Assocs.	317-257-7231
MD	Severna Park, Delmarva Eng. Assoc. Ltd.	301-647-8007
MA	Lexington, R.J. Sickles	617-862-5100
MN	Minneapolis, Elctrn. Instr. Assocs.	612-374-5628
NJ	Denville, Metro-Mics	201-625-5959
NJ	Westfield, Metro Mics	201-233-6116
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OH	Centerville, Micro Sls.	513-433-8171
OH	North Olmsted, Micro Sls.	216-734-3080
PA	Philadelphia, R. Meyers Assoc.	215-224-1663
TX	Austin, Airep Elctrns.	512-327-0778
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
UT	Bountiful, Herb Bass Assoc.	801-295-0469
UT	Salt Lake City, Herb Bass Assoc.	801-268-0262
WA	Seattle, J. J. Assocs., Inc.	206-246-6619

AMPLIFONIX INC., 220 Rte. 13, Bristol, PA 19007, Tel: 215-788-2350, TWX: 510-667-0501; *Sls. Mgr.:* Jason A. Day; *Dist. Mgr.:* Jason A. Day

AMPROBE INSTR., 630 Merrick Rd., Lynbrook, NY 11563, Tel: 516-LY3-5600, TWX: 510-225-8403; Empl.: 230; *Sls. Mgr.:* W. Eagle

AMPTEK, INC., 6 De Angelo Dr., Bedford, MA 01730, Tel: 617-275-2242; Empl.: 11; *Sls. Mgr.:* George Kobaly, Jr.

Local Sales Offices & Reps

EXP	MA, Plainville, Teknis	617-695-3591

AMPTEX, INC., 11103 Dennis Rd., P.O. Box 59841, Dallas, TX 75229, Tel: 214-241-2511, Telex: 730338; *Sls. Mgr.:* Richard Sparks

AMPTRONIX, INC., P.O. Box 8146, Rowland Heights, CA 91748, Tel: 714-595-5814; *Dist. Mgr.:* Ching Lin

Local Sales Offices & Reps

CA	Los Angeles, Electric Switches, Inc.	213-660-1310

AMRAD & TRANSCON MFG. CO., Div. of D.J. Assocs., Inc., 8411 South Zero St., Fort Smith, AR 72903-7097, Tel: 501-452-3987; FSC No.: 55943; Empl.: 17

AMTEK DIGITAL SYSTEMS, INC., 12740 28th N.E., Seattle, WA 98125, Tel: 206-363-0217, Telex: 329473 (Burgess Sea); Empl.: 18; *Sls. Mgr.:* Fred Graham

AMUNEAL MFG., 4737 Darrah St., Philadelphia, PA 19124, Tel: 215-535-3000; FSC No.: 23740; Empl.: 120; *Sls. Mgr.:* S. M. Kamens; *Dist. Mgr.:* S. M. Kamens **C•1721**

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn Co.	602-257-9015
CA	Fremont, William Parks Assoc., Inc.	415-796-0875
CA	San Diego, C.E.M., Inc.	619-692-3551
CA	Santa Ana, C.E.M., Inc.	714-835-2702
CO	Wheatridge, Waugaman Assocs., Inc.	303-423-1020
CT	New Britain, MPS Elctrns., Inc.	203-223-1006
GA	Stone Mountain, Mountain Electro Prods., Inc.	404-448-5594
IL	Chicago, Brock & Cushman, Inc.	312-622-4110
KS	De Soto, Midtec Assocs., Inc.	913-441-6565
MD	Baltimore, Muncy Sls.	301-484-6376
MA	Norwood, MPS Elctrns.	617-769-8700
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MI	Wyoming, Howard Assocs., Inc.	616-532-2161
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NM	Albuquerque, Shefler Kahn Co.	505-296-0749
NY	Bethpage, L. A. Buscaglia Co., Inc.	718-468-3666
NY	Mendon, Tech-Mark, Inc.	716-624-3840
OH	Akron, Imtech, Inc.	216-666-1185
OH	Dayton, Imtech, Inc.	513-278-6507
OR	Beaverton, Rep-West, Inc.	503-626-4279
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
UT	Salt Lake City, Waugaman Assoc. Utah, Inc.	801-261-0802
UT	Salt Lake City, Waugaman Assocs. Utah, Inc.	801-261-0802
WA	Seattle, Rep-West	206-283-8351
WI	Waterford, Brock & Cushman, Inc.	414-662-3154
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200
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ANADEX, 1001 Flynn Rd., Camarillo, CA 93010, Tel: 805-987-9660, TWX: 910-494-2761; Empl.: 350

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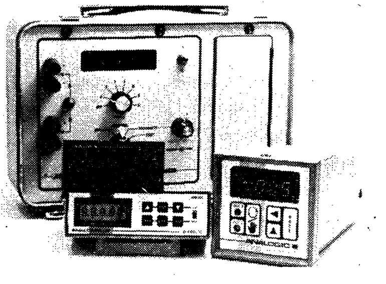

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(302) 652-8585 in Wilmington, DE
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ANALOG & DIGITAL PERIPHERALS, INC. (ADPI), 815 Diana Dr., Troy, OH 45373, Tel: 513-339-2241, TWX: 810-450-2685; FSC No.: 31-0949-745; Empl.: 19; *Sls. Mgr.:* Alan Kuebier

ANALOG DEVICES, P.O. Box 280, Norwood, MA 02062, Tel: 617-329-4700, TWX: 710-394-6577; FSC No.: 24355; Empl.: 4,000

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Local Sales Offices & Reps

Array Processors

AZ	Phoenix, Cherry Assocs.	602-242-1922
CA	Woodland Hills, Gordon Osborne & Assocs.	213-888-9916
CT	Avon, Power Mark, Inc.	203-678-0123
FL	Cape Canaveral, Analogic Corp	305-799-2300
GA	Lilburn, Micro-Spec	404-921-3840
IL	Elgin, Analogic	312-888-4242
IL	Rolling Meadows, Commodore I	312-394-5441
IN	Indianapolis, Sukup & Cox	317-253-5501
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MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
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MO	Maryland Heights, Ramsey Assocs.	314-878-5042
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NM	Albuquerque, Cleveland Entprs.	505-265-7893
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NY	Smithtown, PAF Assocs.	516-360-0940
OH	Chagrin Falls, Midwest Mktg. Assocs.	216-247-6655
OH	Dayton, Midwest Mktg. Assocs.	513-433-2511
PA	Churchville, Dynamic Elec.	215-322-2611
PA	Pittsburgh, Staples	412-881-5990
TX	Houston, A.C.U. Data	713-580-2451
TX	Houston, Analogic Corp.	713-280-9048
Can	Mississauga, Ont., Tracan Elctrns.	416-625-7752
CA	Pasadena, RDX Corp.	213-681-3451
CA	San Diego, RDX Corp.	619-278-6863
CA	Sunnyvale, RDX Corp.	408-734-4500
CT	Portland, B.B.I.	203-342-0648
IL	Downers Grove, Physics Equip.	312-960-4054
MA	Holbrook, McLellan Assocs.	617-767-4771
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
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NY	Williamsville, C. V. Sls.	716-759-2923
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PA	Pittsburg, R.D.P. Corp.	412-487-2217
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TX	Dallas, Data Mktg. Assocs.	214-661-0300
UT	Salt Lake City, Westek Data Prods.	801-261-0999
VA	Richmond, Commonwealth Controls	804-271-7700
WA	Seattle, Brett Assocs.	206-431-8090

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CA	Sunnyvale, RDX Corp.	408-734-4500
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IL	Downers Grove, Physics Equip.	312-960-4054
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MN	Eden Prairie, Elctrn. Instr. Conslts.	612-937-9701
MO	St. Louis, Engineering Svcs. Co.	314-997-1515
NM	Albuquerque, Qualtech	505-243-5605
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NC	Charlotte, Zelco	704-523-2961
OH	Dayton, P. J. Navin Co.	513-434-8940
OH	Dayton, RDP Corp	513-253-6175
OK	Tulsa, Data Mktg. Assocs.	918-741-4911
PA	Pitttsburg, RDP Corp.	412-487-2217
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TX	Austin, Data Mktg. Assocs.	512-451-5174
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TX	Richmond, Commonwealth Controls	804-271-7700

ANALOGIC CORP., Data Conversion Prods. Grp., Audubon Rd., Wakefield, MA 01880, Tel: 617-246-0300, Telex: 94-9307, TWX: 710-348-0425; Empl.: 2000; *Sls. Mgr.:* Leonard D. Sacon .... **D•1138-1139**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns, Assocs., Inc.	205-881-5031
AZ	Scottsdale, Arcom Sls., Inc.	602-947-5745
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CA	Sunnyvale, AMASCO	408-733-8690
CO	Wheat Ridge, Westek Data Prods., Inc.	303-431-9876
CT	Portland, BBI	203-342-0648
FL	Boca Raton, Beacon Elctrns. Assocs., Inc.	305-393-3500
FL	Clearwater, Beacon Elctrns. Assocs., Inc.	813-796-2378
FL	Maitland, Beacon Elctrns. Assocs., Inc.	305-647-3498
FL	Melbourne, Beacon Elctrns. Assocs., Inc.	305-724-8010
GA	Atlanta, Beacon Elctrns. Assocs.	404-256-9640
IL	Rosemont, Synmark Sls. Co.	312-825-3455
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OH	Cincinnati, Analogic Corp.	606-371-0064
OH	Dayton, Midwest Mktg. Assocs.	513-433-2511
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PA	Norristown, Denco Data Equip. Corp.	215-630-8990
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TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom, Inc.	713-778-0392
TX	San Antonio, Norcom, Inc.	512-680-4513
UT	Salt Lake City, Westek Data Prods., Inc.	801-261-0999
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Can	Ottawa, Tracan Elctrns. Corp.	613-722-7667
Can	Toronto, Tracan Elctrns. Corp.	416-625-7752

ANALOG MODULES, INC., 126 Baywood Avenue, Longwood, FL 32750, Tel: 305-339-4356/4355, Telex: ANALOG MOD C1 467617; FSC No.: 61651; Empl.: 22; *Sls. Mgr.:* Ian D. Crawford .... **D•1004**

ANALOG SYSTEMS, P.O. Box 35879, Tucson, AZ 85740-5879, Tel: 602-293-4923, TWX: 910-952-1185; FSC No.: 58976; Empl.: 13; *Sls. Mgr.:* Sharon Raban; *Dist. Mgr.:* Sharon Raban

ANALOG TECHNOLOGY CORP., 15859 E. Edna Pl., Irwindale, CA 91706, Tel: 213-960-4004, TWX: 910-584-1855; *Sls. Mgr.:* James L. Lawrence, Jr.

ANALYTICAL MEAS., 31 Willow St., Chatham, NJ 07928, Tel: 201-273-7500; Empl.: 35

ANALYTICS COMMUNICATIONS SYS., 1820 Michael Faraday Dr., Reston, VA 22090, Tel: 703-471-0892, Telex: 710-833-0326; Empl.: 35; *Sls. Mgr.:* Paul G. Jones

ANAREN MICROWAVE, P.O. Box 178, 6635 Kirkville Rd., E. Syracuse, NY 13057, Tel: 315-432-8909, Telex: 937351, TWX: 710-541-1507; FSC No.: 31597; Empl.: 310

ANCHOR SPECIALTY MFG. INC., 300 Hollister Rd., Teterboro, NJ 07608, Tel: 201-288-1939; Empl.: 10

AN/COM INDUSTRIES, P.O. Box 530, 5521 Cleon Ave., N. Hollywood, CA 91603, Tel: 818-769-5518, TWX: 910-498-5713; *Sls. Mgr.:* E. J. Wubben; *Dist. Mgr.:* E. J. Wubben

AND, 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-9916, TWX: 910-374-2353; Empl.: 30; *Sls. Mgr.:* Dean Ransom

ANDEEN-HAGERLING, INC., 31899 Miles Road, Chagrin Falls, OH 44022, Tel: 216-349-0370; Empl.: 14; *Sls. Mgr.:* Gwen Glazer

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OH	Cleveland, TIBY Co.	216-371-5335

ANDERS, INC., 77 Wolcott Rd., Simsbury, CT 06070, Tel: 203-658-7666; FSC No.: 52045; Empl.: 18; *Sls. Mgr.:* R. A. Grover

ANDERSEN LABS., 1280 Blue Hills Ave., Bloomfield, CT 06002, Tel: 203-242-0761, TWX: 710-425-2390; FSC No.: 03947; Empl.: 125 .... **A•1591**

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CA	Santa Ana, SSK USA, Inc.	714-250-4073
CA	Tarzana, Midwin & Olifson	213-996-9093
CA	Tustin, SC Cubed	714-731-9206
IL	Northfield, Feller Assocs.	312-446-8065
IA	Cedar Rapids, Feller Assocs.	319-364-0566
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NY	Melville, Carnes Assocs.	516-694-1600
PA	Huntingdon Valley, Rabal Assoc.	215-947-4825
TX	Dallas, McDonald Assocs.	214-238-1858
Intl	Japan, Tokyo, Japan Telescomm Corp.	403-5301
Can	Bolton, Ont., MacKay Assocs.	416-857-4302
Can	Quebec, R. F. Microwave, Ltd.	514-335-2335

ANDERSON-BELL CO., P.O. Box 191, Canon City, CO 81212, Tel: 303-275-1661, Telex: 499-4230; *Sls. Mgr.:* Carol Fontecchio; *Dist. Mgr.:* Carol Fontecchio

ANDERSON ELCTRNS., 310 Penn St., P.O. Box 89, Hollidaysburg, PA 16648, Tel: 814-695-4428, TWX: 510-691-2516; Empl.: 85; *Sls. Mgr.:* W. H. Anderson .... **A•1313**

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CA	Fullerton, GRU Assocs.	714-738-0903
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CT	Branford, LJM Assocs.	203-488-7995
FL	New Port Richey, Lobo Mktg. Assocs., Inc.	813-848-8578
GA	Lawrenceville, B. T. Funderburk, Inc.	404-963-9495
IL	South Elgin, R.K. Elctrn.	312-695-8552
MA	Plymouth, Newby, Inc.	617-746-3869
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
NY	Smithtown, L.I., PAF Assocs.	516-360-0940
NY	Syracuse, Murcan Sls. Corp.	315-437-0734
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TX	Plano, GW Prods.	214-422-1746
WA	Seattle, Harry Levinson Co.	206-382-1300
Can	Mississauga, Ontario, Gidden-Morton Assocs.	416-671-8111

ANDERSON POWER PRODS., Div. of High Voltage Engrg., 145 Newton St., Boston, MA 02135, Tel: 617-787-5880, Telex: 940453

ANDREW CORP., 10500 W. 153rd St., Orland Pk., IL 60462, Tel: 312-349-3300, Telex: 25-3897, TWX: 910-651-3340; *Sls. Mgr.:* Carl Van Hecke

ANDREWS BEARING CORP., MPB Corp., New Cut Road, Spartanburg, SC 29304, Tel: 803-583-4541, TWX: 810-282-2578; *Sls. Mgr.:* Michael S. Diblasi; *Dist. Mgr.:* Jack E. Barker

ANDRICH SYS., INC., 1699 Roosevelt Ave., Bohemia, NY 11716, Tel: 516-589-5656; *Sls. Mgr.:* Robert G. Andrews

ANDROMEDA SYS., 9000 Eton Ave., Canoga Park, CA 91304, Tel: 818-709-7600, TWX: 910-444-1248; Empl.: 23; *Sls. Mgr.:* Mike Morgan; *Dist. Mgr.:* Mike Morgan

ANDROTEK/DMI, Box 29098, Columbus, OH 43229, Tel: 614-882-7821; *Sls. Mgr.:* James M. Shively

ANGENIEUX INC., 120 Derry Rd., Hudson, NH 02051, Tel: 603-889-2116, Telex: 94-3469; *Sls. Mgr.:* Edward A. Wollensak

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ANN ARBOR TERMINALS, 6175 Jackson Rd., Ann Arbor, MI 48103, Tel: 313-663-8000, Telex: 706905; Empl.: 50; *Sls. Mgr.:* Gary DeLuca

ANORAD CORP., 110 Oser Ave., Hauppauge, NY 11788, Tel: 516-231-1990, TWX: 510-227-9894; Empl.: 235

ANRO ELCTRN. INDS., 300 Wildcat Rd., Downsview, ON, Canada, Tel: 416-661-2600; Empl.: 85; *Sls. Mgr.:* E.H. Jones

ANSCO, 1243 West 134th St., Gardena, CA 90247, Tel: 1-800-421-1270, 1-800-821-3308, 213-532-7780; Empl.: 25+; *Sls. Mgr.:* Melvin Preston

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ANSONICS, INC., P.O. Box 910, Halfway, OR 97834, Tel: 503-742-7475; Empl.: 6

ANTENNACRAFT, Box 1005, Burlington, IA 52601, Tel: 319-754-7575

ANTENNA RESCH. ASSOCS., 11317 Frederick Ave., Beltsville, MD 20705, Tel: 301-937-8888, Telex: 908754; FSC No.: 04190; Empl.: 25; *Sls. Mgr.:* H.W. Rapalus

ANTENNA SPECIALISTS, 12435 Euclid Ave., Cleveland, OH 44106, Tel: 216-791-7878, Telex: 980-732; Empl.: 1000; *Sls. Mgr.:* Larry Kline

ANTEX DIV., 7 Hawkes St., Marblehead, MA 01945, Tel: 617-631-7100; *Sls. Mgr.:* C. Loutrel; *Dist. Mgr.:* C. Loutrel

ANTEX ELECTRONICS CORP., 16100 S. Figueroa St., Gardena, CA 90248, Tel: 213-532-3092, TWX: 910-344-7381; Empl.: 53; *Sls. Mgr.:* J. Antrim; *Dist. Mgr.:* K. Ross

ANTONA CORP., 2100 S. Sawtelle Blvd., Suite 205, Los Angeles, CA 90025, Tel: 213-473-8995; Empl.: 4

ANTRONIC CORP., 7755 E. Redfield Rd., Ste. 300, Scottsdale, AZ 85260, Tel: 312-287-5110

APAHOUSER-ELCOM, INC., 101 Walnut St., Watertown, MA 02172, Tel: 617-924-1500; FSC No.: 53721; Empl.: 90; *Sls. Mgr.:* Fred Gately

APA DIVISION, 399 Executive Blvd., Elmsford, NY 10523, Tel: 914-592-7322, Telex: 646186; *Sls. Mgr.:* Carl Gruenberg

A. P. CIRCUIT CORP., 513 East 86th St., P.O. Box 1350, New York, NY 10028, Tel: 212-737-1348, Telex: 428759 .... **A•1592**

Local Sales Offices & Reps

MI	Detroit, Comtel Instrs.	313-255-1970
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573

APEX MICROTECHNOLOGY CORP., 2895 W. Rudasil Road, Tucson, AZ 85741, Tel: 602-746-0849, TWX: 910-952-1176; Empl.: 65; *Sls. Mgr.:* Rita Olschewski; *Dist. Mgr.:* Rita Olschewski .... **D•1005**

Local Sales Offices & Reps

AZ	Tempe, Mar Tech. Assocs., Inc.	602-747-8098
CA	Los Altos, Kolm Mktg.	415-948-2635
CA	San Diego, California Elctrn. Mktg.	619-692-3551
CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
CO	Denver, W. H. Howard Assocs.	303-426-3499
IL	Chicago, L.G.S. Sls.	312-456-0616
MD	Ellicott City, Nelson Elctrns.	301-747-7887
MA	Malden, J.K. Assocs.	617-321-2922
MN	Bloomington, Merril Franklin Co.	612-854-9446
NY	Smithtown, T & K Sls.	516-724-3456
OH	Fort Wayne, TX Sales	219-489-4447
TX	Dallas, Repmasters	214-247-6236
TX	Houston, Repmaster	713-692-8204

Local Distributors

Intl	Austria, Wien, Nano-80	0222-65-15-22
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Intl	France, Orsay, Microel	907-08-24
Intl	Germany, Nauheim, Emtron Vertriebs GmbH	(06152) 6003
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Intl	Sweden, Stockholm, Scancopter AB	046-828-9425
Intl	Switzerland, Zug, Anatech AG	042-315-477
Intl	Taiwan, Taipei, Hitek Co. Ltd.	536-1157
Intl	UK, Sunbury-on-Thames, Pascall Elctrns.	09327-87418

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APM-HEXSEAL, 44 Honeck St., Englewood, NJ 07631, Tel: 201-569-5700, Telex: 13-3403; Empl.: 65; *Sls. Mgr.:* Kenneth Schwinn; *Dist. Mgr.:* Kenneth Schwinn

APOLLO LASERS, INC., 9201 Independence Ave., Chatsworth, CA 91311, Tel: 213-709-1111, Telex: 66-2278; Empl.: 82; *Sls. Mgr.:* John Q. Adams

APOLLO MAGNETICS CORP., 2720 W. Beverly Blvd., Los Angeles, CA 90057, Tel: 213-381-2500, TWX: 910-321-4348; Empl.: 420 .... **D•1058**

Local Sales Offices & Reps

CT	Stratford, Gerald Rosen	203-375-5456
MA	Framingham, Gerald Rosen	617-879-5505
NH	Hollis, Gerald Rosen	603-465-7902
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NY	Utica, J. W. Welch	716-244-1100
OK	Oklahoma City, MGR Elctrns.	918-366-0125
TX	Dallas, MGR Elctrns.	214-349-9940

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APPLIED CIRCUIT TECHNLG. (ACT), 2931 La Jolla St., Anaheim, CA 92806, Tel: 714-632-9230; *Sls. Mgr.:* Hank Pselos

APPLIED COMMUNICATIONS, Amstar Tech. Prods. Co., 5490 Spectrum Drive, Frederick, MD 21701, Tel: 301-694-5300, TWX: 710-828-9706; Empl.: 150; *Sls. Mgr.:* Joseph Rock

APPLIED COMMUNICATIONS, 9125 Gaither Rd., Gaithersburg, MD 20877, Tel: 301-948-5210, TWX: 701-828-9706; Empl.: 200; *Sls. Mgr.:* Joseph Rock

APPLIED CONTROL, 1275 Bloomfield Ave., Fairfield, NJ 07006-2828, Tel: 201-227-5454; FSC No.: 4A725; Empl.: 26; *Sls. Mgr.:* Monica E. Merel

APPLIED DATA COMMUNICATIONS, 14272 Chambers Rd., Tustin, CA 92680, Tel: 714-731-9000; Empl.: 75

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Local Sales Offices & Reps

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CA	Mountain View, Scientific Technlg.	415-965-0910
CA	San Jose, Rick Schloss	408-274-3304
OR	Eugene, Dennis Ellingsen	503-484-5564
PA	King of Prussia, Joseph McCready	215-527-5921
TX	Richardson, Dwain Lawhon	214-231-2289

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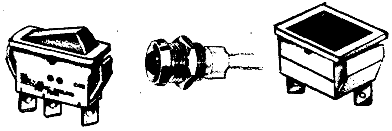

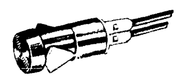

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MD	Hagerstown, Stinson Assocs., Inc.	301-790-1193
VA	Reston, Stinson Assocs., Inc.	703-620-0088

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CA	Orange, E. Bell Assocs.	714-857-6079
MA	Lowell, Russell Engrg.	617-458-7146
NY	Great Neck, Industron Assocs.	516-487-2620

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AQUALARM INC., 544 W. 182nd, Gardena, CA 90248, Tel: 213-321-5873

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CA	Riverside, Material Techniques	714-686-6186
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IL	Rockford, GC Elctrns.	815-968-9661
MA	Needham, YDI Elctrns.	617-449-1005
NJ	Denville, Lashen Elctrns.	201-627-3783
NJ	Springfield, Route Elctrns.	201-379-7710
NY	Bronx, CAM Elctrns.	212-893-8300
NY	New Hyde Park, Electronic City	516-352-7145
OH	Ashtabula, Sesco Sims Elctrns.	216-997-8391
OR	Eugene, Larsco	503-484-7491
PA	Willow Grove, Resco Elctrns.	215-659-4575
TX	Houston, City Elctrns.	713-621-1060

ARC SYSTEMS, INC., 400 Oser Ave., Hauppauge, NY 11788, Tel: 516-231-9261, Telex: 230199 SWIFT UR ARC; *Sls. Mgr.:* Robert Miller

AREMCO PRODS., Box 429, Ossining, NY 10562, Tel: 914-762-0685, Telex: 13-7442; Empl.: 30; *Sls. Mgr.:* Mark Wandzilak

A.R.F. PRODS., 2559 75th St., Boulder, CO 80301, Tel: 303-443-4844, TWX: 910-940-3446; Empl.: 65; *Sls. Mgr.:* R. C. Lloyd, Jr.

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GA	Atlanta, Murphy & Cota	404-875-2525
IL	Chicago, G. Mcl. Cole	312-774-3535
IN	Mulberry, Maish Sls.	317-296-2322
MA	North Scituate, W.A. Hendrickson	617-545-0652
MI	Pontiac, Ted Firaneck Sls.	313-373-9595
MN	Edina, Foster Tech. Sls.	612-941-9800
MO	Kansas City, Nevco	816-421-1751
NJ	Fort Lee, TMC Sls.	201-944-5665
NY	Syracuse, Lewis & Dunnigan	315-446-5522
OH	Dayton, Shamrock Elctrn	513-258-1227
PA	Wynnewood, Stinson Assocs.	215-896-7378
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AZ	Glendale, Adtek, Inc.	602-931-9289
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CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Aurora, Mountain View Mktg.	303-360-9641
CT	Canton, Bell Controls	203-693-8926
FL	Altamonte Springs, APM Assocs.	305-869-6831
FL	Ft Lauderdale, APM Assocs.	305-565-0056
FL	Tampa, APM Assocs.	813-886-2457
GA	Atlanta, CSR	404-396-3720
IL	Elk Grove Village, Carlson Sls. Assocs.	312-956-8240
IN	Indianapolis, J and W Sls.	317-842-3740
IA	Cedar Rapids, Carlson Sls. Assocs.	319-377-6341
KS	Gladstone, Delltron Co.	816-436-6445
MD	Lutherville, J. A. Dougherty Sls.	301-321-7890
MI	Jenison, OBE, Inc.	616-457-9300

MI	St. Joseph, OBE, Inc.	616-429-7788
MI	W. Bloomfield, OBE, Inc.	313-332-4900
MN	Sweet Lake Park, Holmgren Assocs.	612-786-7641
MO	Gladstone, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NH	Nashua, Bell Controls	603-882-6984
NJ	Ho-Ho-Kus, DJ Fisher Co.	201-652-0090
NM	Albuquerque, Varigon Assocs.	505-344-5503
NY	Fairport, TAC Sls., Inc.	716-425-1070
NC	Matthews, CSR	704-847-1927
NC	Raleigh, CSR	919-878-9200
OH	Akron, Augnat Assocs.	216-273-1211
OH	Cincinnati, Augnat Assocs.	513-791-6720
OH	Dayton, Augnat Assocs.	513-298-1507
OH	Mansfield, Augnat Assocs.	419-526-1488
OK	Tulsa, Rem-Air Comps.	918-742-2559
OR	Forest Grove, Doran Sls. Assocs.	503-357-3333
PA	Harleysville, Thomas Jackson Assocs.	215-643-5560
PA	Harrison City, Augnat Assocs.	412-281-8283
SC	Matthews, CSR	704-847-1927
TX	Dallas, Rem-Air Comps.	214-234-1069
UT	Murray, Mountain View Mktg.	801-261-4867
WA	Greenacres, Doran Sls. Assocs.	509-922-2317
WA	Redmond, Doran Sls. Assocs.	206-885-1885
WI	Milwaukee, Carlson Sls. Assocs.	414-476-2790

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AL	Huntsville, Comp. Dist.	205-883-7501
AL	Huntsville, Resisticap	205-883-4270
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Scottsdale, Com-Tech	602-948-3330
AZ	Tempe, Circuit Specialists	602-966-2878
AZ	Tucson, Southwest Sls.	602-628-1613
AR	Little Rock, Component Distrs.	501-227-6278
CA	Canoga Park, Tim-Co	818-992-5040
CA	Fullerton, Pyramid Elctrns.	213-691-0561
CA	Gardena, Cal. Switch & Signal	213-770-2330
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CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Sierra West	408-946-6044
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Danbury, Pilgrim Elec.	203-792-7274
CT	Norwalk, Cobra Comps.	203-847-6442
CT	Wallingford, Cronin	203-265-3134
FL	Ft. Lauderdale, Comp. Distr.	305-971-4950
FL	Ft. Lauderdale, KSM	305-971-5900
GA	Atlanta, KSM Elec.	800-554-9227,404-458-2013
GA	Norcross, CDI	404-441-3320
IL	Elk Grove Village, Ragon	312-595-6633
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IN	Indianapolis, Classic	317-872-4777
IN	Indianapolis, Meunier Elctrn. Supp.	317-635-3511
LA	Lafayette, Ralph's	318-234-4507
MD	Baltimore, A S I Elctrns.	301-265-5100
MA	Burlington, OPL Elctrns.	617-229-2424
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Wilmington, Cronin Elctrns.	617-449-5000, 800-225-4501
MA	Woburn, Electronic Pkg. Comps.	617-935-0400
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MI	Grand Rapids, T & W Elctrns.	616-241-3645
MN	Hopkins, The Joel Co.	612-935-6202
MO	Valley Park, Beckwith Computer Elctrns.	314-825-2237
NH	Salem, Cronin	603-898-4440
NH	Salem, Glynn	603-893-8313
NM	Albuquerque, Intl. Elctrns.	505-345-8120
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Cary, Powell Elctrns.	919-467-1212
NC	Raleigh, Comp. Distrs.	919-834-9465
OH	Columbus, Wedemeyer Elec. Supp.	614-436-9600
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Middleburg Hts., Selectronics	216-243-9500
OH	Warren, REM Elctrns.	216-373-1300
OK	Tulsa, The Altair Co.	918-252-5781
OR	Corvallis, Electronic Superstore	503-757-1800
OR	Portland, Carlyle	503-244-1375
PA	Erie, REM Elctrns.	814-453-5626
PA	McKeesport, Barno Radio	412-751-5966
PA	Philadelphia, Shap Elctrns.	215-969-3300
TX	Addison, Connec-Tek	214-733-4411
TX	Arlington, Bell Comp. Sls.	817-461-5303
TX	Austin, Quality/Comps.	512-835-0220
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Fort Worth, Indl. Elctrns.	817-731-7321
TX	Houston, Ralph's	713-748-4902
TX	Richardson, Air Quip Sls.	214-234-3285
UT	Salt Lake City, Wintronics	801-483-1882
VA	Falls Church, Comp. Dist.	703-533-3500
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Can	Ottawa, Giga-Tron Assocs., LTD	613-225-4090

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ARK-LES, 51 Water St., Watertown, MA 02172, Tel: 617-924-2330, Telex: 92-2441; Empl.: 700; *Sls. Mgr.:* Stephen Glorioso

ARMEL ELCTRNS., 1601 75th St., N. Bergen, NJ 07047, Tel: 201-869-4201, TWX: 710-992-8842; FSC No.: 91663; Empl.: 55; *Sls. Mgr.:* V. A. Pasqualino

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CA	Santa Clara, Fischer Assocs.	408-733-7350
CO	Lakewood, Trembly Assocs.	303-233-9544
FL	Melbourne, Reynolds & Assocs.	305-259-7000
IL	Northfield, Imex	312-446-8934
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MA	Norwood, MPS Elctrns.	617-769-8700
MN	Minneapolis, R-J, Inc.	612-866-3661
MO	St. Louis, Technical Sls.	314-725-5361
NV	Las Vegas, Trembly Assocs.	702-739-9770
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OH	Richfield, Allen Nace Co.	216-659-7178
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PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
TX	Dallas, Oeler & Menelaides	214-361-8876
TX	Houston, Oeler & Menelaides	713-772-0730
UT	Salt Lake City, Trembly Assocs.	801-486-5292
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EXP	NY, New York, Lothar Sanford Corp.	212-757-3881

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ARNOLD MAGNETICS, 11520 W. Jefferson Blvd., Culver City, CA 90230, Tel: 213-390-3537/8837, TWX: 910-343-6468; FSC No.: 04879; Empl.: 130; *Sls. Mgr.:* Joel Zillman; *Dist. Mgr.:* Joel Zillman **D•1508-1511**

Local Sales Offices & Reps

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CA	Los Altos, Kolm Mktg. Assocs.	415-948-2635
CO	Denvor, Arnold Magnetics Corp.	800-421-8181
CT	Danbury, Power Assocs.	203-354-6505
FL	Melborne, Reynolds & Assocs.	305-259-7000
GA	Atlanta, Arnold Magnetics Corp.	800-421-8181
MD	Silver Springs, Youth Assocs.	301-321-6623
MA	Chelmsford, Power Assocs.	617-251-8756
MN	Minneapolis, Arnold Magnetics Corp.	800-421-8181
NY	New Rochelle, Ascor Elctrns.	914-235-8838
OK	Tulsa, Spectra Sls. Corp.	218-663-7188
OR	Portland, Arnold Magnetics Corp.	800-421-8181
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600
WA	Seattle, Arnold Magnetics Corp.	800-421-8181
Can	Montreal, Que., Arnold Magnetics Corp.	800-421-8181

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AROMAT CORP., 250 Sheffield St., Mountainside, NJ 07092, Tel: 201-232-4260, TWX: 710-997-9536; Empl.: 150 **B•1276-1295, 1503**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assoc.	205-881-5031
AZ	Tempe, Sys. Sls. of Arizona, Inc.	602-829-9338
AR	Little Rock, Beacon Elctrns. Assoc.	501-224-5449
CA	Cupertino, Aromat Corp.	408-446-5000
CA	Garden Grove, Aromat Corp.	714-895-7707
CA	Garden Grove, Elsco	213-533-1255
CA	Santa Clara, Westrep	408-988-8833
CO	Englewood, Omega Ltd.	303-762-1921
CT	Madison, United Comps.	203-245-4810
FL	Maitland, EIR, Inc.	305-660-9600
FL	Orlando, Aromat Corp.	305-855-1075
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Elk Grove Village, Aromat Corp.	312-593-8535
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, J & W Sls. Co.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Gilman, United Comps.	203-889-4050
MA	Norwood, United Comps.	617-226-0556
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MI	Redford, R. P. Urban & Assocs.	313-535-2355
MN	Bloomington, Northport Engrg.	612-854-5556
NJ	Hackensack, Meg Elctrn. Sls.	201-489-7700
NJ	Mountainside, Aromat Corp.	201-232-4260
NM	Albuquerque, SSA Inc. of New Mexico	505-881-8877
NY	Binghamton, Rochester Comps.	607-772-9292
NY	W. Henrietta, Rochester Comp.	716-546-4766
NC	Raleigh, Beacon Elctrns. Assoc.	919-787-0330
OH	Cleveland, J. R. Thornberry Co.	216-321-3328
OH	Kettering, J. R. Thornberry Co.	513-258-1863
OK	Tulsa, Advanced Tech. Sls.	918-664-0482
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Austin, C. R. Colvin & Assocs.	512-474-8698
TX	Dallas, Advanced Tech. Sls.	214-340-1300
TX	Houston, C. R. Colvin & Assocs.	713-961-1262
TX	Richardson, Aromat Corp.	214-235-0415
UT	Salt Lake City, Omega, Ltd.	801-277-8061
WA	Bellevue, Sls. & Engrg.	206-883-4999
WA	Vancouver, Sls. & Engrg.	206-573-5161
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790
Can	Mississauga, Ont., Aromat Canada, Inc.	416-624-7777
Can	Mississauga, Ont., Tech-Rep Elctrns., Ltd.	416-890-2903
Can	Richmond, B.C., Deskin Sls. Corp.	604-922-5036
Can	St. Laurent, Que., Tech-Rep Elctrns., Ltd.	514-337-6046

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Phoenix, Acacia Sls., Inc.	602-882-9054
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, J. C. Intl.	602-968-0893
CA	Chatsworth, Mil-Com Dist.	213-998-3111
CA	Mountain View, U.S.I.	415-969-5420
CA	San Diego, Acacia Sls., Inc.	619-565-4365
CA	Santa Clara, Patane Selectronics	408-496-6151
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Acacia Sls., Inc.	408-745-7200
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Van Nuys, Patane Avionics	213-988-4455, 213-873-5541
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Naugatuck, SCR Elec. Co.	203-729-8274
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Ft. Lauderdale, Dielco	304-973-8700
IL	Elk Grove, R. M. Elctrns.	312-364-6622
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
IN	Indianapolis, Magnuson Elctrns.	317-247-5108
IN	Indianapolis, R. M. Elctrns.	317-291-7110
IA	Cedar Rapids, Ragon Elctrns.	319-393-4093
KS	Derby, Ragon Elctrns.	816-254-3410
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Needham, Cronin Elctrns.	617-449-5000
MI	Grand Rapids, R. M. Elctrns.	616-531-9300

MN	Hopkins, Joel Co.	612-935-6202
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Hazelwood, Ragon Elctrns.	314-524-4138
MO	Independence, Ragon Elctrns.	816-254-3410
NJ	Bellmawr, Mid-Atlantic Elctrns. Corp.	609-931-5303, 215-923-6868
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Plainfield, Mars Elctrns.	201-757-4332
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Lynbrook, Peerless Radio Corp.	516-593-2121, 212-523-3456
NY	Millbrook, Villarreal Elctrns.	914-677-3447
NY	Mt. Vernon, QAR Indl. Elctrn. Sls.	914-699-2224
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NC	Charlotte, Dixie Elctrns.	704-377-5413
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Hickory, Dixie Elctrns.	704-328-2646
NC	Winston-Salem, Dixie Elctrns.	919-724-5961
OH	Columbus, Elctrns. Mktg. Corp. (EMC)	614-299-4161
OH	Highland Heights, Elctrns. Mktg. Corp. (EMC)	216-442-3441
OH	Kettering, Elctrns. Mktg. Corp. (EMC)	513-439-4711
OK	Tulsa, Norvell Elctrns.	918-254-8606
OR	Beaverton, Acacia Sls., Inc.	503-646-3377
OR	Portland, P&R Inds.	503-641-9525
PA	Harrisburg, Advacom	717-545-5674
PA	Horsham, Pioneer/Del. Vall.	215-674-4000
PA	McKean, Advacom	814-476-7774
PA	Wayne, Peak Elctrns.	215-293-9000
RI	Pawtucket, Major/Edwards	401-725-7400
SC	Charleston, Dixie Elctrns.	803-554-7515
SC	Columbia, Dixie Elctrns.	803-779-5332
SC	Greenville, Dixie Elctrns.	803-297-1437
TN	Gray, Dixie Elctrns.	615-477-3838
TN	Knoxville, Dixie Elctrns.	615-938-4711
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Dallas, Computer Comps. Corp.	214-239-0271
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Bell Inds.	801-972-6969
VA	Roanoke, Mexitronics Corp.	703-342-4444

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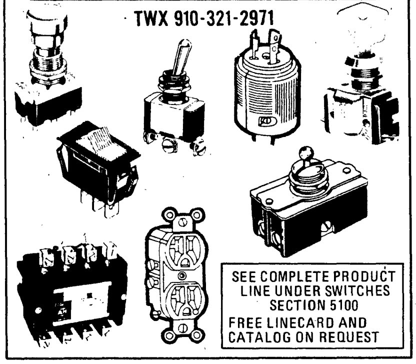

WA	Bellevue, Bell Inds.	206-747-1515
WA	Seattle, Pacific Elctrns.	206-575-1050
WI	Mequon, Taylor Elec.	414-241-4321
Can	Richmond, B.C., Deskin Sls. Corp.	604-273-4963
Can	St. Laurent, Que., Tech-Rep Elctrns., Ltd.	514-337-6046

ARRA INC., 15 Harold Ct, Bay Shore, NY 11706, Tel: 516-231-8400, TWX: 510-227-6231; FSC No.: 09992; Empl.: 50; *Sls. Mgr.:* M. V. Geraci ..... **A•1705**

Local Sales Offices & Reps

AL	Huntsville, Redstone Military Svc.	205-837-6136
AZ	Chandler, Blackhart Assoc.	602-831-2566
CA	Los Angeles, McDougall/McLaughlin	213-477-8556
CA	Mountain View, Mark V Assocs.	415-964-6275
FL	Winter Park, Microwave Mktg.	305-678-2141
IL	Mt. Prospect, Cain & Co.	312-253-3578
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
KS	Wichita, Palatine Sls.	316-776-0065
MD	Ellicott City, Doss Elctrns.	301-465-1336
MA	Chelmsford, BBC	617-256-6593
MO	Hazelwood, Palatine Sls.	314-839-0800
NY	Great Neck, EAC	516-466-9798
NY	Utica, B D Hummel Co.	315-736-7821
NC	Raleigh, Barker Assoc.	919-851-7841
OH	Dayton, Haacke Co.	513-254-1951
OH	Lancaster, Cain & Co.	614-654-4800
PA	Newtown, SWR Assocs. Corp.	215-356-8550
TX	Garland, TESCO	214-681-1376
WA	Seattle, Datacom Assocs.	206-285-2525

ARRAY TECHNOLOGY, 992 S. Saratoga-Sunnyvale Rd., San Jose, CA 95129, Tel: 408-252-9900; *Sls. Mgr.:* Jim Schenck

ARROW FASTENER, 271 Mayhill St., Saddlebrook, NJ 07662, Tel: 201-843-6900; Empl.: 600

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ARROW HART DIV., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101, Tel: 203-249-8471, Telex: 99328 ..... **B•1504-1509**

Local Sales Offices & Reps

AL	Mobile, Hollingsworth & Still	800-241-5712
AZ	Phoenix, Elec-Com	602-967-8643
CA	Fountain Valley, Arrow Hart Div.	714-964-2758
CA	Los Angeles, Arrow Hart Div.	213-588-5251
CA	Palo Alto, Abbot Engrg.	415-968-2265
CO	Englewood, Wescom Mktg.	303-773-0225
CT	Hartford, Arrow Hart Div.	203-249-8471
FL	Ft. Lauderdale, Hollingsworth & Still	305-753-3136
FL	Tampa, Hollingsworth & Still	800-241-5712
GA	Norcross, Hollingsworth & Still	800-241-5712
IL	Wood Dale, Arrow Hart Div.	312-595-7750
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, Lorenz Sls.	913-649-5556
MN	Burnsville, Arrow Hart	612-894-2099
NE	Lincoln, Lorenz Sls.	402-475-4660
NJ	Berlin, Arrow Hart	609-768-9520
NY	Syracuse, Osterman & Assocs.	315-437-7750
NC	Kernersville, Hollingsworth & Still	800-241-5712
OH	Mason, Arrow Hart	513-398-0156
OK	Tulsa, Genzel Sls. Assocs.	918-622-7744
PA	Willow Grove, Arrow Hart Div.	215-659-3728
TX	Richardson, Arrow Hart Div.	214-644-6210
UT	Salt Lake City, Wescom Mktg.	801-466-9594

Local Distributors

AL	Muscle Shoals, Jones Elctrns.	205-383-1241
AZ	Phoenix, Be Switched	602-275-4805
AZ	Tempe, Fisher/Brownell	602-967-1464
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Commerce, Electro Comps.	213-727-0200
CA	Covina, Selecta Switch	213-967-4123
CA	Gardena, California Switch & Signal	213-770-2330
CA	Hayward, Electro Comps.	
CA	Los Angeles, Electric Switches	213-660-1310
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Fisher/Brownell	714-560-8545
CA	San Francisco, Zack Elctrns.	408-626-1444
CA	San Jose, Consolidated Parts	408-263-9521
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Leandro, Electro Comps.	415-352-5210
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Santa Fe Springs, Eurton Elec.	213-946-4477
CA	Santa Monica, Master Distr.	213-452-1229
CA	Tustin, Western Switches & Control	714-731-4333
CO	Arvada, Denver Wintronics	303-934-2406
CO	Denver, Consolidated Parts	303-623-5313
CO	Denver, CISD	303-534-6121
CO	Denver, Fistells Elctrn. Supp.	303-244-4691
CO	Denver, Star for Parts	303-623-4224
CT	Shelton, Century Elec. Sys.	203-736-2684
CT	West Hartford, Gal Elec.	203-232-9880
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
FL	Jacksonville, Ace Elec. Supp.	904-398-9857
FL	Miami, Electrn. Equip.	305-871-3500
FL	Ovieda, Dixie Sls.	
FL	Sarasota, Workman Elctrn.	813-371-4242
FL	Tampa, Dow Elctrns.	813-365-3393
GA	Atlanta, A-C Equip.	404-451-2747
GA	Atlanta, Ack Radio Supp.	404-351-6340
HI	Honolulu, Honolulu Elctrns.	808-949-5564
IL	Addison, LComp Chicago	312-628-1400
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Revere Elec. Supp.	312-738-3636
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Rockford, G. C. Elctrns.	815-968-9661
IL	Wood Dale, Electro Kinetics	312-595-6700
IN	East Chicago, Acro Elctrns.	219-397-8681
IN	Evansville, Hutch & Son	812-425-7201
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	Lafayette, Ralph's Elctrns.	318-233-0105
LA	New Orleans, William B. Allen	504-525-8222
LA	Shreveport, Ind. Elctrns.	318-222-9459
MD	Bethesda, Empire Elec. Sys.	301-656-3300
MD	Rockville, Capital Radio Whlsrs.	301-881-2270
MA	Allston, Hilco Elec. Supp.	617-783-2600
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Hingham, Sager Elctrl.	617-749-6700
MI	Grand Rapids, S-F Elctrn. Sys.	616-459-0216
MI	Livonia, Pioneer Michigan	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MI	St. Clair Shores, SPEMCO	313-771-2700
MN	Minneapolis, Sterling Elec.	612-332-4571
MN	St. Paul, Gopher Elctrns. Co.	612-483-4450
MS	Jackson, Ellington Elctrns.	601-355-0561
MO	Kansas City, LComp	816-221-2400
MO	Maryland Heights, LComp	314-291-6200
NE	Lincoln, Scott Elctrns.	402-466-8221
NH	Nashua, Brevan Elctrns.	
NJ	Camden, General Radio Sys. Co.	609-964-8560
NJ	East Hanover, State Elctrn. Parts	201-887-2550
NJ	Edison, Brownell Electro	
NJ	Manasquan, Heiman H. Smith	201-223-9400
NJ	Prospect Park, Kappe	201-790-1999
NM	Albuquerque, Walker Radio	505-247-2288
NY	Binghamton, Florance Elec. Sys.	607-724-2455
NY	Buffalo, Genesee Radio & Parts	716-873-9661
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, S.A.I.	516-293-2710
NY	Hempstead, Electronic Equip.	516-538-5510
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rochester, Rochester Radio Sys.	716-454-7800
NY	Woodside, Switches Unltd.	212-478-5000
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Midland Elec.	216-248-3800
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Esco	513-226-1133
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Portland, Johnstone Corp.	503-231-4833
PA	Philadelphia, Philadelphia Elctrns.	215-568-7444
RI	Providence, W. M. Dandreta	401-861-2800
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Carlton-Bates	615-244-3562
TN	Nashville, Randolph & Rice	615-255-5602
TX	Austin, Harrison Equip.	512-458-3555
TX	Dallas, Associated Aircraft	214-331-4381
TX	Dallas, Harrison Equip.	214-239-2750
TX	Dallas, Wilkinson Bros.	214-941-9963
TX	El Paso, Midland Specialty	915-533-9555
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Harrison Equip.	713-879-2600
TX	Lubbock, Texas Elctrn. Sys. Corp.	806-765-8456
TX	Richardson, Fisher/Brownell	214-235-3177
TX	San Antonio, Sherman Elctrns.	512-224-1004
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Charlottesville, Virginia Radio Sys.	804-296-4184
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Bell Ind.	206-747-1515
WA	Bellevue, Integrated/Jaco	206-455-2727
WA	Seattle, Radar Elec.	206-282-2511
WI	Mequon, Taylor Elec. Co.	414-241-4321

ARSTAN PRODUCTS INTL. LTD., 99 Jericho Tpke., Jericho, NY 11753, Tel: 516-333-8100, Telex: 221519 ARSTN; Empl.: 10; *Sls. Mgr.:* Stan Shapiro .... **A•2118-2121**

Local Sales Offices & Reps

CA	Mountain View, Marguez & Assocs.	415-966-1012
CA	Orange, S & A Tech. Sls.	714-567-3270
CA	San Diego, S & A Tech. Sls.	619-560-1888
CO	Broomfield, Ramark Assocs.	303-466-6168
GA	Atlanta, Electro Sls.	404-394-1122
IL	Arlington Heights, M. J. Peterson & Assocs., Ltd.	312-577-8200
IN	Noblesville, KW Elctrn. Sls., Inc.	317-773-5536
KY	Louisville, KW Electronic Sales, Inc.	502-451-1860
MA	Advanced Design Grp.	617-279-0216
MI	Novi, Lektronics Sales	313-349-3304
MN	Minneapolis, Berndt Assoc.	612-546-2021
NY	Bayside, John Kavanagh	212-229-2731
NC	Greensboro, KZJ Component Sales	919-852-5990
OH	Dayton, KW Elctrn. Sls., Inc.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls., Inc.	216-491-9177
OH	Worthington, KW Elctrn. Sls., Inc.	614-888-0483
PA	Allison Park, KW Elctrns. Sls., Inc.	412-487-4300
PA	Philadelphia, Check Assocs., Inc.	215-487-3007
TN	Chattanooga, Electro Sls., Inc.	615-267-4260
TX	Arlington, Comptech Sls.	817-265-6007
TX	Austin, Comptech Sls.	512-331-8922
TX	Houston, Comptech Sls.	713-491-6695

Local Distributors

NC	Raleigh, Century Elctrns.	919-872-2203
PA	Norristown, Century Elctrns.	215-631-5400

ARTECH CORP., 2901 Telestar Ct., Falls Church, VA 22042, Tel: 703-560-3292; Empl.: 40; *Sls. Mgr.:* S. Martin

ARTEL COMMUNICATIONS CORP., 93 Grand St., Worcester, MA 01602, Tel: 617-752-5690

ARTISAN ELCTRNS., 5 Eastmans Rd., Parsippany, NJ 07054, Tel: 201-887-7100, Telex: 881107; Empl.: 200; *Sls. Mgr.:* Gail Norton; *Dist. Mgr.:* Gail Norton

Local Distributors

CA	Haywards, Allied Elctrns., Inc.	415-487-5250
IL	Elgin, Allied Elctrns., Inc.	312-697-8200
NJ	Fair Lawn, Relay Specialties	800-526-5376
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
PA	Washington Crossing, Riverside Comp. Supp. Co.	215-493-5228
TX	Fort Worth, Allied Elctrns.	817-336-5401

ARTRONIC INSTR. CO., INC., 9 Division St., Sidney, NY 13838, Tel: 607-563-8444; FSC No.: 09446; Empl.: 12

ARTRONICS CORPORATION, 3 Electronic Avenue, Danvers, MA 01923, Tel: 617-777-2880, Telex: 312097; Empl.: 20; *Sls. Mgr.:* Lewis Smolin

ART WIRE/DODUCO, 9 Wing Dr., Cedar Knolls, NJ 07927, Tel: 201-428-4880, Telex: 13-6455; Empl.: 100; *Sls. Mgr.:* Kenneth de Graaf

ASACA SHIBASKU CORP. OF AMER., 12509 Beatrice St., Los Angeles, CA 90066, Tel: 827-7144, Telex: 182089; *Sls. Mgr.:* Alan R. Davis; *Dist. Mgr.:* Susan Grossinger

ASCO WIRE & CABLE CO., 412 Housatonic Ave., Bridgeport, CT 06608, Tel: 203-366-5294; Empl.: 30; *Sls. Mgr.:* M. Madow

ASHLAND CHEMICAL, Ashland Oil, Inc., Box 2219, Columbus, OH 43216, Tel: 614-889-3333

ASHLAND ELEC. PRODS., 80 39th Street, Brooklyn, NY 11232, Tel: 718-965-0770; Empl.: 115; *Sls. Mgr.:* John J. Conlon

ASM, 525 Truck La., Smithfield, NC 27577, Tel: 919-934-3104; FSC No.: 31336; Empl.: 12; *Sls. Mgr.:* L. L. Armstrong

ASMANN COMPONENTS, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, Tel: 203-674-1515, TWX: 710-423-8723; *Sls. Mgr.:* Robert S. Sobolewski; *Dist. Mgr.:* Judith A. Buerger .... **C•1160-1161**

Local Sales Offices & Reps

AL	Huntsville, Raycom, Inc.	205-859-2017
AZ	Scottsdale, Harris and Croy	602-951-9121
AZ	Tucson, Harris & Croy	602-293-5393
CA	Chatsworth, WCV-Raltech, Inc.	818-700-0933
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Palo Alto, Abbott Engrg.	415-968-2265
CA	San Diego, Cerco	619-450-1754
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Littleton, Simpson Assocs., Inc.	303-794-8381
CT	Clinton, Selmark Assocs.	203-573-9088
FL	Melbourne, Raycom, Inc.	305-259-7988
FL	Orlando, Raycom, Inc.	305-859-5504
FL	Plantation, Raycom, Inc.	305-741-6690
FL	Wellborn, Raycom, Inc.	904-963-5023
GA	Duluth, Raycom, Inc.	404-446-9015
IL	Schaumburg, Micro-Tex	312-885-1131
IN	Columbus, Technical Reps.	812-376-9226
IN	Indianapolis, Technical Reps., Inc.	317-882-4407
KS	Overland Park, Web Elec.	913-381-7986
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Millis, Selmark Assocs.	617-376-2914
MI	Grand Rapids, Burcaw Co.	313-573-4605
MI	Warren, Burcaw Co.	313-573-4605
MN	St. Paul, Arkco Sls.	612-777-7454
MO	Florissant, WEB Elctrns.	314-921-5720
NH	Hopkinton, Selmark Assocs.	603-746-3299
NJ	Marlton, b.g.r. Assocs.	609-983-1020
NJ	Palmyra, RD Indl. Sls.	609-829-4741
NY	Buffalo, Rudell-Merrifield Assocs.	716-634-4300
NY	Skaneateles, ADN/Rudell-Merrifield	315-685-8991
NC	Raleigh, Raycom, Inc.	919-847-8276
OH	Cleveland, KT/DEPCO	216-442-6200
OH	West Chester, KT/Depco	513-874-0236
OK	Tulsa, Bonser-Philhower Sls.	918-744-9964
OR	Portland, Earl & Brown Co., Inc.	503-245-2283
PA	Harrison City, Rudell-Merrifield Assocs.	412-327-0858
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Houston, Bonser-Philhower Sls.	713-531-4144
TX	Richardson, Bonser-Philhower Sls.	214-234-8438
UT	Midvale, Simpson Assocs., Inc.	801-566-3691
WA	Seattle, Earland Brown Co., Inc.	206-284-1121
WI	Waukesha, Micro-Tex	414-542-5352

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Scottsdale, Hall Elctrns.	602-946-9977
AZ	Tempe, Powell Elctrns.	602-967-7538
CA	Anaheim, DECO Elctrns.	714-630-8252
CA	Chatsworth, Integrated Elctrns./JACO	213-998-2200
CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Fullerton, Pyramid/Fullerton	714-773-0781
CA	Fullerton, Young Sls.	714-871-5355
CA	Hollywood, Yale Elctrns.	213-465-3186
CA	San Diego, DECO Elctrns.	619-693-1595
CA	San Jose, Integrated Elctrns.	408-263-1100
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Target Elctrns., Inc.	408-734-5611
CA	Tustin, Added Value Elec. Distr.	714-730-5848
CO	Denver, Integrated Elctrns., Inc.	303-292-6121
CO	Englewood, Industrial ELctrns., Inc.	303-694-9444
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	New Canaan, Impact Sls. Co., Inc.	203-972-1458
CT	Wallingford, Cronin Elctrns., Inc.	203-265-3134
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5606
FL	Melbourne, Eurick Corp.	305-254-8718
FL	Melbourne, Raycom, Inc.	305-259-7988
FL	Pompano Beach, Peerless Radio Corp.	305-973-4141
FL	Tampa, Reptron	813-855-4656
GA	Atlanta, ACK Radio Supp. Co.	404-351-6340
GA	Fayetteville, Frankland, Inc.	404-461-4026
IL	Chicago, Nep Elctrns.	312-625-8400
IL	Hoffman Estates, I.E.C. Intercomp	312-843-2040
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Cedar Rapids, Bergquist Elctrns.	319-366-8733
MD	Beltsville, RESCO/D.C.	301-937-9100
MD	Columbia, Powell Elctrns.	301-621-4070
MD	White Marsh, RESCO/Baltimore	301-529-0500
MA	Canton, Impact Sls. Co., Inc.	617-821-1500
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Wilmington, J. V. Elctrns.	617-273-4300
MI	Farmington Hills, Advent Elctrns., Inc.	313-477-1650
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
MI	Grand Rapids, T & W Elctrns.	616-241-3645
MI	Lansing, Fulton Radio Supp. Co.	517-394-5020
MI	Livonia, Reptron Elctrns., Inc.	313-525-2700
MI	Westland, Westcomp Elctrns.	313-728-0650
MI	Zealand, Tubergen & Assocs.	616-772-1548
MN	Bloomington, NWR Elctrns.	612-854-7329
MN	Minneapolis, Bergquist	612-835-2322
MN	Minneapolis, Control Design Supp., Inc.	612-721-1628
MO	Kansas City, L Comp	816-221-2400
NH	Salem, Glynn Elctrns.	603-893-8313
NJ	Atlantic Highlands, Freedom Elctrns.	201-872-2300
NJ	Englewood, Powell Elctrns.	201-894-0800
NJ	Rockaway, Tonar Ind.	201-586-9000
NJ	West Berlin, GCI Corp.	609-768-6767
NY	Central Islip, Domino Comp.	516-582-3050
NY	Farmingdale, Addem Sls., Inc.	516-882-0993
NY	Hauppauge, Broadline Elctrns. Distr.	516-231-4100
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Poughkeepsie, Kabelton, Inc.	914-473-1222
NY	Rochester, Simcona	716-328-3230
NY	Suffern, Nobel Elctrns.	914-357-4500
NC	Cary, Powell Elctrns.	919-467-1212
NC	Raleigh, Century Elctrns.	919-872-2203
OH	Akron, Akron Elctrns. Supp. Co.	216-762-8818
OH	Dayton, Related Comps., Inc.	513-253-6116
OH	N. Royalton, Related Comps., Inc.	216-237-7271
OH	Worthington, Reptron Elctrns., Inc.	614-436-6675
OR	Beaverton, Norvac Elctrns.	503-644-1025
OR	Tigard, Integrated Elctrns.	503-639-9661
PA	Export, Advacom/Export	412-733-5400
PA	Harrisburg, Advacom	717-545-5674
PA	McKean, Advacom	814-476-7774
PA	Norristown, Central Elctrns. Comps. Co.	215-631-5400
PA	Philadelphia, Powell Elctrns.	215-365-1900
RI	Warwick, Cal-Greg Comps., Inc.	401-738-6170
TN	Hixson, Techni-Tronics, Inc.	615-842-0514
TX	Irving, Powell Elctrns.	214-258-6841
WA	Bellevue, Powell Elctrns.	206-641-4446
WA	Bellevue, Integrated Elctrns./Jaco	206-455-2727
WI	New Berlin, Nep Elctrns.	414-785-9100
EXP	Caguas, Harvest Elctrns.	809-743-3552

ASPECT ELCTRNS., 725 San Aleso, Sunnyvale, CA 94086, Tel: 408-737-2290; *Sls. Mgr.:* Doug Coke

ASPEN RIBBONS INC., 555 Aspen Ridge Dr., Lafayette, CO 80026, Tel: 303-666-5750, 800-525-0646, 800-525-9966, Telex: 45-0055; FSC No.: 84-0724829; Empl.: 205; *Sls. Mgr.:* Peta C. Williams; *Dist. Mgr.:* Dianne Lippolet

A. S. R. SERVOTRON, INC., (Sub. Baldor Elec. Co.), 7945 Deering Ave., Canoga Park, CA 91304, Tel: 818-999-6193, Telex: 181213 ASR USA CNPK; Empl.: 2400; *Sls. Mgr.:* Robert W. Ferran

ASSEM-PRO INSTRS., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124, Tel: 408-267-1168; *Sls. Mgr.:* Lynn Riordan; *Dist. Mgr.:* Lynn Riordan

ASSEMBLY SPECIALISTS, 914 Main St., Box 965, Acton, MA 01720, Tel: 617-263-9100; *Sls. Mgr.:* George L Boyden .... **C•1700**

Local Sales Offices & Reps

MA	Acton, E.E. Specialists	617-259-9200

ASSOCIATED CIRCUITS INC., 621 Old County Rd., San Carlos, CA 94070, Tel: 415-592-7528; Empl.: 35; *Sls. Mgr.:* Betty Smeland

ASSOCIATED ENGRG. MFG., 546 Valley Rd., Upper Montclair, NJ 07043, Tel: 201-783-7800, Telex: 138866; Empl.: 69

ASSOCIATED ENVIRONMENTAL SYSTEMS, 10 Industrial Way, Amesbury, MA 01913-4848, Tel: 617-388-5662, TWX: 710-347-0590; Empl.: 300; *Sls. Mgr.:* A. P. Campagna

ASSOCIATED RESEARCH, INC.

ASSOCIATED RESEARCH, INC., 8221 N. Kimball Ave., Skokie, IL 60076, Tel: 312-647-7850, Telex: 28-3511; FSC No.: 04237; Empl.: 58; *Sls. Mgr.:* Joe Guerriero .... **D•1181-1182**

Local Sales Offices & Reps

CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	Santa Ana, Brooks-Moore Assocs.	714-544-8900
CO	Lakewood, Technical Mktg.	303-232-1516

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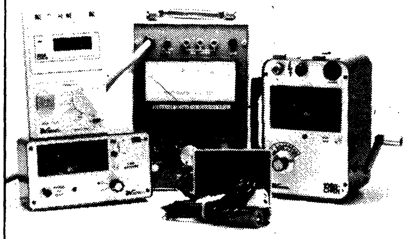

Offices

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8019 Belair Road/Baltimore, MD 21236
(301) 661-5900 in MD, VA

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(203) 773-3441 in New Haven, CT

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(301) 621-5077 in Wash., DC Area

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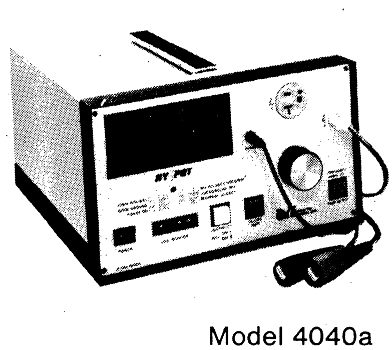

Model 4040a

DE	Wilmington, Electrical Equip. Co.	302-478-9455
FL	Orlando, Datarep	305-843-5224
GA	Marietta, Tanner & Assocs., Inc.	404-952-7773
IL	Columbia, R. L. Weisheimer & Assocs.	618-281-4148
IL	Streamwood, Fortier Testing & Sls.	312-837-5407
LA	Mandeville, Griffith Co., Inc.	504-626-8516
MA	West Newbury, Digital & Analog Sls. Co.	617-363-5420
MN	Minneapolis, Minnkota Elec. Sls.	612-871-7838
NY	Buffalo, U. J. Brown	716-839-4232
NC	Charlotte, W. R. Daniel & Assocs.	704-376-8603
OH	Milford, Alexander Equip. Co.	513-248-0901
PA	Pittsburgh, Gateway Equip. Co.	412-795-1315
TN	Knoxville, E-P & Assocs., Inc.	615-966-6131
TX	Houston, E.V. Smith Sls. Co.	713-649-5756
VA	Dumfries, Electra-Tech	703-670-6962
WA	Seattle, Winberg Engr. Sls.	206-523-3370
WI	Appleton, Carl Stracka & Assocs.	414-734-7847

ASSOCIATED SPECIALTIES, 1751 Main St., Orefield, PA 18069, Tel: 215-395-9172; *Sls. Mgr.:* V. Laudenslager; *Dist. Mgr.:* V. Laudenslager

ASSOCIATED SPRING, BARNES GRP., 18 Main St., Bristol, CT 06010, Tel: 203-583-1331, Telex: 962449, TWX: 710-454-0592; Empl.: 1850; *Sls. Mgr.:* R. Hufsmith

ASSOCIATED TESTING LABS., Div. of Kidde, Inc., 53 Second Ave., Burlington, MA 01803, Tel: 617-272-9050; Empl.: 80; *Sls. Mgr.:* Robert H. Croft

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A BSR COMPANY

ASTEC USA, LTD., A BSR Intl. Co., 2880 San Tomas Expwy., # 200, Santa Clara, CA 95051, Tel: 408-748-1200, Telex: 4745018 ASTEC UI, TWX: 310-474-5018; *Sls. Mgr.:* Russ Sinagra .... **D•1512-1514**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9281
AZ	Phoenix, Compass Mktg. & Sls.	602-996-0635
AZ	Tucson, Compass Mktg. & Sls.	602-293-1220
CA	San Diego, SR Elctrns.	619-560-8330
CA	Santa Clara, Astec (USA) Ltd.	408-748-1200
CA	Santa Clara, I Squared	408-988-3400
CA	Thousand Oaks, SC Cubed	805-496-7307
CA	Tustin, SC Cubed	714-731-9206
CO	Wittleton, Lange Sales Inc.	303-795-3600
PA	Huntingdon Valley, Omega Elctrns. Sls.	215-947-4135
GA	Norcross, 20th Century Mktg.	404-446-1999
IL	Rolling Meadows, Sumer	312-991-8500
IN	Indianapolis, Leslie Devoe	317-842-3245
MA	Burlington, Mill-Bern Assocs.	617-273-1313
MA	Glenburnie, Tri-Mart	301-761-6000
MN	Bloomington, Elctrn. Sls. Agency	612-884-8291
MO	Bridgeton, Centech, Inc.	314-219-4230
NM	Albuquerque, Compass Mktg. & Sls.	505-888-0800
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Elmont, Crane & Egert Corp.	516-872-0800
NY	Jamaica, SJ Assocs.	212-291-3232
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OK	Tulsa, West Assocs.	918-665-4365
OR	Tigard, Components West, Inc.	503-684-1617
TN	Knottsville, 20th Century Mktg.	615-690-1618
TX	Austin, West Assocs.	512-454-3681
TX	Dallas, West Assocs.	214-248-7060
TX	Houston, West Assocs.	713-777-4108
UT	Salt Lake City, Lang Sls., Inc.	801-487-0843
WA	Bellevue, SDR Squared	206-747-9424
WA	Liberty, Comps. West., Inc.	509-255-6224
WA	Redmond, Comps. West	206-885-5880
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

CA	Calabasas, Wyle Labs.	213-322-8100, 818-880-9000
CA	Irvine, Wyle Labs.	714-863-9953
CA	Rancho Cordova, Wyle Labs.	916-638-5282
CA	San Diego, Wyle Labs.	619-565-9171
CA	Santa Clara, Wyle Labs.	408-727-2500
CO	Phoenix, Wyle Labs.	602-249-2232
CO	Thornton, Wyle Labs.	303-457-9953
OK	Tulsa, Quality Comps.	918-664-8812
OR	Hillsboro, Wyle Labs.	503-640-6000
TX	Addison, Quality Comps.	214-733-4306
TX	Austin, Quality Comps.	512-835-0220
TX	Sugarland, Quality Comps.	713-491-8812, 713-240-2255
UT	Salt Lake City, Wyle Labs.	801-974-9953
WA	Bellevue, Wyle Labs.	206-453-8300

ASTON ELECTRONICS, INC., Aston Electronic Designs, Ltd., 531 North Murlen Rd., Olathe, KS 66062, Tel: 913-782-4007; *Sls. Mgr.:* D. MacClymont

ASTRO CIRCUIT, 100 Hale St., Lowell, MA 01851, Tel: 617-458-3240, TWX: 710-343-0754; Empl.: 220; *Sls. Mgr.:* Don Gingras

ASTROCOM ELECTRONICS, INC., Box 370, Oneonta, NY 13820, Tel: 607-432-1930

ASTRO DYNAMICS, INC., 2 Gill St., Woburn, MA 01801, Tel: 617-935-4944; Empl.: 50

ASTRO-GEO-MARINE, INC., 202 E. Cota St., Santa Barbara, CA 93101, Tel: 805-965-7005; FSC No.: 51473; Empl.: 15

ASTRO INSTRUMENT CORP., 2501 NW 17th Ln., Pompano Beach, FL 33064, Tel: 305-973-8900, TWX: 510-956-9601; FSC No.: 51761; *Sls. Mgr.:* Peter J. Sinatra, Jr.

ASTROLAB INC., 4 Powder Horn Drive, Warren, NJ 07060, Tel: 1-201-560-3800, Telex: 710-991-9713; FSC No.: 16301; Empl.: 36; *Sls. Mgr.:* J. R. Toma

ASTRO-MED, INC., 600 East Greenwich Avenue, W. Warwick, RI 02893, Tel: 401-828-4000, TWX: 710-382-6409; Empl.: 120; *Sls. Mgr.:* Everett V. Pizzuti; *Dist. Mgr.:* Everett V. Pizzuti .... **D•1402**

ASTRONAUTICS CORPORATION OF AMERICA, P.O. Box 523, Milwaukee, WI 53201-0523, Tel: 414-447-8200, TWX: 910-262-3153; FSC No.: 10138; Empl.: 1,500; *Dist. Mgr.:* L. J. Singleton

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ASTRON CORP., 2852 Walnut # E, Tustin, CA 92680, Tel: 714-832-7770; *Sls. Mgr.:* William Pochirowski; *Dist. Mgr.:* William Pochirowski .... **D•1515**

Local Distributors

CA	Los Angeles, Henry Radio	213-820-1234
CA	Northridge, Ora Elctrns.	213-701-5848
CA	Sun Valley, Cartwright Comms.	213-768-7744
CO	Aurora, Electro Tech Sls.	303-343-8937
GA	Marrietta, NBC Mktg.	404-424-9097
IL	Joliet, Communications Assoc.	815-744-6444
IL	Joliet, Primus Elctrns.	815-436-8945
MD	Cockleysville, Tessco.	301-252-0860
NJ	Clifton, Meridian Comms.	201-473-1623
OH	Cincinnati, Cartwright Comms.	513-489-1755
TX	Dallas, M. Hutton Co.	214-484-0580

ASTRO PACKAGING, INC., 100 Thomas Road North, Hawthorne, NJ 07507, Tel: 201-423-3000, Telex: 130545; Empl.: 125; *Sls. Mgr.:* Phillip L. Steiner

ASTROSYN AMERICA, 14349 Victory Blvd., Ste. 304, Van Nuys, CA 91401, Tel: 213-785-2197, Telex: 651446; *Sls. Mgr.:* D. F. Dowis; *Dist. Mgr.:* D. F. Dowis

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ASTROSYSTEMS, 6 Nevada Dr., Lake Success, NY 11042, Tel: 516-328-1600, TWX: 510-223-0411; Empl.: 150; *Sls. Mgr.:* Howard Lazarus ... **D•1183, 1517, 1888**

Local Sales Offices & Reps

AL	Huntsville, Kemp Engrg.	205-837-4304
AZ	Mesa, Foxco Equip., Inc.	602-820-8685
AR	El Dorado, Indust. Controls Assoc.	501-862-2051
AR	Searcy, Industrial Controls Assocs.	800-643-1109
CA	Cerritos, Foxco Equip.	213-921-3421
CA	Long Beach, Saber Entprs., Inc.	213-595-5645
CO	Englewood, Dynatech	303-773-2830
DE	Garrison Lake, Broge-Matarese, Inc.	302-653-5005
FL	Melbourne, Reynolds & Assocs.	305-259-7000
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	Elgin, JHS Assocs.	312-741-9070
IN	Mishawaka, Engineered Sls.	219-255-5111
IA	Cedar Rapids, Di-Tronix, Inc.	319-377-8275

KS	Wichita, Di-Tronix, Inc.	316-838-0884
LA	Baton Rouge, Industrial Controls Assocs.	800-643-1109
MA	Ashland, Polytek Assocs., Inc.	617-881-4741
MA	Southborough, Motion Engrg.	617-485-2144
MO	Bridgeton, Di-Tronix, Inc.	314-291-4777
MO	Raytown, Di-Tronix, Inc.	816-365-6340
NY	Cazenovia, D & O Engrg.	315-655-8602
NY	Youngstown, D & O Engrg.	716-745-3915
NC	Charlotte, Jake Rudisill Assoc. Inc.	704-377-6901
OH	Cleveland, Instr. Sys.	216-845-8800
OH	Dayton, Instr. Sys.	513-294-2838
OR	Portland, Frys Controls, Inc.	503-226-2620
PA	Pittsburgh, Instrumentation Sys.	412-823-7005
PA	Warminster, Multi-Measurements	215-675-3082
TN	Memphis, Industrial Controls Assocs.	800-643-1109
TX	Dallas, Data Mktg. Assocs., Inc.	214-661-0330
TX	Fort Worth, Indust. Controls Assoc.	800-643-1109
TX	Houston, Indust. Controls Assoc.	501-862-2051
TX	Humble, Industrial Controls Assocs.	800-643-1109
WA	Bellevue, Fry Controls, Inc.	206-282-9270
WA	Seattle, Datacom & Assocs., Inc.	206-285-2525
WI	Appleton, Bu-Nell Eng. Co.	414-733-4242
WI	Waukesha, Bu-Nell Eng. Co.	414-784-0994
Can	Willowdale, Ont., Arthur Rosenblum Sls.	416-224-1177

ASTRO TOOL CO., INC., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006, Tel: 503-642-9853

AT&T

AT&T, 1 Oak Way, Berkeley Heights, NJ 07922, Tel: 1-800-372-2447; *Sls. Mgr.:* W. R. Sherman

Local Sales Offices & Reps

CA	Los Angeles, AT&T Technlg. Sys.	213-726-5184
CA	Sunnyvale	408-746-2332
CO	Denver	303-538-2406
GA	Atlanta	404-447-6495
IL	Chicago, AT&T Technlg. Sys.	312-494-5190
MA	Burlington	617-229-5672
MN	Minneapolis	612-724-2019
NJ	Berkeley Heights	201-771-2601
PA	King of Prussia, AT&T Technlg. Sys.	215-768-2626

ATC POWER SYSTEMS, INC., 472 Amherst Street, Nashua, NH 03063, Tel: 603-882-1366, Telex: 756779; FSC No.: 61814; Empl.: 26; *Sls. Mgr.:* Wendall Finneault

ATEC, INC., Box 19426, 8219 Kempwood Dr., Houston, TX 77055, Tel: 713-468-7971, Telex: 77-4132 FLEKS HOU; FSC No.: 09552; Empl.: 82; *Sls. Mgr.:* F. Sawberger

A-SYSTEMS INC., 1500 Avon St. Extd., Charlottesville, VA 22901, Tel: 804-295-7200; *Sls. Mgr.:* F. M. Artrip

ATEC SYS., 107 N. Washington St., E. Rochester, NY 14445, Tel: 716-381-4740; Empl.: 6; *Sls. Mgr.:* Harry Turner

ATHENA CONTROLS, INC., 5145 Campus Dr., Whitemarsh Ind. Campus, Plymouth Meeting, PA 19462, Tel: 215-828-2490; Empl.: 85; *Sls. Mgr.:* David A. Tryon; *Dist. Mgr.:* Allen Breckenridge

ATKINS TECH., 3321 S.W. 40th Blvd., Gainesville, FL 32608, Tel: 904-378-5555, Telex: 51-4736-HALA; Empl.: 30; *Sls. Mgr.:* Walter Fitz-William; *Dist. Mgr.:* Walter Fitz-William

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ATLANTIC RESEARCH, 5390 Cherokee Ave., Alexandria, VA 22312, Tel: 703-642-4000, Telex: 248893; FSC No.: 95335; Empl.: 2400

ATLANTIC SCIENTIFIC CORP., 2711 S. Harbour City Blvd., Melbourne, FL 32901, Tel: 305-725-8000, Telex: 755959; *Sls. Mgr.:* Murray W. Boggs

ATLANTIC SWITCH CONTROLS, INC., 194 Elliott St., Hartford, CT 06114, Tel: 203-527-7705

ATLANTIC SWITCH CONTROLS, INC., 5 Coliseum Ave., Nashua, NH 03063, Tel: 603-880-1971

ATLAS ENERGY SYS., 9457 Rush St., S. El Monte, CA 91733, Tel: 213-575-0755, TWX: 910-587-3531; Empl.: 35; *Sls. Mgr.:* J. Thompson

ATLAS ENGRG. CORP., 10 Cheney St., Dorchester, MA 02121, Tel: 617-445-7100; FSC No.: 07001; Empl.: 61; *Sls. Mgr.:* Norman Scotch

ATLAS EYELETS, Pinkham St., Fairhaven, MA 02719, Tel: 617-997-9491; *Sls. Mgr.:* Arthur S. Tisch

ATLAS SOUND DIV., 10 Pomeroy Rd., Parsippany, NJ 07054, Tel: 201-887-7800, Telex: 13-6119; Empl.: 350; *Sls. Mgr.:* Paul Grote; *Dist. Mgr.:* David A. Chambers

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ATLEE INC., One Gill St., Woburn, MA 01801, Tel: 617-933-3510, Telex: 949407; FSC No.: 99378; Empl.: 40 **B•1229; C•1009, 1684, 1701, 1722**

Local Sales Offices & Reps

CA	Agoura, Cal Rep	213-991-1940
CA	Corte Madera, Paul Oneal Assoc.	415-924-1691
CO	Arvada, Challange Sls.	303-427-3149
FL	Melbourne, R-Rep	305-725-6993
MD	Baltimore, Stitzer Assocs.	301-823-7688
MA	Sharon, Cummings	617-784-5600
MN	St. Paul, Countryman Assoc	612-645-9151
NY	Huntington, C. R. Mayer Co.	516-921-7876
NY	Latham, L-Tron	518-785-5032
NC	Raleigh, B. T. Funderburk	919-782-3493
OH	Cleveland, Techn. Sls. Assocs.	216-461-0826
PA	Paoli, Stitzer Assocs.	215-644-5500
TX	Dallas, Rem-Air Comp. Corp.	214-234-1069

Local Distributors

AZ	Phoenix, EGR	602-840-0320
CA	Northridge, Acort Inds.	213-993-6444
CA	San Jose, Bisco Inds.	408-946-8980
IN	Ft. Wayne, Graham Elec. Supp.	219-423-3422
IA	Cedar Rapids, Deeco	319-365-7551
MA	Winchester, Rush Inds.	617-729-5800
MN	Minneapolis, Aerospace Computer	612-884-4725
NJ	Nutley, Essex Electric	201-661-2600
NJ	Paramus, N.Y. Fastener	201-265-8770
NY	Bayshore, Merrit Fastener	516-242-1800
NY	Bohemia, Car-Lac	516-567-4200
NY	Buffalo, Summit Dist.	716-887-2800
NY	Long Island City, Hardware Specialty	212-361-9393
NY	Plainview, G & B Fasteners	516-694-0990
TX	Dallas, National Precision	214-357-3921
TX	Richardson, Altair Co.	214-231-5166
VA	Charlottesville, Virginia Radio Supp. Co.	804-296-4184

ATMOSPHERE CONTROLS PRODS., 295 Polaris, Mountain View, CA 94043, Tel: 415-969-2640; Empl.: 14; *Sls. Mgr.:* Walter Quave Jr.; *Dist. Mgr.:* W. H. Ellis

ATOMERGIC CHEMETALS CORP., 100 Fairchild Ave., Plainview, NY 11803, Tel: 516-349-8800, Telex: 144612, TWX: 6852289; *Sls. Mgr.:* H. J. Gary

ATR ELCTRNS., INC., P.O. BOX 7008, St. Paul, MN 55107, Tel: 612-738-6520, 414-297-7374 ...... **D•1889**

ATV RESEARCH, INC., 1301 Broadway, Dakota City, NE 68731, Tel: 402-987-3771; *Sls. Mgr.:* Mel Shadbolt

AUBURN MFG., Pease Ave. & Stack St., Middletown, CT 06457, Tel: 203-346-6677; Empl.: 45; *Sls. Mgr.:* Richard Agria

AUDIO EQUIP., Div. W. Kidde & Co., Inc., 706 Forrest St., Charlottesville, VA 22901, Tel: 804-977-8050, TWX: 510-587-5461; Empl.: 50

AUDIOSEARS, South St., Stamford, NY 12167, Tel: 607-652-7305; FSC No.: 97101; Empl.: 140; *Sls. Mgr.:* D. Hartwell

AUDIOSONE, INC., 617 Fan Hill Rd., Monroe, CT 06468, Tel: 203-268-4372, 203-268-6703; *Sls. Mgr.:* Rudolph Duris

AUDIOTRONICS CORP., 7428 Bellaire Ave., N. Hollywood, CA 91605, Tel: 818-765-2645, Telex: 69-1241; Empl.: 300; *Sls. Mgr.:* Roy Schaub

AUDIOVOX CORP., 150 Marcus Blvd., Hauppage, NY 11787

AUGAT INTERCONNECTION SYSTEMS

AUGAT INC., 33 Perry Ave., Box 779, Attleboro, MA 02703, Tel: 617-222-2202, TWX: 710-391-0644; FSC No.: 91506; Empl.: 3,200; *Sls. Mgr.:* Jim Fuchs/Jeff Mahall; *Dist. Mgr.:* William Hall ...... **C•1702-1703**

Local Sales Offices & Reps

AL	Huntsville, Glen White Assocs.	205-883-7938
AZ	Scottsdale, Augat Sls.	602-224-0950
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Augat Sls.	408-980-0955
CO	Littleton, Simpson Assocs.	303-794-8381
FL	Safety Harbor, Augat Sls.	813-725-1037
FL	Tamarac, Augat Sls.	305-721-6021
GA	Norcross, Glen White Assocs.	404-441-1447
HI	Honolulu, Hawaii Elctrns. Sls. & Svc.	808-845-8207
IL	Rolling Meadows, Sumer	312-991-8500
IA	Davenport, Ensco-Rep. Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep. Inc.	316-683-1070
MD	Silver Spring, NKA Inc. (Govt.)	301-585-6141
MA	Norwood, Augat Sls.	617-762-3164
MI	Detroit, Rathsburg Assocs.	313-882-1717
MN	Edina, Augat Sls.	612-925-0255
MN	Minnetonka, Gibb Elctrn. Sls.	612-935-4600
MO	Maryland Hts., Ensco-Rep. Inc.,	314-423-3935
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	Maple Shade, NKA Inc. (Govt.)	609-234-4008
NM	Albuquerque, C. T. Carlberg Assoc.	505-888-3883
NY	N. Syracuse, L. D. Allen, Inc.	315-437-8387
NY	Yonkers, D. Sonkin Assocs.	914-968-8282
NC	Raleigh, Glen White Assocs.	919-848-1931
OH	Dayton, NKA, Inc.	513-268-8771
OH	Englewood, A. Nace Co.	513-836-0931
OH	Richfield, A. Nace Co.	216-659-7178
OR	Portland, Augat Sls.	503-256-4596
TN	Gray, Glen White Assocs.	615-447-8850
TX	Dallas, Augat Sls.	214-788-4211
TX	Georgetown, Augat Sls.	512-479-9447
TX	Houston, Augat Sls.	713-781-9343
UT	Midvale, Simpson Assocs.	801-566-3691
VA	Lynchburg, Glen White Assocs.	804-237-6291
WA	Bellevue, Augat Sls.	206-451-9777
WI	Brookfield, Sumer Inc.	414-784-6641

AUGAT/ALCOSWITCH, See Alco Elctrn. Prods., Inc.

AUGAT/ES•P. INC., /Augat, Inc., 12832 Chadron Ave., Hawthorne, CA 90250, Tel: 213-973-0262, Telex: 66-4467; Empl.: 125; *Sls. Mgr.:* Karl f. Zimmermann

AUGAT FIBEROPTICS, 710 Narragansett Park Dr., Pawtucket, RI 02861, Tel: 401-724-4400, Telex: 511450; *Sls. Mgr.:* Bob Goecheler; *Dist. Mgr.:* Bill Hall

AUGAT/PYLON CO., INC., P.O. Box 2510, Attleboro Falls, MA 02763, Tel: 617-699-7646, TWX: 948095; Empl.: 200; *Sls. Mgr.:* John Deichl

AULT, INCORPORATED, 1600 Freeway Blvd., Minneapolis, MN 55430, Tel: 612-560-9300, TWX: 910-756-3435; Empl.: 300; *Sls. Mgr.:* John Newhouse ...... **D•1518-1519**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
AZ	Scottsdale, DAR-C, Inc.	602-948-2240
CA	Los Angeles, West Elctrn. Sls.	714-898-0120
CA	San Diego, West Elctrn. Sls.	619-576-9268
CA	Santa Clara, Magna Sls.	408-727-8753
CO	Denver, William J. Purdy	303-777-1411
CO	Denver, William J. Purdy	303-753-6800
CT	Manchester, G/M Assocs.	203-646-4443
CT	Wallingford, Marathon Sls., LTD	617-875-3566
FL	Boca Raton, QXI, Inc.	305-392-2626
FL	St. Petersburg, QXI, Inc.	813-821-2281
GA	Atlanta, L & D, Inc.	404-455-3483
IL	Arlington Hgts., MSI	312-956-1000
OH	Columbus, McFadden Sls.	614-459-1280
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300

MD	Columbia, Delta III Assocs.	301-730-4700
MA	Framingham, Marathon Sls., LTD	617-875-3566
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MO	St. Louis, Beams Co.	314-434-8448
NV	Carson City, Magna Sls.	702-883-1471
NJ	Ocean, P. Saftler Assocs.	201-922-3014
NY	Lynbrook, P. Saftler Assocs.	516-593-7880
NC	Greensboro, L & D, Inc.	919-292-3201
OH	Cleveland, Lyons Corp.	216-659-9224
OH	Dayton, E. Lyons Co.	513-278-0714
OR	Portland, Jas. J. Bacher Co.	503-297-8744
PA	Philadelphia, Samuel K. MacDonald, Inc.	215-545-1205
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-890-8810
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

CA	Cincinnati, Hughes Peters	513-351-2000
CA	Mountain View, USI Elctrn. Comps.	415-969-5420
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	Santa Monica, Distr. Specialists	213-393-9666
CA	Van Nuys, Natl. Electro Sls. Corp.	213-781-0505
MA	Sharon, Adcour	617-784-8123
MO	St. Charles, Finnigan Elctrns.	314-946-6201
Can	St. Laurent, Que., Tech-Rep Elctrns., Ltd.	514-337-6046

AURA MFG., 50 McDermott Rd., North Haven, CT 06473, Tel: 203-777-2541; Empl.: 200; *Sls. Mgr.:* Fred Bonito

AURIC CORP., 470 Frelinghuysen Ave., Newark, NJ 07114, Tel: 201-242-4100; Empl.: 35

AUSTIN ELECTRONICS, The Austin Co., 17-01 Pollitt Drive, Fair Lawn, NJ 07410, Tel: 201-794-0200, TWX: 710-988-2262; Empl.: 100; *Sls. Mgr.:* Frank J. Cerven

AUSTRON, *INC*

AUSTRON, INC., P.O. Box 14766, Exit 248 N. IH 35, Austin, TX 78761, Tel: 512-251-2341, TWX: 910-874-1356; FSC No.: 24672; Empl.: 153; *Sls. Mgr.:* R. Ellis **A•1314-1315**

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices - SE	205-536-1969
AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Pleasant Hill, Austron	415-930-7268
CA	San Carlos, Westronics Assocs.	415-592-1417
CA	San Diego, Thorson Co.	619-292-8525
CA	Signal Hill, Thorson Co.	213-595-0361
CT	Southington, Scheinfein Assocs.	203-621-3492
FL	Orlando, Sci. Devices - SE	305-841-8180
FL	Shalimar, Sci. Devices - SE	904-651-4407
GA	Atlanta, Sci. Devices-SE	404-452-8709
IL	Elk Grove, Loren Green Assoc.	312-593-0282
IN	Indianapolis, Loren Green Assoc.	317-293-9827
MA	Reading, Scheinfein Assocs.	617-944-2304
MI	Union Lake, Ashby Assocs.	313-363-1100
MN	Minneapolis, Loren Green Assoc.	612-571-6666
NY	Frankfort, Kapital Instr. Sls.	315-894-4245
NY	Huntington, CDB Entprs.	516-692-5200
NC	Winston Salem, Sci. Devices-SE	919-765-5766
OH	Dayton, Ashby Assocs.	513-252-5627
OH	Lyndhurst, Ashby Assocs.	216-461-0826
OR	Portland, Cascade Data Mktg.	503-641-9266
PA	Plymouth Meeting, Sci. Devices - Phila.	215-825-9515
TX	Houston, Sci. Devices - Gulfcoast	713-864-1711
TX	Richardson, Sci. Devices - SW	214-231-8106
VA	McLean, Austron	703-734-1990
WA	Woodinville, Cascade Data Mktg.	206-788-3421

AUTODESK, 2658 Bridgeway, Sausalito, CA 94965, Tel: 415-331-0356; *Sls. Mgr.:* John Macleod

AUTOMATED PRODUCTION CONCEPTS, 8 E. Garden Pl., Pompton Plains, NJ 07444, Tel: 201-831-8300, Telex: 130120; Empl.: 12

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AUTOMATED PROD. EQUIP. CORP., 142 Peconic Ave., Medford, NY 11763, Tel: 516-654-1197, TWX: 510-228-2120; FSC No.: 57216; *Sls. Mgr.:* Peter Clancy

AUTOMATIC COIL CORP., Sub. Designatronics, Inc., 455 E. 10th Ave., Hialeah, FL 33010, Tel: 305-883-5311, TWX: 810-848-8097; Empl.: 245 **A•1207-1209, 1464-1467**

Local Sales Offices & Reps

AL	Huntsville, CRS Elctrns., Inc.	205-533-2444
CA	Huntington Beach, Mil-Com Sls.	714-840-2424
GA	Atlanta, CRS Elctrns., Inc.	404-396-3720
MD	Laurel, CSDS, Inc.	301-490-3800
MA	Manchester, Alard, Galagan & Assocs.	617-526-7733
MN	Spring Lake Park, Holmgren Assocs.	612-786-7641
NY	Brooklyn, Irv Morse Sls.	212-444-4974
NY	Carle Place, Olkon Corp.	516-747-2330
NC	Raleigh, CSR Elctrns.	919-878-9200
OH	Dayton, Rockford Controls Ohio, Inc.	513-898-5452
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
OH	Reynoldsburg, Rockford Controls Ohio, Inc.	216-731-5250
OK	Bixby, MGR Elctrns.	918-369-5186
TX	Dallas, MGR Elctrns.	214-942-6041
EXP	Israel, Tel Aviv, Star-Tronies	703-385-0139

AUTOMATIC CONNECTOR, INC., 400 Moreland Rd., Commack, NY 11725, Tel: 516-543-5000, TWX: 510-226-3744; FSC No.: 94375; Empl.: 250; *Sls. Mgr.:* William Pitcher

AUTOMATIC SWITCH CO., 50-60 Hanover Road, Florham Park, NJ 07932, Tel: 1-201-966-2000, Telex: 136422; Empl.: 1,200; *Sls. Mgr.:* Wayne Bouchard

AUTOMATIC TEST SYSTEMS, 23 Poplar St., Malden, MA 02148, Tel: 617-322-1107

AUTOMATIC TIMING & CONTROLS CO., 201 So. Gulph Rd., King of Prussia, PA 19406, Tel: 215-337-5500, 800-441-8245, Telex: 84-6437; Empl.: 300; *Sls. Mgr.:* R. L. Swanson **D•1112**

Local Sales Offices & Reps

AZ	Phoenix, Portis & Assocs.	602-947-4379
CA	Gardena, Instrument Lab.	213-327-3282
CA	San Francisco, Automated Proc. Controls	415-467-6162
CO	Englewood, E & M Sls.	303-761-6202
FL	Lakeland, A.A. Elec. Div.	813-665-6941
GA	Norcross, A.A.Electric Div. of AEC	404-449-8670
IL	Glen Ellyn, Rockford Controls	312-469-6016
IN	Indianapolis, Rockford Controls	317-248-2518
KY	Louisville, Air-Hydro Power	502-451-1000
LA	New Orleans, Mid South Sls.	504-641-7480
MD	Baltimore, Jobe & Co.	301-327-0220
MA	Hingham, Hingham Bay Corp.	617-749-8700
MI	Brighton, H. H. Barnum Co.	313-229-2961
MN	Minneapolis, Automated Controls	612-941-4092
MO	Kansas City, Duncan Sls. & Engrg.	816-356-1888
MO	St. Louis, E. Mooney Co.	314-878-9910
NE	Omaha, Lakeland Engrg. Equipt.	402-734-2600
NJ	Newark, Norman Bragar Co.	201-344-1100
NM	Albuquerque, E & M Sls.	505-883-8955
NY	Buffalo, Niagara Electric Sls.	716-886-4000
NY	Rochester, Niagara Electric Sls.	716-271-1223
NY	Syracuse, Niagara Elec. Sls.	315-437-1656
NC	Charlotte, Brown & Morrison	704-554-8570
OH	Cincinnati, Anderson-Bolds	513-528-5680
OH	Cleveland, Anderson-Bolds	216-229-4700
OH	Worthington, Anderson-Bolds	614-885-3933
OK	Tulsa, Driscol Auto. Control	918-747-6625
OR	Portland, Coons Western	503-295-0411
PA	King of Prussia, Applied Controls	215-265-3832
PA	Pittsburgh, Gilson Engrg. Sls.	412-931-6114
TX	Houston, Gettys-Eads-Adair	713-781-3005
UT	Salt Lake City, Control Equip.	801-487-7741
VA	Richmond, Jobe & Co.	804-282-6508
WA	Seattle, J. A. Tudor & Assocs.	206-682-7444
WA	Spokane, J. A. Tudor & Assocs.	509-327-3328
WI	Cedarburg, Automation Engrg.	414-377-7500

AUTOMATION ASSOCS., 1212 Westheimer #120, Austin, TX 78752, Tel: 512-458-4412

AUTOMATION DISPLAYS INC., 3833 N. White Ave., Eau Claire, WI 54703, Tel: 715-834-9595; Empl.: 38

AUTOMATION DYNAMICS, 77 Brookside Pl., Hillsdale, NJ 07642, Tel: 201-666-2458; FSC No.: 53089; Empl.: 40

AUTOMATION COMPONENTS, INC., One Short Ave., Peckville, PA 18452, Tel: 717-489-7508

AUTOMATION PRODS., INC., 3030 Max Roy, Houston, TX 77008, Tel: 713-869-0361, Telex: 775-959

AUTOMATION UNLTD., 10H Roessler Rd., Woburn, MA 01801, Tel: 617-933-7288, Telex: 949329; *Sls. Mgr.:* Stephen A. Gould

AUTOSPLICE, INC., 59-12, 37th Ave, Woodside, NY 11377, Tel: 718-429-0500, Telex: 420902, TWX: 968171; Empl.: 86; *Sls. Mgr.:* O. Nedelkovich

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AUTO-SWAGE PRODS., 726 River Rd., Shelton, CT 06484, Tel: 203-929-1401, Telex: 963-542; Empl.: 170; *Sls. Mgr.:* R. Mikulsky **C•1685**

Local Sales Offices & Reps

AL	Montgomery, M.Y.A., Inc.	205-284-1948
CA	Corte Medera, Paul O'Neal & Assocs.	415-924-1691
CA	Glendale, Haldeman & Frazier	818-957-4554
CO	Denver, Regional Sls. Co.	303-433-7397
CT	Roxbury, Yankee Engrg.	203-426-5679
FL	Seminole, D-Rep Sls., Inc.	813-397-1395
IL	Barrington, Perhats Assocs.	312-381-6360
IN	Greensburg, H. K. Feaster Assocs.	812-663-5689
MN	Minneapolis, W. R. Maleckar Co.	612-926-7601
MO	Maryland Heights, Meiners Sls.	314-739-1114
NY	Rochester, Antil-Thrasher Assoc.	716-586-0595
OH	Chagrin Falls, Bray Assocs.	216-247-4474
OR	Portland, Syscom Sls., Inc.	503-644-2505
PA	Broomall, AM Tech. Sls. Co.	215-356-0574
SC	Fort Mills, Eagle Sales, Inc.	803-548-2222
Can	Candiac, Que., W. H. Elctrns. Registered	514-632-3685

AUTOTROL, P.O. Box 557, Crystal Lake, IL 60014, Tel: 815-459-3080, Telex: 72-2417; Empl.: 140; *Sls. Mgr.:* Thomas Heldt

AUTO-TROL TECH., 12500 N. Washington St., Denver, CO 80233, Tel: 303-452-4919, TWX: 910-320-0772; Empl.: 600; *Sls. Mgr.:* Jim Norrod

AUTRONICS, 314 E. Live Oak, Ste. A, Arcadia, CA 91006, Tel: 818-445-5470, TWX: 910-582-3216; FSC No.: 03972; Empl.: 65

AVA INSTRMN., INC., 8010 Highway 9, Ben Lomond, CA 95005, Tel: 408-336-2281, Telex: 357403 AVA; FSC No.: 61933; Empl.: 6; *Sls. Mgr.:* Allan Hughes

AVANTEK, INC., 3175 Bowers Ave., Santa Clara, CA 95054, Tel: 408-496-6710, Telex: 34-6337, TWX: 910-339-9274; Empl.: 2268

AVCO-ELCTRNS. DIV., 4807 Bradford Dr., Huntsville, AL 35805, Tel: 205-837-6500, TWX: 810-726-2240; Empl.: 700; *Sls. Mgr.:* Jim Pool and David Helms

AVDEL, Newman Inds., Inc., 50 Lackawanna Ave., Parsippany, NJ 07054, Tel: 201-263-8100, Telex: 4574107, TWX: 710-987-8349; Empl.: 160; *Sls. Mgr.:* R. G. Palmiteer; *Dist. Mgr.:* M. E. Mervis

AVEL-LINDBERG, INC., Peacock Alley 116, 1 Padanaram Rd., Danbury, CT 06811, Tel: 203-797-8698, TWX: 710-456-9984; Empl.: 4; *Sls. Mgr.:* Rowland Mattin

Local Sales Offices & Reps

CA	Buena Park, Chuck Cooper Co., Inc.	714-739-8526
MA	Canton, D. Taggart Assocs.	617-828-6064

Local Distributors

CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
MA	Hingham, Sager Electrical Supp. Co.	617-749-6700
NY	New York, Martin Audio/Video Corp.	718-541-5900

AVEX ELCTRNS., 1683 Winchester Rd., P.O. Box 1026, Bensalem, PA 19020, Tel: 215-638-1515; FSC No.: 58414; *Sls. Mgr.:* Mike Battery Batley; *Dist. Mgr.:* Mike Batley **D•1416**

AVIBANK MFG., 210 S. Victory Blvd., Burbank, CA 91503, Tel: 818-843-4330, TWX: 910-498-2215; FSC No.: 84256; Empl.: 330; *Sls. Mgr.:* D. Ladin

Avionic Instruments, Inc.

AVIONIC INSTRS., 943 E. Hazelwood Ave., Rahway, NJ 07065, Tel: 201-388-3500, Telex: 844413; Empl.: 55; *Sls. Mgr.:* Wallace J. Izzo; *Dist. Mgr.:* Wallace J. Izzo .... **D•1890-1893**

Local Sales Offices & Reps

AL	Huntsville, Rakes Engrg. and Mktg Corp.	205-533-3763
AZ	Tempe, Southwest e/m Mktg.	602-941-2828
CA	Simi Valley, 3-B Assocs.	805-581-1681
FL	New Port Richey, Lobo Mktg. Assocs.	813-848-8578
GA	Atlanta, Rakes Engrg. and Mktg.	404-447-6937
MA	Needham Heights, Shain Assocs.	617-449-4380
MN	Edina, JH Hansen	612-893-9960
MO	St. Louis, Harris Hanson Co.	314-432-3611
NV	Las Vegas, 3-B Assocs.	805-581-5681
NJ	Rahway, Avionic Instrs. Inc.	201-388-3500
NC	Raleigh, Rakes Engrg. and Mktg.	919-847-5079
OH	Hudson, Integrated Aircraft Sys.	216-656-4251
TX	Dallas, Seaton Corp.	214-380-0414
WA	Seattle, Rep West	206-283-8351
EXP	NJ, Rahway, REA Intl. Ltd.	201-382-7100
Can	Toronto, Norgay Entprs. Ltd.	416-239-3025

AVIONICS, Box 200, Niagara-On-Lake, ON, Canada, Tel: 416-468-3632; Empl.: 25

AVTEL DIV., UNITRON INC., 10925 Miller Rd., Dallas, TX 75238, Tel: 214-340-8600, Telex: 882511; FSC No.: 6130; Empl.: 113; *Sls. Mgr.:* R. L. Beutel ...**D•1895-1897**

Local Sales Offices & Reps

CA	Sunland, Unitron (Jim Crevier)	818-352-7348
GA	Byron, Unitron (Joe Joiner)	912-956-2866

AVX CORPORATION, Box 867, Myrtle Bch., SC 29577, Tel: 803-448-9411, TWX: 810-661-2252; FSC No.: 9K916; *Sls. Mgr.:* John Winn; *Dist. Mgr.:* Allan Cole .... **A•1010-1011**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Scottsdale, Interstate Mktg.	602-244-9050
AZ	Scottsdale, Thorson Desert Sls.	602-998-2444
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	San Diego, Interstate Mktg.	619-292-8117
CA	San Jose, Quadrep Inc.	408-946-4000
CA	Woodland Hills, Interstate Mktg. Assocs.	818-883-7606
CO	Denver, Elcom	303-337-2300
FL	Clearwater, Dyne-a-Mark	813-441-4702
FL	Fort Lauderdale, Dyne-a-Mark	305-771-6501
FL	Maitland, Dyne-a-Mark	305-831-2097
FL	Palm Bay, Dyne-a-Mark	305-727-0192
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Highland Park, T.B. Hunter Assocs.	312-433-7000
IN	Ft. Wayne, F.J. Campisano Co.	219-747-2633
IN	Indianapolis, Frank J. Campisano	317-253-7651
IA	Cedar Rapids, Comstrand	319-377-1575
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MA	Lexington, J.E. Boeing Co.	617-862-2500
MI	Southfield, J.L. Montgomery	313-358-2616
MN	Minneapolis, Comstrand Inc.	612-788-9234
MO	Grandview, Beneke & McCaul	816-765-2998
NJ	Bellmawr, Thomas Assocs., Inc.	609-933-2600
NM	Albuquerque, Thorson Co.	505-293-8555
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Wappingers Falls, Bob Dean. Inc.	914-297-6406
NC	Raleigh, Tingen Technical Sales	919-781-1100
OH	Cincinnati, F.J. Campisano Co.	513-574-7111
OH	Cleveland, Frank J. Campisano	216-749-5550
OH	Columbus, Frank J. Campisano	614-876-5405
OH	Dayton, Schmidt & Assoc.	513-293-6652
OK	Oklahoma City, Ammon & Rizos	405-942-2552
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Coraopolis, F.J. Campisano Co.	412-264-5151
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-644-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Elcom, Inc.	801-485-7415
VA	Lynchburg, Burgin-Kreh Assoc.	804-239-2626
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Techn. Sls.	509-922-7600
Can	Kirkland, Que., Longman Sls.	514-694-3911
Can	Mississauga, Ont., Longman Sls.	416-677-8100
Can	Ottawa, Ont., Longman Sls.	613-564-0100

Local Distributors

AL	Huntsville, R. M. Elctrns.	800-633-2046
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AZ	Phoenix, TTI	602-966-1616
AZ	Phoenix, Wyle Elctrns.	602-249-2232
AZ	Tempe, Arrow Elctrns.	602-968-4800
CA	Chatsworth, Arrow Elctrns.	818-701-7500
CA	Chatsworth, IEC	213-998-2200
CA	Chatsworth, IEC Elctrns.	213-998-2200
CA	El Monte, Marshall Elctrns	818-442-7204
CA	El Segundo, Wyle Elctrns.	818-880-9001
CA	Hayward, Arrow Elctrns.	415-487-4300
CA	Irvine, IEC	714-660-1055
CA	Irvine, Marshall Elctrns	714-660-9261
CA	Irvine, Wyle Elctrns.	714-863-9953
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	N. Hollywood, T.T.I.	818-709-1010
CA	Rancho Cordous, Wyle Elctrns.	916-638-5282
CA	Sacramento, IEC	916-424-5297
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Kierulff Elctrns.	619-278-2122
CA	San Diego, Wyle Elctrns.	619-565-9171
CA	San Jose, Cetec Elctrns.	408-980-0110
CA	San Jose, Eric Elctrns.	408-262-1111
CA	San Jose, IEC	408-263-1100
CA	Santa Clara, Wyle Elctrns.	408-727-2500
CA	Southgate, Cetec Elctrns.	213-773-6521
CA	Sun Valley, Q.C. Comps.	818-700-2622
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Tustin, Arrow Elctrns.	714-838-5422
CA	Tustin, Kierulff Elctrns.	714-731-5711
CO	Denver, Arrow Elctrns.	303-696-1111
CO	Denver, IEC	303-292-6121
CO	Denver, Kierulff Elctrns.	303-371-6500
CO	Thornton, Wyle Dist. Gp.	303-457-9953
CT	E. Haven, J. V. Elctrns.	203-469-2321
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Kierulff Elctrns.	203-265-1115
CT	Wallingford, Marshall Elctrns.	203-265-3822
FL	Ft. Lauderdale, Arrow Elctrns.	305-429-8200
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
FL	Orlando, Marshall Elctrns.	305-841-1878
FL	Orlando, T.T.I.	305-859-1000
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Kierulff Elctrns.	813-576-1966
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Kierulff Elctrns.	800-241-0560
GA	Norcross, Marshall Elctrns.	404-923-5750
IL	Elk Grove, Kierulff Elctrns.	312-640-0200
IL	Lombard, RM Elctrns.	312-932-5150
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IL	Schaumburg, Marshall Elctrns.	314-490-0155
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, RM Elctrns.	317-291-7110
MD	Baltimore, Arrow Elctrns.	301-995-0003
MD	Gaithersburg, Marshall Elctrns.	301-840-9450
MD	Rockville, M.S. Elctrns.	301-340-6400
MA	Wakefield, MCI	617-245-5967
MA	Westboro, Future Elctrns.	617-366-2400
MA	Wilmington, RC Components	617-273-1860
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Marshall Elctrns.	313-525-5850
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Plymouth, Marshall Elctrns.	612-559-2211
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Mt. Laurel, Marshall Elctrns.	609-234-9100
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Bohemia, TTI	516-567-1500
NY	E. Farmingdale, Tri-Start	516-293-0400
NY	Endwell, Marshall Inds.	607-754-1570
NY	Hauppague, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Arrow Elctrns	315-652-1000
NY	Lynbrook, Patriot	516-599-8881
NY	Melville, Arrow Elctrns.	516-391-1484
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Marshall Inds.	716-235-7620
NC	Greensboro, Kierulff Elctrns.	919-852-9440
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Kierulff Elctrns.	919-872-8410
NC	Winston Salem, Arrow Elctrns.	919-725-8711
OH	Akron, Akron	216-762-8818
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cleveland, Kierulff Elctrns.	216-587-6558
OH	Dayton, Marshall Elctrns.	513-236-8088
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Arrow Elctrns.	918-665-7700
OK	Tulsa, Kierulff Elctrns.	918-252-7537
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Almo Elctrns.	215-698-4000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Kierulff Elctrns.	512-835-2090
TX	Dallas, Arrow Elctrns.	214-380-6464
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, R.M. Elctrns.	214-235-3100
TX	Ft. Worth, T.T.I.	817-429-1440
TX	Richardson, Jaco	214-235-9575
TX	Stafford, Arrow Elctrns.	713-530-4700
UT	N. Salt Lake City, IEC	801-298-1868
UT	Salt Lake City, Arrow Elctrns.	801-972-0404
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, IEC	206-455-2727
WA	Bellevue, Wyle Elctrns.	206-453-8300
WI	New Berlin, R.M. Elctrns.	414-784-4420
WI	Oak Creek, Arrow Elctrns.	414-764-6600
Can	Downsview, Ont., Future Electrns	514-694-7710

AXEL ELCTRNS., General Signal Corp., 134-20 Jamaica Ave., Jamaica, NY 11418, Tel: 718-291-3900, TWX: 710-582-2618; FSC No.: 13058; Empl.: 210; *Sls. Mgr.:* J. Alaimo

AXIAL MAGNETICS, 15922 Strathern, Van Nuys, CA 91406, Tel: 818-994-3346 .... **B•1139**

Local Sales Offices & Reps

OH	Cleveland, S.B. Reese Sls.	216-932-8079
TX	Houston, Southland Engrg. & Sls.	713-772-3170

AXIOM CORP., 1014 Griswold Ave., San Fernando, CA 91340, Tel: 213-365-9521

AXIS, INC., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111, Tel: 619-560-7737; FSC No.: 9S849; Empl.: 12; *Sls. Mgr.:* Mark J. Prager

AYDIN CORP., 700 Dresher Rd., Horsham, PA 19044, Tel: 215-657-7510, Telex: 685 1211, TWX: 510-661-0518; Empl.: 2,000; *Sls. Mgr.:* B. Jack Miller

AYDIN CONTROLS, 414 Commerce Dr., Ft. Washington, PA 19034, Tel: 215-542-7800, Telex: 6851057, TWX: 510-661-0518; Empl.: 533; *Sls. Mgr.:* Joseph J. Taylor

AYDIN MICROWAVE, 75 East Trimble Rd., San Jose, CA 95131, Tel: 408-946-5600, Telex: 4990756, TWX: 910-338-0216; Empl.: 200; *Sls. Mgr.:* Bruce M. Jennings

AYDIN MONITOR SYS., 502 Office Center Dr., Ft. Washington, PA 19034, Tel: 215-646-8100, TWX: 510-661-1520; Empl.: 241

AYDIN VECTOR DIV., Box 328, Newtown, PA 18940, Tel: 215-968-4271, TWX: 510-667-2320; FSC No.: 13923; Empl.: 280

BABCOCK, INC., 1717 West Collins Ave., Orange, CA 92667, Tel: 714-633-3700, TWX: 910-595-1517; FSC No.: 56623; Empl.: 245; *Sls. Mgr.:* Albin Gudis; *Dist. Mgr.:* Albin Gudis

BACH-SIMPSON LTD., 1255 Brydges St., London, ON, Canada N5W-2C2, Tel: 519-452-3200

BACON INDS., 192 Pleasant St., Watertown, MA 02172-2399, Tel: 617-926-2550, TWX: 710-327-6518; FSC No.: 99098; Empl.: 23; *Sls. Mgr.:* R. S. Cass

BAILEY CONTROLS CO., 29801 Euclid Ave., Wickliffe, OH 44092, Tel: 216-585-5800, Telex: 980621, TWX: 216-944-4160; Empl.: 2300; *Sls. Mgr.:* R. A. Purmal; *Dist. Mgr.:* R. C. Wright

BALDOR ELECTRIC COMPANY, P.O. Box 2400, Fort Smith, AR 72901, Tel: 501-646-4711, Telex: 53-7425

BALLY ELECTRONICS, Bally Mfg., 10750 W. Grand Ave., Franklin Park, IL 60131, Tel: 312-451-7223; Empl.: 300; *Sls. Mgr.:* Lam McGannon

BAKER, J. T., CHEMICAL CO., 222 Red School La., Phillipsburg, NJ 08865, Tel: 201-859-2151, TWX: 510-235-2924; Empl.: 1,200; *Sls. Mgr.:* D. J. Calder

BAKER CO., INC., Drawer E - Sanford Airport, Sanford, ME 04073, Tel: 207-324-8773; Empl.: 150

BALLANTINE LABS., 90 Fanny Rd., Boonton, NJ 07005, Tel: 201-335-0900, TWX: 710-987-8380; FSC No.: 50423; Empl.: 90; *Sls. Mgr.:* Joe Deery; *Dist. Mgr.:* Joe Deery .... **D•1185**

Local Sales Offices & Reps

AZ	Phoenix, Fry-Gates	602-277-2808

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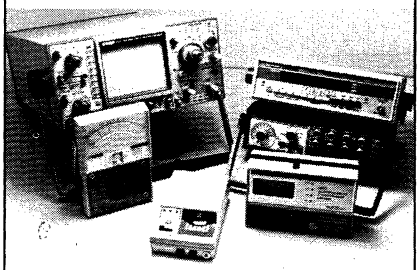

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1810 Grant Avenue/Philadelphia, PA 19115
(215) 673-6500 in PA, NJ, DE
8019 Belair Road/Baltimore, MD 21236
(301) 661-5900 in MD, VA

Local Direct Dial Phones
(203) 563-9232 in Hartford, CT
(203) 773-3441 in New Haven, CT
(302) 652-8585 in Wilmington, DE
(301) 621-5077 in Wash., DC Area
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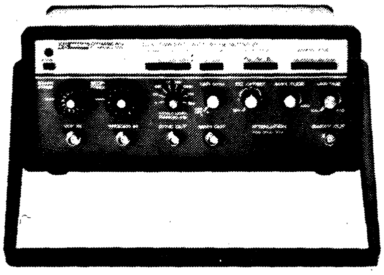

Model 3030

AZ	Tempe, Fry-Gates Inc.	505-262-1525
CA	Laguna Hills, Elotek Sys. Inc.	714-830-4856
CA	Los Angeles, Elotek Sys., Inc.	213-416-9190
CA	San Diego, Elotek Sys., Inc.	619-438-4856
CA	San Jose, MCH Assocs.	408-246-7330
CO	Denver, Fry-Gates, Inc.	303-321-6818
CT	Southington, Scheinfein Assocs.	203-621-3492
FL	Orlando, Micro Spec, Inc.	305-299-6508
GA	Lilburn, Micro Spec, Inc.	404-921-3840
IL	Arlington Hgts., Dytec/Central	312-394-3380
IN	Indianapolis, Dytec/Central	317-247-1316
KS	Kansas City, Marsland Assocs.	913-888-2840
MA	Reading, Scheinfein Assocs.	617-944-2304
MI	Madison Hgts., WKM Assocs.	313-588-2300
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NM	Albuquerque, Fry-Gates, Inc.	505-262-1525
NY	Canandaigua, Mamula Sls.	716-394-5560
NY	New York, L & M Assocs.	212-243-6155
OH	Cleveland, WKM Assoc.	216-267-0445
OH	Dayton, WKM Assoc.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Portland, Westcon	503-283-0132
PA	Andalusia, L & M Assocs.	215-245-6658
PA	Pittsburgh, WKM Assoc.	412-292-2953
SC	Rock Hill, Micro Spec, Inc.	803-366-3015
TN	Nashville, Micro Spec. Inc.	615-383-4064
TX	Austin, Lear Assocs.	512-450-1059
TX	Richardson, Lear Assocs.	214-231-5388
UT	Salt Lake City, Zeus Elctrns.	801-534-0500
VA	Alexandria, Dyna Rep Co.	703-354-1222
WI	Elm Grove, Dytec/Central	414-784-9686

BALL ELCTRN. SYS. DIV., Ball Corp., P. O. Box 64376, St Paul, MN 55164, Tel: 612-786-8900, TWX: 910-563-3552; FSC No.: 612-786-4577; Empl.: 150; *Sls. Mgr.:* Richard C. Scarle

BALL ELECTRONIC, Systems Div., 9300 W. 108th Circle, Broomfield, CO 80020, Tel: 303-460-5256, Telex: 45776; Empl.: 500; *Sls. Mgr.:* R. Scarle

BALSTON, 703 Massachusetts Ave., Lexington, MA 02173, Tel: 617-861-7240, Telex: 92-3481; Empl.: 50; *Sls. Mgr.:* J. Alpert

BALZERS OPTICAL GRP., 170 Locke Dr., Marlboro, MA 01752, Tel: 617-481-9860, Telex: 951-562; Empl.: 136; *Sls. Mgr.:* C. A. Burke

B & B MOTOR & CONTROL CORP., Apple Hill Commons, Burlington, CT 06013, Tel: 203-673-7151, Telex: 14-1484; Empl.: 90; *Sls. Mgr.:* Sam Mandel

Local Sales Offices & Reps

CT	Berlin	203-828-8550
FL	Clearwater	800-845-1020
IL	Chicago, B & B Motor & Control Corp.	312-681-0089
IN	Indianapolis	317-248-0396
KY	Louisville	502-589-7753
MA	Boston, B & B Motor & Control Corp.	617-890-4944
NH	Nashua, B & B Motor & Control Corp.	603-883-1062
NJ	Piscataway	201-572-0500
NY	Baldwin, B & B Motor & Control Corp.	212-784-1313
NY	Elmira	607-732-6599
NY	Long Island City, B & B Motor & Control Corp.	212-784-1313
NY	Rochester	716-424-7040
NC	Charlotte	704-375-0577
OH	Cincinnati	513-381-1885
SC	Greenville	803-268-5702
TX	Dallas	214-641-0857
TX	Houston	713-820-7931

B & G PRECISION ELCTRNS., 538 Maple Ave., Doylestown, PA 18901, Tel: 215-348-4413; *Sls. Mgr.:* Eugene R. Bigay; *Dist. Mgr.:* Xavier Garcia

B & K PRECISION, INDUSTRIAL ELECTRONICS PRODUCT GROUP, Dynascan Corporation, 6460 W. Cortland, Chicago, IL 60635, Tel: 312-889-9087, Telex: 253475; FSC No.: 08098, 18110, 48560, 30678; Empl.: 250; *Sls. Mgr.:* Dennis Hoy
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Local Sales Offices & Reps

AL	Alabaster, Maitland K. Smith, Inc.	205-664-3093
AR	Little Rock, Erickson Sls., Inc.	501-225-7379
CA	Irvine, Mike Roth Sls.	714-250-0722
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CO	Denver, K-C Marketers, Inc.	303-733-5561
FL	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
GA	Tucker, Maitland K. Smith	404-939-3322
HI	Honolulu, Omega Hawaii, Inc.	808-946-2983
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
LA	Chalmette, Erickson Sls.	504-271-1976
MD	Perry Hall, Electra-Tech	301-256-2723
MA	Woburn, W & D Mktg.	617-935-5610
MI	Southfield, Robert Milsk Co., Inc.	313-354-3310
MN	Minneapolis, HMR, Inc.	612-888-2122
MO	St. Louis, Lowell-Kangas Assocs.	314-821-4050
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NY	Bellmore, Selectra Sls.	516-221-7865
NY	East Greenbush, Warren Kaufman & Assocs.	518-477-9864
NY	Rochester, Warren Kaufman & Assocs.	716-266-2728
NC	Charlotte, Maitland K. Smith, Inc.	704-372-2681
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
OK	Broken Arrow, Erickson Sls., Inc.	918-455-4276
OR	Portland, Dussault & Assocs.	503-641-8540
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Austin, Erickson Sls., Inc.	512-244-3068
TX	Dallas, Erickson Sls.	214-739-5833
TX	Houston, Erickson Sls., Inc.	713-266-1604
VA	Dumfries, Electra-Tech	703-670-6962
WA	Seattle, Dussault & Assocs.	206-527-5454
WI	Waukesha, Brainard-Wilson Mktg.	414-797-7940
EXP	NY, Plainview, Empire Exporters	516-293-5582

BANNER ENGRG. CORP., 9714 - 10th Ave. N., Minneapolis, MN 55441, Tel: 612-544-3164, Telex: 29-1011; *Sls. Mgr.:* Floyd Schneider

BARBER-COLMAN CO., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132, Tel: 815-877-0241, Telex: 257327; Empl.: 5000; *Sls. Mgr.:* John Parry

BARCEL WIRE & CABLE CORP., Electronics Div., 2851 Aton Ave., Irvine, CA 92714

BARKSDALE CONTROLS DIV., Transamenca DeLaval, 3211 Fruitland Ave., P.O. Box 58843, Los Angeles, CA 90058, Tel: 213-589-6181; Empl.: 325; *Sls. Mgr.:* R. C. Wolf

BARNES & REINECKE, INC., 2375 Estes Ave., Elk Grove Village, IL 60007, Tel: 312-640-7200; Empl.: 290

B E

BARNES ENGRG., 1645 So. Claudina Way, Anaheim, CA 92805, Tel: 714-533-7530; FSC No.: FSCM 53823 S.I.C. 3469; Empl.: 38; *Sls. Mgr.:* Gordon Mackenzie
.... **C•1010-1024**

Local Sales Offices & Reps

OH	Cleveland, Components, Inc.	216-243-9200
OH	Miamisburg (Dayton), Components, Inc.	513-866-0661
PA	Pittsburgh, Components, Inc.	412-824-1600

BARNES ENGRG., 44 Commerce Rd., P.O. Box 53, Stamford, CT 06904, Tel: 203-348-5381, Telex: 965921, TWX: 710-474-3367; Empl.: 300; *Sls. Mgr.:* H. R. Hofmann, Jr.

BARON-BLAKESLEE, INC., Sub. Purex Inds., Inc., 2001 N. Janice Ave., Melrose Pk., IL 60160, Tel: 312-450-3900, Telex: 25-4701; *Sls. Mgr.:* B. Uffer

BARON WIRE & CABLE, 1811 W. Bryn Mawr Ave., Chicago, IL 60660, Tel: 312-728-7480, Telex: 72-4322; Empl.: 50; *Sls. Mgr.:* Al Desaluo

BARRY CONTROLS, Barry Wright Corp., 700 Pleasant St., Watertown, MA 02172, Tel: 617-923-1150, TWX: 710-327-1290; FSC No.: 81860; *Sls. Mgr.:* Philip R. Littlewood

BARSOM INC., See IR Scientific

BARTLETT INSTRUMENT CO., 14th & Ave. 'M', P.O. Box 445, Ft. Madison, IA 52627, Tel: 319-372-8366; Empl.: 25; *Sls. Mgr.:* P. R. Bartlett

BASCOM-TURNER INSTRS., 111 Downey St., Norwood, MA 02062, Tel: 617-769-9660, Telex: 92-2413; Empl.: 35; *Sls. Mgr.:* D. Weise; *Dist. Mgr.:* S. Holly

BASE TEN SYS., One Electronics Dr., Box 3151, Trenton, NJ 08619, Tel: 609-586-7010, Telex: 4754158, TWX: 510-685-5692; FSC No.: 30377; Empl.: 255; *Sls. Mgr.:* Oleh Pavlovsky

BASF SYS., Crosby Dr., Bedford, MA 01730, Tel: 617-271-4000, 800-343-4600, Telex: 92-3423; Empl.: 1,300; *Sls. Mgr.:* David F. Pippin

BASIC ELECTRONICS, INC., 11762 Western Ave. "Q", Stanton, CA 90680, Tel: 714-530-2400; Empl.: 30; *Sls. Mgr.:* Tom Jones; *Dist. Mgr.:* Tom Jones

BASIC MEASURING INSTS., 402 Lincoln Centre Dr., Foster City, CA 94404, Tel: 415-570-5355; *Sls. Mgr.:* Robert Moore

BASIC SYSTEMS, 1919 S. 129 5. Ave., Tulsa, OK 74108, Tel: 918-437-7066; Empl.: 20; *Sls. Mgr.:* Karen Duggan; *Dist. Mgr.:* Karen Duggan

BASLER ELEC., Rte. 143, Highland, IL 62249, Tel: 618-654-2341, TWX: 910-996-2522; Empl.: 1,233

BASLER ELEC. CIRCUITS, INC., 204 Highland Dr., P.O. Box 1165, Taylor, TX 76574, Tel: 512-352-7683; Empl.: 110; *Sls. Mgr.:* Warwick R. Tobias

BAUSCH & LOMB, 820 Linden Ave., Rochester, NY 14625, Tel: 716-338-6000, Telex: 97-2286; *Sls. Mgr.:* Martin Green

BAUSCH & LOMB, 820 Linden Ave., Rochester, NY 14625, Tel: 716-338-6314, Telex: 98-8286; Empl.: 500

BAUSCH & LOMB, O.S.D. Div., 1400 N. Goodman St., Rochester, NY 14692, Tel: 716-338-6000, Telex: 97-8231; Empl.: 5000; *Sls. Mgr.:* Martin L. Green

BAY COMPONENTS, INC., 1806 Dreams Landing Way, Annapolis, MD 21401, Tel: 301-266-6767, Telex: 710-867-8567; Empl.: 55; *Sls. Mgr.:* Lois Levit

BAYLEY INSTR. CO., Box 357, Kenwood, CA 95452, Tel: 707-833-6014

BAY PRODS., 8701 Torresdale Ave., Phila., PA 19136, Tel: 215-DE8-7300, Telex: 83-4434; Empl.: 150; *Sls. Mgr.:* Frank Stewart

BAYTRON, See M/A-Com Millimeter Products Inc.

BBC BROWN BOVERI GOERZ METRAWATT

BBC-METRAWATT/GOERZ, 2150 W. 6th Ave., Broomfield, CO 80020, Tel: 303-469-5231, 800-821-6327, Telex: 4970869; Empl.: 20; *Sls. Mgr.:* Andy Zeidler/Mac McChesney .... **D•1192-1193**

Local Sales Offices & Reps

Multimeter

AL	Birmingham, Adams & Assocs.	205-788-0305
CA	Sun Valley, Teqni-Rep. Assocs.	818-768-4223
CO	Louisville, Stan Sliz Assocs.	303-666-4760
FL	Lake Park, Adams & Assocs.	305-694-1543
GA	Marietta, Adams & Assocs.	404-973-0853
HI	Honolulu, Hawaiian Indl. Inst. Sls. Corp.	808-533-5170
LA	Kenner, Assoc. Mktg. Grp.	504-443-5072
MA	Norwood, Mac Innis Corp.	617-762-8090
MI	Livonia, Harvey Sls.	313-591-1975
MN	Edina, Pec/Levi & Assocs.	612-944-8540
NJ	Medford, Jack McCoy Assocs.	609-953-0770
NM	Tijeras, Stan Sliz Assocs.	505-281-3856
NY	Kew Gardens, Jack Brown Elec.	212-805-0343
NY	Liverpool, Jack Brown Elec.	315-622-3211
NY	Whitestone, Jack Brown Elec.	212-767-1977
NC	Charlotte, Adams & Assocs.	704-552-7800
NC	Greensboro, Adams & Assocs.	919-272-6838
PA	Dawnington, Jack Brown Elec.	215-363-0350
TX	Dallas, Assoc. Mktg. Grp.	214-241-7190
TX	Houston, Assoc. Mktg. Grp.	713-466-8673
UT	So. Jordan, Stan Sliz Assocs.	801-254-4141
WA	Seattle, Northmar	206-524-5170

Recorder

AL	Huntsville, Newcomb Assocs.	205-837-3233
CA	Berkeley, Rotech	415-428-2044
CA	Woodland Hills, Friedman & Assocs. ..	818-702-0665
CO	Arvada, Air-Row Entprs.	303-421-4204
GA	Roswell, Newcomb Assocs.	404-641-7942
HI	Honolulu, Hawaiian Indl. Inst. Sls. Corp.	808-533-4232
IL	Rolling Meadows, Commodore-I	312-394-5441
MD	Rockville, Dela Technlg.	301-881-6292
MA	Sharon, Reptek	617-784-6700
MI	Trenton, I & C Sls.	313-671-1320
MN	Burnsville, Commodore-I	612-894-5488
MT	Billings, Geo Research	406-248-6771
NY	Albany, L-Tron	518-482-1987
NY	Rochester, L-Tron	716-436-4410
NY	Roslyn Heights, Penzias Assocs.	516-621-8522
NC	R.T.P., Newcomb Assocs.	919-549-0486
OH	Cincinnati, I & C Sls.	513-772-3101
OR	Portland, Westcon	503-283-0132
TX	Austin, Acudata	512-346-4033
TX	Houston, Acudata	713-580-2451
TX	Plano, Acudata	214-424-3567

BBK, INC., 75 Travis Ave., Binghamton, NY 13904, Tel: 607-772-8119; *Sls. Mgr.:* Jerome Kunze

B-D CRYSTAL ENTPRS., INC., 1727 W. Galbraith Rd., Cincinnati, OH 45239, Tel: 513-522-3300, Telex: 21-4545; *Sls. Mgr.:* Janet Wood, Charles Fithen

BDS COMPUTER CORP., 800 Maude Ave., Mountain View, CA 94043, Tel: 415-964-2115, TWX: 910-373-2005; *Sls. Mgr.:* Dave Lester

BEAD ELECTRONIC CONNECTORS, Bead Chain Manufacturing Co., 10878 Wiles Rd., Box 9897, Coral Springs, FL 33075, Tel: 305-753-3639; Empl.: 150; *Sls. Mgr.:* Bruce Thomas; *Dist. Mgr.:* Bruce Thomas .... **C•1162-1167**

Local Sales Offices & Reps

CA	Anaheim, Galaxie Sls. Intl.	714-937-5622
CO	Denver, Gribble Sls. Engrg.	303-278-1495
CT	Kensington, Metal Tech., Inc.	203-828-1148
FL	Coral Springs, Janco Sls.	305-755-0631
IL	Chicago, Electro Mech. Sls. Co.	312-777-0554
IN	Indianapolis, Hoster & Sieloff Assocs.	317-842-3700
MI	Detroit, Fox Inds., Inc.	313-363-7183
MN	Minneapolis, Gribble Sls. Engrg.	612-788-7028
TX	Dallas, Gribble Sls. Engrg.	214-221-5109
VA	Williamsburg, Dyneers, Inc.	804-229-3612

Local Distributors

CA	Anaheim, Beta Inds.	714-978-7544

BEAD ELCTRNS., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, Tel: 203-334-4124; Empl.: 175; *Sls. Mgr.:* Mrs. B. M. Krafcik .... **C•1686-1688**

Local Sales Offices & Reps

CA	Anaheim, Galaxie Sls. Intl.	714-937-5622
CO	Denver, Gribble Sls. Engrg.	303-279-4545
CT	Kensington, Metal Tech, Inc.	203-828-1148
FL	Coral Springs, Janco Resch. & Sls. Co.	305-755-0631
IL	Chicago, Electro-Mech Sls. Co.	312-777-0554
IN	Indianapolis, Hoster & Sieloff Assocs.	317-842-3700
MI	Union Lake, Fox Inds.	313-363-7183
MO	Independence, Gribble Sls. Engrg.	816-796-4333
TX	Lewisville, Gribble Sls. Engrg.	214-221-5109
VA	Williamsburg, Dyneers	804-229-3612
EXP	NJ Rochelle Park, Richmen Metals & Comps.	201-796-6271

BEA ELECTRO-OPTICS, INC., 690 First Ave., Des Plaines, IL 60016, Tel: 312-298-1420, Telex: 882903; *Sls. Mgr.:* George E. Magerl; *Dist. Mgr.:* Vic Halkyn

BEAL COMMUNICATIONS, Beneficial Properties, 11020 Audelia Rd. Ste. C 101, Dallas, TX 75243, Tel: 214-340-2044, 214-340-2045; Empl.: 7; *Sls. Mgr.:* Robert Farrier

BEAM TUBE CO., INC., 11 Beach St, Milford, MA 01757, Tel: 617-473-0660; FSC No.: 5960; Empl.: 25; *Sls. Mgr.:* Joseph A. Casciano

BEAN RUBBER MFG. CO., 1623 S. 10th St, San Jose, CA 95112, Tel: 408-293-2790; FSC No.: 18545; *Sls. Mgr.:* Kris Mosher

BEARING INSPECTION, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670, Tel: 213-944-6251; Empl.: 31

BEAU PRODUCTS DIV., Vernitron Corp., Box 10, Laconia, NH 03247, Tel: 603-524-5101, TWX: 710-364-1843; FSC No.: 13150; Empl.: 230; *Sls. Mgr.:* John Jansen; *Dist. Mgr.:* Larry Murphy .... **C•1168-1170**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, The Knight Co.	602-582-8506
CA	Los Angeles, The Knight Co.	213-670-2833
CA	Santa Clara, Nova-Tronix Elec. Sls. ...	408-727-9530
CO	Denver, W.J. Purdy Co.	303-753-6800
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Lisle, W-G Controls	312-963-5954
LA	Kenner, Cartwright & Bean	504-466-0020
MA	Needham, R. Perron & Co.	617-449-6162
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	Kansas City, Forristal-Young Sls. Co.	816-358-6771
NH	Dover, R. Perron & Co.	603-742-2321
NJ	West Caldwell, Grimm, Siegel Assoc.	201-575-9300
NM	Albuquerque, C.T. Carlberg & Assoc. ..	505-883-3883
NY	Buffalo, Rudell-Merrifield Assoc	716-634-4300
NC	Charlotte, Cartwright & Bean	704-377-5673
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OK	Oklahoma City, Erickson Sls.	405-682-2947
PA	Broomall, L.D. Lowery	215-356-5300
PA	Pittsburgh, Jim Finnegan	412-561-4687
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Dallas, Erickson Sls.	214-739-5833
WA	Medina, Henry Paulman Sls. Co.	206-455-3311
WA	Seattle, Don Smith Sls. Co.	206-633-3160

BEAU TECH, P.O. Box 598, Portland, ME 04122, Tel: 207-775-6139; Empl.: 9

BEAVER LABS, P. O. Box 202, Kingston, MA 02364, Tel: 617-585-5666; Empl.: 5

BEC INC., 2709 N. Broad St., Philadelphia, PA 19132, Tel: 215-229-9800; *Sls. Mgr.:* Bob Kandel

BECKMAN INDUSTRIAL CORP., Cedar Grove Div., 89 Commerce Rd., Cedar Grove, NJ 07009, Tel: 201-239-6200, TWX: 710-994-5781

BECKMAN INDUSTRIAL• CORP., Electronic Technologies Div., 2500 Harbor Blvd., Fullerton, CA 92634, Tel: 714-871-4848, Telex: 06-78413, TWX: 910-592-1260; FSC No.: 73138; Empl.: 2600; *Sls. Mgr.:* Roger Jones; *Dist. Mgr.:* Philip Graham

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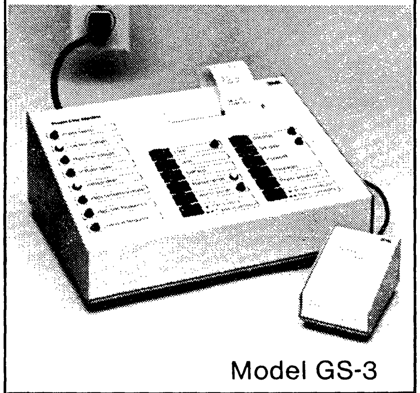

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(203) 563-9232 in Hartford, CT
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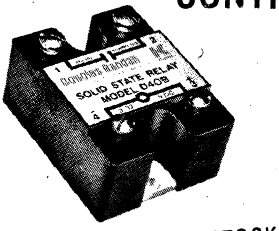

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BECKMAN INDUSTRIAL CORP., Emerson Electric Co., 630 Puente Street, Brea, CA 92621, Tel: 714-773-8111, Telex: 06-78413; *Sls. Mgr.:* P. E. Spillane/John Tyree

BECKMAN INSTRS., 2500 Harbor Blvd., Fullerton, CA 92634, Tel: 714-871-4848, Telex: 06-7413; Empl.: 12000

BECKMAN INSTRS., HELIPOT DIV., See Beckman Instrs., Electro-Prods. Grp.

BEECHWOOD MFG., 310 S. Ohmer, Indianapolis, IN 46219, Tel: 317-356-2493; *Sls. Mgr.:* Robt. Cox

BEEDE ELECTRICAL INSTR. CO., S. Main St., Penacook, NH 03303, Tel: 603-753-6362, TWX: 710-364-6977; Empl.: 500; *Sls. Mgr.:* Mike Harbour

BEHLMAN DIV., CALIFORNIA INSTRS., Div. of Norlin Inds., 5150 Convoy St., San Diego, CA 92111, Tel: 619-279-8620, Telex: 695-047; FSC No.: 16067; Empl.: 90

BEHLMAN ENGINEERING, 1142 Mark Ave., Carpinteria, CA 93013, Tel: 805-684-8311; FSC No.: 53636; *Sls. Mgr.:* Edward C. Bertolet/Frank Chase; *Dist. Mgr.:* John White .... **D•1898-1905**

Local Sales Offices & Reps

AL	Huntsville, Reynolds & Assocs.	305-259-7000
AZ	Phoenix, J. Smith & Assocs., Inc.	602-267-0981
AZ	Phoenix, R. L. Davis	602-955-2266
CA	Cupertino, T. Louis Snitzer	408-257-8333
CA	Del Mar, T. Louis Snitzer	714-226-0305
CA	Los Angeles, T. Louis Snitzer	213-836-6170
CO	Colorado Springs, J. Smith & Assocs., Inc.	303-597-5343
FL	Melbourne, Reynolds & Assocs.	305-259-7000
FL	Satellite, Reynolds & Assocs.	305-773-4700
GA	Atlanta, Reynolds & Assocs.	404-252-5360
IL	Wheeling, Ed Joyner & Co.	312-520-1200
IN	Noblesville, R & D Elctrns.	317-849-2026
MD	Rockville, Farrell Assocs.	301-424-9460
MA	Needham, Addelco Corp.	617-444-4754
MI	Farmington Hills, Carter, McCormic & Peirce, Inc.	313-477-7700
MN	St. Paul, Dytec No.	612-645-5816
MO	Independence, Engineering Svcs. Co.	816-254-3600
MO	St. Louis, Engineering Svcs. Co.	314-997-1515
NM	Albuquerque, J. Smith & Assocs., Inc.	505-265-3406
NY	Great Neck, Industron Assocs., Inc.	516-487-2620
NC	Raleigh, Reynolds & Assocs.	305-259-7000
OH	Cleveland, Carter, McCormic & Peirce, Inc.	216-779-5100
OH	Dayton, Carter, McCormic & Peirce, Inc.	513-836-0951
OK	Tulsa, Testech, Inc.	918-665-7788
PA	Pittsburgh, Carter, McCormic & Peirce, Inc.	412-372-4415
TX	Austin, Testech, Inc.	512-327-7033
TX	Houston, Testech, Inc.	713-956-0837
TX	Richardson, Testech, Inc.	214-644-5010
WA	Seattle, Datacom Assocs.	206-285-2525
Can	Burnaby, B.C., Atelco, Inc.	604-299-9331
Can	Calgary, Alberta, Atelco, Inc.	403-230-1697
Can	Montreal, Que., Atelco, Inc.	514-481-7733
Can	Ottawa, Ont., Atelco, Inc.	613-596-5894
Can	Scarborough, Ont., Atelco, Inc.	416-497-2208

BEI

BEI MOTION SYSTEMS CO., Corporate Off., 166 Geary St., Ste. 1400, San Francisco, CA 94108, Tel: 415-788-6840, Telex: 910-380-5402; Empl.: 5 .... **B•1782-1783**

Local Sales Offices & Reps

CA	Santa Ana, BEI Motion Sys. Co.	714-973-8510
CA	Santa Clara, BEI Motion Sys. Co.	408-986-9006
CO	Westminster, BEI Motion Sys. Co.	303-426-1566
GA	Lawrenceville, BEI Motion Sys. Co.	404-963-0673
IL	Rockford, BEI Motion Sys. Co.	815-968-9528
MA	Wakefield, BEI Motion Sys. Co.	617-245-3851
MI	Plymouth, BEI Motion Sys. Co.	313-451-0359
OH	Cincinnati, BEI Motion Sys. Co.	513-232-4545
OR	Beaverton, Thorson Co. NW	503-644-5900
PA	Exton, BEI Motion Sys. Co.	215-363-5444
TX	Hurst, BEI Motion Sys. Co.	817-284-4313
WA	Bellevue, Thorson Co. Northwest	206-455-9180
Can	Montreal, Miller Engrg., Ltd.	514-748-6169
Can	Willowdale, Miller Engrg., Ltd.	416-499-4421

BEI MOTION SYS. CO., Computer Prod. Div., 1755 B La Costa Meadows Dr., San Marcos, CA 92069, Tel: 619-471-2600; *Sls. Mgr.:* Everett McElroy .... **B•1783**

BEI MOTION SYS. CO., Digital Prods. Div., P.O. Box 3838, Little Rock, AR 72203, Tel: 501-851-4000, TWX: 910-722-7384; Empl.: 103; *Sls. Mgr.:* H. O. Tyler .... **B•1782**

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., General Control Systems Div., 564 Alpha Dr., Pittsburgh, PA 15238, Tel: 412-963-0515; *Sls. Mgr.:* Chic Sweeney .... **B•1783**

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., Industrial Encoder Div., 7230 Hollister Ave., Goleta, CA 93117, Tel: 805-968-0782; *Sls. Mgr.:* Glenn Avolio .... **B•1782**

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYSTEM COMPANY, Kimco Division, 150 Vallecitos de Oro, San Marcos, CA 92069, Tel: 619-744-5671, TWX: 910-322-1168; Empl.: 43; *Sls. Mgr.:* William Byrnes .... **B•1783**

BEI MOTION SYS. CO., Position Controls Div., 819 Reddick Ave., Santa Barbara, CA 93103, Tel: 805-966-1538, TWX: 910-334-4903; *Sls. Mgr.:* K. Capps .... **B•1782**

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BELDEN
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BELDEN, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, Tel: 317-983-5200, TWX: 810-345-1393; Empl.: 2180; *Sls. Mgr.:* Bill Donahoe .... **C•1742, 1750-1789**

Local Sales Offices & Reps

Regional Sales Offices

CA	Cannon Country, John Duffin	805-252-2525
CA	Hayward, Harry Furst	415-278-1607
CA	Irvine	714-474-1200
CA	Lafayette, Mark Warren	415-284-5064
CA	Placentia, Rick Webber	714-524-7619
CA	San Diego, Judy Hummerich	619-484-5766
CA	Torrance, Dave Wilhide	213-373-1967
CO	Englewood, Terry Godwin	303-694-3292
FL	Orlando, Brad Hahn	305-291-7739
GA	Norcross, Tom Beane	404-925-0679
IL	Naperville, Kelley Smith	312-961-1249
IL	Palatine, Phil Dunn	312-358-9336
IL	St. Charles, Joe Prechodnik	312-377-9464
IN	Richmond	317-983-5200
KS	Shawnee, Dave Phelps	913-268-6528
LA	St. Rose, Kyle Ingram	504-464-0125
MA	Framingham, John Kennedy	617-872-4585
MA	Wayland, Cathie Hamel	617-651-1213
MN	Plymouth, Ken Pratt	612-593-0907
MN	Spring Park, Jim Hughes	612-471-9478
NY	Huntington Station, Dale Ambery	516-549-9731
NY	Oyster Bay, Mike Wakeland	516-922-3762
OK	Broken Arrow, Jeff Cooper	918-251-2027
PA	Bethel Park, J. D. Allen	412-831-9312
PA	Exton, Tom Deckard	215-363-2874
PA	Rosemont, Brian Easley	215-525-3268

TN	Hendersonville, Dale Diedrichs	615-822-3861
TX	Carrollton, Tim Fast	214-492-0937
TX	Dallas	214-788-4300
TX	Dallas, Mike Kipper	214-553-0521
TX	Houston, Charles Amonett	713-350-2271
TX	Plano, Mary McQuistion	214-423-2335
VA	Richmond, Karen Jones	804-747-1090

Local Sales Reps.

AZ	Scottsdale, W. Atkins	602-998-7355
CA	Huntington Beach, E. Kerezsi	714-848-2157
CA	Newark, R. Tribendis	415-490-0838
CA	Northridge, J. Duffin	213-993-8919
CA	San Jose, S. Landis	408-723-7117
CA	Tustin, W. Caughlin	714-832-5278
CT	South Bury, L. Kerchief	212-264-8012
FL	Boca Raton, G. Pedigo	305-482-1279
GA	Atlanta	404-934-6767
GA	Marietta, J. Fienning	404-973-6212
IL	Oakbrook	312-789-0800
IN	Indianapolis, L. Brown	317-849-1945
IN	Richmond, J. Daggy	317-962-6103
MD	Columbia, E. Wunder	301-997-4480
MA	Framingham	617-872-7846
MA	Framingham, A. Harris	617-872-2066
MA	Franklin, S. LaRocco	617-528-1896
MO	Clayton, Fletcher Lane	314-725-1488
NY	Rochester, T. Centofonti	716-461-0818
NY	Sunnyside, E. Mammone	212-361-0993
NC	Raleigh, A. Hatcher	919-848-3342
OH	Medina, H. Flanders	216-725-4285
OR	Lake Oswego, D. Clicquennoi	503-638-0271
SC	Columbia, G. Owen	803-781-9739
TX	Austin, M. Mullery	512-345-5204
TX	Houston, C. Amonett	713-350-2271
TX	Houston, M. Masucci	713-721-6023
WA	Bellevue, S. Abernethy	206-885-5808
WI	Milwaukee, M. Lucky	414-355-4986

BELDEN, Fiber Optics, 2000 S. Batavia Ave., Geneva, IL 60134, Tel: 312-232-8900, TWX: 910-237-1681

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BEL FUSE, 198 Van Vorst St., Jersey City, NJ 07302, Tel: 201-432-0463, TWX: 710-730-5301; Empl.: 225; *Sls. Mgr.:* A. Sutta; *Dist. Mgr.:* S. Rader **A•1468-1486; B•1230-1232**

Local Sales Offices & Reps

Delay Lines

AL	Huntsville, EMA, Inc.	205-830-4030
AZ	Scottsdale, SMS & Assocs.	602-998-0831
CA	Escondido, Cirolia Elctrn.	619-743-3015
CA	Los Angeles, Corcoran Assocs.	213-823-4589
CA	Santa Clara, Thresum Assocs.	408-996-9889
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Branford, L.J.M. Assocs.	203-488-4244
FL	Altamonte Springs, Semtronics Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Fort Lauderdale, Semtronics Assocs.	305-731-2484
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Chicago, MGA	312-775-1151
IN	Indianapolis, Insul-Reps, Inc.	317-251-1994
MA	Wellesley Hills, Sturdy Co.	617-235-2330
MI	Bloomfield Hills, Enco Mktg.	313-642-0203
MN	So. St. Paul, Northport Engr.	612-457-8000
NH	Milford, D. A. Crowley Assocs.	603-673-7050
NJ	East Brunswick, Winch Sls. Assocs.	201-828-4615
NM	Albuquerque, SMS & Assocs.	505-883-9765
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Roslyn Hgts., Winch Sls. Assocs.	516-621-6378
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Cleveland, J. Finnegan & Co.	216-238-5905
PA	Bala Cynwyd, Friedman & Assocs.	215-667-1838
TN	Knoxville, Insul-Reps	615-691-7586
TX	Austin, Oeler & Menelaides	512-453-0275
TX	Dallas, Oeler & Menelaides	214-361-8876
TX	Houston, Oeler & Menelaides	713-682-1083
UT	Salt Lake City, Front Range Mktg.	801-364-6481
WA	Kirkland, A/D Elctrns.	206-821-3205
PR	Hato Rey, M. Anderson Co.	809-751-2026
Can	Downsview, Ont., Cantronics	415-665-8020

Fuses

CA	Huntington Beach, Corcoran Assocs.	714-841-4759
CA	Playa Del Rey, Corcoran Assocs.	213-823-4589
CA	Sunnyvale, W. W. Posey	408-746-0771
CO	Boulder, Front Range Mktg.	303-443-4780
IL	Chicago, MGA	312-775-1151
IN	Indianapolis, Insul-Reps., Inc.	317-842-5203
MI	Bloomfield Hills, Enco Mktg., Inc.	313-642-0203
MN	S. St. Paul, Northport Engrg., Inc.	612-457-8000
NH	Milford, David A. Crowley & Assocs.	603-673-7050
NJ	So. Orange, Ira Brody	201-992-1727
NM	Albuquerque, Syntech	505-266-7951
NY	East Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Hempstead, L.I., Kahgan Sls.	516-538-2300
PA	Philadelphia, Check Assocs.	215-487-3007
TN	Knoxville, Insul-Reps., Inc.	615-691-7586
UT	Salt Lake City, Front Range Mktg.	801-364-6481
WA	Kirkland, A/D Elctrns., Inc.	206-821-3205
PR	Hato Rey, Max Anderson Co., Inc.	809-751-2026
Can	Downsview, Ont., Cantronics	416-665-8020

Local Distributors

Fuses

CA	Santa Ana, Amco Tech.	714-957-3003
DE	Danbury, Future Elctrns.	203-743-9594
FL	Clearwater, Future Elctrns.	813-441-4771
IN	Indianapolis, MAR Elctrns.	317-875-4510
IA	Cedar Rapids, Deeco Elctrns.	319-365-7551
MD	Columbia, D-K Elctrns.	301-995-1950
MA	Boston, Future Elctrns.	617-366-2400
MN	New Brighton, Chris Elctrns.	612-631-2647
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Mt. Laurel, Future Elctrns.	609-778-7600
NY	Liverpool, Future Elctrns.	315-451-2371
OR	Beaverton, Component Resources	503-641-8488
PA	Harrisburg, Cumberland Elctrns.	717-232-9715
PA	Lyndora, Seneca Fuse	412-285-8544
UT	Salt Lake City, Future Elctrns.	801-972-8489
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
Can	Pointe Claire, Quebec, Future Elctrns.	514-694-7710
CA	El Segundo, Force Elctrns.	213-772-1324
NH	Hudson, C & H Elctrns.	603-882-1133
CA	Anaheim, Deco Elctrns.	714-630-8252
CA	City of Industry, Ital Elctrns.	213-968-8515
CA	Hayward, KEA Elctrns.	415-887-2900
CA	San Diego, Sigma Elctrns.	619-763-0545
CA	San Jose, Force Elctrns.	408-943-1324
CT	Norwalk, Cobra Comps.	203-847-6442
FL	Boca Raton, D & R Assocs.	305-395-2341
MA	Canton, Electronic Packaging Comps.	617-821-2111
NH	Hudson, C & H Elctrns.	603-882-1133
NY	Bohemia, Key Comps.	516-567-7500
TX	Dallas, Fuses, Inc.	214-341-6407

BELL, FLOYD, ASSOCS., INC., 897 Higgs Ave., Columbus, OH 43212, Tel: 614-488-3193, TWX: 810-482-1763; FSC No.: 56493; *Sls. Mgr.:* Tom Shain **D•1023**

Local Sales Offices & Reps

CA	Pasadena, Paul Nurches Co.	213-681-8957
CA	Redwood City, Hickey Indl. Sls. Corp.	415-368-3849
CO	Denver, Moss Mktg.	303-455-7205
FL	Casselberry, Barrett & Assocs.	305-699-0311
FL	Melbourne, Barrett Assocs.	305-727-2491
FL	Miami, Barrett Assocs.	305-681-4957
FL	Palm Harbor, Barrett Assocs.	813-785-1954
IL	Mt. Prospect, Robert Adams Sls. Co.	312-297-8733
KY	Edgewood, ELECCO	606-341-0330
MD	Columbia, Tyler Griffin Co.	301-995-1215
MA	Scituate, New England Area Reps.	617-545-6327
MI	Jenison, R.C. Nordstrom	616-457-5762
MI	Lathrup Village, R.C. Nordstrom	313-559-7373
MN	Minneapolis, A.J. Warner Co.	612-729-7371
NJ	Ocean, P. Saftler Assocs.	516-593-7880
NY	Fulton, P. Saftler Assocs.	315-592-7184
NY	Lynbrook, P. Saftler Assocs.	516-593-7880
OR	Aloha, Elctrn. Comp. Sls.	503-245-2342
PA	Paoli, Tyler Griffin Co.	215-647-1550
TX	Dallas, Jim D. Gray & Assocs.	214-341-7190
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301

BELL, F. W., INC., 6120 Hanging Moss Rd., Orlando, FL 32807, Tel: 305-678-6900, TWX: 810-853-3115; FSC No.: 18479; *Dist. Mgr.:* Edward S. Wilush **B•1784-1785; D•1113, 1194-1195, 1977**

Local Sales Offices & Reps

CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CA	Pasadena, Jim Robins Assoc.	818-795-9118
CO	Denver, Moss Mktg.	303-455-7205
FL	Indian Rock Beach, Par Assoc.	813-596-8841
GA	Atlanta, Par Assoc.	404-391-9117
IL	Downers Grove, Splon Assoc.	312-963-7011
MA	Needham Hgts., Shain Assoc.	617-449-4380
MI	Royal Oak, Dave Ray & Assocs.	616-792-9831
NM	Albuquerque, Moss Mktg.	505-292-7505
NY	White Plains, Cane Tech. Sls.	914-694-9240
OH	Chagrin Falls, RPM Indl. Sls.	216-247-3295
PA	Paoli, T. Griffin Co.	215-644-7710
TX	Carrollton, Seaton Corp.	214-380-0414

Local Distributors

AZ	Phoenix, Jensen Tools & Alloys	602-968-6231
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CA	Pasadena, Jim Robins Assoc.	818-795-9118
CA	Pasadena, Pasadena Elctrns.	818-796-5844
CO	Denver, Moss Mktg.	303-455-7205
GA	Atlanta, Process Meas. Co.	404-696-7481
IL	Rolling Meadows, Commodore-1	312-394-5441
MA	Needham Hgts., Shain Assocs.	617-449-4380
NY	White Plains, Cane Tech. Sls.	914-694-9240
OH	Chagrin Falls, RPM Indl. Sls.	216-247-3295
OH	Dayton, National Instr. Distrs.	513-435-4503
PA	Paoli, Tyler Griffin Co.	215-644-7710
TN	Chattanooga, Edwin Bohr Elctrns.	615-877-8207
TX	Houston, Quality Instr. Lab.	713-524-0528

BELL & HOWELL/CEC DIV., 360 Sierra Madre Villa, Pasadena, CA 91109, Tel: 213-796-9381, Telex: 67-5415, TWX: 910-582-3205; Empl.: 500

BELL AUDIO SERVICE CO., Magnetic Programming, Inc., 6740-G Huntley Road, Worthington, OH 43085, Tel: 614-846-2766; Empl.: 20; *Sls. Mgr.:* Thomas A. Curran

BELL CO., INC., 106 Morrow Ave., Box 92E, Trussville, AL 35173, Tel: 205-655-2135; Empl.: 19; *Sls. Mgr.:* R. Bell; *Dist. Mgr.:* Neil H. Bell

J. W. Miller Division
BELL INDUSTRIES

BELL INDS., J. W. Miller Div., 19070 Reyes Ave., P.O. Box 5825, Rancho Dominguez, CA 90224, Tel: 213-537-5200, TWX: 910-346-6740; FSC No.: 76493; Empl.: 55 **A•1210-1217**

Local Sales Offices & Reps

AZ	Phoenix, Moore Sls.	602-274-4558
AR	El Dorado, D. Bellew Sls.	501-863-8325
CA	Santa Clara, Logan Sls. Co.	408-496-0660
CO	Denver, Wm. J. Purdy Co.	303-777-1411
FL	Ft. Lauderdale, Hutto-Hawkins-Peregoy	305-971-5750
FL	Maitland, Hutto-Hawkins-Peregoy	305-831-2474
GA	Atlanta, Millar Elctrns.	404-261-6160
HI	Gardena, CA, Bidwell Sls. Assoc.	213-770-0300
IL	Chicago, Ken Levy & Assocs.	312-763-5000
IN	Indianapolis, Elctrn. Reps.	317-894-1414
IN	South Bend, Elctrn. Reps.	219-277-4565
LA	Metairie, D. Bellow Sls.	504-887-1195
MD	Columbia, Par-Nell Sls. Co.	301-992-5454
MA	N. Scituate, W. A. Hendrickson Co.	617-545-0652
MI	Grand Rapids, Burcaw Co. & Assoc. Inc.	313-573-4605
MI	Warren, Burcaw Co. & Assoc. Inc.	313-573-4605
MN	Eden Prairie, Electro Mark, Inc.	612-944-5850
MO	Raytown, Marty Taraski Sls. Co.	816-358-1442
NJ	Englewood, Baum & Epstein Assoc.	201-569-7600
NM	Albuquerque, Wm. J. Purdy Co.	505-266-7959
NY	Syracuse, Pl'Tronics, Inc.	315-455-7346
NC	Raleigh, Millar Elctrns.	919-787-9585
OH	St. Marys, T. Shelby & Co.	419-394-3377
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Langhorne, Par-Nell Sls. Co.	215-750-0380
TN	Memphis, D. Bellew Sls.	901-452-1468
TX	Ft. Worth, Chet Wells & Co.	817-284-0261
UT	Salt Lake City, Wm. J. Purdy Co.	801-486-8557
WA	Seattle, Earl & Brown Co.	206-284-1121
EXP	NY, New York, Roburn Agencies	212-989-5939

Local Distributors

AZ	Tempe, Bell Industries/EDD	602-966-7800
AZ	Tempe, Circuit Specialists	602-966-0764
CA	Buena Park, RPS Elctrns.	714-521-5230
CA	Garden Grove, Bell Industries/EDD	714-220-0681
CA	Gardena, Bell Industries/EDD	213-515-1800
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Bell Industries/EDD	619-268-1277
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Sunnyvale, Bell Industries/EDD	408-734-8570
CA	Thousand Oaks, Bell Inds./Ventura/EDD	805-499-6821
CO	Denver, Bell Industries/EDD	303-424-1985
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Denver, Ragon Elctrn. Parts	303-744-3601

CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	New Haven, Greene-Shaw Co.	203-397-0710
CT	Wallingford, Sager Elctrcl. Supp.	203-265-4600
FL	West Palm Beach, Nurmi Elctrns.	305-686-8553
IL	Chicago, Bell Industries/EDD	312-640-1910
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Palatine, Ohm/Elctrns, Inc.	312-359-5500
IN	Fort Wayne, Graham Elect./Div. Bell Ind.	219-423-3422
IN	Indianapolis, Graham Elect./Div. Bell Ind.	317-634-8202
IN	Indianapolis, Meunier Elctrn. Supp.	317-635-3511
IA	Cedar Rapids, Bell Industries/EDD	319-395-0730
LA	New Orleans, Wm. B. Allen Supp.	504-525-8222
MD	Gaithersburg, MS Elctrns.	301-921-0200
MA	Hingham, Sager Elctrcl. Supp.	617-749-6700
MA	Newton, Greene-Shaw Co.	617-969-8900
MN	Minneapolis, Ind. Comps., Inc.	612-831-2666
MN	Thief River Falls, Dici-Key Corp.	218-681-6674
MO	Saint Louis, Olive Elctrns.	314-426-4500
NJ	Camden, General Radio	609-964-8560
NJ	East Hanover, State Elctrn. Parts	201-887-2550
NM	Albuquerque, Bell Industries/EDD	505-292-2700
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit Elctrns.	716-887-2800
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Columbus, Hughes-Peters, Inc.	614-294-5351
OH	Dayton, Bell Industries/Micro-Mil Div.	513-434-8231
OH	Dayton, Stotts-Friedman Corp.	513-298-5555
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Bell Industries/EDD	503-241-4115
PA	Allentown, P. A. Peters, Inc.	215-434-5237
PA	Braddock, Leff Elctrns.	412-351-5000
PA	Philadelphia, PEI Genesis	215-568-7400
PA	Reading, Barbey Elctrns.	215-376-7451
PA	Willow Grove, Resco Elctrns.	215-659-4575
TN	Hixson, Techni-Tronics, Inc.	615-842-0514
TX	Dallas, Wholesale Elctrns./Ind. Div.	214-824-3001
TX	Fort Worth, TTI, Inc.	817-831-0441
TX	Houston, Lenert Co.	713-225-1465
UT	Salt Lake City, Bell Industries/EDD	801-972-6969
VA	Charlottesville, Virginia Radio	804-296-4184
WA	Bellevue, Bell Industries/EDD	206-747-1515
WI	Milwaukee, Bell Industries/EDD	414-547-8879
WI	Milwaukee, Marsh Elctrns.	414-475-6000

BELLOFRAM CORP., A Rexnord Co., 30 Blanchard Rd., Burlington, MA 01803, Tel: 617-272-2100, 800-225-1031, Telex: 94-9457; Empl.: 400; *Sls. Mgr.:* Steve Jackson; *Dist. Mgr.:* Steve Jackson

BELL PA PRODS., See Bell Audio Sys.

BELTING INDS. CO. INC., 20 Boright Ave., Kenilworth, NJ 07033, Tel: 201-272-8591, Telex: 138045; Empl.: 125; *Sls. Mgr.:* Harry K. Denaker

BEMCO, 9908 San Fernando Rd., Pacoima, CA 91331, Tel: 818-899-5296, TWX: 910-496-1520; Empl.: 45; *Sls. Mgr.:* John Riddle; *Dist. Mgr.:* Brian Duggan

BENDIX CORP., Electrical Comps. Div., Sidney, NY 13838, Tel: 607-563-5324, Telex: 932 456, TWX: 510-261-7550; FSC No.: 77820; Empl.: 3000; *Dist. Mgr.:* G. Anderson

BENDIX CORP., Electric Power Div., Hwy. 35, Eatontown, NJ 07724, Tel: 201-542-2000, Telex: 132-444 TWX: 710-722-6686; FSC No.: 83298;Multiple; Empl.: 950; *Sls. Mgr.:* R. Freeman; *Dist. Mgr.:* Cal Schrum

BENDIX CORP., Electrodynamics Div., 11600 Sherman Way, N. Hollywood, CA 91605, Tel: 818-765-1010, TWX: 910-499-2151; Empl.: 1200

BENDIX CORP., MOTOR COMPS. DIV., See Facet Entprs.

BENDIX CORP., Test Systems Div., Teterboro, NJ 07608, Tel: 201-288-2000, TWX: 710-990-6136; Empl.: 1,077

BENJAMIN ELECTROPRODUCTS, INC., Robins Div., 80 Smith St., Farmingdale, NY 11735, Tel: 516-293-7744, Telex: 12-7908; Empl.: 50

BENSON, INC., 2690 Orchard Parkway, P.O. Box 32059, San Jose, CA 95152-2059, Tel: 408-945-1000, Telex: 4941178 BENUW, TWX: 8104941178 BENUW; Empl.: 400; *Sls. Mgr.:* Alexander Salottolo

BENTHOS, INC., Edgerton Dr., N. Falmouth, MA 02556, Tel: 617-563-5917, 617-540-5500, Telex: 820673; Empl.: 80; *Sls. Mgr.:* R. K. Church

BENTLY NEVADA CORP., P.O. Box 157, Minden, NV 89423, Tel: 702-782-3611, Telex: 354437

BERG, W. M., INC., 499 Ocean Ave., East Rockaway, NY 11518, Tel: 516-599-5010; Empl.: 150; *Sls. Mgr.:* C. Keenan

BERGER-LAHR CORP., Fitzgerald Dr., Jaffrey, NH 03452, Tel: 603-532-7701, Telex: 92-8445; Empl.: 50; *Sls. Mgr.:* Wolfgang Hartert

BERGQUIST, 5300 Edina Ind'l., Minneapolis, MN 55435, Tel: 612-835-2322, TWX: 910-576-2423; FSC No.: 55285; Empl.: 105; *Sls. Mgr.:* Bob Savage; *Dist. Mgr.:* Larry Kocon

BERGQUIST SWITCH, INC., Bergquist Co., 5300 Edina Indl. Blvd., Edina, MN 55435, Tel: 612-835-2322, TWX: 910-576-2423; *Sls. Mgr.:* Lamar Popp

BNC

BERKELEY NUCLEONICS CORP., 1198 Tenth St., Berkeley, CA 94710, Tel: 415-527-1121, Telex: 677-1167; Empl.: 30; *Sls. Mgr.:* E. J. Buchs **D•1196**

All sales engineering services in the U.S. and Canada are provided by our factory-direct sales and applications staff. For immediate assistance please contact: Tele-sales Department (415) 527-1121

BERKELEY PROCESS CONTROL, INC., 5327-K Jacuzzi St., Richmond, CA 94804, Tel: 415-526-3333; Empl.: 8; *Sls. Mgr.:* Paul Sagues; *Dist. Mgr.:* Paul Sagues

BERKSHIRE TRANSFORMER CORP., Route 341, P.O. Box 129, Kent, CT 06757, Tel: 203-927-3541; FSC No.: 89870; Empl.: 105; *Sls. Mgr.:* David Barbierl

BERK TEK, INC., Box 60, RD 1, Reading, PA 19607, Tel: 215-376-8071, TWX: 510-651-0511; Empl.: 350; *Sls. Mgr.:* Chester Klinke; *Dist. Mgr.:* Chester Klinke

Local Sales Offices & Reps

AZ	Scottsdale, Bill Earl Assocs.	602-994-3813
CA	Los Angeles, The Knight Co.	213-670-2833
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
FL	Tampa, APM	813-886-2457
IL	Des Plaines, Electron Mktg.	414-547-1505
MD	Wheaton, Electronic Data Assocs.	301-699-1843
MA	Shrewsbury, B&N Assoc.	617-845-1613
MI	Orchard Lake, TPM & Assoc.	313-851-2784
MN	St. Paul, Arkco Sls.	612-777-7454
NY	Poughkeepsie, C.W. Floring & Assoc.	914-471-2973
NY	Syracuse, C.W. Floring & Assoc.	315-478-2149
NC	Raleigh, B. T. Funderburk, Inc.	919-782-3493
OR	Tualatin, NICOR	503-692-0421
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
TX	Houston, Yeager, Sumners & Assocs.	713-271-8104
UT	Salt Lake City, Aspen Sls.	801-943-1346
Can	Mississauga, Ontario, Micronex Co.	416-624-1076

BERMAR CORP., P.O. Box 12844, Research Triangle Park, NC 27709, Tel: 919-489-4316; *Sls. Mgr.:* M. Conland

BA
BERTAN ASSOCIATES, INC.

BERTAN ASSOCS., 121 New South Rd., Hicksville, NY 11801, Tel: 516-433-3110, TWX: 510-221-2144; FSC No.: 6130; Empl.: 140; *Sls. Mgr.:* Howard Bertan **D•1522-1535**

Local Sales Offices & Reps

AZ	Phoenix, Thor Engrg.	602-437-1463
CA	Encino, King-Way Assoc.	213-788-4124
CA	Los Altos, Cain-White & Co.	415-948-6533
CO	Boulder, H. Bass Assocs.	303-530-7509
CT	Madison, Dave Minshall	203-421-4561
FL	DeBary, DJE Assocs.	305-668-6827
GA	Lawrenceville, Electramark	404-963-4793
IL	Arlington Hgts., Coombs Assocs.	312-439-9810
IN	Fort Wayne, Coombs Assocs.	219-747-4017
IA	Cedar Rapids, Coombs Assocs.	319-362-4116
MD	Randallstown, Beacon North	703-591-1300
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MO	Bridgeton, Electro Mechanical Assoc.	314-291-8661
NM	Albuquerque, Thorson Co.	505-293-8555
NY	Fairport, NACO Elctrns. Corp.	716-223-4490
NY	Syracuse, NACO Elctrns. Corp.	315-699-2651
NY	Utica, NACO Elctrns. Corp.	315-732-1801
OH	Cleveland, Geotronix	216-526-2535
OR	Portland, Showalter Instrs.	503-224-8487
PA	Audubon, Holmes Assocs.	215-666-0636
TX	Dallas, Automated Motion Control	214-340-4192
TX	Denton, Automated Motion Control	817-382-4159
UT	Bountiful, H. Bass Assoc.	801-295-7100
VA	Fairfax, Beacon North	703-591-1300
WA	Bellevue, Showalter Instrs.	206-746-6032
WI	Milwaukee, Coombs Assocs.	414-351-6123

BERTSCH U.S., SYCAMORE RESCH. CTR., 2142F Industrial Ct., Vista, CA 92083, Tel: 619-727-7420; FSC No.: 619-727-4436; Empl.: 25; *Sls. Mgr.:* B. Linko

BEST ELECTRICS DIV., 400 Boren Ave. North, Seattle, WA 98109, Tel: 206-382-1300, TWX: 910-444-2154; Empl.: 8 **B•1743**

Local Sales Offices & Reps

CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890

BEST POWER TECHNOLOGY, P.O. Box 280, Necedah, WI 54646, Tel: 608-565-7200, 800-356-5794, Telex: 701934; Empl.: 60; *Sls. Mgr.:* Terrance D. Paul

BEST WAY TOOLS, 171 Brook Ave., Deer Park, NY 11729, Tel: 516-586-4702; Empl.: 49

BETA TRANSFORMER TECHNOLOGY CORP., One Comac Loop, Ronkonkoma, NY 11779, Tel: 516-588-2505

BG ELCTRNS., 30 South St., Mt. Vernon, NY 10550, Tel: 914-664-5591, Telex: 6818048; FSC No.: 33791; Empl.: 36

B-G INSTRUMENTS, P.O. Box 67, Alta Loma, CA 91701, Tel: 714-989-4802, 980-2826, Telex: 517174; *Sls. Mgr.:* John Baum **D•1060**

Local Sales Offices & Reps

WA	Spokane, B-G Instrs., Inc.	509-238-4757

B. G. LABORATORIES, INC., 75 Travis Ave., Binghamton, NY 13904, Tel: 607-722-2376, Telex: 510-252-0185; FSC No.: 26522; Empl.: 150; *Sls. Mgr.:* Carol Clason

B. H. ELCTRNS., 331 Bremer Bldg., St. Paul, MN 55101, Tel: 612-228-6463, Telex: 297080; FSC No.: 3677; Empl.: 300; *Sls. Mgr.:* Fred LaMarche **A•2122-2123**

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Denver, Electro Comp. Sys.	303-781-5904
IL	Chicago, I. E. Hampton & Assocs.	312-593-2410
MI	Detroit, I. E. Hampton & Assocs.	313-851-0820
MI	St. Joseph, I. E. Hampton & Assocs.	616-983-0862
MN	Osseo, Gaffney Sls. Co.	612-425-5484
NH	Nashua, C & C Sls.	603-889-8350
NJ	Dunellen, J. A. Maguire	201-752-8480
NY	Syracuse, C & L Sales	315-451-7810
OR	Portland, Halbar & Assocs.	206-696-0170
PA	Broomall, TCA Assocs.	215-353-2022
TX	Dallas, Aid Elctrns.	214-790-4761
WA	Redmond, Halbar Assocs.	206-882-0990
WI	Theinsville, TFL Assoc.	414-242-6800

B.H. INDS., INC., 5784 Venice Blvd., Los Angeles, CA 90019, Tel: 213-937-4763; Empl.: 6

BICC-VERO ELCTRNS., INC., 40 Lindeman Drive, Trumbull, CT 06611, Tel: 203-372-0038, TWX: 510-227-8890; Empl.: 50; *Sls. Mgr.:* Michael Humphrey; *Dist. Mgr.:* Christine A. Martin

Local Sales Offices & Reps

AL	Huntsville, Raycom	205-859-2017
CA	Anaheim, Bicc-Vero Elctrns.	714-630-2030
CA	San Diego, Professional Sls.	619-578-8831
CA	San Jose, H Tech Sls.	408-279-2443
CA	Sunnyvale, BICC-Vero (Wally Light)	408-738-6911
CO	Arvada, Delconac	303-422-7023

CT	Milford, Todino Engrg.	203-874-6643
FL	Melbourne, Star-Tec	305-727-2247
FL	Palm Bay, Star Tec	305-727-2247
GA	Duluth, Raycom Inc.	404-446-9015
KS	Overland Park, Barnes-Midwest Sls.	913-341-9317
MD	Lutherville, J. A. Dougherty Sls.	301-321-7890
MA	Needham Hgts., Todino Engrg.	617-444-7925
MN	St. Paul, Proud Inds.	612-646-9428
NY	Kingston, P.R.M. Elctrns.	914-331-0872
NY	Macedon, PRM	315-986-3742
NY	Pleasantville, BICC-Vero (Robert Hoffman)	914-769-6197
NC	Raleigh, Raycom	919-847-8276
NC	Raleigh, Tingen Tech. Sls.	919-781-1100
OH	Chesterland, K-T Mktg.	216-729-3588
OH	Cleveland, KT/Depco	216-442-6200
OH	Westchester, KT/Depco	513-874-0236
OR	Beaverton, Luscombe	503-636-6664
PA	Hatboro, Delta Squared	215-441-4178
PA	Hatboro, Rep Force	215-441-4178
PA	Pittsburgh, KT/Depco	412-367-1011
TX	Austin, Texport	512-834-8374
TX	Garland, Texport	214-681-1376
TX	Houston, Texport Elctrn. Sls. Co.	713-777-1443
TX	Mesquite, BICC-Vero (Robert Land)	214-289-1153
UT	Salt Lake City, Chuck Fields & Assocs.	801-531-6177
WA	Renton, Luscombe Engrg.	206-223-1541

Local Distributors

CA	Los Angeles, Dyna Svc.	213-268-8531
CT	Wallingford, Mid-State Elctrns.	203-265-9900
FL	Dania, Summit Distr.	305-920-6253,920-6509
IL	Arlington Hgts., Redel Labs	312-253-5000, 529-0500
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	Baton Rouge, Menard	504-355-0323
MD	Baltimore, Resco	301-823-0070
MA	Framingham, NOW Elctrns.	617-872-5876
MI	Lansing, Demco Controls	517-321-1700
MI	Madison Heights, McNaughton-McKay Elec. Co.	313-399-7500
NJ	Pennsauken, Resco	609-662-4000
NJ	Springfield, Route Elctrns.	201-467-0266
NY	Buffalo, Summit Distr.	716-884-3450
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Rochester, Summit Distr.	716-442-3494
NC	Raleigh, Resco	919-781-5700
OH	Cincinnatti, Graham Elctrns.	513-772-1661
PA	Braddock, Leff Elctrs.	412-351-5000
PA	Greensburg, Leff Elctrns.	412-834-5400
TX	Houston, City Elctrns.	713-621-1060
TX	Houston, Electrolot	713-957-1982
WI	Mequon, Taylor Elctrns.	414-241-4321

BICRON ELCTRNS., Box 807, Barlow St., Canaan, CT 06018, Tel: 203-824-5125; FSC No.: 10617; Empl.: 105; *Sls. Mgr.:* Peter B. Kent

Local Sales Offices & Reps

CO	Denver, Omega, Ltd.	303-762-1921
IL	Rolling Meadows, KMA Sls. Co.	312-398-5300
OH	Cleveland, Arthur H. Baier Co.	216-461-6161
OH	Dayton, Arthur H. Baier Co.	513-276-4128
PA	Media, Homer Smith Co.	215-543-2434
PA	Pittsburg, Gormley Elec.	412-795-8010
UT	Salt Lake City, Omega, Ltd.	303-762-1921
VA	Salem, Homersmith, Inc.	215-543-2434
WI	Milwaukee, KMA Sls. Co.	414-259-1771

BIDDLE INSTRUMENTS, A Thorn EMI Co., 510 Township Line Rd., Blue Bell, PA 19422, Tel: 215-646-9200, Telex: 83-4423 BIDDLE PMTG; Empl.: 285; *Sls. Mgr.:* R. S. Kennedy

BIKOR, 1504 W. 228th St., Torrance, CA 92718, Tel: 213-539-6320, TWX: 910-349-6667; Empl.: 50; *Sls. Mgr.:* James Rorke .... **D•1536**

Local Sales Offices & Reps

MO	St. Louis, B & H Assocs.	314-434-4425
NJ	Hasbrouck Hgts., Comp. Tech. Sls.	201-288-7400
NY	Rochester, Tae-Rep	716-586-8710

BINDICATOR, P.O. Box 9, 1915 Dove St., Port Huron, MI 48060, Tel: 313-987-2700; *Sls. Mgr.:* Rick Secord; *Dist. Mgr.:* Rick Secord

BIO-IMAGING RESEARCH, #1 Bio-Imaging Plaza, 425 Barclay Blvd., Lincolnshire, IL 60069, Tel: 312-564-3190; *Sls. Mgr.:* J. G. Close

BIOSPHERICAL INSTRS., INC., 4901 Morena Blvd. #1003, San Diego, CA 92117, Tel: 619-270-1315; *Sls. Mgr.:* Dennis Bryan

BIRD, RICHARD H., & CO., INC., 1 Spruce St., Waltham, MA 02154, Tel: 617-894-0160, Telex: 923-441; FSC No.: 17706; Empl.: 50; *Sls. Mgr.:* R.J. Cameron

BIRD ELCTRN., 30303 Aurora Rd., Cleveland, OH 44139, Tel: 216-248-1200, Telex: 706898 Bird Elec. UD; FSC No.: 70998; Empl.: 250; *Sls. Mgr.:* W. L. Yochum; *Dist. Mgr.:* Greg Johns

BIRTCHER CORP., See EG & G Birtcher

BISHOP ELECTRONICS CORP., 3729 San Gabriel River Pkwy., Pico Rivera, CA 90660, Tel: 213-695-0446, 213-692-9391, TWX: 910-586-1922

BISHOP GRAPHICS, INC., 5388 Sterling Center, Westlake Village, CA 91359, Tel: 818-991-2600, Telex: 66-2400 BISHOP WKVG; Empl.: 160; *Sls. Mgr.:* Lynn Knudsen

Bivar

BIVAR, INC., 4 Thomas, Irvine, CA 92718, Tel: 714-951-8808; FSC No.: 32559; Empl.: 22; *Sls. Mgr.:* E. 'Bill' Muldoon .... **C•1025**

Local Sales Offices & Reps

CA	San Diego, Qualtronics Co.	619-695-0118
CO	Westminster, D. Barth	303-427-8679
IL	Chicago, Berndt Assocs., Inc.	312-283-0713
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
KS	De Soto, Midtec Assocs.	913-441-6565
MA	Newtonville, C. Segel	617-969-6900
MI	Milford, Dodsworth	313-875-5755
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Berkeley Heights, Cambridge-Allen	201-464-0203
NY	Syracuse, T-Squared Elctrns.	315-463-8592
NC	Raleigh, B. T. Funderburk	919-782-3493
OH	Cincinnati, Tri-State Mktg.	513-761-7993
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
OR	Portland, Eclipse Mktg. Grp.	503-644-2550
PA	Elkins Park, K. B. Erdman Co.	215-224-1833
TX	Richardson, Draper Co.	214-680-1650
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
WI	Milwaukee, Berndt Assocs.	414-545-8400
Can	Mississauga, Ont., Wilson Elctrns.	416-677-7280

Local Distributors

AZ	Phoenix, EKO Sales	602-275-7501
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Mountain View, Energy Sls.	415-969-0800
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Santa Fe Springs, F T R Fasteners	714-957-0202, 213-946-6464
CA	Sunnyvale, R. C. Dudek	408-734-3830
CA	Sunnyvale, Vic/Tal Sls.	408-738-3450
CA	Temple City, Fastening Sys.	213-579-4600
CA	Westlake Village, R. C. Dudek	213-707-1310
CO	Englewood, Indus. Elctrns.	303-694-9444
CT	East Haven, J. V. Elctrns.	203-469-2321
CT	Milford, Plastic & Metal Comps. Co.	203-877-2723
GA	Norcross, Atlanta Hardware Specialty	404-449-3000
GA	Peachtree City, Spyraflo, Inc.	404-487-7600
IL	Chicago, EMF	800-621-0080,312-889-8323
IL	Chicago, Waldom Elctrns.	312-585-1212
IL	Elmhurst, Miltex Sls.	312-941-7100
MD	Gaithersburg, Capitol Fasteners	301-948-9310
MA	Burlington, Contact East	617-272-5051
MA	Marlboro, Hardware Specialty Co.	617-481-8622
MA	Waltham, Electronic Fasteners	617-890-7780
MA	Winchester, RUSH	617-729-5800
MN	Eden Prairie, S. W. Anderson Co.	612-941-4108
NH	Londonderry, E.P.E. Corp.	603-669-9181
NY	Central Islip, Domino Comps.	516-582-3050
NY	Long Island City, Hardware Specialty Co.	212-361-9393
NY	Mt. Vernon, QAR Elctrns.	914-699-2224
NY	Plainview, Tower Fastener Co.	516-349-7670
NY	Rochester, Masline Elctrns.	716-546-5373
NC	Raleigh, Century Elctrn. Comps.	919-872-2203
NC	Raleigh, Century Fasteners	919-787-1800
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Hughes-Peters	614-294-5351
OH	Englewood, Argent Inds.	513-836-8633
OH	Solon, REH/Electra	216-248-1636
OR	Beaverton, Component Resources	503-641-8488
OR	Beaverton, Murphy Elctrns.	503-642-2001
PA	Huntington Valley, Plastic & Metal Prods.	215-322-2000
PA	Norristown, Century Elctrns.	215-631-5400
PA	Pittsburgh, Alder-Tronics	412-821-5565
TX	Grand Prairie, Tech Supp.	214-660-4888
WA	Redmond, Energy Sls.	206-883-2343
WA	Redmond, Murphy Elctrns.	206-881-1234
WA	Seattle, Component Resources	206-454-8666
WA	Seattle, Pacific Elctrns.	206-575-1050
Can	Mississauga, Ont., Rush/Ontario	416-677-7280

BIW CABLE SYS., INC., 65 Bay St., Dorchester, MA 02125, Tel: 617-265-2102, Telex: 94-0604; FSC No.: 71102; Empl.: 600; *Sls. Mgr.:* E. McCormick

BLACK & WEBSTER, 219 Bear Hill Rd., Waltham, MA 02254, Tel: 617-890-9100, Telex: 951102; Empl.: 80

BLACK BOX CORP., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241, Tel: 412-746-5500, Telex: 510-697-3125; *Sls. Mgr.:* Peter Highberg

BLACKHAWK NETWORKS CORP., 14 N. Parker Dr., P.O. Box 919, Janesville, WI 53545, Tel: 608-752-8701, TWX: 910-350-8266; FSC No.: 12724; Empl.: 10

BLANCK, A. R., CO., Box 249, Rutherford, NJ 07070, Tel: 201-933-2091; Empl.: 6; *Sls. Mgr.:* Dr. A. R. Blanck; *Dist. Mgr.:* Dr. A. R. Blanck

BLATEK INDS., INC., Box 574, Bellefonte, PA 16823, Tel: 814-355-4910; Empl.: 20; *Sls. Mgr.:* Linda C. Feltman .... **B•1787**

Local Sales Offices & Reps

CA	Burbank, Modco	818-848-2215
CO	Littleton, McCarthy Co.	303-773-0643
CT	Woodbridge, Elctrn. Mktg.	203-397-1461
MI	Benton Harbor, McNabb & Assocs.	616-925-2166

BLH ELCTRNS., 75 Shawmut Road, Canton, MA 02021, Tel: 617-821-2000, Telex: 92-3413, TWX: 710-324-0683; FSC No.: 03089; Empl.: 250; *Sls. Mgr.:* C. Wesley

BLILEY ELEC. CO., 2545 W. Grandview Blvd., Erie, PA 16506, Tel: 814-838-3571, Telex: 510-696-6886; FSC No.: 71034;3098; Empl.: 200; *Sls. Mgr.:* H. A. Yocum .... **A•1316-1323**

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-882-6050

BLILEY REPRESENTATIVES COVER THESE STATES:

Southern California, Arizona
CAIN TECHNOLOGY, INC.
Northern California, Northwestern Nevada
GENE C. WOEMPNER COMPANY
Massachusetts, Connecticut, Maine, New Hampshire, Vermont, Rhode Island
STURGEON COMPANY
New York (Metropolitan NYC), Northern New Jersey
SCHMITT INDUSTRIAL MARKETING CORP.
New York State (excluding Metropolitan NYC), Virginia, North & South Carolina, Georgia, Mississippi, Alabama, Tennessee, Maryland, Delaware, Florida, Eastern Pennsylvania, Southern New Jersey, Canadian Provinces of Ontario & Quebec
R.W. MITSCHER CO., INC.
Washington, Oregon
DUSSAULT & ASSOCIATES, INC.
Texas, Louisiana, Arkansas, Oklahoma
VECTOR SALES CO., INC.
Missouri, Kansas, Nebraska, Southern Iowa, Middle & Southern Illinois
AME SALES, INC.

See adjacent listing for the address and telephone number of your Bliley representative.

Bliley
ELECTRIC COMPANY

CA	Los Angeles, Cain Technology, Inc.	213-477-9054
CA	Mountain View, Gene C. Woempner Co.	415-964-5454
CA	Orange, Cain Technology, Inc.	714-997-7311
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Altamonte Springs, R. W. Mitscher Co.	305-788-6844
FL	Boca Raton, R. W. Mitscher Co.	305-368-3841
GA	Lawrenceville, R. W. Mitscher Co.	404-923-3239
MD	Laurel, R. W. Mitscher Co.	301-498-6090
MA	Needham, Sturgeon Co.	617-444-6603
MO	St. Louis, AME Sales, Inc.	314-965-1779
NY	Bainbridge, R. W. Mitscher Co.	607-967-7192
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
NY	Pittsford, R. W. Mitscher Co.	716-586-4012
NY	Red Hook, R. W. Mitscher Co.	914-758-8375
NY	Rochester, R. W. Mitscher Co.	716-227-0839
NY	Utica, R. W. Mitscher Co.	315-733-0171
NY	West Hempstead, Schmitt Indl. Mktg. Corp.	516-486-3510
NC	Charlotte, R. W. Mitscher Co.	704-598-8644
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
OR	Portland, Dussault & Assocs. Inc.	503-641-8780
PA	Huntingdon Valley, R. W. Mitscher Co.	215-355-4452
TN	Johnson City, R. W. Mitscher Co.	615-929-7258
TX	Richardson, Vector Sls. Co.	214-234-4291
VA	Midlothian, R. W. Mitscher Co.	804-744-4676
WA	Seattle, Dussault & Assocs., Inc.	206-527-5454
EXP	CT, Stamford, Dage Corp.	203-324-3123

®BLUE M

BLUE M, A UNIT OF GENERAL SIGNAL, 138th & Chatham Sts., Blue Island, IL 60406, Tel: 312-385-9000, TWX: 910-689-3398; Empl.: 420; *Sls. Mgr.:* H. G. Mathews **D•1165**

Local Sales Offices & Reps

AZ	Tempe, Blue M	602-894-2305
CA	El Monte, Blue M	818-442-6672
CA	Sunnyvale, Blue M	408-734-8734
DE	Wilmington, Blue M	302-478-6983
FL	Winter Park, Blue M	305-671-6655
GA	Atlanta, Blue M	404-455-3452
KS	Overland Park, Blue M	913-888-6483
MA	Natick, Blue M	617-651-1616
MI	Taylor, Blue M	313-281-2107
NY	Nanuet, Blue M	914-623-0900
NY	Syracuse, Blue M	315-437-0192
NC	Charlotte, Blue M	704-527-2492
OH	Cincinnati, Blue M	513-821-6278
OH	Hudson, Blue M	216-656-1177
TX	Garland, Blue M	214-272-2509
TX	San Marcos, Blue M	512-353-8003
WA	Seattle, Blue M	206-763-1030

BLUFFTON PRODUCTS, INC., Tegam, Inc., 7230 North Ridge Road, Madison, OH 44057, Tel: 216-946-3572; *Sls. Mgr.:* Doug Bradley

BLUM, JULIUS & CO., INC., Box 292, Carlstadt, NJ 07072, Tel: 201-438-4600, Telex: 13-3491; Empl.: 40

BMS DATA HANDLING, INC., 12155 Magnolia, Riverside, CA 92503, Tel: 714-359-8824; Empl.: 16; *Sls. Mgr.:* Thomas H. Mitchell

BODINE ELEC. CO., 2500 W. Bradley Pl., Chicago, IL 60618, Tel: 312-478-3515, Telex: 25-3646; Empl.: 800; *Sls. Mgr.:* R. E. Ford; *Dist. Mgr.:* R. E. Ford **B•1140**

Local Sales Offices & Reps

CA	Al Hambra, C. E. Mello	818-282-2000
CA	San Jose, E. W. Duemmlein	408-243-4800
KS	Shawnee Mission, J. S. Gleeson & Assocs.	913-362-4422
MA	Andover, L. R. Cascino	617-470-0050
MI	Plymouth, Steve Cavender	313-453-2730
NY	Massapequa, D. V. Mayorga	516-541-1611
NY	Rochester, Application Specialists	716-586-6226
NY	Syracuse, Application Specialists	315-437-2813
OH	Hudson, J. H. Basten	216-656-4226
OR	Portland, D. E. Johnson	503-246-3131
TX	Richardson, General Power Equip.	214-783-8371
VA	McLean, J. S. Hsia	703-734-1739
EXP	IL, Chicago, Export Dept., Bodine Elec.	312-478-3515

Local Distributors

AL	Mobile, Brownell Instrs. & Conts. Co.	205-479-5405
AK	Anchorage, Airport Machinery Co	907-272-0544
AZ	Phoenix, Minarik Elec. Co.	602-233-3000
CA	Carson, Power Trans. Specialties	213-631-7502
CA	Los Angeles, Minarik Elec. Co.	213-624-3161
CA	Mountain View, King Bearing, Inc.	415-968-8316
CA	San Diego, Minarik Elec. Co.	619-560-6632
CA	San Jose, King Bearing, Inc.	408-998-5464
CA	San Jose, Republic Supp. Co.	408-279-2202
CA	San Leandro, Republic Supp. Co.	415-357-2211
CA	Santa Clara, Minarik Elec. Co.	408-727-0575
CO	Denver, Wazee Elec. Co.	303-623-8658
CT	Berlin, B & B Motor & Control	203-828-8550
CT	Hartford, Machine Drives & Controls	203-728-0403
CT	Norwalk, Machine Drives & Controls	203-846-2007
FL	Hialeah, Condo Elec. & Ind. Supp., Inc.	305-691-5400
FL	Jacksonville, Electrical-Mech. Dr., Inc.	904-783-2730
FL	Orlando, Brownell Instrs. & Conts. Co.	305-843-6770
FL	Tampa, Electrical-Mech. Dr., Inc.	813-621-8675
GA	Hapeville, Brownell Instrs. & Conts. Co.	404-762-5181
IL	Aurora, Industrial Supp. Co.	312-844-5500
IL	Chicago, Excel Elec. Svc. Co.	312-421-7220
IL	Chicago, Harris & Lee	312-372-7272
IL	Rockford, Harris & Lee	815-398-0606
IN	Indianapolis, B & B Motor & Control	317-248-0396
IA	Cedar Rapids, Precision Bearing Co.	319-365-5276
IA	Des Moines, Precision Bearing Co.	515-265-9811
KS	Kansas City, Kornfeld Thorp Elec.	913-321-7070
MA	Medford, Empire Elctrl. Co.	617-395-5000
MA	Somerville, Electro Sls. Co., Inc.	617-666-0500
MI	Detroit, Howard Elec. Co.	313-923-0430
MI	Grand Rapids, MacKay Ind. Sls.	616-241-1671
MN	Minneapolis, Boustead Elec. & Mfg.	612-544-9131
MO	St. Louis, Zeller Elec., Inc.	314-638-9641
NE	Omaha, Precision Bearing Co.	402-444-3939
NV	Reno, Republic Supp. Co.	702-677-1761
NJ	Cherry Hill, Jos. T. Fewkes & Co.	609-424-5810
NJ	Piscataway, B & B Motor & Control	201-572-0500
NY	Binghamton, K. J. Elec. Corp.	607-772-1760
NY	East Syracuse, K. J. Elec. Corp.	315-437-2826
NY	Long Island City, B & B Motor & Control	718-784-1313
NY	Rochester, B & B Motor & Control	716-424-7040
NC	Charlotte, Brownell Instrs. & Conts. Co.	704-597-1270
NC	Charlotte, Mize Co., Inc.	704-375-5761
OH	Cleveland, Reserve Elec. Co.	216-771-5764
OH	Dayton, Thal Mor Assoc., Inc.	513-298-9939
OK	Oklahoma City, Dagwell Dixie Co.	405-232-7671
OK	Tulsa, Southwest Drives, Inc.	918-834-4231
OR	Portland, Campbell Ind. Supp.	503-231-4820
PA	Altoona, Miller Elec. Svc. & Supp.	814-942-9943
PA	Pittsburgh, Braunlich-Roessie	412-471-6995
SC	Taylors, B & B Motor & Control	803-268-5702
TN	Memphis, Brownell Instrs. & Conts. Co.	901-795-8487
TN	Nashville, Tennessee Machinery Co.	615-244-8150
TX	Dallas, Motion Inds.	214-351-2211
TX	Fort Worth, Motion Inds.	817-335-8131
TX	Houston, B & B Motor & Control	713-820-7931
TX	Houston, Research Des., Inc.	713-995-8591
VA	Richmond, Ind. Supp. Corp.	804-355-8041
WA	Seattle, Campbell Ind. Supp. Co.	206-447-7100
WA	Seattle, Industrial Elec.	206-329-3900
WA	Spokane, Campbell Ind. Supp. Co.	509-838-8288
WA	Tacoma, Campbell Ind. Supp. Co.	206-383-2431
WI	Milwaukee, Trester Svc. Elec.	414-264-8170
WI	New Berlin, Elec. Sls. & Engrg.	414-782-2400

BOEING MICROELECTRONICS, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124, Tel: 206-773-1083, Telex: 32-9430, TWX: 910-423-1563; Empl.: 120; *Sls. Mgr.:* M.A. Schalk

BOKER'S, INC., 3104 Snelling Ave., Minneapolis, MN 55406, Tel: 612-729-9365

BOMAR CRYSTAL, 201 Blackford Ave., Middlesex, NJ 08846, Tel: 201-356-7787, 800-526-3935, TWX: 710-480-4560; Empl.: 75; *Sls. Mgr.:* Phil Casciano

BOMCO, See MuShield Co.

BONUS-BILT, INC., Hofmann Inds., 1096 Air Way, Glendale, CA 91201, Tel: 213-245-9177, 800-692-8888; Empl.: 100; *Sls. Mgr.:* Don Nunnery

BOONTON ELCTRNS. CORP., 791 Route 10, Randolph, NJ 07869, Tel: 201-584-1077, TWX: 710-986-8215 BOONTRONICS; FSC No.: 04901; Empl.: 180; *Sls. Mgr.:* J. Garthwaite **D•1197**

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices	205-536-1969
AZ	Phoenix, Aztec Entprs.	602-943-8178
CA	North Hollywood, O'Halloran Assocs.	213-877-0173
CA	Palo Alto, O'Halloran Assocs.	415-326-1493
CO	Denver, Aztec Entprs.	303-779-5285
CT	Mt. Carmel, Sci. Devices	203-248-9361
FL	Orlando, Sci. Devices	305-841-8180
FL	Shalimer, Sci. Devices	904-651-4407
IL	Elmhurst, Sector Engrg. Sls., Inc.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls., Inc.	317-842-1120
KS	Overland Park, Ramsey Assoc.	913-649-6996
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Lexington, R. J. Sickles	617-862-5100
MN	Minneapolis, Sector Engrg. Sls., Inc.	612-593-1809
MO	Maryland Hgts., Ramsey Assoc.	314-878-5042
NJ	Englewood Cliffs, Sci. Devices	201-871-3916
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Rochester, Sci. Devices	716-334-2445
NC	Winston-Salem, Sci. Devices	919-765-5776
OH	Centerville, Micro Sls.	513-433-8171
OH	N. Olmsted, Micro Sls.	216-734-3080
OR	Portland, Sci. Devices	503-292-6934
PA	Melrose Park, R. Meyers	215-224-1663
TX	Austin, Testech	512-327-7033
TX	Houston, Testech	713-956-0837
TX	Richardson, Testech	214-644-5010
UT	Ogden, Aztec Entprs.	801-621-1655
WA	Bellevue, Sci. Devices	206-747-5169
WI	Milwaukee, Sector Engrg. Sls., Inc.	301-589-3391

bopla ENCLOSURES SYSTEMS

BOPLA ENCLOSURES, 1350 Beverly Rd., Ste. 115-338, McLean, VA 22101, Tel: 703-549-7242, Telex: 298598 ROSE UR; FSC No.: 4Y520; Empl.: 17 **C•1026**

BORG-WARNER THERMOELECTRICS, BORG-WARNER CORP., See TECA, ThermoElectric Cooling America Corp.

BORROUGHS, Lear Siegler, Inc., 3002 N. Burdick St., Kalamazoo, MI 49007, Tel: 616-342-0161, Telex: 224322; Empl.: 417

BOSCH, ROBERT, CORP., 2800 S. 25th Ave., Broadview, IL 60153, Tel: 312-865-5200, Telex: 23-5563; *Sls. Mgr.:* Dieter Bloecks; *Dist. Mgr.:* Dave Robson **B•1296-1297**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9287
AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Luscombe Engrg.	619-295-4300
CO	Longmont, Piper Sls.	303-651-2378
CT	Madison, Conti Younger Assocs.	203-245-1136
FL	Enterprise, D.J.E. Assocs., Inc.	305-321-6623
GA	Norcross, 20th Century Mktg.	404-446-1999
IL	Woodridge, Trend-Tronics, Inc.	312-985-0626
IA	Davenport, Rush & West	319-326-3091
KS	Kansas City, Rush & West	913-764-2700
MA	Burlington, Conti Younger	617-273-1582
MN	Minneapolis, H.M.R., Inc.	612-888-2122
MO	Ballwin, Rush & West Assocs.	319-394-7271
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Raleigh, 20th Century Mktg.	919-782-4333
PA	Cornwells Hts., William Staats Co.	215-639-5231
TN	Memphis, 20th Century Mktg.	901-756-4681
TX	Dallas, P.J. Scanlon Co.	214-231-4661
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301
WI	Waukesha, Trend-Tronics, Inc.	414-542-4919

Local Distributors

CA	Santa Monica, Distributor Specialists	213-393-9666
IL	Woodridge, Trend-Tronics, Inc.	312-985-0626
NY	Yonkers, Sonkin Assocs.	914-968-8282

Boschert

BOSCHERT INC., 384 Santa Trinita Ave., Sunnyvale, CA 94086, Tel: 408-732-2440, TWX: 910-339-9241; Empl.: 1500; *Sls. Mgr.:* Lloyd Schiller; *Dist. Mgr.:* Lloyd Schiller **D•1537-1540**

Local Sales Offices & Reps

AZ	Scottsdale, American Mktg.	602-948-2778
CA	Fountain Valley, K-Two Sls.	714-968-4726
CA	San Diego, Harvey King	619-566-5252
CA	Santa Clara, Criterion	408-988-6300
CA	Sunnyvale, Boschert	408-732-2440
CO	Aurora, Electrodyne	303-695-8903
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
FL	Maitland, Dyne-A-Mark	305-831-2097
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Indianapolis, SAI Mktg.	317-241-9276
IA	Cedar Rapids, Stan Clothier	319-395-0245
KS	Augusta, Design Solutions	316-775-7424
MA	Marlboro, Eastern Micro	617-480-0400
MI	Brighton, SAI Mktg.	313-227-1786
MN	Minneapolis, Stan Clothier Co.	612-944-3456
MO	St. Louis, Design Solutions	314-961-7170
NJ	Cherry Hill, Power Squared	609-424-6622
NJ	Totowa, Boschert	201-256-4046
NY	Huntington, Morgan Elctrns.	516-549-5180
OH	Centerville, SAI Mktg.	513-435-3181
OH	Shaker Hgts., SAI Mktg.	216-751-3633
TX	Austin, O. M. Sales	512-452-1838
TX	Houston, O. M. Sales	713-789-4426
TX	Richardson, O. M. Sales	214-690-6746
UT	Salt Lake City, Electrodyne	801-486-3801
WI	Thiensville, Control Sls.	414-242-4580

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Marshall	205-881-9235
AZ	Tempe, Anthem	602-244-0900
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	Chatsworth, Anthem	213-700-1000
CA	Chatsworth, Arrow Elctrns.	818-701-7500
CA	El Monte, Marshall Inds.	213-442-7204
CA	Irvine, Marshall Inds.	714-556-6400
CA	San Diego, Anthem	619-453-9005
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Jose, Anthem	408-946-8000
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Marshall Inds.	408-732-1100
CA	Tustin, Anthem	714-730-8000
CA	Tustin, Arrow Elctrns.	714-595-2860
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Denver, Marshall Inds.	303-427-1818
CO	Englewood, Anthem	303-790-4500
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Ft. Lauderdale, Marshall Inds.	305-928-0661
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Marshall Inds.	404-923-5750
IL	Schaumberg, Marshall	312-490-0155
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Lexena, Marshall Ind.	913-492-3121
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Burlington, Marshall Inds.	617-272-8200
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Livonia, Marshall	313-525-5850
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Plymouth, Marshall	612-559-2211
MO	St. Louis, Arrow Elctrns.	314-567-6888
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Mt. Laurel, Marshall Inds.	609-234-9100
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Endwell, Marshall	607-754-1570
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Melville, Arrow Elctrns.	516-694-6800
NY	Rochester, Arrow Elctrns.	716-427-0300
NY	Rochester, Marshall	716-235-7620
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Dayton, Marshall	513-236-8088
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Beaverton, Marshall	503-644-5050
OR	Lake Oswego, Anthem Elctrns.	503-684-2661
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Marshall	512-458-5654
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Marshall Inds.	214-233-5200
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Marshall Inds.	713-789-6600
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Marshall Inds.	206-747-9100
WA	Redmond, Anthem	206-881-0850
WI	Oak Creek, Arrow Elctrns.	414-764-6600

BOSTON SYSTEMS OFFICE, 469 Moody St., Waltham, MA 02254-9164, Tel: 617-894-7800, TWX: 710-324-0760; Empl.: 80; *Sls. Mgr.:* Francis X. O'Brien; *Dist. Mgr.:* Debra DellaCamera (International)

BOURNS, INC., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507, Tel: 714-781-5050, TWX: 910-332-1252; Empl.: 4000; *Sls. Mgr.:* R. A. Sickler; *Dist. Mgr.:* Dennis Lause .... **A•1800-1803, 1996-2008**

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Encino, Great American Rep Co.	818-990-4870
CA	San Diego, SR Elctrns.	619-560-8330
CA	San Jose, QuadRep, Inc.	408-946-4000
CA	Tustin, Great American Rep Co.	714-954-0371
CO	Parker, Parker Webster	303-841-4888
FL	Altamonte Springs, Dyne-A-Mark	305-831-2097
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
FL	Palm Bay, Dyne-A-Mark	305-727-0192
GA	Atlanta, CSR Elctrns.	404-396-3720
ID	Boise, Intermountain Technlg.	208-322-5022
IL	Elk Grove Village, John G. Twist Co.	312-593-0200
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
IA	Cedar Rapids, REP Assocs. Corp.	319-373-0152
KY	Louisville, Technlg. Mktg. Corp.	502-499-7808
MD	Baltimore, Micro-Comp.	301-247-0400
MA	Lexington, John E. Boeing Co.	617-862-2500
MI	Detroit, Rathburg Assocs.	313-882-1717
MN	Edina, Mel Foster	612-941-9790
MO	Bridgeton, Centech	314-291-4230
MO	Raytown, Centech	816-358-8100
NJ	Bellmawr, Thomas Assocs.	609-933-2600
NM	Albuquerque, Shefler-Kahn Co.	505-296-0749
NY	Ithaca, B. Dean	607-257-1111
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Wappingers Falls, Bourns	914-297-1180
NC	Raleigh, CSR Elctrns.	919-878-9200
OH	Richfield, Bear Mktg.	216-659-3131
OK	Oklahoma City, Ammon & Rizos	405-942-2552
OR	Portland, J. J. Backer	503-297-8744
OR	Salem, J. J. Backer	503-362-0717
TX	Austin, Ammon & Rizos	512-454-5131
TX	Dallas, Ammon & Rizos	214-644-5591
TX	Houston, Ammon & Rizos	713-781-6240
UT	Salt Lake City, Parker Webster	801-266-9939
VA	Huddleston, Micro-Comp	301-247-0400
WA	Seattle, J. J. Backer	206-285-1300

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AL	Huntsville, Pioneer/Washington	205-837-9300
AL	Huntsville, Schweber	205-882-2200
AZ	Phoenix, Elctrn. Parts Co.	602-277-7281
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Phoenix, TTI	602-861-0222
AZ	Tempe, Acacia Sls.	602-894-2874
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Elctrn. Supp.	602-258-4769
AZ	Tempe, Hamilton/Avnet	602-231-5100
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Avnet Elctrns.	213-700-2600
CA	Chatsworth, TTI	818-709-1010
CA	Citrus Hts, Hall-Mark Elctrns.	916-443-7282
CA	Compton, Harper S.I.D.	213-979-5090
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Avnet Elctrns.	213-558-2313
CA	Costa Mesa, Hamilton Elctrns.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2883/84
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Hall-Mark Elctrns.	213-643-9101
CA	Garden Grove, Bell Inds.	213-444-0301
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Acacia Sls.	714-549-0954
CA	Irvine, Schweber Elctrns.	714-556-3880
CA	Irvine, Schweber Elctrns.	714-863-0261
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Riverside, Elctrn. Supp. Corp.	714-787-9220
CA	Roseville, Bell Inds.	916-969-3100
CA	Sacramento, Hamilton/Avnet	916-920-3150
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Elctrn. Supp.	619-278-5020
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet	619-571-7500
CA	San Jose, TTI	408-943-9155
CA	Santa Ana, Teknopak	714-558-8840
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	Santa Clara, Schweber Elctrns.	408-496-0200
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Sunnyvale, Hamilton/Avnet	408-743-3300
CA	Tustin, Hall-Mark Elctrns.	714-669-0681
CA	Woodland Hills, Avnet Elctrns.	213-884-3322
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CO	Englewood, Hamilton/Avnet	303-779-9998
CO	Lakewood, Acacia Sls.	303-232-2882
CO	Wheat Ridge, Bell Inds.	303-424-1985
CT	Danbury, Hamilton/Avnet	203-797-2856
CT	Danbury, Schweber Elctrns.	203-792-3500
CT	Hamden, Almo Elctrns. Corp.	203-288-6556
CT	Norwalk, Pioneer Std.	203-853-1515
CT	Statford, TTI	203-375-1400
CT	Wallingford, Midan Elctrns.	203-265-2077
FL	Altamonte Springs, Pioneer Std.	305-834-9090
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Dania, Summit Distrs.	305-920-625
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Ft. Lauderdale, Pioneer/Washington	305-771-7520
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Largo, Graham Elctrns.	813-541-4434
FL	Orlando, Hall-Mark	305-855-4020
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, Pioneer/Orlando	305-834-9090
FL	Orlando, TTI	305-859-1000
FL	St. Petersburg, Hall-Mark Elctrns.	813-576-8691
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet	404-447-7500
GA	Norcross, Hammond Elctrns.	404-449-1996
GA	Norcross, Pioneer/Washington	404-448-1711
GA	Norcross, Schweber Elctrns.	404-449-9170
GA	Norcross, TTI	404-662-0911
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Bensenville, Hamilton/Avnet	312-860-8523
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Pioneer Std.	312-437-9680
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Hamilton/Avnet	317-844-9333
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer Std. Elctrns.	317-849-7300
IN	Lafayette, Graham Elctrns.	317-423-5564
IA	Cedar Rapids, Bell Inds.	319-395-0730
IA	Cedar Rapids, Hamilton/Avnet	319-362-4757
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
KS	Overland Park, Schweber Elctrns.	913-492-2921
KS	Overland Pk., Hamilton/Avnet Elctrns.	913-888-8900
LA	New Orleans, Wm B Allen Supp.	504-525-8222
MD	Baltimore, Radio Elec. Svc. Co.	301-529-0500
MD	Beltsville, Radio Elec. Svc. Co.	202-937-9100
MD	Columbia, Hall-Mark Elctrns.	301-796-9300
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	Gaithersburg, Almo Elctrns. Corp.	301-670-0090
MD	Gaithersburg, Pioneer/Washington	301-921-0660
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Burlington, Lionex Corp.	617-657-5170
MA	Canton, Almo Elctrns. Corp.	617-821-1450
MA	Lexington, Pioneer Std.	617-863-1200
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Wilmington, RC Comps.	617-273-1860
MA	Woburn, Hall-Mark Elctrns.	617-935-9777
MA	Woburn, Hamilton/Avnet	617-273-7500
MI	Flint, RS Elctrns.	313-762-5800
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Grand Rapids, RS Elctrns.	616-241-3483
MI	Kalamazoo, RS Elctrns.	616-381-5470
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, Pioneer Std. Elctrns.	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MI	Livonia, Schweber Elctrns.	313-525-8100
MI	Roseville, RS Elctrns.	313-779-2450
MI	Wyandotte, RS Elctrns.	313-AV2-5880
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Eden Prairie, Schweber Elctrns.	612-941-5280
MN	Edina, Schweber Elctrns.	612-941-5280
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MN	Minnetonka, Pioneer Std. Elctrns.	612-935-5444
MO	Earth City, Hamilton/Avnet	314-344-1200
MO	Earth City, Schweber Elctrns.	314-739-0526
MO	Maryland Hts, Hall-Mark Elctrns.	314-291-5350
NH	Hudson, C&H Elctrns.	603-882-1133
NH	Manchester, Schweber Elctrns.	603-625-2250
NJ	Camden, General Radio	609-964-8560

NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton/Avnet	609-424-0110
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NJ	Fairfield, Lionex	201-227-7960
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Pine Brook, Pioneer Std.	201-227-1262
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Elctrn. Parts	505-293-6161
NM	Albuquerque, Elctrn. Parts Co.	505-293-6161
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NM	Las Cruces, Elctrn. Parts Co.	505-523-4578
NY	Bohemia, TTI	516-567-1500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	E. Syracuse, Hamilton/Avnet	315-437-2647
NY	Fairport, Pioneer-Harvey	716-381-7070
NY	Hauppauge, Hamilton/Avnet	516-231-9800
NY	Hauppauge, Lionex	516-273-1660
NY	Hauppauge, Mast Distrs.	516-273-4422
NY	Hauppauge, Pioneer-Harvey	516-231-9200
NY	Melville, Hamilton/Avnet	516-454-6000
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Rochester, Summit Distrs.	716-334-8110
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NY	Vestal, Pioneer Std.	607-748-8211
NY	Westbury, Schweber Elctrns.	516-334-7474
NC	Charlotte, Pioneer/Washington	704-527-8188
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Hall-Mark Elctrns.	919-872-6286
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton/Avnet	919-878-0819
NC	Raleigh, Schweber Elctrns.	919-876-0000
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, CAM/Ohio	216-461-4700
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Cleveland, Pioneer Std.	216-587-3600
OH	Columbus, Graham Elctrns.	614-895-1590
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Bell Inds.	513-434-8213
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Dayton, Pioneer Std.	513-236-9900
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Maumee, RS Elctrns.	419-893-0721
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Schweber Elctrns.	918-622-8000
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Beaverton, Almac Elctrns.	503-641-9070
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8831
PA	Horsham, Lionex Corp.	215-443-5150
PA	Horsham, Pioneer/Washington	215-674-4000
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Lancaster, CAM/RPC	717-392-8141
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Pittsburgh, Almo Elctrns. Corp.	412-931-5990
PA	Pittsburgh, CAM/RCP	412-782-3770
PA	Pittsburgh, Pioneer Std. Elctrns.	412-782-2300
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Nashville, Graham Elctrns.	615-242-2682
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Austin, Harrison Equip. Co.	512-458-3555
TX	Austin, Pioneer Std. Elctrns.	512-835-4000
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Harrison Equip. Co.	214-239-2750
TX	Dallas, Pioneer Std. Elctrns.	214-386-7300
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	El Paso, Ideal Indl. Elctrn. Supp.	915-779-6647
TX	Fort Worth, TTI	214-429-1440
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Hamilton/Avnet	713-975-3501
TX	Houston, Harrison Equip. Co.	713-879-2600
TX	Houston, Pioneer Std.	713-988-5555
TX	Houston, Pioneer Std. Elctrns.	214-386-7300
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Irving, Hamilton/Avnet	214-659-4100
TX	Stafford, Harrison Equip.	713-879-2600
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, Hamilton/Avnet	206-643-3950
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	Mequon, Taylor Elec.	414-241-4321
WI	Milwaukee, Electronic Expd.	414-228-8100
WI	New Berlin, Hamilton/Avnet	414-784-4510
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Waukesha, Bell Inds.	414-547-8879

BOURNS INSTRS., INC., Technical Prods. Grp., 6135 Magnolia Ave., Riverside, CA 92506, Tel: 714-781-5433; *Sls. Mgr.:* Ken Pinkham; *Dist. Mgr.:* Ken Pinkham

BOURNS INSTRS., INC., Industrial Div., 1960 Chicago Ave., Unit F, Riverside, CA 92503, Tel: 714-781-5147, Telex: 676401, TWX: 910-332-1281; *Sls. Mgr.:* Tom McCarthy

BOURNS MAGNETIC DIV., Technical Products Group, Box 1398, Romoland, CA 92380, Tel: 714-657-5195, TWX: 910-332-1304; Empl.: 120; *Sls. Mgr.:* Dennis Dalbeck

BOWMAN INDUSTRIES, 9300 Hall Rd., Downey, CA 90241

Bowmar

BOWMAR/ALI, Bowmar Instr. Corp., 531 Main St., Acton, MA 01720, Tel: 617-263-8365, TWX: 710-347-1441; Empl.: 175; *Sls. Mgr.:* Allen Warner ...... **D•1331-1333**

Local Sales Offices & Reps

CA	LaCanada, Brooks-Moore & Assocs.	818-790-8358
CA	Orange, Brooks-Moore & Assocs.	714-771-1220
CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	Santa Ana, Brooks-Moore & Assocs.	714-544-8900
CT	Madison, Eastronix, Inc.	203-421-4514
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
KS	Overland Park, Barry Sls.	913-642-0270
LA	Baton Rouge, Mid-South Sls.	504-924-0106
LA	Lafayette, Mid-South Sls.	318-233-2546
LA	Lake Charles, Mid-South Sls.	318-433-0356
LA	Slidell, Mid-South Sls.	504-641-7480
ME	Camden, Bernard Sullivan Assocs.	207-236-8394
MD	Columbia, Tyler Griffin Co.	301-995-1215
MA	Bedford, Eastronix, Inc	617-275-5775
MI	Farmington, Amtech Reps.	313-474-8300
MN	Minneapolis, Waltham Sls. Co.	612-781-2778
MO	St. Louis, Barry Sls.	314-821-2525
NJ	Plainfield, Cosine, Inc.	201-654-3551
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Trott Elctrns.	716-586-8251
OH	Cuyanoga Falls, J. C. Hofstetter Co.	216-929-8009
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Portland, Frank Jackson Assocs.	503-292-2638
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Paoli, Tyler Griffin Co.	215-647-1550
TX	Carrollton, Seaton Corp.	214-380-0414
UT	Salt Lake City, Measurement Conslts.	801-364-3174
VT	Shelburne, Eastronix, Inc.	802-985-3743
WA	Redmond, Frank Jackson Assocs.	206-881-7277
WI	Waukesha, Lincoln, Hodges & Assocs.	414-542-3087

Local Distributors

AZ	Phoenix, Metermaster	602-437-1425
CA	Los Angeles, E. I. L.	213-685-7020
CA	Palo Alto, Metermaster	415-968-0313
CA	Ridgecrest, E. I. L.	619-375-5550
CA	San Diego, Metermaster	619-560-4841
CA	Santa Clara, E. I. L.	408-727-0396
CO	Denver, E. I. L.	303-534-4160
CT	Middletown, E. I. L.	203-346-6646
FL	Palm Bay, E. I. L.	305-725-8300
GA	Atlanta, Horton Instr. Co.	404-231-3131
GA	Norcross, Metermaster	404-446-0166
IL	Bridgeview, E. I. L.	312-430-2292
IL	Chicago, DALEC	312-283-0300
IL	Elk Grove Village, Metermaster	812-593-8650
IL	Itasca, Metermaster	312-250-0606
IN	Indianapolis, E. I. L.	317-545-1373
KY	Louisville, E. I. L.	502-454-3420
LA	Slidell, Mid-South Sls. Co., Inc.	504-641-7480
MD	Sparks, E. I. L.	301-771-4800
MA	Billerica, Metermaster	617-523-2580
MA	Burlington, E. I. L.	617-272-9450
MN	Minneapolis, Process Meas. Co.	612-544-4035
NJ	North Caldwell, Hosica Labs.	201-256-7724
NJ	Pennsauken, E. I. L.	609-488-0474
NJ	Plainfield, Integral Control Sys. Corp.	201-561-2323
NY	Hauppauge, E. I. L.	516-231-6333
NY	Rochester, E. I. L.	716-442-2430
NC	Charlotte, Trott Elctrns., Inc.	704-376-2237
OH	Cleveland, Metermaster	216-651-4100
OH	Dayton, E. I. L.	513-435-2134
OR	Portland, Westcon, Inc.	503-283-0132
PA	Philadelphia, Electric Tachometer Corp.	215-726-7723
PA	Pittsburgh, E. I. L.	412-731-5230
TX	Dallas, E. I. L.	214-931-1236
TX	Garland, Metermaster	214-271-5671
TX	Houston, E. I. L.	713-271-3100
TX	Houston, Quality Instr. Lab., Inc.	713-524-0528
VA	Alexandria, E. I. L.	703-354-4330
VA	Virginia Beach, E. I. L.	804-499-3746
WA	Seattle, E. I. L.	206-762-0880
Can	Longueuil, Que., E. I. L.	514-651-4844
Can	Mississauga, Tor., E. I. L.	416-624-6660
Can	Woodbridge, Ont., R. H. Nichols Co., Ltd.	416-851-8871

Bowmar

BOWMAR INSTRUMENT CORP., Aerospace Div., 8000 Bluffton Rd., Ft. Wayne, IN 46809, Tel: 219-747-3121, TWX: 810-332-1510; FSC No.: 99479; Empl.: 215; *Sls. Mgr.:* Herb Black ...... **B•1707**

Local Sales Offices & Reps

CA	Uplander Way, Westaironics, Inc.	213-641-4122
CO	Castle Rock, Romulus Elctrns., Ltd.	303-688-5127
CT	Haver Hill, LK Assocs.	617-373-1313
CT	Lee, LK Assocs.	413-243-1158
FL	Melbourne, Saber Assocs.	305-724-0920
GA	Smyrna, Spartech	404-446-7300
IL	Rolling Meadows, KMA Sls. Co.	312-398-5300
IA	Cedar Rapids, Ard Sls. Inc.	319-393-6392
MN	Bloomington, Electronic Sls. Agy.	612-884-8291
MO	St. Louis, Abrams Assocs.	314-569-0447
NJ	Matawan, Bowmar Instr. Corp.	201-526-0400
NY	Syracuse, Fountain Young Co., Inc.	315-437-7733
OH	Dayton, Raystan Controls	513-278-3559
TX	Addison, Robert R. Thomas Co.	214-233-8235
WI	Milwaukee, JM Sls. Co.	414-546-0040
Can	Ottawa Ont., Subtec, Ltd.	613-738-1470

BOWMAR INSTRUMENT CORP., Commercial Products Div., 4640 126th Ave. N., Clearwater, FL 33520, Tel: 813-576-2525, TWX: 810-863-0375; Empl.: 127; *Sls. Mgr.:* Walt Kunz

BOWMAR/TIC, INC., 850 Lawrence Dr., Newbury Park, CA 91320, Tel: 805-498-2161, TWX: 910-336-1265; FSC No.: 99957; Empl.: 100; *Sls. Mgr.:* Reece Kendall

BOW SOLDER PRODS., 900 Hobson St., Union, NJ 07083, Tel: 201-686-6040, 800-526-4496; Empl.: 38; *Sls. Mgr.:* J. Moran

BRADY CO., 574A Somerset St., N. Plainfield, NJ 07060, Tel: 201-753-7988; *Sls. Mgr.:* Ed Brady; *Dist. Mgr.:* John Blaze

BRADY, W.H., CO., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201, Tel: 414-332-8100, Telex: 26-677; *Sls. Mgr.:* David D. Tatham

BRADY, W. H., CO., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201, Tel: 414-351-6630, Telex: 26-677, TWX: 910-262-3151; *Sls. Mgr.:* G. W. Gyllstrom; *Dist. Mgr.:* G. W. Gyllstrom

BRADY, W.H., CO. NAMEPLATE DIV., See Brady, W.H., Co., Elctrn. Prods. Div

BRADY, W. H., CO., Xymox Div., 8225 W. Parkland Ct., P.O. Box 571, Milwaukee, WI 53201, Tel: 414-355-8300, Telex: 26-677, TWX: 910-262-3151; FSC No.: 85480; *Sls. Mgr.:* G. R. Manich; *Dist. Mgr.:* G. R. Manich

BRAEMAR CORP., 11400 Rupp Drive, Burnsville, MN 55337, Tel: 612-890-5135; Empl.: 130; *Sls. Mgr.:* P. L. Musgrove

BRAILSFORD & CO., 670 Milton Rd., Rye, NY 10580, Tel: 914-967-1820; Empl.: 25

BRAND DIELECTRICS, INC., Route 203, N. Windham, CT 06256, Tel: 203-423-6321; Empl.: 5; *Sls. Mgr.:* Philip Harvey

BRANDEN, T. G., CORP., 5565 S.E. Intl. Way, Portland, OR 97222, Tel: 503-659-9366; Empl.: 8; *Sls. Mgr.:* Ted Brandt

BRAND-REX, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226, Tel: 203-456-8000, TWX: 710-440-2247; FSC No.: 71124; Empl.: 1000; *Sls. Mgr.:* J. F. Cichy

Local Sales Offices & Reps

CA	Laguna Hills, Brand-Rex	714-835-0802
CA	San Jose, Brand-Rex	408-247-9811
CO	Boulder, Component Prod. Sls., Inc.	303-530-2800
CT	Manchester, Manu-Rep, Inc.	203-646-6064
FL	Maitland, E.I.R., Inc.	305-660-9600
IN	Indianapolis, Insulation Reps.	317-251-1994
MD	Hanover, J. A. Maguire & Co.	301-796-0970
MA	Clinton, CWS, Inc.	617-368-8753
MI	Albuquerque, Power Entprs., Ltd.	505-298-1918
MI	Farmington Hills, Joseph H. Clark Sls. Co.	313-553-0610
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Chesterfield, Durnin & Assocs.	314-532-9774
NJ	Dunellen, J. A. Maguire & Co.	201-752-8480
NJ	Pennsauken, J. A. Maguire & Co.	609-665-5136
NY	Pittsford, Kirby Mktg.	716-248-8750
OH	Chagrin Falls, Joseph H. Clark Sls.	216-247-7848
OR	Beaverton, Barrett, Squibb & Assocs.	503-642-1661
SC	Greenwood, Bamco	803-229-6801
TN	Knoxville, Insul-Reps	615-691-7586
TX	Richardson, C. J. Tellier Co.	214-231-6348
VA	Portsmouth, J. A. Maguire & Co.	804-398-0202
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991

Local Distributors

AZ	Tucson, A.E. Petsche Co., Inc.	602-746-3128
CA	Carson, A. E. Petsche Co., Inc.	213-639-9500
CA	Inglewood, Storm Prods.	213-649-6141
CA	Santa Clara, Storm Prods.	408-749-9400
CA	Torrance, Blake Wire & Cable	213-515-0561
CO	Broomfield, Storm Prods.	303-466-1991
FL	Ft. Lauderdale, K.S.M. Elctrns.	305-971-5900
FL	Orlando, Cablematics/Action Wire	305-293-1618
GA	Norcross, A. E. Petsche Co., Inc.	404-441-1709
IL	Addison, K.S.M. Elctrns.	312-953-9473
IL	Rosemont, Dearborn Wire & Cable	312-696-1000
KS	Wichita, A.E. Petsche Co., Inc.	316-943-9358
MA	Woburn, Pacer Elctrns.	617-935-8330
MN	Minneapolis, Bergquist Co.	612-835-2322
NH	Amherst, North Country Wire Supp.	603-889-0063
NY	Endicott, Rogan Elctrns.	607-754-3590
NY	Fairport, Pacer Elctrns.	716-377-0462
NY	Farmingdale, Vertx Elctrns.	516-293-9880
NY	Farmingdale, Weico Elctrns.	516-293-0050
NY	Hauppauge, Wintronics, Inc.	516-234-8040
NY	Johnson City, Help Elctrns.	607-729-3528
OR	Beaverton, Murphy Elctrns.	215-534-3900
PA	Folcroft, Delphi Elctrns.	215-534-3900
TX	Dallas, Storm Prods.	214-330-1381
TX	Garland, Southwest Cable	214-494-4009
TX	Houston, A.E. Petsche Co., Inc.	713-641-3386
WA	Redmond, Murphy Elctrns.	206-881-1234

BRANDT ELCTRNS., INC., 1220 Alderwood Ave., Sunnyvale, CA 94086, Tel: 408-734-8310, TWX: 910-339-9560; FSC No.: 57837; *Sls. Mgr.:* Frank D. Brandt

BRAXTON MFG., Echo Lake Rd. N., P.O. Box 429, Watertown, CT 06795, Tel: 203-274-6781, TWX: 710-477-0621; Empl.: 115; *Sls. Mgr.:* Mark W. Ritucci

BREEZE-ILLINOIS, TransTechnology Corp., 401 S. Main Street, P.O. Box 368, Wyoming, IL 61491, Tel: 309-695-2511, TWX: 510-390-3691; Empl.: 180; *Sls. Mgr.:* Patrick Banakis **C•1171, 1790-1792**

Local Sales Offices & Reps

CA	Woodland Hills, Cal Ward Sls.	213-883-2202
CO	Longmont, Todd & Fry Assocs.	303-776-7331
FL	St. Petersburg, Tech. Reps. Assocs.	813-577-2779
IL	Berkeley, Cadre Tech. Rep., Inc.	312-449-3900
KS	Desoto, Midtec Assocs., Inc.	913-441-6565
MI	Madison Heights, Pine Sls., Inc.	313-589-0350
MN	Bloomington, Merrill Franklin	612-854-9446
NY	Great Neck, Trionic Assocs.	516-466-2300
OH	Chagrin Falls, Pine Sls., Inc.	216-247-6198
PA	Pittsburgh, Pine Sls., Inc.	412-456-7471
TX	Bedford, DeArmond Entprs.	817-267-2048
WA	Bellevue, Lehr Assocs.	206-453-9993

BRELONIX, 106 No. 36th St., Seattle, WA 98103, Tel: 206-633-1964; Empl.: 10; *Sls. Mgr.:* A. L. DeVore

BREN-TRONICS, INC., 10 Brayton Ct., Commack, NY 11725, Tel: 516-499-5155, Telex: 22-1213 TTCUR; FSC No.: 51828; Empl.: 75; *Sls. Mgr.:* R. Mainzer

BREVEL MOTORS, INC., Sub. Vernitron Corp., Broad & 16th Sts., Carlstadt, NJ 07072, Tel: 201-933-0220; *Sls. Mgr.:* Jack Dominice **B•1141**

Local Sales Offices & Reps

AR	El Dorado, Industrial Control Assocs.	501-862-2051
CA	Los Angeles, Electric Motor Engrg.	213-469-7393
CT	Old Saybrook, M. L. Assocs.	203-388-9718
FL	Altamonte Springs, Machine Controls	305-788-6607
IL	Chicago, Jerry Golten Co.	312-792-1991
KS	Prairie Village, Darco Sls.	913-381-7913
MA	Ashland, M. L. Assocs.	617-485-6190
MN	St. Paul, Vikeland Sls.	612-645-4647
NJ	Teaneck, Herbert Rude & Assocs.	201-836-6778
NY	Penfield, Upstate Comps.	716-381-6070
NC	Raleigh, Leigh Sls.	919-872-1484
OH	Bucyrus, Sissler & Assocs.	419-562-9311
OH	Columbus, Sissler & Assocs.	614-488-4455
PA	Exton, Kiley Elec. Co.	215-363-8550
TN	Cleveland, Hicks Sls.	615-472-7398

Local Distributors

AZ	Phoenix, Johnstone	602-269-9354
CA	Baldwin Park, Johnstone	213-962-7138
CA	Los Angeles, Minarik	213-624-3161
CO	Denver, Johnstone	303-573-5626
CT	New Haven, Star Supp. Co.	203-772-2240
FL	Ft. Lauderdale, Johnstone	305-971-9350
GA	Norcross, Johnstone	404-446-0400
ID	Boise, Johnstone	208-377-1600
IL	Chicago, Harry Alter	312-376-3505
KS	Wichita, Johnstone	316-267-3629
LA	New Orleans, Harry Alter Co.	504-488-4435
MD	Rockville, Johnstone	301-251-0281
MA	Medford, Empire	617-395-5000
MI	Farmington Hills, Universal Elec. Prod.	313-476-9500
MO	Kansas City, Johnstone Corp.	816-842-3250
MT	Billings, Johnstone Corp.	406-252-1207
NE	Omaha, Johnstone Corp.	402-339-2342
NV	Sparks, Johnstone Corp.	702-356-6668
NJ	Cherry Hill, Motor and Control Sys.	609-424-5810
NJ	Gafield, The Harry Alter Co.	201-478-0455
NY	Manhattan, The Harry Alter Co.	212-255-5300
OH	Cleveland, Reserve Elec.	216-771-5764
OK	Oklahoma City, Johnstone Corp.	405-232-8576
OR	Portland, Johnstone Corp.	503-233-1151

BREW, RICHARD D., & CO., INC., 90 Airport Rd., Concord, NH 03301, Tel: 603-225-6605, Telex: 943-483; FSC No.: 98913; Empl.: 43

BRIAN INSTRUMENTS, INC., 626 S. State College Blvd., Fullerton, CA 92631, Tel: 714-992-5540, TWX: 910-350-7019; Empl.: 30; *Sls. Mgr.:* E. 'Chuck' Ouellette; *Dist. Mgr.:* Barbara M. Semain

BRIDGE COMPUTER CO., Sea Data Corp., 1 Bridge St., Newton, MA 02158, Tel: 617-244-8190, Telex: 951107; *Sls. Mgr.:* Elaine Doll

BRIGGS, C. A., CO., P.O. Box 151, Glenside, PA 19038, Tel: 215-885-2244, Telex: 83-4753; Empl.: 10; *Sls. Mgr.:* C. A. Briggs, Jr.

BRIM ELCTRNS., 120E Home Pl., Lodi, NJ 07644, Tel: 201-796-2886; FSC No.: 57834 **C•1793-1800**

Local Sales Offices & Reps

FL	De Bary, DJE Assocs.	305-668-6827
FL	Enterprise, DJE Assocs., Inc.	305-321-6623
MA	Millis, R G Assocs.	617-376-2044
MA	Stow, R G Assocs.	617-897-7146
EXP	NY, N.Y.C., Roburn Agencies	212-989-5939

Local Distributors

AL	Dothan, Carmichael Whls. Supp.	205-793-7066
CA	Canoga Park, Tim-Co. Sls.	213-992-5040
CA	San Diego, Shanks & Wright	619-239-0176
CT	Manchester, IMS	203-649-4415
CT	Waterbury, Suburban Supp.	203-757-1251
GA	Marietta, Atlanta Elec. Wire & Cable	404-955-6800
LA	New Orleans, Radio Parts	504-581-5959
MA	Billerica, Eastern Video Sys.	617-667-0009
MA	Lexington, Wholesale Elect. Supp.	617-862-3590
MA	Springfield, Electro-Term	413-734-6469
MA	Waltham, Linear Elect.	617-894-7300
MI	Troy, Northern Wire & Cable	313-589-0510
NH	Dover, American Radio Corp.	603-742-6800
NJ	Hackensack, Milcor	201-489-1313
NY	LIC, H.L. Dalis	212-361-1100
NY	N.Y.C., Center Indl.	212-YU9-6363
OK	Tulsa, Radio	918-587-9123
PA	Philadelphia, Spectrum Elec.	215-748-3010
RI	Newport, J & S Elctrn. Distb.	401-847-2977
TN	Knoxville, Bondurant Bros. Co.	615-573-9151
TX	Grand Prairie, Southwest Hardware & Fastever	214-264-4711
TX	Texarkana, Lavender Elec.	501-773-4631
TX	Texarkana, McCulloch Elctrns.	214-792-6923
VA	Norfolk, Todd Elec.	804-855-3111
WA	Seattle, Amateur Radio Supp.	206-767-3222

BRISTOL BABCOCK INC., 40 Bristol St., Waterbury, CT 06708, Tel: 203-575-3000, Telex: 962417, TWX: 203-754-1477; Empl.: 600; *Sls. Mgr.:* William H. Seeley

BRISTOL SAYBROOK, 97 Coulter St., Old Saybrook, CT 06475, Tel: 203-388-3414, Telex: 966-435; Empl.: 125; *Sls. Mgr.:* George S. Willis

Local Sales Offices & Reps

CA	Alhambra, C.E. Mello Co.	818-282-2000
CT	Old Saybrook, M-L Assoc.	203-388-9718
FL	Largo, Kirk Sls, Inc.	813-595-7353

Local Distributors

AL	Arab, Timer & Control Engr. Svc.	205-586-7671
CA	Los Angeles, Minarik Electic Co.	213-624-3161
MA	Somerville, Electro Sls. Co.	617-666-0500
NY	Sodus, AED Distributors	315-483-6561

BROOKS INSTR. DIV., Emerson Elec. Co., 407 W. Vine St., Hatfield, PA 19440, Tel: 215-362-3500, Telex: 846-181; Empl.: 1500; *Sls. Mgr.:* William Weierbach

BROOKS MFG. CO., 2016/24 Amber St., Philadelphia, PA 19125, Tel: 215-425-3395, 800-523-0130; Empl.: 70; *Sls. Mgr.:* G. Brooks; *Dist. Mgr.:* G. Brooks

Local Sales Offices & Reps

CA	Irvine, Mike Roth Sls.	714-850-1254
CA	San Francisco, Maddox Sls.	415-647-5560
FL	Miami, Roulson & Co.	305-666-4240
GA	Atlanta, Dewitt Austin Co.	404-393-3519
IL	Glenview, Reigel Assocs.	312-729-3824
MD	Towson, Ernie Stefkovic Assocs.	301-321-6008
MI	East Detroit, Jack M. Thorpe Co.	313-779-6363
NJ	Cherry Hill, Ernie Stefkovic Assocs.	609-667-4066
NY	New Hyde Park, Harris & Aldrich Sls.	516-488-2622
NC	Charlotte, Dewitt Austin Co.	704-334-0174
OH	Cincinnati, John O. Olsen Co.	513-574-7711

BROOKS MKTG. CORP., 3569 Bristol Pike Bldg. 2 Ste 102, Bensalem, PA 19020, Tel: 215-244-0264, 1-800-523-1551; Empl.: 90; *Sls. Mgr.:* Joseph E. Brooks

BROWN BOVERI ELEC., Norristown Rd., Spring House, PA 19477, Tel: 215-628-7400, TWX: 510-661-0168; Empl.: 3,500

BROWN BOVERI ELECTRIC, INC., 167 Overland Drive, P.O. Box 648, West Columbia, SC 29171, Tel: 803-796-9502

BRUEL & KJAER INSTRS. INC., 185 Forest St., Marlboro, MA 01752, Tel: 617-481-7000, TWX: 710-347-1187; FSC No.: 617-485-0519; Empl.: 40

Local Sales Offices & Reps

CA	Anaheim, Bruel & Kjaer Instrs.	714-978-8066
CA	Foster City, Bruel & Kjaer Instrs.	415-574-8155
IL	Hoffman Estates, Bruel & Kjaer Instrs.	312-358-7582
MD	Gaithersburg, Bruel & Kjaer Instrs.	301-948-0494
MA	Marlborough, Bruel & Kjaer Instrs.	617-481-7000, ext. 139
MI	Livonia, Bruel & Kjaer Instrs.	313-522-8600
NJ	West Caldwell, Bruel & Kjaer Instrs.	201-526-2284
TX	Houston, Bruel & Kjaer Instrs.	713-645-0167
WA	Seattle, Bruel & Kjaer Instrs.	206-625-1112

BRUSH MAGNETIC HEADS, Div. of Brush Ind., Inc., 3rd & Reagan Sts., P.O. Box 638, Sunbury, PA 17801-0638, Tel: 717-286-5611, 800-233-0362, TWX: 510-655-0222; FSC No.: 19418; Empl.: 80; *Sls. Mgr.:* D. Stephen Morrison

WESTINGHOUSE ELEC. CORP., Bryant Circuit Devices Div., 500 Sylvan Ave., Bridgeport, CT 06606, Tel: 203-334-5561, Telex: 643-817, TWX: 710-453-8709; Empl.: 1000; *Sls. Mgr.:* G. V. Curtin

BSR (USA) LTD, Route 303, Blauvelt, NY 10913

BTU ENGRG. CORP., Bruce Sys., Esquire Rd., N. Billerica, MA 01862, Tel: 617-667-4111, Telex: 94-7489; Empl.: 600; *Sls. Mgr.:* D. Barry

BUBBL-TEC, 6800 Sierra Ct., Dublin, CA 94566, Tel: 415-829-8705, TWX: 910-389-6890; Empl.: 19; *Sls. Mgr.:* T. J. Netoff

BUCHANAN, See Control Prods. Div., Amerace Corp.

BUCKBEE-MEARS CO., Nashua Div., 100 Northeastern Blvd., P.O. Box 888, Nashua, NH 03062, Tel: 603-883-5541, Telex: 94-0340; *Sls. Mgr.:* Randolph Roody

BUCKEYE STAMPING CO., 555 Marion Rd., Columbus, OH 43207, Tel: 614-445-8433; Empl.: 85; *Sls. Mgr.:* R. E. Osborne VP Mktg. **C•1027**

Local Sales Offices & Reps

CA	Pasadena, P. Nurches Co.	213-MU1-8957
CA	Santa Clara, Engrg. Assocs.	408-988-5001
CO	Denver, Moss Mktg.	303-455-7205
GA	Atlanta, Par Assoc.	404-391-9117
IL	Mt. Prospect, Robert Adams Sls.	312-297-8733
KS	De Soto, Midtec Assoc.	913-441-6565
MA	Belmont, Elctrn. Comps. & Svc.	617-484-8680
MN	Minneapolis, A. J. Warner Co.	612-729-7371
NY	Lynbrook, P. Saftler Assoc.	516-593-7880
OH	Columbus, McFadden Sls.	614-459-1280
PA	Paoli, T. Griffin Co.	215-647-1550
TX	Dallas, Advance Tech. Sls.	214-340-1300
WA	Mercer Island, Elctrns. Comp. Sls.	206-232-9301

Local Distributors

CA	Los Angeles, Elect. Switches	213-664-1141
CA	Redwood City, Hi-Cor	415-368-3849
GA	Atlanta, Lakeland Engrg. Equip.	404-696-7334
MI	Ann Arbor, Wedemeyer Elctrns.	313-665-8611
NY	Hauppauge, Broadline Elctrn. Dist.	516-231-4100
TX	El Paso, Ideal Indl. Elctrn.	915-779-6647
WA	Redmond, Dorn Sls. Assocs.	206-885-1885
WA	Seattle, Radar Elec.	206-282-2511

BUD INDS., INC., 4605 E. 355th St., Willoughby, OH 44094, Tel: 216-946-3200, Telex: 810-427-2604; FSC No.: 71218; Empl.: 200; *Sls. Mgr.:* A. N. Haas; *Dist. Mgr.:* B. K. Haas

BUD RADIO, 4605 E. 355th St., Willoughby, OH 44094, Tel: 216-946-3200, TWX: 810-427-2604; Empl.: 200; *Sls. Mgr.:* A.N. Haas; *Dist. Mgr.:* Blair Haas

BUDWIG MFG., P.O. Box 829, Ramona, CA 92065-0829, Tel: 619-789-0900; Empl.: 7

BUEHLER PRODUCTS, INC., P. O. Box 33400, Raleigh, NC 27606, Tel: 919-469-8522, TWX: 510-924-2474; Empl.: 400; *Sls. Mgr.:* R. B. Davis .... **B•1142**

BUGGIE H. H., See Caton Connector Corp.

BUGTRAP INSTRUMENTATION, 1209 Alderwood Avenue, Sunnyvale, CA 94089, Tel: 408-734-1118, TWX: 910-333-1168 BUGTRAPSUNNYVA; FSC No.: 5Z365; *Sls. Mgr.:* Jeff Liming

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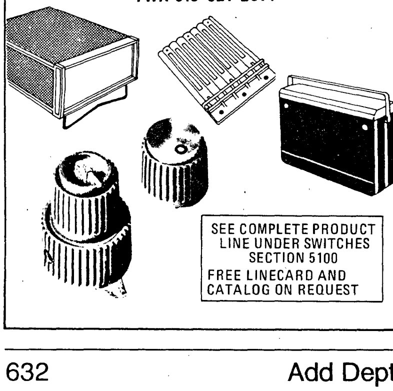

BULBTRONICS, INC., 45 Banfi Plaza, Farmingdale, NY 11735, Tel: 516-249-2272; Empl.: 22; *Sls. Mgr.:* Elaine Grey; *Dist. Mgr.:* Diana Jacobson .... **B•1021**

BULOVA SYS. & INSTR., Green Acres Rd., W., Valley Stream, NY 11582, Tel: 516-561-2600, TWX: 510-225-8709; Empl.: 850

BULOVA WATCH CO., See Frequency Control Prods., Inc., American Time Prods. Div.

BUMPER PRODUCTS CORP., 14 King St., P.O. Box 45, Mt. Holly, NJ 08060, Tel: 609-261-8100, 800-541-2500, Telex: 244437 ACTP-UR; *Sls. Mgr.:* Ed Rosenthal .... **C•1694**

Local Distributors

CA	Covina, Arow Fasteners	818-967-6335
CA	Hayward, Arow Fasteners	800-227-2901
CA	San Leandro, Boyd Corp.	415-278-8000
CA	Santa Clara, San Jose Screw Prods.	408-988-3771
CA	Temple City, Fastening Systems	818-579-4600
FL	Tampa, Spencer Prods.	813-877-8276
GA	Atlanta, Georgia Rubber & Supply	404-355-0830
IL	Schaumburg, Engineered Fastener Co.	312-980-4082
IN	Ft. Wayne, Spencer Prods.	219-482-4882
MA	South Boston, Accurate Fasteners	617-268-8300
MI	Detroit, Tri-West Prods.	313-273-0400
MO	St. Louis, Engineered Fastener Co.	314-434-2888
NY	Buffalo, J.M. Cranz	716-832-3300
NY	Mt. Vernon, S.D. Christie Co.	914-699-7223
OH	Bedford, Spencer Prods.	216-475-8700
OH	Cincinnati, Spencer Prods.	513-771-6821
PA	Southampton, M & C Specialties	215-322-1600
TX	Dallas, Wilshire Foam Prods.	214-869-1727
TX	Ft. Worth, Cut-Craft	817-737-8207
WA	Spokane, Boyd Corp.	509-928-7200
WI	Brookfield, Cable Comps.	414-785-1060
Can	Quebec, Simfer Indl. Prod.	515-354-0886

BUNKER RAMO, see Amphenol, An Allied Co.

BUNTING MAGNETICS, 500 So. Spencer Rd., Newton, KS 67114, Tel: 316-284-2020; Empl.: 100; *Sls. Mgr.:* Robert J. Bunting

BUREAU OF ENGRAVING, INC., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413, Tel: 612-623-0900, TWX: 910-576-2733; Empl.: 750; *Sls. Mgr.:* Darrell Chayer

BURGESS SWITCH CO., INC., 638 Anthony Trail, North Brook, IL 60062, Tel: 312-291-1760, Telex: 206774; FSC No.: 6U850; *Sls. Mgr.:* Robin Dick; *Dist. Mgr.:* Robin Dick .... **B•1510-1512**

Local Sales Offices & Reps

CA	Mountain View, Westech Sls.	415-961-1422
CA	Tustin, Sierra Pacific Engrg.	714-731-3411
FL	Casselberry, SEMI	305-831-2822
FL	Ft. Lauderdale, SEMI	305-475-3686
GA	Atlanta, Murphy and Cota	404-875-2525
IL	Des Plaines, Lincoln, Hodges and Assocs.	312-297-3810
KS	Mission, Mertens Co.	913-432-9323
MA	Cambridge, R.J.C. Assocs.	617-492-5858
MI	Ferndale, Hilltronics	313-398-5556
MN	St. Paul, Kencotronics	612-645-7717
MO	St. Louis, Mertens Co.	314-993-6600
NJ	Palisades Park, A. P. Technical Sls.	201-461-8875
NY	Albany, Niagara Elec. Sls.	518-869-0130
NY	Buffalo, Niagara Elec. Sls.	716-886-4000
NY	East Syracuse, Niagara Elec. Sls.	315-437-1656
NY	Rochester, Niagara Elec. Sls.	716-271-1223
NC	Burlington, Murphy & Cota	919-584-6450
OH	Cincinnati, Anderson-Bolds, Inc.	513-528-5680
OH	Cleveland, Anderson-Bolds, Inc.	216-229-4700
OH	Worthington, Anderson-Bolds Inc.	614-885-3933
PA	Philadelphia, Kenneth B. Erdman, Co.	215-224-1833
TX	Dallas, William Reese Assocs.	214-351-0703
TX	Houston, William Reese Assocs.	713-463-1453
WA	Seattle, Anthem Corp.	206-824-3399
WI	Janesville, Antek Mktg. Corp.	608-754-4214
WI	Waukesha, Lincoln, Hodges and Assocs.	414-542-3087

Local Distributors

AL	Muscle Shoals, Jones Elctrns., Inc.	205-383-1241
CA	Burlingame, Elec. Control Devices	415-348-0791
CA	Redondo Beach, Elctrl. Power & Controls	213-498-6699
FL	Miami, B & R Elctrns. Supp. Inc.	305-255-4510
FL	Miami, Electro-Standards Labs	305-593-6060
IL	Chicago Heights, Helsel-Jepperson	312-756-5600
MA	Fall River, Broadway Elec. Sls.	617-673-3339
MA	Holyoke, Falcetti & Clark Elec.	413-532-9402
MA	Springfield, Yankee Elec.	413-739-2101
MI	Grand Rapids, S & F Elctrns. Supp.	616-459-0216
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Elctrn. Center Inc.	612-371-5200
NH	Manchester, Cohen Machinery Co. Inc.	603-624-4324
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Gloversville, Montano Elctrl. Supp.	518-725-3139
NY	Woodside, Switches Unlimited	212-478-5000
NC	Durham, Triangle Elec. Motor	919-596-1333
NC	Gastonia, JMT Elctrns. & Control	704-867-4401
OH	Cincinnati, Richards Elec. Supp.	513-242-8800
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, Esco Elctrl. Supp.	215-923-6050
RI	Providence, J & H Elec. Co., Inc.	401-421-7840
TX	San Antonio, Sherman Elec. Supp. Inc.	512-224-1001
VA	Roanoke, Peoples Elctrn. Supp.	703-342-8933

BURGESS SWITCH CO., LTD., 4800 Sheppard Ave. E, Unit 125, Scarborough M1S4N5; Empl.: 7; *Sls. Mgr.:* Richard Maxwell; *Dist. Mgr.:* Ewan Hannis

BURLEIGH INSTRS., Burleigh Pk., Fishers, NY 14453, Tel: 716-924-9355, Telex: 978379; Empl.: 50; *Sls. Mgr.:* Dr. Gary Forrest; *Dist. Mgr.:* Dr. Gary Forrest

BURLING INSTR., P.O. Box 298, Chatham, NJ 07928, Tel: 201-635-9481; Empl.: 29; *Sls. Mgr.:* Roger Nation

BURNDY/BERCO, 226 Brookside Road, Waterbury, CT, Tel: 203-574-4766

BURNDY CORPORATION, Richards Ave., Norwalk,, CT 06852, Tel: 203-838-4444, TWX: 710-468-2546; Empl.: 3500; *Sls. Mgr.:* J. Bradley

BURR-BROWN CORP., P.O. Box 11400, Tucson, AZ 85734, Tel: 602-746-1111, Telex: 66-6491, TWX: 910-952-1111; Empl.: 1500; *Sls. Mgr.:* T.W. Fern

BURROUGHS CORP., Borroughs Place, Rm. 4C-51, Detroit, MI 48232, Tel: 313-972-7000, Telex: 164125; Empl.: 65,000

BURTON ELECTRICAL ENGINEERING, Wyle Laboratories, 111 Maryland Street, P.O. Box 217, El Segundo, CA 90245-0217, Tel: 213-772-1406, Telex: 858485, TWX: 910-348-6699; FSC No.: 81861; Empl.: 55; *Sls. Mgr.:* Howard Doty

BUSSCO INC., 119 Standard St., El Segundo, CA 90245, Tel: 213-322-6580, TWX: 910-348-6295; FSC No.: 29593; Empl.: 87

BUSSMANN DIV., P.O. Box 14460, St. Louis, MO 63178, Tel: 314-394-2877, Telex: 44 841; FSC No.: ;Multiple; Empl.: 3000; *Sls. Mgr.:* George Ockuly; *Dist. Mgr.:* George Ockuly

BYTEK COMPUTER SYSTEMS CORP., 1021 S. Rogers Circle, Boca Raton, FL 33431, Tel: 305-994-3520, Telex: 510-952-7637; Empl.: 15; *Sls. Mgr.:* Madeline Selwitz

Local Distributors

CA	Costa Mesa, Tekcom	714-645-5263
CO	Denver, Aurora Mktg.	303-758-3051
FL	Miami Beach, Infotech Intl.	305-948-7951
MN	Minneapolis, Amex Inc.	612-375-9191

BYTEX CORP., 2 California Ave., Framingham, MA 01701, Tel: 617-879-5050, Telex: 951151; Empl.: 80; *Sls. Mgr.:* Ralph W. Lowry

CABLE SYSTEMS, INC., 210 Broadway, Everett, MA 02149, Tel: 617-389-7080, TWX: 710-348-1760; FSC No.: 33426; Empl.: 175; *Sls. Mgr.:* A. Janelle

Local Sales Offices & Reps

AZ	Tucson, Clemick-Neenan & Assocs.	910-495-1722
CA	Santa Ana, Wyne Champa Assocs.	714-557-2959
CT	Tolland, TMR Corp.	203-872-3624
MD	Ellicott City, Marketing Technlg.	301-465-5944
MA	Tewksbury, Sequel Assocs.	617-851-4010
NY	Commack, MTR Technlg.	516-543-1200

CABLEWAVE SYSTEMS, INC., 718 North Colony Road, Wallingford, CT 06492, Tel: 203-265-6560

CABLEWAVE SYS., 60 Dodge Ave., North Haven, CT 06473, Tel: 203-239-3311, TWX: 710-465-0244; Empl.: 250; *Sls. Mgr.:* William Meola/Ed Hurley; *Dist. Mgr.:* Ed Hurley

CABLEX, INC., 14 Inverness Dr. E. H-136, Englewood, CO 80112, Tel: 303-792-5760; Empl.: 50; *Sls. Mgr.:* Reed C. Mulder; *Dist. Mgr.:* Reed C. Mulder

CABOT BERYLCO, Div. Cabot Corp., PO Box 1296, Reading, PA 19603, Tel: 215-921-5000, TWX: 510-651-0677; Empl.: 600; *Sls. Mgr.:* Thomas N. Marks

CABTRON SYS., INC., 200 N. Anets Dr., Northbrook, IL 60062, Tel: 312-498-6090; Empl.: 30; *Sls. Mgr.:* Mike Gober .... **C•1029**

Local Sales Offices & Reps

AZ	Tempe, Sierra Tech. Grp.	602-894-2335
CA	San Jose, Warren Assoc.	408-988-7762
CO	Englewood, Sierra Tech. Grp.	303-741-0227
CT	Reading, Meco, Inc.	617-944-6660
MD	Silver Spring, Ansell Engrg.	301-949-1655
MA	Reading, Meco, Inc.	617-944-6660
MI	Livonia, H. Lowell Co.	313-464-2722
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	Kansas City, Prod. Automation	816-737-3030
MO	St. Charles, Prod. Automation	314-441-6600
NJ	Mt. Lakes, N.J. Comps. for Elctrns.	201-334-2921
NM	Albuquerque, Sierra Tech. Grp.	505-294-8408
NY	Syracuse, Ossmann Instrs.	315-437-7052
OH	Cleveland, Geotronix	216-526-2535
OH	Columbus, Geotronix	614-457-8472
PA	Albrightville, Centurion Linear	717-722-0166
TX	Addison, Dunbar Assocs.	214-239-7151

CADDELL-BURNS MFG., 40 E. 2nd St., Mineola, NY 11501, Tel: 516-746-2310; Empl.: 30 ..... **A•1218-1229**

CCC

CADDELL COIL CORP., 35M Main St., Poultney, VT 05764, Tel: 802-287-4055, Telex: 752092; Empl.: 6; *Sls. Mgr.:* James Caddell

Local Sales Offices & Reps

FL	Sebastian, R.B. Caddell	305-562-4496

CADDOCK ELECTRONICS, INC., 1717 Chicago Ave., Riverside, CA 92507, Tel: 714-788-1700, TWX: 910-332-6108; FSC No.: 19647; Empl.: 300 .... **A•1804-1827**

Local Sales Offices & Reps

OH	Cleveland, Arthur H. Baier Co.	216-461-6161
OH	Dayton, Arthur H. Baier Co.	513-276-4128
OR	Portland, Elctrn. Sources	503-684-0040
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

TX	Houston, Lenert Co.	713-225-1465

CADILLAC PLASTIC & CHEM., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012, Tel: 313-646-5100, TWX: 810-232-1886; Empl.: 1000

CADNETIX CORPORATION, 5757 Central Ave., Boulder, CO 80301, Tel: 303-444-8075; Empl.: 150

CAELUS COMPUTER, Equipment & Supplies, P.O. Box 6297, San Jose, CA 95150, Tel: 408-729-1800; Empl.: 25; *Sls. Mgr.:* Elaine Green

CAERE CORP., 100 Cooper St., Los Gatos, CA 95030, Tel: 408-395-7000, Telex: 910-597-5391; Empl.: 60+; *Dist. Mgr.:* Terry Livermore

CAI, 550 W. Northwest Hwy., Barrington, IL 60010, Tel: 312-381-2400, Telex: 25-4268, TWX: 910-651-1904; Empl.: 650

CAIG LABS., 1175-0 Industrial Ave., Escondido, CA 92025, Tel: 619-743-7143; Empl.: 15

Local Distributors

CA	Glendale, Western Elctrn. Supp.	213-246-4861
DE	Wilmington, Wholesale Elctrn.	302-656-9988
IL	Champaign, Klaus Radio	309-691-4840
IL	Hillsdale, Complete Reading Elec.	312-547-5400
LA	Lafayette, Ralphs Elctrns. Supp.	318-233-0105
MI	Grand Rapids, Stotts-Friedman	616-459-0216
MO	Kansas City, Walters Radio Supp.	816-531-7015

NY	New York, Argil Elctrns.	212-691-8111
OH	Cleveland, Complete Reading Elec.	216-267-1000
TX	El Paso, Midland Specialty Co.	915-533-9555
VA	Norfolk, Priest Elctrns.	703-855-0105
VA	Norfolk, Radio Parts Distr. Co.	703-461-8095

CALABRO INDS., INC., See UNITRACK Div., Calabro Inds., Inc.

CALAY SYSTEMS, INC., 2698 White Road, Irvine, CA 92714, Tel: 714-863-1700, Telex: 6711321; Empl.: 44

CALCOMP, 2411 W. La Palma Ave., Anaheim, CA 92801, Tel: 714-821-2011, TWX: 910-591-1154; Empl.: 2100; *Sls. Mgr.:* James F. Waltz

CAL CONTROLS INC., 1155 Glenview Rd., Glenview, IL 60025, Tel: 312-998-5720, Telex: 256293; *Sls. Mgr.:* Alan Bates

CAL COUNT, 5407 Port Royal Rd., Springfield, VA 22151, Tel: 703-321-9625, Telex: 440732, TWX: 440733; Empl.: 35

CAL CRYSTAL LAB., INC., 1142 N. Gilbert, Anaheim, CA 92801, Tel: 714-991-1580, 800-854-XTAL, TWX: 910-591-1892; *Sls. Mgr.:* Herb Plumhoff

Local Sales Offices & Reps

AZ	Scottsdale, Western High Tech. Mktg.	602-949-0873
CA	Arcadia, H.M.C. Inc.	818-447-0958
VA	Front Royal, Eltron Sls., LTD.	703-635-7201

Local Distributors

CA	Chatsworth, Passive Comp.	818-341-1745
CA	Mountain View, Target Elctrns.	415-961-1170

CALEX MFG. CO., INC., 3355 Vincent Rd., Pleasant Hill, CA 94523, Tel: 415-932-3911, Telex: 338 506; FSC No.: 29988; Empl.: 50; *Sls. Mgr.:* Steven M. Mathias .... **D•1006, 1542-1545**

Local Sales Offices & Reps

AZ	Glendale, Adtek Inc.	602-931-9289
CA	Inglewood, Basic Sys.	213-673-4300
CA	San Diego, Basic Sys.	619-729-9641
CA	Santa Clara, Basic Sys.	408-727-1800
CT	Collinsville, Dynamic Sls.	203-693-6567
FL	Melbourne, Raycom, Inc.	305-259-7988
GA	Duluth, Raycom, Inc.	404-446-9015
MA	Burlington, Dynamic Sls.	617-272-5676
NY	White Plains, Cane Techn. Sls.	914-694-9240
OH	Chesterland, EQS	313-961-3042
TX	Garland, Carey, McMahill & Zerbe Co.	214-681-1414
TX	Houston, Carey, McMahill & Zerbe Co.	713-771-1500
WA	Bellevue, Topp Engrg. Sls. Co.	206-747-5401

Local Distributors

CA	Inglewood, Basic Sys.	213-673-4300
CA	Pleasant Hill, Calex Mfg. Co.	415-932-3911

CALIBRON INSTRS., Burton-Rogers Co., 220 Grove St., Waltham, MA 02154, Tel: 617-894-6440; Empl.: 14; *Dist. Mgr.:* W. Burton

CALIFORNIA AVIONICS LABS., Box 701, Palo Alto, CA 94302, Tel: 415-328-7999; Empl.: 5 .... **D•1198**

CALIFORNIA COMPUTER SYSTEMS, 740 S. Milpitas Blvd., Milpitas, CA 95035, Tel: 408-945-0500, Telex: 171959; Empl.: 37; *Sls. Mgr.:* William Crane; *Dist. Mgr.:* William Crane

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CALIFORNIA DC, 2150 Anchor Ct., Newbury Park, CA 91320, Tel: 805-499-3621, 213-706-8221; Empl.: 100; *Sls. Mgr.:* Peter Gajewski .... **D•1546**

Local Sales Offices & Reps

AZ	Phoenix, Relcom	602-893-1209
CA	Calabasas, Quadrep Cen.	818-887-3711
CA	Irvine, Quadrep S.	714-261-8141
CA	San Diego, Power Assocs.	619-275-0641
CA	San Jose, Quad Rep	408-946-4000
MA	Falmouth Heights, RJC Assocs.	617-366-0399
OR	Portland, Crown Elctrns.	503-620-8320
TX	Austin, Technlg. Sls.	214-346-9940
TX	Dallas, Technlg. Sls.	214-380-0200
TX	Houston, Technlg. Sls.	713-266-2473
WA	Bellevue, Crown Elctrns.	206-643-8100
Can	Don Mills, Ont., RD Assocs.	416-444-0959

Local Distributors

CA	South Gate, Cetec Elctrns.	213-773-6521

CALIFORNIA EASTERN LABS. INC., 3005 Democracy Way, Santa Clara, CA 95050, Tel: 408-988-3500, Telex: 346393, TWX: 171197; Empl.: 85; *Sls. Mgr.:* Jim McAuley; *Dist. Mgr.:* Jim McAuley

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Local Sales Offices & Reps

AZ	Phoenix, Aztec Ent., Inc.	602-944-9185
CA	Huntington Beach, Sci. Dvcs. West	714-840-3501
CA	Los Altos, Jay Stone Assocs.	415-948-4563
CO	Denver, Aztec Entprs.	303-779-5285
FL	Melbourne, Saber Assocs.	800-327-0853
IL	Chicago, EIA, Inc.	312-298-2290
IN	Indianapolis, EIA, Inc.	317-257-7231
KS	DeSoto, Midtec Assocs.	913-441-6565
LA	Baton Rouge, SESCO	510-993-3103
MA	Waltham, McBar Assocs.	617-890-0233
MN	Minneapolis, Prairie Assocs.	612-559-7550
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Teaneck, Sci. Dvcs. East, Inc.	201-837-1004
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Fayetteville, Andrews Co.	315-637-3144
OH	Dayton, Hocker Assocs.	513-298-8638
OK	Tulsa, SESCO	918-622-3868
PA	Springhouse, Sci. Dvcs. East	215-643-3335
TX	Austin, SESCO	512-892-2490
TX	Dallas, SESCO	214-231-9364
TX	Houston, SESCO	713-999-3510
UT	Ogden, Aztec Ent., Inc.	801-621-1655
VA	McLean, Creative Mktg. Assoc. Ltd.	703-442-9100
WA	Bellevue, Showalter Instrs., Inc.	206-746-7970
Can	Ottowa, Ont., A.I.M.	613-722-8286

CALIFORNIA MICRO DEVICES, INC., 215 Topaz Street, Milpitas, CA 95035, Tel: 408-263-3214

CALIFORNIA MICROWAVE, 990 Almanor Ave., Sunnyvale, CA 94086, Tel: 408-732-4000, Telex: 35 2016, TWX: 910-339-9231; Empl.: 1200

CALIFORNIA MINICOMPUTER SYS., 5534 Westlawn Ave., Los Angeles, CA 90066, Tel: 213-640-2930, TWX: 910-343-6489; Empl.: 50; *Dist. Mgr.:* R. D. Mowry

CALLYER INSULATED WIRE CO., 100 Higginson Ave., Lincoln, RI 02865, Tel: 401-723-7800

CALMARK

CORPORATION

CALMARK CORP., 4915 Walnut Grove Ave., San Gabriel, CA 91776, Tel: 818-287-0451, TWX: 910-589-1540; FSC No.: 52094; Empl.: 70; *Sls. Mgr.:* R. L. Rosenthal; *Dist. Mgr.:* R. L. Rosenthal .... **C•1030-1044**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Tempe, Delta Elctrn. Sls.	602-224-1601
CA	San Diego, Noo Rep. Tech. Sls.	619-483-4861
CA	Santa Clara, Calmark Corp.	408-984-2618
CO	Denver, Spectrum Mktg.	303-480-9991
FL	Clearwater, WMM Assocs.	813-461-7074
GA	Atlanta, Remco	404-447-6937
IL	Elk Grove, Martec	312-956-8090
KS	DeSoto, Midtec Assocs.	913-441-6565
MA	Westboro, Tech. Mktg. Svcs. Co.	617-366-6655
MN	Minneapolis, Comps. Grp.	612-374-1250
MO	Florissant, Midtec Assocs.	314-837-5200
NH	Windham, Tech. Mktg. Svcs.	603-434-2716
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Cooperstown, Fitzelle Assocs.	607-547-9333

NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Remco	919-847-5079
OH	Miamisburg, Electronics, Inc.	513-866-3340
OR	Troutdale, Comtec	503-227-2111
PA	Horsham, Dalbrook Corp.	215-441-8380
TX	Richardson, Zonk Assocs.	214-238-7651
UT	Ogden, Spectrum Mktg.	801-972-8552
WA	Bellevue, Comtec	206-453-1188
EXP	Cappoquin, Ireland, Calmark-Kileen, Ltd.	058-54205
EXP	San Gabriel, CA, Calmark Corp.	213-287-0451

Local Distributors

AZ	Phoenix, Aero-Space Computer Supps.	602-861-1785
AZ	Phoenix, Scottsdale Tool & Supp.	602-273-7376
CA	Anaheim, Henry Mann West	213-995-3900
CA	Fremont, Terminal Sls. Corp.	415-656-7722
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Denver, Solder Tec.	303-922-6214
FL	Longwood, Intertec Comps.	305-834-7777
IL	Elk Grove, Martec Assocs.	312-956-8090
MA	Waltham, Etchomatic	617-893-2020
MA	Westboro, TMSC Elctrn. Supp.	617-366-8462
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725
NJ	Collingswood, Index	609-429-4055
NJ	Nutley, Nationwide Circuit Prods.	201-667-1333
NY	Elmsford, Multimetrics Co.	914-347-3667
PA	Huntingdon Valley, Henry Mann, Inc.	215-355-7200
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Richardson, Zec Sls.	214-238-7651
UT	Salt Lake City, Solder Tec	801-974-0444
EXP	Cappoquin, Ireland, Calmark-Kileen, Ltd.	058-54205
EXP	CA, San Gabriel, Calmark Corp.	213-287-0451
EXP	Osaka, Japan, Settsu Metal Inds.	06-992-2331
EXP	Ramat-Gan, Israel, Shaham Elctrn.	03-700303
EXP	Singapore, Singapore, Mazda Elctrn.	2987851

CAL-METEX CORP., See Shielding Techn.

CAL-POWER CORP., 140 Kansas St., El Segundo, CA 90245, Tel: 213-772-2171, TWX: 910-348-6678; Empl.: 30

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CAL-R, INC., P.O. Box 1397, Santa Monica, CA 90406, Tel: 213-450-1761, TWX: 910-343-6966; FSC No.: 14193; Empl.: 130; *Sls. Mgr.:* J. F. Catrambone .... **A•1829-1831; B•1745-1747**

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assocs.	602-277-1453
CA	Cupertino, F & F Assocs.	408-446-2349
CA	San Diego, Interstate Mktg. Assocs.	619-292-8117
CA	Woodland Hills, Interstate Mktg. Assocs.	818-883-7606
IN	Kokomo, Schillinger & Assocs.	317-452-4057
IN	South Bend, Schillinger & Assocs.	219-291-6258
MN	Minneapolis, Bill Deming & Assocs.	612-888-5000
NH	Milford, D. A. Crowley & Assocs.	603-673-8274
PA	Rydal, Espy Sls.	215-576-0780
EXP	CA, Santa Monica, Trans-World Trade	213-472-0444

Local Distributors

CA	Canoga Park, Timco Sls.	818-992-5040
CA	Long Beach, El-Comp Sls.	213-421-7316
CA	San Fernando, Petell Elctrns.	818-365-9841
CT	Fairfield, Sound Elctrns.	203-254-2003
FL	Tampa, Impala Elctrns.	813-885-4747
IN	Indianapolis, Meunier Elctrns. Supp.	317-635-3511
MD	Timonium, Sebra Elctrns.	800-638-1103
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
NJ	East Hanover, State Elctrns. Parts Corp.	201-887-2550
NY	Bohemia, Justin Elctrns.	516-589-4008
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	New York, Centaur Elctrns.	212-685-6984
NY	Valley Stream, L & S Elctrns.	516-561-2474
EXP	CA, Santa Monica, Cal-R, Inc.	213-450-1761

CAL-TEK ENGRG., 36 Riverside Drive, Kingston, MA 02364, Tel: 617-585-5666; Empl.: 5

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AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	818-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Denver, Comp. Technlg., Inc.	303-758-5750
CT	Canton, Motoreps of New England	203-693-6366
MA	Needham, Motoreps of New England	617-449-3252
MN	St. Paul, Arkco, Inc.	612-777-7454
NJ	Red Bank, Motoreps of New York	800-631-2138
OR	Beverton, Halbar Assocs.	503-226-0451
WA	Redmond, Halbar Assocs.	206-882-0990

CAMBRIDGE DIGITAL SYS., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139, Tel: 617-491-2700, Telex: 92-1401 COMPUMART/CAM; *Sls. Mgr.:* James O. Tropp

CAMBRIDGE ELECTRONICS LABS, P. O. Box 205, Cambridge, MA 02140, Tel: 1-617-625-7654, Telex: 948580; *Sls. Mgr.:* Mrs. Charlotte Bissell

CAMBRIDGE FILTER CORP., P.O. Box 4906, Syracuse, NY 13221-4906, Tel: 315-457-1000, Telex: 322096; *Sls. Mgr.:* Sam Stenger

CAMBRIDGE PRODS., Tridex, 244 Woodland Ave., Bloomfield, CT 06002, Tel: 203-243-1761; Empl.: 32; *Sls. Mgr.:* A. Horowitz

CAMBRIDGE TECHNOLOGY, INC., 2464 Massachusetts Ave., Cambridge, MA 02140, Tel: 617-876-0891; *Sls. Mgr.:* Bruce Rohr

C.A.M. GRAPHICS CO., INC., 145 Toledo St., Farmingdale, NY 11735, Tel: 516-694-1315, TWX: 510-224-6181; FSC No.: 63203; *Sls. Mgr.:* Manny Cardinale

CANADIAN THERMOSTATS & CONTROL DEV. LTD., 8415 Mountian Sights, Montreal, PQ, Canada H4P2B8, Tel: 514-739-3274, Telex: 05-825619; Empl.: 15; *Sls. Mgr.:* R. Marquis

CANBERRA IND., One State St., Meriden, CT 06450, Tel: 203-238-2351, Telex: 643251, TWX: 710-461-0192; Empl.: 600; *Sls. Mgr.:* Peter Devecchis; *Dist. Mgr.:* Peter Devecchis

C&D POWER SYSTEMS, Allied Corp., 3043 Walton Rd., Plymouth Meeting, PA 19462, Tel: 215-828-9000; Empl.: 1500; *Sls. Mgr.:* L. D. Zachau

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Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Scottsdale, Sls. Engrg.	602-994-3230
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Los Altos, Ewing-Foley	415-941-4525
CA	Los Angeles, Universal Comps.	213-641-4255
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Glastonbury, Barton Assoc.	203-633-9417
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Elk Grove Vlg., Control Sls.	312-595-2110
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
KY	Louisville, Technlg. Mktg. Corp.	502-499-7808
MD	Randallstown, Beacon North	703-591-1300
MA	Ludlow, Gerber Sls. Corp.	413-589-9817
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MI	Brighton, AP Assocs.	313-229-6550
MN	Minnetonka, Gibb Elctrns.	612-935-4600
MO	Bridgeton, Dy-Tronix	314-291-4777
MO	Independence, Dy-Tronix	816-373-6600
NJ	W. Berlin, Quality Comps.	609-428-6266
NM	Albuquerque, Reptronix	505-292-1718

NY	Babylon, Astrorep	516-422-2500
NY	Latham, L-Tron Corp.	518-785-5032
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Beachwood, Thompson & Assocs.	216-831-6277
OH	Dayton, Thompson & Assocs.	513-435-7733
OR	Beaverton, LD Elctrns.	503-649-6177
TX	Houston, R. F. Kimball Co.	713-890-8810
TX	Richardson, R. F. Kimball Co.	214-231-3447
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Thiensville, Control Sls.	414-242-4580

CANOGA DATA SYS., 6740 Eton Ave., Canoga Park, CA 91303, Tel: 213-888-2003, Telex: 182341

CANON U.S.A., Elctrn. Comps. Div., One Canon Plaza, Lake Success, NY 11042, Tel: 516-488-6700, Telex: 96-1333; Empl.: 500; *Sls. Mgr.:* P. Specter ..... **B•1143**

Local Sales Offices & Reps

AL	Birmingham, Motion Technlg.	404-972-4040
AZ	Phoenix, Thor Engrg.	602-437-1463
AR	El Dorado, Industrial Control Assocs.	501-863-2051
CA	Los Angeles, Motion Dynamics	818-345-2127
CA	San Jose, J.T. McFarland Assoc.	408-286-9333
CT	Wolcott, Vanguard Elctrns.	203-879-9310
FL	Orlando, Motion Technology	404-972-5050
GA	Lilburn, Motion Techn.	404-972-5050
IL	Elgin, JHS & Assocs.	312-741-9070
IL	Glenview, JHS Assocs.	312-998-1960
IN	Ft. Wayne, J&B Engrg.	219-483-2813
IN	Indianapolis, J & B Engrg.	317-842-2681
MA	Needham Hgts., Vanguard Elctrns.	617-449-5578
MI	Farmington Hills, W. R. Hummon & Associates	313-474-0661
MN	Minneapolis, Components Grp.	612-374-1250
NJ	Wayne, SHL Assocs.	201-790-1714
NY	E. Rochester, A & D Devices	716-385-2778
NY	Sidney, A & D Devices	607-563-8488
NC	Charlotte, Motion Technology	704-525-9855
OH	Galion, Retronics	419-468-3253
OR	Portland, Controltek	503-641-0877
PA	Wayne, Technical Indl. Sls.	215-688-0220
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1356
WA	Spokane, Controltek	509-922-2971
WI	Milwaukee, EMCO	414-242-0800

CANRAD-HANOVIA, 100 Chestnut St., Newark, NJ 07105, Tel: 201-589-4300, Telex: 13-8531; Empl.: 250; *Sls. Mgr.:* George Baer

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CA	Anaheim, Lou Arti	714-385-1433
FL	Winter Park, R. Evans	305-671-8716
IL	Bloomingdale, Ron Searls	312-980-6391
KS	Wichita, J. O'Reilly	316-744-0851
NJ	Bridgewater, Semi-Matic Co.	201-231-0606
OH	Cincinnati, G. Nichols	513-891-5104
TX	Dallas, Charles Schleeweis	214-386-9747

CANSTAR COMMUNICATIONS, Canada Wire & Cable, Ltd., 1240 Ellesmere Rd., Scarborough, ON, Canada M1P2X4, Tel: 416-293-9722, Telex: 065-25403

CANYON ELCTRNS., 2001 W. North Lane, Phoenix, AZ 85021, Tel: 602-944-4421; *Sls. Mgr.:* George J. Mitlak ..... **B•1022**

CAPACITOR SPECIALIST, See CSI Capacitors

CAPACITOR TECHNOLOGY, INC., 5015 Speedway Dr., Ft. Wayne, IN 46825, Tel: 219-484-9054 .... **A•1012**

CAPAR COMPONENTS CORP., Div. of Diplomat Electronics, 25 Dubon Ct., Farmingdale, NY 11735, Tel: 516-454-6390, Telex: 221794 ..... **A•1013**

Local Sales Offices & Reps

AL	Huntsville, South Eastern Mktg.	205-882-1633
CA	Redwood City, &	415-368-3849
CA	San Diego, Professional Sls.	619-578-8831
CA	San Jose, Class One	408-297-8666
CA	Santa Ana, Caper West	714-547-7034
CA	Santa Ana, El Dorado Sls.	714-954-0285
CO	Lakewood, Andale	303-693-4331
CT	Woodbury, Lindco Assoc. Inc.	203-263-0629
FL	Altamonte Springs, C-Assocs.	305-831-1717
GA	Alpharetta, Futron, Inc.	404-587-3853
IL	Wilmette, Wasserman Assocs.	312-256-3566
IN	Indianapolis, Willson Technical Sls.	317-298-3345
IA	Marion, M-S-B Assocs., Inc.	319-377-6261
KS	Shawnee, M-S-B Assocs., Inc.	913-432-2131
MD	Pillesville, Imagitron Sls. Co.	301-521-2020
MA	Tyngsboro, Comptech, Inc.	617-649-3030
MN	Minneapolis, DeBeck-Hays Assocs.	612-835-3610
MO	St. Charles, M-S-B Assocs., Inc.	314-946-5577
NJ	Fort Lee, Neeco	201-461-2789
NC	Raliegh, Hi-Tech Assocs.	919-781-4139
TX	Plano, B & R Electrnc. Sls. Corp.	214-985-0028
WA	Redmond, Doran Sls. Assocs.	206-885-1885

Western states call Capar West at 714-547-7034 for distributor information. All other states call Capar East at 516-454-6390 for distributor information

CAPCO, Box 1028, Grand Junction, CO 81502, Tel: 303-243-8751, TWX: 910-929-6989; Empl.: 110

CAPINTEC INSTRS., 6 Arrow Rd., Ramsey, NJ 07446, Tel: 201-825-9500, Telex: 642375; FSC No.: 6666;6685; Empl.: 150; *Sls. Mgr.:* R. J. Kanzler

CAPITOL MACHINE & SWITCH CO., Box 890, Danbury, CT 06810, Tel: 203-744-3300; FSC No.: 01548; Empl.: 90; *Sls. Mgr.:* E. P. DiMarco

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CAPITOL TEMPTROL, 5 Coulton Rd., Old Lyme, CT 06371, Tel: 203-739-4421; FSC No.: 4100; *Sls. Mgr.:* James M. Kronick

CAPTOR CORP., 5040 S. County Rd. (25A), Tipp City, OH 45371, Tel: 513-667-8484; FSC No.: 23939; Empl.: 92; *Sls. Mgr.:* Omer B. Bruns

CARBONE-FERRAZ, INC., Eastmans Rd., Parsippany, NJ 07054, Tel: 201-428-8400, 800-526-9067, Telex: 136045; *Sls. Mgr.:* John Harper

CARBONE LORRAINE INDS., 400 Myrtle Ave., Boonton, NJ 07005, Tel: 201-DE4-0700, Telex: 136407; Empl.: 450

CARBONE USA CORP., Carbone Lorraine Inds. Corp., 402 Myrtle Ave., Boonton, NJ 07005, Tel: 201-334-0700, Telex: 136407; *Sls. Mgr.:* Norman Carver; *Dist. Mgr.:* Norman Carver

CARDINAL CONTROL CO., 110 Kensington Rd., Kensington, CT 06037, Tel: 203-828-6379; *Sls. Mgr.:* L.E.P. Beatman; *Dist. Mgr.:* L.E.P. Beatman

CARDION ELCTRNS., Div. of Gen. Sig. Conts., Inc. Unit of Gen. Sig. Corp., Long Island Expwy., Woodbury, NY 11797, Tel: 516-921-7300, Telex: 221683 CARD, TWX: 510-221-2179; FSC No.: 12909; Empl.: 680; *Sls. Mgr.:* J. J. Murphy

CARDON CORP., P.O. Box 2371, Boston, MA 02107, Tel: 617-357-5898; Empl.: 10

CAREY ELCTRN. ENGRG. CO., 1880 Clifton Ave., Springfield, OH 45505, Tel: 513-323-6300; Empl.: 10-25

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Local Sales Offices & Reps

Call toll free 1-800-243-8556 for locations of Representatives and Distributors

AL	Huntsville, CSR Elctrn.	205-533-2444
AZ	Phoenix, Robert Anderson Co.	602-266-2070
AR	Little Rock, Welch & Dolby	501-455-2199
CA	Encino, Scott Johnson	818-708-0478
CA	Fullerton, Dave Berryman	714-870-6258
CA	Fullerton, David Berryman	714-870-6258
CA	San Rafael, Wright & Assoc.	415-457-9940
CO	Denver, Quorum 3 Sls. Grp.	303-696-8480
CT	Clinton, Berkshire Elect.	203-669-0752
FL	Tampa, J-R Controls	813-961-9478
GA	Atlanta, CSR Elctrns.	404-396-3720
GA	Atlanta, CSR Elect.	404-396-3720
IL	Schiller Park, Wm. Bolles Assocs.	312-678-7888
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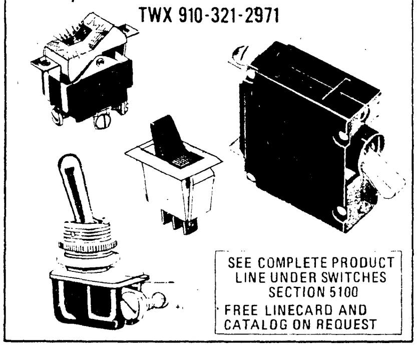

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MO	Clayton, Mertens Co.	314-993-6600
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NJ	Union, Pacent Engrg.	201-687-7197
NY	Great Neck, Pacent Engrg.	516-482-4678
NY	Rochester, VDE Elctrns.	716-473-5015
NC	Raleigh, Crossroads Elctrns.	919-362-4099
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OR	Aloha, Elctrn. Comp. Sls.	503-245-2342
OR	Tigard, Electronic Comp. Sls.	503-245-2342
PA	Carnegie, Brown-Yates	412-279-1101
SC	W. Columbia, Crossroads Elctrns.	919-362-4099
TX	Dallas, Control Comps.	214-458-8877
UT	Salt Lake City, Quorum 3 Sls. Grp.	801-943-9227
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WI	Mequon, Wm. Bolles Assocs.	414-241-3320
Can	Markham, Ont., Deskin Sls.	416-475-1412

Local Distributors

CA	Anaheim, Electro Comps.	714-666-0180
CA	Hayward, Electro Comps.	415-783-5800
CA	Los Angeles, Electric Switches	213-660-1310
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CT	Hartford, Atlantic Switch Controls	203-527-7705
FL	Lakeland, Switch Controls	813-644-7564
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MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Carl Bergquist Co.	612-835-2322
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Mt. Laurel, Jerseyswitch	609-778-8190
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Woodside, Switches Unltd.	718-478-5000
OH	Columbus, Ohioswitch	614-885-0319
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Dallas, Texaswitch	214-357-1768

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Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, J. R. Morgan	602-268-3464
CA	Aptos, West Cal Sls./Ind.	408-688-6568
CA	Costa Mesa, Berman-Gravley	714-549-2122
CA	San Francisco, Technical Sls.	415-467-1434
CO	Denver, William J. Purdy Co.	303-753-6800
FL	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
GA	Atlanta, Cartwright & Bean	404-233-2939
HI	Honolulu, West Pacific Agy.	808-395-3152
IL	Chicago, IRI, Inc.	312-647-7755
IN	Indianapolis, Mktg. Engrs.	317-872-5665
KS	Shawnee Mission, Lowell-Kangas	913-631-3515
LA	Covington, Cartwright & Bean	504-892-1780
MD	Columbia, Lowery & Assoc.	301-964-0225
MA	Seekonk, Rudolph Mktg.	617-399-6270
MI	E. Detroit, J. M. Thorpe	313-779-6363
MN	Edina, Mel Foster Tech. Sls.	612-941-9790
MO	St. Louis, Lowell-Kangas	314-821-4050
NJ	Cedar Grove, Legtronics	201-239-4098
NY	Rochester, Apex Assocs.	716-254-6050
NY	Tuckahoe, L-C-A Sales	914-961-4700
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Cleveland, Marlow Assoc.	216-991-6500
OK	Oklahoma City, J. Y. Schoonmaker Co.	405-685-4477
OR	Beaverton, Wm. J. Purdy Co.	503-641-9373
PA	Broomall, L. D. Lowery	215-356-5300
TN	Knoxville, Cartwright & Bean	615-693-7450
TX	Dallas, J. Y. Schoonmaker Co.	214-349-1650
TX	Houston, J. Y. Schoonmaker Co.	713-686-0371
UT	Salt Lake City, W. J. Purdy Co.	801-486-8557
VA	Charlottesville, Lowery & Assoc.	804-973-6672
WA	Redmond, William J. Purdy Co.	206-882-3144
WI	Milwaukee, IRI, Inc.	414-259-0966

CAROLINA STEEL & WIRE, I-20 & S.C. 6, Lexington, SC 29072, Tel: 803-359-5501, Telex: 573355; FSC No.: 72954; Empl.: 125

CARPENTER MFG. CO., INC., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188, Tel: 315-682-9176; *Sls. Mgr.:* Joseph T. De Peter

CARPENTER TECHN., Box 662, Reading, PA 19603, Tel: 215-371-2000, Telex: 836-432; Empl.: 4500; *Sls. Mgr.:* R. J. Weiler

CARROLL TOUCH TECHNOLOGY, P.O. Box 1309, Round Rock, TX 78680, Tel: 512-244-3500; *Sls. Mgr.:* Alan Hochman

CARSON MFG. CO., INC., 5453 N. Rural St., P.O. Box 20464, Indianapolis, IN 46220, Tel: 317-257-3191; Empl.: 75

CARTER MFG. CORP., Sugar Rd., Bolton, MA 01740, Tel: 617-779-5501; FSC No.: 03929; Empl.: 35; *Sls. Mgr.:* L. W. Tedstone

CARTER MOTOR, 2707 W. George St., Chicago, IL 60618-7898, Tel: 312-588-7700

CASSO-SOLAR, P.O. Box 163, U.S. Route 202, Pomona, NY 10970, Tel: 914-354-2500, Telex: 475-4099; Empl.: 50; *Sls. Mgr.:* Rolf Kates

CASTALL, INC., Weymouth Indl. Park, E. Weymouth, MA 02189, Tel: 617-337-6075, Telex: 955-439; FSC No.: 04-2459700; Empl.: 30; *Sls. Mgr.:* Joe McDonough

Local Sales Offices & Reps

AL	Huntsville, B.J.R. Mfr. Rep.	205-881-3569
CA	Tarzana, Power Comp. Sls.	818-881-9111
CO	Denver, Electro Indl.	303-623-5534
FL	Indian Harbour, Bill Toy Assocs.	305-773-5805
IL	Chicago, Electro-Mech Sls. Co.	312-777-0554
MN	Minneapolis, Norton Assocs.	612-881-6226
NJ	Berkeley Heights, Cambridge-Allen & Assoc.	201-464-0203
TX	Austin, Delta Comp.	512-458-4288
TX	Seagoville, Delta Comp.	214-287-6333
WA	Seattle, J. J. Assocs.	206-246-6619
Can	Markham, Ontario, Matrix Technlg.	416-477-4442

CATALYST RESEARCH, Mine Safety Appliances Co., 1421 Clarkview Rd., Baltimore, MD 21209, Tel: 301-296-7000, Ext. 304, Telex: 87-768; Empl.: 400; *Sls. Mgr.:* Edward S. Hatch, Jr.; *Dist. Mgr.:* Edward Hatch... **D•1417**

CATEL TELECOMMUNICATIONS, United Scientific Corp., 4800 Patrick Henry Dr., Santa Clara, CA 95054, Tel: 408-988-7722, TWX: 910-338-2263; Empl.: 190; *Sls. Mgr.:* Dick Old; *Dist. Mgr.:* Wendell Woody

CATON

CATON CONNECTOR CORP., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, Tel: 617-585-4315, TWX: 710-391-7546; FSC No.: 52196; Empl.: 25; *Sls. Mgr.:* D. Galambos .... **C•1172**

Local Sales Offices & Reps

CA	Fullerton, ISI	714-773-0411
FL	Enterprise, DJE Assocs.	305-321-6623
OH	Dayton, Delta Sales	513-271-5444
TX	Dallas, CCI	817-484-9691
TX	Ft. Worth, CCI	817-292-5803

CATRONIX CORP., 620 P/T Stne, Suite 1802, Atlanta, GA 30308, Tel: 404-881-1100; *Sls. Mgr.:* Dr. Charls Pearson

CAYPIN INDUSTRIES, INC., P. O. Box 9737, Ft. Wayne, IN 46899, Tel: 219-432-1515, 1-800-348-1771, Telex: 232-409; FSC No.: 6850

CCD IMAGING, Fairchild Camera & Instr. Corp., 450 National Ave., Mountain View, CA 94043, Tel: 415-493-8001; *Sls. Mgr.:* John Miller

C-COR ELCTRNS., 60 Decibel Rd., State College, PA 16801, Tel: 814-238-2461, TWX: 510-670-3513; FSC No.: 12775; Empl.: 600; *Sls. Mgr.:* D. Pisarcik

CDRL DATA, INC., 320 West Lone Cactus Drive Ste. 6, Phoenix, AZ 85027, Tel: 602-582-8844; FSC No.: 56060; Empl.: 25; *Sls. Mgr.:* James J. Edwards

CDS - COLORADO DATA SYS., 3301 W. Hampden, Unit C, Englewood, CO 80110, Tel: 303-762-1640, TWX: 910-933-0193; Empl.: 35; *Sls. Mgr.:* Louis Klahn

CEA DIVISION OF BERKLEONICS, INC., A Subsidiary of EG & G, 1 Aerovista Pk., San Luis Obispo, CA 93401, Tel: 805-544-5454, TWX: 910-351-6705; FSC No.: 04932; Empl.: 120; *Sls. Mgr.:* Jerry Satuloff

CEAG ELEC. CORP., Power Supp. Div., 1324 Motor Pkwy., Hauppauge, NY 11788, Tel: 516-582-4422, TWX: 510-227-4904; FSC No.: 57973; *Dist. Mgr.:* Bryce Wiedeman

CEC, 330 W. Taft Ave., Orange, CA 92665, Tel: 714-637-2970; Empl.: 50

CELANESE PLASTICS, 26 Main St., Chatham, NJ 07928, Tel: 201-635-2600; *Sls. Mgr.:* L. F. Bond

CELCO, 70 Constantine Dr., Mahwah, NJ 07430, Tel: 201-327-1123, TWX: 710-988-1018; Empl.: 45; *Sls. Mgr.:* P. S. Christaldi

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CELESCO TRANSDUCER PRODS., INC., 7800 Deering Ave., Canoga Pk., CA 91304, Tel: 818-884-6860, Telex: 499-8137; *Sls. Mgr.:* James P. Callahan; *Dist. Mgr.:* James P. Callahan .... **B•1788-1789**

Local Sales Offices & Reps

AK	Soldotna, C. Hillhouse, Inc.	907-262-7340
AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CA	Westminster, Transducer Sys.	714-840-5357
CO	Denver, Innovative Prods.	303-691-3575
FL	Indian Rocks Beach, PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Hindsdale, I & C Sls.	312-323-8205
LA	Baton Rouge, Charles Instrs.	504-273-3233
MA	Sharon, Reptek	617-784-6700
MI	Trenton, I & C Sls.	313-671-1320
MN	Minneapolis, CMI Corp.	612-566-6930
MO	Manchester, Universal Precision	314-394-4693
NV	Las Vegas, Trembly Assocs.	702-739-9770
NJ	Hillsdale, C.B. Assocs.	201-664-6230
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Charlotte, Par Assocs., Inc.	704-375-9403
OH	Cincinnati, I & C Sls.	513-772-3101
OK	Tulsa, Advance Tech. Sls.	918-664-0482
OR	Portland, Fry Controls, Inc.	412-339-3565
PA	Cheltenham, Test Equip. Sls.	215-379-5431
PA	New Kensington, Bobar Instr., Inc.	412-339-3565
TX	Austin, Advance Tech. Sls.	512-440-7677
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Fry Controls, Inc.	206-282-9270

Local Distributors

CA	Ventura, Vacumed	805-644-7461

CELESTION INDS., INC., Kuniholm Dr., Box 521, Holliston, MA 01746, Tel: 617-429-6706, Telex: 948417

CENTENT CO., 3879 S. Main St., Santa Ana, CA 92707, Tel: 714-979-6491; Empl.: 12; *Sls. Mgr.:* A. Freimanis

CENTERFLEX TECHN. CORP., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507, Tel: 201-423-0505, TWX: 710-988-4147; Empl.: 50; *Sls. Mgr.:* Rolf Fasth

CENTIGRAM CORP., 155A Moffett Park Dr., Sunnyvale, CA 94086, Tel: 408-734-3222, Telex: 171-994; *Sls. Mgr.:* Leonard H. Magnuson; *Dist. Mgr.:* Paul W. Masters

CENTRALAB, INC., A North American Philips Co., 4561 Colorado Blvd., Los Angeles, CA 90039, Tel: 818-240-4880, TWX: 910-497-2282; *Sls. Mgr.:* G. Ollen

CENTRALAB, INC., A North American Philips Co., 2566 Northwestern Ave., McClure Pk., West Lafayette, IN 47906, Tel: 317-463-2536, TWX: 810-342-1889

CENTRALAB, INC., A North American Philips Co., Hwy. 20 W., P.O. Box 858, Ft. Dodge, IA 50501, Tel: 515-573-1300, TWX: 910-520-2493; *Sls. Mgr.:* L. Fette

CENTRALAB, INC., A North American Philips Co., 7158 Merchant Ave., El Paso, TX 79915, Tel: 915-779-3961, TWX: 910-964-1311

CENTRALAB, INC., A North American Philips Co., 5855 N. Glen Park Rd., Milwaukee, WI 53209, Tel: 414-228-7380, TWX: 910-262-3083; Empl.: 5000; *Sls. Mgr.:* F. Funk; *Dist. Mgr.:* R. Booker

CENTRAL DATA CORP., 1602 Newton Dr., Champaign, IL 61820, Tel: 217-359-8010, Telex: 910-245-0787; *Sls. Mgr.:* N. E. Mac Gregor

CENTRAL MICROWAVE CO., Alpha Inds., Inc., 12180 Prichard Farm Rd., Maryland Heights, MO 63043, Tel: 314-291-5270, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; Empl.: 120; *Sls. Mgr.:* William A. Ruff

CENTRE ENGRG., 2820 E. College Ave., State College, PA 16801, Tel: 814-237-0321, TWX: 510-670-3517; FSC No.: 51642; Empl.: 278; *Sls. Mgr.:* H.D. Shirey

CENTRONIC INC., 1101 Bristol Rd., Mountainside, NJ 07092, Tel: 201-233-7200, TWX: 910-350-3290; FSC No.: 7P396; Empl.: 300; *Sls. Mgr.:* Tony Green .... **B•1204-1205**

Local Sales Offices & Reps

AZ	Tempe, Griot Assocs.	602-968-4428
CA	Los Altos, Griot Assocs.	415-941-2533
CA	Santa Ana, Griot Assocs.	714-662-7525
CA	Santa Clara, Griot Assocs.	408-727-2880
CO	Denver, Griot Assocs.	303-427-1111
FL	Melbourne Bch., Millett Assocs.	305-725-5055
GA	Roswell, Electro Comp Sls.	404-992-2344
IL	Chicago, Coomb Assocs.	312-439-9810
MA	Concord, Nortech. Engrg. Sls.	617-259-0032
MI	Jackson, Norwood Scroggs Co.	517-750-1170
MN	Minneapolis, Intl. Sls.	612-831-8423
NY	Commack, RC Engrg.	516-543-3325
OH	Dayton, Ohmer Assocs.	513-434-1454
PA	Glenside, Koebert & Assocs.	215-887-2310

Local Distributors

AZ	Tempe, Griot Assocs.	602-968-4428
CA	Agoura Hills, Griot Assocs.	818-706-7601
CA	Los Altos, Griot Assocs.	414-941-2533
CA	Santa Ana, Griot Assocs.	714-662-7525
CA	Santa Clara, Griot Assocs.	408-727-2880
CO	Westminster, Griot Assocs.	303-427-1111
FL	Melbourne Beach, Millett Assocs.	305-725-5055
GA	Roswell, Electro Comp Sls.	404-992-2344
IL	Arlington Heights, Coombs Assocs.	312-439-9810
IN	Ft. Wayne, Coombs Assocs.	219-747-7661
MA	Concord, Nortech Engrg.	617-259-0032
MI	Jackson, Norwood Scroggs	517-750-1170
MN	Minneapolis, International Sls.	612-831-8423
NM	Alburquerque, Griot Assocs.	505-883-1022
NY	Commack, RC Engrg.	516-543-3325
OH	Kettering, Ohmer Assocs.	513-434-1454
OR	Beaverton, Griot Assocs.	206-454-8592
PA	Glenside, Koebert Assocs.	215-887-2310
UT	Salt Lake City, Griot Assocs.	801-328-9471
WA	Seattle, Griot Assocs.	206-646-5627

CENTURY DATA SYS., Xerox Corp., 1270 N. Kraemer Blvd., Anaheim, CA 92806, Tel: 714-632-7500, Telex: 655437; Empl.: 901; *Sls. Mgr.:* Richard Brechtlein; *Dist. Mgr.:* Don Wilder

Ceramaseal

CERAMASEAL, Box 25, New Lebanon Center, NY 12126, Tel: 518-794-7800, Telex: 14-5442; FSC No.: 07601; Empl.: 80; *Sls. Mgr.:* Gene D. Sawin .... **C•1173**

Local Sales Offices & Reps

AL	Huntsville, Physimetrics	205-881-8483
AZ	Phoenix, Wadsworth/Bryant	602-275-7366
CA	Atherton, Wadsworth/Bryant	415-321-3619
CA	Hacienda Hgts., Wadsworth/Bryant	213-330-5592
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Orlando, Physimetrics	305-894-8081
GA	Atlanta, Physimetrics	464-955-0155
IL	Mt. Prospect, Automation Equip. Co.	312-398-7550
KS	De Soto, Midtec Assocs.	913-441-6565
MD	Baltimore, R. A. Wafer Assoc.	301-744-1133
MA	Boston, P-J Engrg. Sls.	617-783-0510
MO	Florissant, Midtec Assocs.	314-837-5200
NY	Rochester, Canavan-Scanlon Assoc.	716-424-1830
NY	Syracuse, Canavan-Scanlon Assoc.	315-437-1271
NC	Charlotte, JWL Assoc.	704-523-3001
PA	Feasterville, Knowles Assocs.	215-322-7100
PA	Pittsburgh, Kurt J. Lesker Co.	412-892-2996
TN	Knoxville, Physimetrics	615-966-7553
TX	Richardson, Spectra Sls.	214-234-3600
WA	Seattle, J.J. Assocs.	206-246-6619

CERAMAWIRE, Box 1084, Cranford, NJ 07016, Tel: 201-276-1170; *Sls. Mgr.:* Joe Savare

CERAMIC MAGNETICS, INC., 87 Fairfield Rd., Fairfield, NJ 07006, Tel: 201-227-4222, Telex: 138 730; Empl.: 50

CERA-MITE CORP., 1327 Sixth Ave., Grafton, WI 53024, Tel: 414-377-3500

CERMETEK MICROELECTRONICS INC., 1308 Borregas Ave., Sunnyvale, CA 94088, Tel: 408-752-5000, TWX: 910-379-6931; Empl.: 110; *Sls. Mgr.:* Ken Archbold

CES ELCTRNS., 2968 Avenue Z, Brooklyn, NY 11235; Empl.: 20 .... **D•1606**

Local Sales Offices & Reps

NY	Brooklyn, Microwave Labs of America	

CETA CORP., See Laser Sonics Power Supply Operations

CETEC RAYMER, 7315 Fulton Ave., No. Hollywood, CA 91605, Tel: 213-875-0423; Empl.: 50; *Sls. Mgr.:* Hugh T. Wilcox

CGIS, A COMSAT CO., 7701 N. Lamar Blvd., Austin, TX 78752, Tel: 512-451-7938; Empl.: 150; *Sls. Mgr.:* Jack Johannsen

CGRS MICROTECH, P. O. Box 102, Langhorne, PA 19047, Tel: 215-757-0284; Empl.: 5; *Sls. Mgr.:* J. Swope; *Dist. Mgr.:* J. Swope

CGTI, 2 Windward Ave., White Plains, NY 10605, Tel: 914-949-3719, TWX: 710-568-1305; Empl.: 210; *Sls. Mgr.:* G. N. Snider

CHABIN CORP., 890 Fortress St., Chico, CA 95926, Tel: 916-891-6410, TWX: 910-536-1001; *Sls. Mgr.:* Peter Tunis

CHADWICK-HELMUTH, 4601 N. Arden Dr., El Monte, CA 91731, Tel: 213-575-6161, Telex: 194-271; Empl.: 75; *Sls. Mgr.:* John Beach

CHA INDUSTRIES, 3565 Haven Avenue, Menlo Park, CA 94025, Tel: 415-363-8011, Telex: 334426; *Sls. Mgr.:* Jack Patten

CHALCO ENGRG., 15126 S. Broadway, Gardena, CA 90248, Tel: 213-FA1-0121, TWX: 910-346-7026; Empl.: 95

CHAMPLAIN CABLE, PO Box 7, Winooski, VT 05404, Tel: 802-655-2121, TWX: 510-299-0018; FSC No.: 05973; Empl.: 425; *Sls. Mgr.:* J. Brooks

CHANNEL INDS., 839 Ward Dr., Santa Barbara, CA 93111, Tel: 805-967-0171, Telex: 658416; Empl.: 75

CHAPMAN CORP., P.O. Box 10700, Portland, ME 04104, Tel: 207-773-4726; Empl.: 60; *Dist. Mgr.:* Elizabeth Angell

CHARLES RIVER DATA SYSTEMS, INC., 983 Concord St., Framingham, MA 01701, Tel: 617-626-1000, Telex: 681-7373; Empl.: 170; *Sls. Mgr.:* S. K. Stephenson

CHARTPAK, 1 River Rd., Leeds, MA 01053, Tel: 413-584-5446; Empl.: 195

CHASSIS-TRAK, General Devices Co., Inc., P.O. Box 39100, Indianapolis, IN 46239, Tel: 317-897-7000, Telex: 27-2169; FSC No.: 06666; Empl.: 190; *Sls. Mgr.:* H. L. Crouch .... **C•1062-1063**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assoc.	205-533-9108
AZ	Phoenix, Snyder Engr.	602-279-2010
CA	Fullerton, Groh Assocs.	714-738-7105
CA	Mountain View, G. Woempner	415-964-5454
CO	Boulder, R. F. Mayo Assoc.	303-499-2155
CT	Waterbury, Coakley, Boyd & Abbett	617-444-5470
FL	Lighthouse Point, J. Krutek & Assoc.	305-941-6544
GA	Atlanta, Hughes Assoc.	404-252-7486
IL	Glencoe, Howard Benjamin Assoc.	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell, Kangas & Assoc.	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MN	St. Paul, Northport Engrg.	612-457-8000
MS	Corinth, Hughes Assoc.	601-287-2915
MO	St. Louis, Lowell, Kangas & Assocs.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Fayetteville, H. G. Richter	315-637-6713
NC	Raleigh, Hughes Assoc.	919-782-2065
OH	Cleveland, Electronic Comps.	216-261-4103
OH	Miamisburg, Electronic Comps.	513-866-3340
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monterio Assoc.	215-345-5855
TN	Morristown, Hughes Assoc.	615-587-2433
TX	Austin, Advance Tech. Sls.	512-440-7677
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford Assoc.	206-866-2001
EXP	IN, Indianapolis, General Devices	317-897-7000

CHATHAM CONTROLS, 33 River Rd., Chatham, NJ 07928, Tel: 201-635-8892; FSC No.: 04814; Empl.: 11

CHATSWORTH DATA CORP, Cablemaster Div., 20710 Lassen St., Chatsworth, CA 91311, Tel: 818-341-9200; Empl.: 65; *Sls. Mgr.:* Hank Boehm .... **D•1199**

Local Sales Offices & Reps

MA	Waltham, W. M. Hague	617-863-5600
NJ	Marlton, Javie Pickle	609-596-6900
OH	Cleveland, Triad Assoc	216-248-3350

CHATSWORTH DATA CORP, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311, Tel: 213-341-3000; Empl.: 50

CHEM-MIXX CORP., 55 North St., Medford, MA 02155, Tel: 617-395-7270; Empl.: 9; *Sls. Mgr.:* James Hart

Local Sales Offices & Reps

CA	South Gate, A. G. Barstow Co.	213-569-8125
GA	Lilburn, Georgia Airtech	404-925-3084
IN	Lawrence, American Indl.	317-897-9900
MN	Edina, Adhesive Sys. Technlg.	612-944-7999
MO	Maryland Hgts., T. B. Moore Co.	314-434-6844
PA	Philadelphia, Air Draulics Div.	215-457-1940
PA	Pittsburgh, Kurt J. Lesker Co.	412-892-2996
TX	Dallas, Lomax Eng.	214-361-1134
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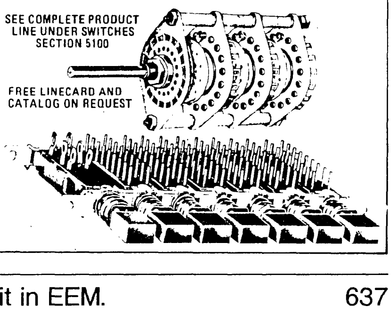

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CHERRY ELECTRICAL PRODS. CORP., 3623 Sunset Ave., Waukegan, IL 60087, Tel: 312-578-3500, TWX: 910-235-1572; Empl.: 2000; *Sls. Mgr.:* Robert Terwall; *Dist. Mgr.:* George Seyk .... **B•1024, 1521-1533, 1708-1712**

Local Sales Offices & Reps

AL	Huntsville, CSR Elec.	205-533-2444
AZ	Phoenix, O'Donnell Assocs. S.W.	602-944-9542
CA	Palo Alto, Abbott Engrg. Co.	415-968-2265
CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Boulder, Front Range Mktg.	303-443-4780
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBC Elctrns.	305-831-5380
GA	Atlanta, CSR Elctrns.	404-396-3720
IL	Waukegan, Cherry Elec. Prod. Corp.	312-578-3500
IN	Ft. Wayne, Menze Sls.	219-747-5616
IA	Cedar Rapids, Dy-Tronix	319-377-8275
IA	Wichita, Dy-Tronix, Inc.	316-838-0884
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
MI	Southfield, Cherry Elec. Prod.	313-358-5588
MI	Southfield, Cherry Elec. Prod. Corp.	313-358-5588
MN	St. Paul, Cahill, Schmitz & Cahill	612-646-7217
MO	Bridgeton, Dy-Tronix	314-291-4777
MO	Raytown, Dy-Tronix, Inc.	816-356-6340
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Perrineville, Schmitt Inds. Corp.	201-446-2937
NJ	Pitman, Colrud Corp.	609-589-5866
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, Elcom Sls.	315-685-8245
NY	W. Hempstead, Schmitt Indl. Mktg. Corp.	516-486-3510
NC	Mathews, CSR Elctrns.	704-847-1927
NC	Raleigh, CSR Elctrns.	919-878-9200
OK	Tulsa, Genzel Sls. & Assoc.	918-622-7744
OR	Portland, Jas. J. Bacher Co.	503-297-8744
TN	Knoxville, CSR Elctrns.	615-557-0890
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Houston, Bonser-Philhower Sls.	713-531-4144
TX	Richardson, Bonser-Philhower Sls.	214-234-8438
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Reston, Colrud Corp.	703-620-6612
WA	Seattle, Jas. J. Bacher Co.	206-285-1300
WI	Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

AL	Birmingham, Ack Radio Supp. Co.	205-322-0588
AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Cetec Elctrns.	602-277-7951
AZ	Phoenix, Elctrn. Parts	602-277-7281
AZ	Tempe, Fisher-Brownell	602-967-1464
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Chatsworth, Diplomat Elctrns.	213-341-4411
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Gardena, Cal Switch	213-770-2330
CA	Irvine, Cetec Elec.	714-250-4141
CA	Los Angeles, Electric Switches	213-660-1310
CA	Oakland, Brill Elctrns.	415-834-5888
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, Fisher-Brownell	619-560-8545
CA	Santa Clara, Cetec Elec.	408-980-0110
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Southgate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, Diplomat Elctrns.	408-744-1555
CO	Denver, Denver Wintronics	303-431-7161
CO	Denver, Integrated Elec.	303-292-6121
CT	Wallingford, Midan Elec.	203-265-2077
FL	Ft Lauderdale, Powell Elec.	305-972-4300
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
GA	Atlanta, KSM Elctrns.	404-458-2013
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Ft. Wayne, Graham	219-423-3422
IN	Indianapolis, Genesis Elctrn.	317-637-5571
IN	Indianapolis, Graham Elec.	317-634-8202
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Advent Elctrn.	319-363-0221
KS	Edwardsville, C. Tennant Sons & Co.	913-441-1801
KY	Louisville, P. I. Burks Co.	502-589-3960
MD	Columbia, Maryland	301-621-4070
MD	Savage, Pyttronic Ind.	301-792-0780
MA	Billerica, A. W. Mayer Co.	•617-229-2255
MA	Needham, Cronin Elctrns.	617-449-5000
MI	Livonia, Rep-Tron Elctrns.	313-525-2700
MI	Troy, Empire Elec. Inc.	313-585-8130
MN	Minneapolis, Newark Elec.	612-331-6350
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, Walters Radio Supp.	316-531-7015
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Bellmawr, Mid-Atlantic Elec.	609-931-5303
NJ	Clifton, J-Mar Elec., Inc.	201-772-6400
NM	Albuquerque, Elctrn. Parts	505-293-6161
NY	Hauppage, C. Tennant Sons & Co.	516-434-8200
NY	Liverpool, Diplomat Elec.	315-652-5000
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Melville, Diplomat Elec.	516-454-6334
NY	Mt. Vernon, QAR Ind'l. Elctrn. Sls.	914-699-2224
NY	Rochester, Rochester Radio & Supp. Co.	716-454-7800
NC	Cary, Powell Elctrns.	919-467-1212
NC	Winston-Salem, Kirkman Elctrn.	919-722-9131
OH	Cincinnati, Graham Elec.	513-772-1661
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Esco Elec.	513-293-1133
OH	Middlesburg Hts., Selectronics	216-243-9700
OH	Worthington, Reptron	614-436-6675
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Radar Elctrns.	503-232-3404
OR	Portland, Tekelectric Control	503-246-5451
PA	Montgomeryville, Pyttronic Ind.	215-643-2850
PA	Phildelphia, Powell Elec.	215-365-1900
TN	Nashville, Graham Elec.	615-242-2682
TX	Dallas, Wallace Elec. Co.	214-340-0400
TX	Houston, Force Elec.	713-561-8644
TX	Irving, Solid State Elctrns. Co.	214-438-5700
TX	Richardson, Fisher-Brownell	214-235-3177
TX	San Antonio, Sherman Elctrns. Supp.	512-224-1004
TX	Stafford, Southwest Elctrn.	713-240-4000
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Integrated Elec., Inc.	206-455-2727
WA	Seattle, Radar Elctrns.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
Can	Burnaby, B.C., Rae Ind. Elec., Ltd.	604-291-8866
Can	Downsview, Ont., Trade Elctrns. Supp.	416-661-7111
Can	Edmonton, Alb., Rae Ind. Elec., Ltd.	403-451-4001
Can	London, Ont., C. M. Peterson Co., Ltd.	519-434-3204
Can	Mississauga, Ont., Prelco Elec., Ltd.	416-678-0401
Can	Montreal, Que., Prelco Elec., Ltd.	514-389-8051
Can	Nepean, Ont., Prelco Elec., Ltd.	613-726-1800

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Local Sales Offices & Reps

AL	Birmingham, Spader & Assocs.	205-879-1366
AZ	Phoenix, Southwest Controls, Inc.	602-267-1171
CA	Fountain Valley, Yardley Instrs.	714-963-1000
CA	Oakland, Sabre Controls	415-444-0635
CO	Lakewood, Process Controls	303-232-4996
FL	Clearwater, TCI	813-446-8628
GA	Aeworth, Elam Engrg.	404-974-3300
IL	Lombard, Patricie & Douglas	312-971-1800
IL	Peoria, Tecco	309-692-2312
IN	Ft. Wayne, Domino Unltd.	219-747-5621
KY	Louisville, Domino	502-425-2848
LA	Baton Rouge, Rise Inc.	504-766-4645
MD	Towson, Flotech	301-321-6565
MA	Waltham, Techn. Entprs.	617-890-5300
MI	Farmington Hills, Anderson Elctrns.	313-553-7600
MN	Minneapolis, The Mark Co.	612-920-6280
MO	St. Louis, Adelphi, Inc.	314-821-1232
NV	Reno, Applied Indl. Controls Corp.	702-356-7401
NM	Albuquerque, Southwest Controls, Inc.	505-884-6202
NY	Rochester, Cascade Control Corp.	716-385-1410
NY	White Plains, MIT Sls.	914-946-5077
NC	Charlotte, Algay Controls	704-366-6976
OH	Dayton, P. J. Navin Co.	513-434-8940
OH	Willoughby, P. J. Navin Co.	216-255-1411
OK	Tulsa, Dave Allert Co.	918-743-7705
TN	Knoxville, George C. Paris	615-966-2141
TX	Arlington, Pan-Tech Controls Co.	817-640-3232
TX	Burleson, Chessell Corp.	817-572-4392
TX	Corpus Christi, Cecorp	512-289-6181
TX	Houston, Process Instruments, Inc.	713-893-3310
UT	Midvale, Bee and Tee Controls	801-566-7722
VA	Richmond, Advance Control Equip. Co.	804-270-7182
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400
WI	Brookfield, BII, Inc.	414-786-1980

CHESTER CABLE, Oakland Ave., Chester, NY 10918, Tel: 914-469-2141, TWX: 510-249-4813; *Sls. Mgr.:* William R. Dungan

CHESTERFIELD PRODS., 37 Midland Ave., Elmwood Park, NJ 07407, Tel: 201-797-9655; Empl.: 35; *Sls. Mgr.:* M. Perry .... **A•1593**

Local Sales Offices & Reps

AZ	Tucson, WJM Sls.	602-888-4847
CA	Burbank, Biztek Co., Inc.	818-766-4890
CA	Palo Alto, J M Assocs.	415-857-1260
CO	Loveland, Morbak Mktg.	303-669-8900
FL	Maitland, D. J. Ellis & Assocs., Inc.	305-645-1101
IN	South Bend, Schillinger Assocs., Inc.	219-282-4570
KS	Overland Park, Barnes-Midwest Sls.	913-341-9317
MD	Towson, Holden Engrg.	301-823-3763
MA	Framingham, Bengal Assocs.	617-877-2639
MA	Randolph, Bengal Assocs.	617-961-4120
MN	Chanhassen, Barnes Sls. Assocs.	612-934-2907
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NY	New York, L & M Assocs.	212-243-6155
OH	Dayton, Markus Barnett Assocs., Inc.	513-433-0758
PA	Andalusia, L & M Assocs.	215-245-6658
TX	Richardson, Carl Tinch Sls. Co.	214-231-1322

CHICAGO CONDENSER CORP., 2900 West Chicago Ave., Chicago, IL 60622, Tel: 312-227-7070

CHICAGO LASER SYSTEMS, INC., 4034 N. Nashville Ave., Chicago, IL 60634, Tel: 312-282-2710, Telex: 671-1269; *Sls. Mgr.:* Bernard Alpiner, V.P.

CHICAGO LOCK CO., 4311 W. Belmont Ave., Chicago, IL 60641, Tel: 312-282-7177, Telex: ITT 4994023; Empl.: 426; *Sls. Mgr.:* Don Meisinger; *Dist. Mgr.:* Dale N. Padjen .... **B•1534**

Local Sales Offices & Reps

CA	Oceanside, Sales Engineer	619-726-9499

CHICAGO MINIATURE, 4433 N. Ravenswood Ave., Chicago, IL 60640, Tel: 312-784-1020

CHICAGO SWITCH, INC., 1714 N. Damen, Chicago, IL 60647, Tel: 312-489-5500, TWX: 910-221-5252; Empl.: 250; *Sls. Mgr.:* A. Steiner; *Dist. Mgr.:* A. Steiner

CHLORIDE POWER ELECTRONICS, 10931 Pellicano Drive, El Paso, TX 79935, Tel: 915-592-9985, Telex: 910-964-1364; FSC No.: 08715; Empl.: 1000; *Sls. Mgr.:* Gordon Goodygar

CHOMERICS, INC., 77 Dragon Ct., Woburn, MA 01888, Tel: 617-935-4850, TWX: 710-393-0173; Empl.: 500; *Sls. Mgr.:* Kevin A. Dunne

CHORUS DATA SYSTEMS, P.O. Box 810, 27 Proctor Hill Rd., Hollis, NH 03049, Tel: 603-465-7100; *Sls. Mgr.:* Bruce Monk

CHR INDS., 407 East St., P.O. Box 1911, New Haven, CT 06509, Tel: 203-777-3631, TWX: 710-465-0264; Empl.: 116

CHRISLIN INDS., 31352 Via Colinas, Westlake Village, CA 91362, Tel: 818-991-2254, TWX: 910-494-1253; Empl.: 38; *Sls. Mgr.:* Edward M. Ross; *Dist. Mgr.:* Edward M. Ross

CHRISTIANSEN RADIO INC., 1950 San Remo, Laguna Beach, CA 92651, Tel: 714-497-1506; Empl.: 9

CHRISTIE, S. D., ASSOCS. INC., 693 Locust St., Mt. Vernon, NY 10552, Tel: 212-597-1773, 914-699-7223; Empl.: 8; *Sls. Mgr.:* Sam D. Christie

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CHRISTIE ELEC. CORP., 20665 Manhattan Pl., Torrance, CA 90501, Tel: 213-320-0808, TWX: 910-349-6260; FSC No.: 02294; Empl.: 200; *Sls. Mgr.:* Alan C. Augusta; *Dist. Mgr.:* Alan C. Augusta ..... **D•1547-1549**

Local Sales Offices & Reps

AZ	Phoenix, PLS Assocs.	602-246-6614
CA	Tustin, John Franek Co.	714-832-0290
CO	Englewood, Omega Ltd.	303-762-1921
CO	Englewood, PLS Assocs.	303-773-1218
FL	Orlando, Newco & Assocs.	305-422-7700
GA	Lithia Springs, Newco, Inc.	404-941-6077
MD	Laurel, CSDS	301-490-3800
MA	Needham, Shain Assocs.	617-449-4380
MO	St. Louis & Grandview, Harris-Hanson	816-763-6200,314-432-3611
NJ	Hohokus, Hansen & Hughes	201-652-7055
NM	Albuquerque, Fry Gates Inc.	505-262-1525
NC	Charlotte, Newco, Inc.	704-527-7070
OH	Chesterland, EQS Systems	216-729-2222
PA	Philadelphia, Technical Instr. Sls. Co.	215-836-2222
SC	Florence, Newco, Inc.	803-662-4878
TX	Richardson, C. Tinch	214-231-1322
TX	Richardson, Carl Tinch Sls. Co.	214-231-1322
UT	Midvale, PLS Assocs.	801-566-0671
UT	Salt Lake City, Omega Ltd.	801-277-8061

CHROMALOX INSTRS. & CONTROLS, 100 Heil-Quaker Blvd., La Vergne, TN 37086-3536, Tel: 615-793-3900, Telex: 55-5129; Empl.: 110; *Sls. Mgr.:* John Cox

CHROMATICS, 2558 Mountain Indl. Bldg., Tucker, GA 30084, Tel: 404-493-7000, TWX: 810-766-8099

CHRONO-LOG CORP., 2 W. Park Rd., Havertown, PA 19083, Tel: 215-853-1130, Telex: 831579; Empl.: 20; *Sls. Mgr.:* David Biberman .... **D•1061**

CHRONOMITE LABS, 21011 S. Figueroa St., Carson, CA 90745, Tel: 213-320-9452; Empl.: 15

CHURCHILL CORP., 344 Franklin St., Melrose, MA 02176, Tel: 617-665-4700; FSC No.: 94867; Empl.: 30; *Sls. Mgr.:* W. Schermerhorn

CIMCO WIRE & CABLE, INC., See Pirelli Cable

CINCH, See TRW Connector Div.

CINCINNATI ELCTRNS., 2630 Glendale Milford Rd., Cincinnati, OH 45241, Tel: 513-733-6100, Telex: 21-4452, TWX: 810-464-8151; FSC No.: 80045; Empl.: 1100; *Sls. Mgr.:* Samuel M. Thomas, Jr.

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CINCINNATI ELECTROSYS., 469 Wards Corner Rd., Loveland, OH 45140, Tel: 513-831-4347

Local Sales Offices & Reps

GA	Atlanta, GM Assocs.	404-487-9409
IN	Indianapolis, Dan Larner	513-831-4347

CINCINNATI SUB-ZERO PRODS., 12011 Mosteller Rd., Cincinnati, OH 45241, Tel: 513-772-8810, Telex: 214390 SUBZERO CIN; Empl.: 80; *Sls. Mgr.:* George Molenaar .... **D•1166**

Local Sales Offices & Reps

CA	Diamond Bar, Benedict Mktg.	714-861-9940
IA	Cedar Rapids, Arrow Tech. Sls.	319-396-8030
MI	Orchard Lake, Schober & Assocs., Inc.	313-363-1888
MN	Minneapolis, Arrow Tech. Sls., Inc.	612-545-4481
MO	St. Louis, Arrow Tech. Sls., Inc.	314-991-1399
NJ	Teaneck, Irv Rudnick, Inc.	201-836-7392
NY	Buffalo, Davies Indl. Svcs., Inc.	716-896-3600
OH	Dayton, Boco, Inc.	513-224-0220
TX	Dallas, Merit Co.	214-620-0021

CIPHER DATA PRODS., INC., P.O. Box 85170, San Diego, CA 92138, Tel: 619-578-9100, TWX: 910-335-1251; Empl.: 1750; *Sls. Mgr.:* Frank Kirchhoff; *Dist. Mgr.:* Ruth Lewellyn

CIPRICO INC., 2955 Xenium Lane, Plymouth, MN 55441, Tel: 612-559-2034; Empl.: 71; *Sls. Mgr.:* Stu Reile .... **D•1062**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AL	Mobile, Interep Assocs.	205-478-1036
AZ	Scottsdale, Frontier Technlg.	602-998-4438
CA	Larkspur, Data Rep.	415-461-8776
CA	Los Alamitos, Gemini Assocs.	213-594-9618
CA	Los Gatos, Data Rep	408-279-1212
CA	North Hollywood	818-846-2633
CA	San Diego	619-268-1181
CA	Sepulveda	818-891-1000
CO	Parker, Advanced Data Mktg.	303-841-4908
FL	Jupiter, Southeastern First Rep.	305-746-8587
FL	Kissimmee, Southeastern First Rep.	305-846-1306
FL	Melbourne, Southeastern First Rep	305-259-6373
GA	Norcross, Interep Assocs.	404-449-8680
HI	Honolulu, Sam O. Hirota.	808-533-3070
IL	Elmhurst, First Rep	312-530-2450
IN	Indianapolis, Carter, McCormic & Peirce	317-844-4175
KS	Shawnee Mission, Panatek	913-362-3349
MD	Baltimore, L. G. White & Co., Inc.	301-358-7803
MD	Silver Spring, L. G. White	301-434-1555
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MN	Golden Valley, J. R. Assocs.	612-546-4110
NJ	Springfield, Gebhardt Marketing	201-376-4415
NY	New Hartford, PDQ Assocs.	315-768-8167
NY	W. Seneca, PDQ Assocs.	716-674-7816
NC	Carey, Engineering Dvcs., Inc.	919-469-9323
OH	Cleveland, Carter, McCormic & Peirce	216-779-5100
OH	Cleveland, Diamond Point Intl.	216-238-0200
OH	Dayton, Carter, McCormic & Peirce	513-836-0951
OK	Tulsa, Microlog, Inc.	918-665-7788
OR	Portland, Northwest Mktg. Assoc.	503-620-0441
PA	Jenkintown, Monument Technical Assocs.	215-884-3737
PA	Pittsburgh, Carter, McCormic & Peirce	412-372-4415
TN	Greenville, Interep Assocs.	615-639-3491
TX	Austin, Microlog.	512-327-7033
TX	Houston, Microlog.	713-956-0837
TX	Richardson, Microlog.	214-644-5010
WA	Bellevue, Northwest Mktg. Assoc.	206-455-5846
Can	Nepean, Ontario, Multilek Inc.	613-226-2365

CIRCLE ELECTRONICS, A Division of F-Dyne Elctrns., 3501 Electronics Way, W. Palm Beach, FL 33407, Tel: 305-844-1310; *Sls. Mgr.:* John Strickland

CIRCUIT ASSEMBLY CORP., 18 Thomas St., Irvine, CA 92718-2703, Tel: 714-855-7887, TWX: 910-595-1971; FSC No.: 52072; Empl.: 275; *Sls. Mgr.:* Edward Cadden

Local Sales Offices & Reps

AL	Brownsboro, JHU Assocs.	205-536-7455
AZ	Scottsdale, Harris & Croy Sls.	602-941-9059
AZ	Tucson, Harris & Croy Sls.	602-293-5393
CA	Chatsworth, Raltech, Inc.	818-700-0933
CA	Los Altos, Elrepco	415-962-0660
CA	San Diego, Varigon Assocs.	619-576-0100
CO	Aurora, Sage Sls.	303-750-3591
CT	Wallingford, Com Sls.	203-269-7964
FL	Orlando, Tech-Rep Assocs.	305-855-2648
GA	Atlanta, JHU Assocs.	404-662-0792
IL	Itasca, L-Tec, Inc.	312-773-2900
IN	Indianapolis, Frank Kahsar Sls.	317-888-8396
MA	Needham, Com Sls.	617-444-8071
MI	Grand Haven, Frank Kahsar Sls.	616-846-7590
MN	Osseo, Gaffney Sls.	612-425-5484
MO	Grandview, Harris Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Englewood Cliffs, Masin Esco, Inc.	201-569-8868
NM	Albuquerque, Syntech	505-266-7951
NY	Hauppauge, Masin Esco, Inc.	516-273-3500
NY	Rochester, Apex Assocs., Inc.	716-254-6050
OH	Cincinnati, Frank Kahsar Sls.	513-922-3133
OH	Columbus, Frank Kahsar Sls.	614-252-4009
OH	Hudson, Frank Kahsar Sls.	216-650-1089
PA	Hatboro, Jacobsen Assoc.	215-674-2937
TX	Austin, Barry Sls., Inc.	512-837-3616
TX	Houston, Barry Sls., Inc.	713-784-5860
TX	Richardson, Barry Sls., Inc.	214-234-0255
UT	Salt Lake City, Sage Sls.	801-467-5451
VA	Front Royal, Eltron Sls., Ltd.	703-635-7201
WI	Milwaukee, L-Tec, Inc.	414-774-1000
EXP	CASanta Ana, Mann Overseas	714-250-0622
Can	Rexdale, Ont., Source Elctrns.	416-675-6235

Local Distributors

AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Tempe, Circuit Specialist	602-966-0764
CA	Fullerton, Carden Elctrns.	714-526-7882
CA	San Diego, Mann San Diego	619-578-1550
CA	San Diego, Ryno Elctrns.	619-453-8430
CA	San Jose, Rose Elctrns.	408-263-9700
CA	Santa Ana, Mann Southwest Corp.	714-558-3202
CA	Santa Clara, Mann Elctrns.	408-988-6061
CO	Denver, C.S.I.D.	303-292-9594
CT	Norwalk, Park Distrs.	800-243-5006
CT	Wallingford, Midstates Elctrns.	203-265-9900
FL	Miami, Electronic Equip.	305-871-3500
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-684-0321
ID	Spirit Lake, Al Elctrns.	208-623-3111
IL	Chicago, Bell Inds.	312-982-9210
IL	Elk Grove Village, GBL Gould Elctrns.	312-593-3220

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MN	Minneapolis, Cassidy Elctrns.	612-944-0100
MN	St. Paul, Connectron	612-481-0320
MO	St. Louis, Gateway Elctrns.	314-427-6116
NH	Manchester, Yankee Elctrns.	603-625-9746
NJ	Bellmawr, Mid Atlantic Elctrn. Corp.	609-931-5303
NJ	E. Hanover, State Elctrns.	201-887-2550
NJ	Englewood, Technical Elctrn. Distr.	201-894-0800
NM	Albuquerque, Betatron Elec., Inc.	505-344-2381
NM	Albuquerque, Connecting Comps.	505-345-8921
NY	Bohemia, CAR Lac Indl.	516-567-4200
NY	Bohemia, Key Comp.	516-567-7500
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Mt. Vernon, QAR	914-699-2224
OR	Lake Oswego, Rose Elctrns.	503-635-8823
PA	Levittown, G.W. Elctrns.	215-547-7422
TX	McKinney, Prime Distrbg.	214-231-0170
UT	Provo, Omega Elctrns.	801-375-4664
UT	Salt Lake City, Standard Supp.	801-486-3371
WA	Costa Mesa, Mann Overseas	714-557-4080
WI	Waukesha, Bell Inds.	414-547-8879

CIRCUITECH, INC., FCS Industries, 527 Industrial Way West, Eatontown, NJ 07724, Tel: 201-493-4102; Empl.: 75; *Sls. Mgr.:* Jim Harrison

CIRCUITS, INC., 59 Deming Rd., Berlin, CT 06037, Tel: 203-828-3526; Empl.: 105

CIRCUIT TECHN., 160 Smith St., Farmingdale, NY 11735, Tel: 516-293-8686, TWX: 510-224-6555; Empl.: 600; *Sls. Mgr.:* Mel Spitz

CIRTECH, EG & G, 15237 Cherry St., Stanley, KS 66223, Tel: 913-681-2801, TWX: 910-749-6806; FSC No.: 5915; Empl.: 75; *Sls. Mgr.:* Dick Spingler

Local Sales Offices & Reps

AZ	Tempe, Chapman & Assocs.	602-894-6775
CA	Los Angeles, Cain Technlg., Inc.	213-477-9054
CA	San Jose, Frequency Control Assocs.	408-446-0200
FL	Winter Park, Microwave Mktg.	305-678-2141
IN	Ft. Wayne, Technology Mktg. Corp.	219-432-5553
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MD	Potomac, Cetech Elctrns.	301-983-2140
NY	Melville, RF Elctrn. Sls.	516-420-8890
PA	Lancaster, Electro-Rep	717-299-5877

CITEL, INC., 3060 Raymond St., Santa Clara, CA 95050, Tel: 408-727-6562, TWX: 910-338-0540; *Sls. Mgr.:* Paul Macdonald

CLAIREX ELECTRONICS, 560 S. 3rd Ave., Mt. Vernon, NY 10550, Tel: 914-664-6602, Telex: 137308; Empl.: 300; *Sls. Mgr.:* Gerald Smith .... **B•1206-1209**

Local Sales Offices & Reps

AL	Huntsville, K & E Assocs.	205-883-9720
CA	Escondido, Clairex Elctronics	619-749-8474
IL	Chicago, Berndt Assoc.	312-283-0713
IN	Carmel, Berndt Assoc.	317-884-0114
KS	Overland Park, Advanced Techn. Sls.	913-492-4333
MD	Silver Springs, Youth Assoc. Inc.	301-598-5740
MA	Bolton, Clairex	617-779-2780
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, H.M.R.	612-920-8200
MO	St. Louis, A.T.S. Inc.	314-227-4448
NY	Seaford, Abbott Assoc.	516-781-5256
NC	Raleigh, Crossroads Elect. Assoc.	919-362-4099
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix Inc.	513-854-5939
PA	Media, W. Reeves	215-566-6709
TX	Austin, J. B. Guenther	512-258-0004
TX	Dallas, J. B. Guenther	214-691-8500
WA	Seattle, H. Levinson	206-323-5100
WI	Milwaukee, Berndt Assoc.	414-545-8400
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200

Local Distributors

CA	Culver City, EV Roberts	213-870-9561
CT	Wallingford, Sager Elctrns.	203-265-4600
FL	Miami, Elctrn. Equip.	305-871-3500
IL	Chicago, Bell Indus.	312-982-9210
IN	Indianapolis, Graham Elctrns.	317-634-8486
MD	Rockville, All American Transistor	301-251-1205
MA	Hingham, Sager Elctrns.	617-749-6700
MA	Norwell, Bordewieck Eng. Sls.	617-659-4915
MI	Ann Arbor, Wedemeyer Elctrn.	313-665-8611
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	St. Louis, Van Sickle Radio Elect.	314-621-5000
NJ	Mt. Laurel, D.F. Assocs.	609-234-5324
NY	Buffalo, Summit Distr.	716-884-3450

NC	Charlotte, Dixie Elctrns.	704-377-4348
OH	Columbus, Hughes Peters	614-294-5351
OK	Tulsa, Altair	918-665-0523
SC	Columbia, Dixie Radio	803-779-5332
TN	Knoxville, Dixie Elctrns.	615-938-4131
TX	Houston, Altair	713-462-2410
TX	Richardson, Altair	214-231-5166
WA	Seattle, Radar Elec.	206-282-2511
Can	Willowdale, Ont., Electro Sonic	416-494-1666

CLARE RELAYS

CLARE DIVISION, General Instrument Corp., 3101 W. Pratt Blvd., Chicago, IL 60645, Tel: 312-262-7700, Telex: 25-3775; Empl.: 2400; *Sls. Mgr.:* S. N. Horowitz; *Dist. Mgr.:* S. N. Horowitz .... **B•1260, 1302-1306**

Local Sales Offices & Reps

AL	Huntsville, General Instr., Clare Div.	205-883-9130
AZ	Scottsdale, Summit Sls.	602-998-4850
CA	El Segundo, General Instr., Clare Div.	213-322-7745
CA	Irvine, J. V. Earley & Assocs.	714-833-1806
CA	San Jose, Ruppert Sls. & Engrg.	408-998-8717
CO	Westminster, Western Region Mktg.	303-430-8883
CT	Brookfield, Kanan Assocs.	203-775-0494
FL	Casselberry, Sales Engrg. Concepts	305-834-6225
GA	Norcross, Electramark	404-446-7915
IL	Arlington Heights, General Instr., Clare Div.	312-981-0630
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
IA	Des Moines, SPS Assocs.	515-225-0607
KS	Olathe, SPS Assocs.	913-764-4460
MD	Randallstown, Beacon North, Inc.	703-591-1300
MA	Needham Heights, Kanan Assocs.	617-449-7400
MA	Woburn, General Instr., Clare Div.	617-938-0666
MN	Eden Prairie, Aldridge Assocs. Inc.	612-944-8433
MO	St. Ann, SPS Assocs.	314-423-7673
NJ	Palisades Park, Janco Technlg.	201-941-4008
NY	Buffalo, Quality Comps., Inc.	716-837-5430
NY	Hicksville, General Instr., Clare Div.	516-933-3645
NY	Manlius, Quality Comps., Inc.	315-682-8885
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Columbus, Baehr, Greenleaf & Assoc.	614-486-4046
OH	Lakewood, Baehr, Greenleaf & Assoc.	216-221-9030
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Erdenheim, Omni Sls.	215-233-4600
TX	Dallas, Electra Reps	214-248-3852
TX	Houston, Electra Reps	512-339-1163
UT	Salt Lake City, Western Region Mktg.	801-355-7239
VA	Forest, Beacon North, Inc.	804-239-8486
WA	Bellevue, Western Tech. Sls.	206-641-3900
WI	Brookfield, Sumer, Inc.	414-784-6641
Can	Rexdale, Ont., Generl Instr. Of Can., Ltd.	416-249-8341

CLARKE-HESS COMM. RESCH. CORP., 17 West 17th St., New York, NY 10011, Tel: 212-255-2940, Telex: 971308 RAPID NYK ATT: CH, TWX: 710-582-2292 RAPID NYK ATT: CH; FSC No.: 34423; Empl.: 14 .... **D•1200-1201**

Local Sales Offices & Reps

CA	Burlingame, B.H.L. Assocs.	415-342-7850
IL	Chicago, Pat Lind Elctrns.	312-726-3513
IN	Indianapolis, Pat Lind Elctrns.	317-632-7444
MN	Circle Pines, Pat Lind Elctrns.	612-786-5770
WI	Milwaukee, Pat Lind Elctrns.	414-224-0146

CLAROSTAT MFG., Washington St., Dover, NH 03820, Tel: 603-742-1120, TWX: 510-297-4455; FSC No.: 12697; Empl.: 600; *Sls. Mgr.:* H. E. Taylor

CLARY CORP., Precision Instrs. Div., 320 W. Clary Ave., San Gabriel, CA 91776, Tel: 818-287-6111, TWX: 910-589-3369; Empl.: 50; *Sls. Mgr.:* John R. Janner

CLAUSS CUTLERY CO., Box 667, Fremont, OH 43420, Tel: 419-332-7344; Empl.: 175

CLEAN ROOM PRODS., 56 W. Penataquit Ave., Bay Shore, NY 11706, Tel: 516-968-8282, Telex: 645151; Empl.: 52; *Sls. Mgr.:* Florence Gaconnier

CLEMENS MFG., 630 So. Berry Rd., St. Louis, MO 63122, Tel: 314-961-7228; Empl.: 3

CLEVELAND CRYSTALS, Box 17157, Euclid, OH 44117, Tel: 216-486-6100, TWX: 810-421-8031; FSC No.: 8K400; Empl.: 45; *Sls. Mgr.:* P. D. Marlowe

CLEVELAND MICA CO., 1360 Hird Ave., Lakewood, OH 44107, Tel: 216-226-1360; Empl.: 50

CLIFFORD, INC., 83 Main Street, Bethel, VT 05032, Tel: 800-451-4381; Empl.: 42; *Sls. Mgr.:* Martha C. McKinney

CLIFTON PRECISION, Litton Systems, Inc., Marple at Broadway, Clifton Hgts., PA 19018, Tel: 215-622-1000, TWX: 510-669-9782; FSC No.: 86197; Empl.: 1000; *Sls. Mgr.:* J. Gum .... **B•1144**

Local Sales Offices & Reps

AZ	Phoenix, Clifton Precision	602-242-0910
CA	Cupertino, Clifton Precision	408-996-7507
CA	Norco, Clifton Precision	714-736-6515
CA	San Clemente, Clifton Precision	714-492-6904
CA	Woodland Hills, Clifton Precision	818-347-0603
CO	Aurora, Midwest Meridian	303-341-7550
FL	Longwood, Boetto Corp.	305-331-1771
IL	Elk Grove Village, Midwest Meridian	312-640-9540
IA	Cedar Rapids, Midwest Meridian	319-365-6561
MA	W. Newton, Larcom Inc.	617-244-2053
MN	Prior Lake, Midwest Meridian	612-447-8222
MO	Maryland Hgts., Midwest Meridian	314-878-4441
NY	Greenlawn, Reflex Elctrn.	516-549-1888
OH	Fairborn, Midwest Meridian	513-879-7100
OR	Beaverton, Ravencraft	503-646-9261
PA	Clifton Heights, Eastern Sls.	215-622-1000
TX	Ft. Worth, Midwest Meridian	817-654-2132

CLIMATRONICS, 140 Wilbur Pl., Bohemia, NY 11716, Tel: 516-567-7300, Telex: 971329; Empl.: 46

CLINTON ELCTRNS., 6701 Clinton Rd., Rockford, IL 61111, Tel: 815-633-1444, Telex: 257-484; *Sls. Mgr.:* John Hartman

CLIPLITE, See Visual Communications

CMC INSTR. DIV., Connecticut microComputer Inc., 568 Danbury Road, New Milford, CT 06776, Tel: 203-354-9395, TWX: 710-456-0052; *Sls. Mgr.:* Shirley Fletcher

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CML MACARR DIV., Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217, Tel: 718-857-2400, Telex: 12-5327; FSC No.: 00062; Empl.: 100; *Sls. Mgr.:* Gary Mandell .... **D•1908-1909**

Local Sales Offices & Reps

MA	Sharon, Adcour Inc.	617-784-8123
MI	Detroit, Bill Teplitz Associates	216-439-3265
OH	Cincinatti, Teplitz Assocs.	513-481-1648
OH	Cleveland, Teplitz Assocs.	216-439-3265

CMV SOFTWARE SPECIALISTS INC., 2720 W. 12th Street, Sioux Falls, SD 57104, Tel: 605-338-6645

COAST COIL CO., 5333 W. Washington Blvd., Los Angeles, CA 90016, Tel: 213-936-6188; Empl.: 50

COASTCOM, P.O. Box 27068, Concord, CA 94527, Tel: 415-825-7500, TWX: 910-481-5781; FSC No.: 415 682-2015; Empl.: 180; *Sls. Mgr.:* Scott Ledgerwood

COAXIAL DYNAMICS, 15210 Industrial Parkway, Cleveland, OH 44135, Tel: 216-267-2233, Telex: 980630; Empl.: 36; *Sls. Mgr.:* R. J. Scott .... **D•1203**

Local Sales Offices & Reps

AZ	Tucson, W.J.M. Sales	602-888-4847
CA	North Highlands, Robert H. Hutter & Assoc.	916-961-6391
DE	Newark, Tom Wright & Assoc.	301-398-3748
IA	Cedar Rapids, S & O Sales	319-393-1845
OH	Dayton, R.P.A. Co.	513-252-7067

COBA

COBA, INC., P. O. Box 14920B 28TH Ave. N., Plymouth, MN 55441, Tel: 612-559-3772; Empl.: 6 ...... **B•1535-1537**

Local Sales Offices & Reps

AZ	Phoenix, Eltron	602-266-2164
CA	Brea, Masco	714-529-0867
CA	Los Angeles, Masco	213-295-7782
CO	Aurora, Mountain View Mktg.	303-360-9641
CT	Guilford, A & M Electrns.	203-453-1612
IN	Indianapolis, Insul-Reps, Inc.	317-251-1994
MA	Needham, A & M Electrns.	617-444-8170
MI	Brighton, AP Assocs.	313-229-6550
MN	Mound, Allyn Assocs.	612-472-4784
MO	Gladstone, Delltron Co., Inc.	816-436-7445
MO	St. Louis, Delltron Co., Inc.	314-869-4779
NY	Great Neck, MOS Assocs.	516-487-3966
OH	Dublin, AP Assocs.	1-800-624-5496
OH	Fairview Park, AP Assocs.	1-800-624-5496
OR	Tigard, Electronic Comp. Sls.	503-245-2342
PA	Horsham, Dalbrook	215-441-8380
UT	Murray, Mountain View Mktg.	801-264-8488
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301
Can	Point Claire, Quebec, COBA Elctrns., Inc.	514-694-1335

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AR	Little Rock, Component Distrs.	501-227-6278
CA	Hollywood, Yale Elec.	213-465-3186
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	San Carlos, Logan Elctrns.	415-594-0700
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Target Elctrns.	408-734-5611
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Shelton, Century Elec. Supp.	203-736-2684
FL	Fort Lauderdale, Component Distrs.	305-971-4950
FL	Fort Lauderdale, KSM Elctrns.	305-971-5900
GA	Atlanta, KSM Elctrns.	404-458-2013
GA	Norcross, AP Sls. Co.	1-800-624-5496
IL	Chicago, UPCO Distrs.	312-631-1122
MD	Beltsville, Petricko Sls., Inc.	301-937-4960
MO	Valley Park, Beckwith Computer & Elctrns.	314-225-4846
NC	Raleigh, Component Distrs.	919-834-9465
TX	Dallas, Heilind Elctrns., Inc.	214-351-2050

COBEHN, INC., 226 Passaic Ave., Fairfield, NJ 07006, Tel: 201-227-6675; Empl.: 5; *Sls. Mgr.:* George L. Henzel

COBER ELCTRNS., 102 Hamilton Ave., Stamford, CT 06902, Tel: 203-327-0003, TWX: 710-474-3371; FSC No.: 28909; Empl.: 100; *Sls. Mgr.:* Saul Haffner

CODAR TECHNOLOGY, INC., 1428 Florida Avenue, Longmont, CO 80501, Tel: 303-776-0472; Empl.: 18

CODENOLL TECHNOLOGY CORP., 1086 N. Bwy., Yonkers, NY 10701, Tel: 914-965-6300, Telex: 646159; *Sls. Mgr.:* Lori Principe

CODI SEMICONDUCTOR, INC., 350 Hurst Ave., Linden, NJ 07036, Tel: 201-862-8484, Telex: 844-796; FSC No.: 16352;19500; Empl.: 48; *Sls. Mgr.:* Joe LaBruna; *Dist. Mgr.:* Joe LaBruna

COGENEL/ENTRELEC DIV., 2 Ram Ridge Rd., Spring Valley, NY 10977, Tel: 914-425-7460, Telex: 0996619; Empl.: 50; *Sls. Mgr.:* F. D. Leynaert

COGNITRONICS, 25 Crescent St., Stamford, CT 06906, Tel: 203-327-5307, TWX: 710-474-3523; Empl.: 200; *Sls. Mgr.:* Vincent Harrison/Lawrence Ganzall

COHERENT COMMUNICATIONS SYS. CORP., 60 Commerce Dr., Hauppauge, NY 11788, Tel: 516-231-1550, Telex: 94-1439; Empl.: 175; *Sls. Mgr.:* Bertram J. Ralph

COHERENT, INC., 3210 Porter Dr., Palo Alto, CA 94304, Tel: 415-493-2111, Telex: 34-8304; Empl.: 1,300; *Sls. Mgr.:* William Shiner/Paul Crosby

COHU, INC., Elctrns. Div., Box 85623, San Diego, CA 92138, Tel: 619-277-6700, TWX: 910-335-1244; Empl.: 178; *Sls. Mgr.:* H. Winter

COILCRAFT, 1102 Silver Lake Rd., Cary, IL 60013, Tel: 312-639-6400, TWX: 910-651-2251

COIL-Q CORP., 340 Bronxville Rd., Bronxville, NY 10708, Tel: 914-337-4775; Empl.: 12

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Our line of tunable RF coils affords highest Q and stability in filter applications from audio thru VHF. Values of .027 to 100,000 uH spaced in a 10% series have overlapping turning ranges. We also make wideband matching transformers, power splitter combiners, Directional couplers, audio transformers, fixed and tunable filters. We will also design and fabricate any of the above items to your specific requirements.

COILTRONICS INC., 984 SW 13th Court, Pompana Beach, FL 33069, Tel: 305-781-8900, TWX: 510-956-3142; Empl.: 130; *Sls. Mgr.:* Lynn A. Hayden

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COLBER CORP., 26E Buffington St., Irvington, NJ 07111, Tel: 201-371-9500, TWX: 710-995-4416; Empl.: 50; *Sls. Mgr.:* Roberta Bryner ...... **A•1832**

Local Sales Offices & Reps

CT	Vernon, G.M. Assocs.	203-646-4443
IN	Fort Wayne, Walter W. Bieberich	219-432-2537
MI	Grosse Pointe Farms, Ed Walter	313-882-3746
PA	Oreland, CMS Mktg.	215-887-1325
TN	Fairview, Walter W. Bieberich	615-799-0120

COLE-HERSEE CO., 20 Old Colony Ave., Boston, MA 02127-2467, Tel: 617-268-2100, Telex: 94-0901; *Sls. Mgr.:* Wesley L. Peterson

COLE INSTRUMENT CORP.

COLE INSTR., 2650 S. Croddy Way, Santa Ana, CA 92704, Tel: 714-556-3100; Empl.: 50; *Sls. Mgr.:* P. Hanson ...... **B•1538**

Local Sales Offices & Reps

AL	Huntsville, Rakes Engrg. & Mktg.	205-533-3763
AZ	Scottsdale, Semi Systems Arizona Inc.	602-991-1151
CA	Anaheim, Gabriel & Assocs.	714-666-0660
CA	Santa Clara, Context Engrg.	408-748-8676
CT	Glastonbury, Barton Assocs.	203-633-9417
HI	Lihei, Aloha Assocs.	808-941-1574
IL	Wheaton, Chadra Schilke & Assocs.	312-653-8126
KS	Merriam, Midwest Technical Sls.	913-236-8555
MD	Silver Spring, Carwithen Assocs.	301-589-9040
MA	Salem, Barton Asscos.	617-745-4310
MI	Birmingham, Forand Sls. Co.	313-644-0087
MN	Minneapolis, Voltage Control Sls.	612-553-1051
MO	St. Charles, Midwest Technical Sls.	314-441-1012
NJ	Garwood, E.R. Mertz & Assocs.	201-232-4643
NM	Albuquerque, Semi Systems Arizona Inc.	505-344-1517
NY	Fayetteville, R.D. Sherman Inc.	315-637-9861
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Broomall, TCA	215-353-2022
TX	Dallas, Control Components Inc.	214-458-8877

COLEX, INCORPORATED, 15028 Beltway Dr., Dallas, TX 75234, Tel: 214-458-2779, TWX: 703143 CLEX US; Empl.: 25; *Sls. Mgr.:* Joe Dean; *Dist. Mgr.:* Joe Dean

COLLINS AVIONICS DIVISIONS, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498, Tel: 319-395-1000, Telex: 464-421, TWX: 910-525-1321; Empl.: 4,325; *Sls. Mgr.:* R. D. Thorpe

COLLINS TRANSMISSION SYS. DIV., See Rockwell Intl., Commercial Elctrns. Opers.

COLLMER SEMICONDUCTOR, INC., 14368 Proton Rd., Dallas, TX 75234-3335, Tel: 214-233-1589, TWX: 910-860-5462; Empl.: 20; *Sls. Mgr.:* Gene Uecker

COLMAN MOTOR PRODUCTS, INC., A Barber-Colman Co., P. O. Box 1240, Rockford, IL 61105-1240, Tel: 815-968-0660, Telex: 4330367; Empl.: 600

Local Sales Offices & Reps

AR	Fort Smith, Electro-Related Prods.	501-452-4030
CA	San Jose, Motion Control, Inc.	408-997-0544
CA	San Marino, Motion Control Southern	818-796-0189
CO	Longmont, Todd & Fry Assoc.	303-776-7331
CT	So. Windsor, Maher Assoc.	203-644-2481
FL	Boca Raton, E. A. Kershaw & Co.	305-482-3003
IL	Northfield, Lenhart Assocs., Inc.	312-446-7460
IN	Ft. Wayne, Menze Sls.	219-747-5616
MA	Lynn, Maher Assocs.	617-581-3244
MI	Detroit, B.L. Hitt & Assoc.	414-476-2210
MN	Minneapolis, Jos-Co/Melius, Inc.	612-861-3343
NJ	River Edge, Maher Assoc.	201-261-2225
NJ	Williamstown, Precision Motion Sls.	609-629-4757
NY	Albany, Robert F. Lamb Co.	518-869-3355
NY	Buffalo, Robert F. Lamb Co.	716-874-4900
NY	Rochester, Robert F. Lamb Co.	716-323-1250
NY	Syracuse, Robert F. Lamb Co.	315-455-2469
NC	Garner, Candor Co.	919-779-1855
OR	Portland, DHS Sls., Inc.	503-285-9790
OK	Tulsa, J. B. Guenther, Inc.	918-660-5126
PA	Abington, Indl. Mkts. Specialists	215-659-0444
SC	Greenville, Candor Co.	803-297-6261
SC	Myrtle Beach, Candor Co.	803-448-8361
TN	Chattanooga, Candor Co.	615-894-9686
TX	Austin, J.B. Guenther, Inc.	512-472-3825
TX	Dallas, J. B. Guenther, Inc.	214-691-8500
VA	Blacksburg, Candor Co.	703-953-2197
WI	Milwaukee, Badgerep	414-258-6630
EXP	WI, Milwaukee, Dummann World Trade	414-464-0100

COLORADO CRYSTAL CORP., 2303 W. 8th St., Loveland, CO 80537, Tel: 303-667-9248; FSC No.: 33096; Empl.: 135; *Sls. Mgr.:* David Lind ...... **A•1324**

Local Sales Offices & Reps

CA	Los Altos, Kolm Mktg. Assoc.	415-948-2635
CO	Loveland, Morbak Mktg.	303-669-8900
KS	Mission, Robinson & Assocs.	913-262-1374
MA	Randolph, Bengal	617-961-4120
OR	Beaverton, L. D. Elctrns.	503-649-6177
PA	Glenside, Koebert	215-887-2310
WA	Spokane, L. D. Elctrns.	509-922-4883

COLORADO DATA SYSTEMS, INC., 3301 W. Hampden Ave., Unit C, Englewood, CO 80110, Tel: 303-762-1640, TWX: 910-933-0193; Empl.: 35; *Sls. Mgr.:* Louis J. Klahn, Jr.; *Dist. Mgr.:* Louis J. Klahn, Jr.

Local Sales Offices & Reps

AZ	Phoenix, Odyssey 1	602-246-8846
NY	Rochester, Scientific Dvcs., New York, Inc.	716-334-2445
CA	San Jose, Moxon Elctrns.	408-298-7290
CT	Mt. Carmel, Scientific Dvcs.-CT.	203-248-9361
PA	Springhouse, Pennsylvania Sci. Dvcs.	215-643-3335
WA	Bellevue, Showalter Instrs., Inc.	206-746-7970
MA	Waltham, Scientific Dvcs.-New Eng., Inc.	617-890-2252
MO	Maryland Heights, Dytec/South, Inc.	314-569-2990
Can	N. Vancouver, B.C., Jerome & Francis Co., Ltd.	604-986-1286
NJ	Teaneck, Scientific Dvcs. East, Inc.	201-837-8720
NM	Albuquerque, Odyssey 1	505-265-6645
CA	Anaheim, Moxon Elctrns.	714-635-7600
OH	Dayton, WKM, Inc.	513-434-7500
CO	Englewood, Odyssey 1	303-773-8176
TX	Dallas, Data Mktg. Assocs., Inc.	214-661-0300
FL	Melbourne, Saber Assocs., Inc.	800-327-0853
IL	Arlington Heights, Dytec/Central, Inc.	312-394-3380
VA	McLean, Creative Mktg. Assocs., Ltd.	703-442-9100
Can	Ottawa, Ont., A.I.M. Elctrns., Inc.	613-722-8286
MN	St. Paul, Dytec/North, Inc.	612-645-5816

COLORADO VIDEO, INC., Box 928, Boulder, CO 80306, Tel: 303-444-3972, TWX: 910-940-3248; Empl.: 47; *Sls. Mgr.:* Jim Dole

COLORGRAPHIC COMMUNICATIONS CORP., 2379 John Glenn Dr. Ste. 105, P.O. Box 80448, Atlanta, GA 30366, Tel: 404-455-3921, Telex: 700574; Empl.: 50; *Sls. Mgr.:* H. Woody Pritchett

COLUMBIA CHASE CORP., HUMISEAL DIV., See HumiSeal Div.

COLUMBIA COMPS., 9 Division St., Sidney, NY 13838, Tel: 607-563-3520; FSC No.: 59178; Empl.: 12; *Sls. Mgr.:* Helen Montren

COLUMBIA ELEC. MFG., 4519 Hamilton Ave. N.W., Cleveland, OH 44114, Tel: 216-361-8060; Empl.: 60; *Sls. Mgr.:* H. W. Sussman

COLUMBIA ELCTRN. CABLES DIV., See Carol Cable Co., Inc., Columbia Elctrn. Cables Div.

COLUMBIA RESCH. LABS., Macdade Blvd. & Bullens La., Woodlyn, PA 19094, Tel: 215-532-9464, TWX: 510-669-3625; FSC No.: 07571; Empl.: 90; *Sls. Mgr.:* Jack Sarty

COLUMBUS ELEC. MFG., Box 289A Rt #2, Piney Flats, TN 37686, Tel: 615-538-8191; Empl.: 160

COLUMBUS INSTRUMENTS, 950 N. Hague Ave., Columbus, OH 43204, Tel: 614-488-6176, Telex: 246514; *Sls. Mgr.:* Jan Czekajewski

COMARK CORP., 93 W St, P. O. Box 474, Medfield, MA 02052, Tel: 617-359-8161, Telex: 703156; Empl.: 50

COMCLOK, INC., 1142 N. Gilbert St., Anaheim, CA 92801, Tel: 714-991-1580, 800-854-XTAL, TWX: 910-591-1892; *Sls. Mgr.:* Herb Plumhoff .... **A•1325**

Local Sales Offices & Reps

AZ	Scottsdale, Western High Tech Mktg.	602-949-0873
CA	Arcadia, HMC	818-447-0958
MA	Malden, J-K Assocs.	617-321-2922
NM	Albuquerque, Western High Tech Mktg.	505-262-2461
TX	Houston, TCI Elctrns.	713-774-5019
VA	Front Royal, Eltron Sls., Ltd.	703-635-7201

COMDATA CORP., 7900 N. Nagle Ave., Morton Grove, IL 60053, Tel: 312-470-9600

COMDESIGN, 751 S. Kellogg Ave., Goleta, CA 93117, Tel: 805-964-9852, TWX: 910-334-1189; Empl.: 125; *Sls. Mgr.:* Ralph M. Armstrong; *Dist. Mgr.:* Donald Sullivan

COMLINEAR CORP., 2468 E. 9th St., Loveland, CO 80537, Tel: 303-669-9433, Telex: 45-0881; FSC No.: 62839; Empl.: 40; *Sls. Mgr.:* John Perzow

COMMERCIAL ELEC. HEATING DEVICES & MFG., INC., 1008 E. Garvey Blvd., Monterey Park, CA 91754, Tel: 213-288-9445; Empl.: 12

COMMERCIAL SYS. LABS., Commercial Sys. Grp., P.O. Box 2710, Auburn, AL 36831, Tel: 205-821-1133; *Sls. Mgr.:* Buzz Mershon; *Dist. Mgr.:* Buzz Mershon

COMMUNICATION ASSOCS., 200 McKay Rd., Huntington Sta., NY 11746, Tel: 516-271-0800, Telex: 510-226-6998; Empl.: 150; *Sls. Mgr.:* Alfred Carlson

COMMUNICATION CABLE, 5 Glen Rd., Manchester, CT 06040, Tel: 203-647-1468; Empl.: 40; *Sls. Mgr.:* E. V. Marozzi

COMMUNICATION CABLES & CONNECTORS, The Dutton Co., 8255 Black Run Rd., Nashport, OH 43830, Tel: 614-828-2468; Empl.: 30; *Sls. Mgr.:* Don Ritterbusch; *Dist. Mgr.:* Don Ritterbusch

COMMUNICATION MACHINERY CORP., 1421 State St., Santa Barbara, CA 93101, Tel: 805-963-9471, TWX: 910-334-3508; Empl.: 50; *Sls. Mgr.:* Russ Sharer

COMMUNICATIONS INSTRS., INC., Box 520, Fairview, NC 28730, Tel: 704-628-1711, Telex: 577436; FSC No.: 58614; Empl.: 450; *Sls. Mgr.:* R. McClinton .... **B•1298-1301**

Local Sales Offices & Reps

AL	Huntsville, Conley Assocs.	205-882-0316
AZ	Phoenix, PLS Assoc. Inc.	602-246-6477
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clare, Ross Mktg.	408-988-8111
CO	Englewood, PLS Assocs.	303-773-1218
CT	Guilford, A & M Elctrns.	203-453-1612
FL	Boca Raton, Conley Assocs.	305-395-3108
FL	Ovieda, Conley Assocs.	305-365-3283
FL	Tampa, Conley Assocs.	813-885-7658
GA	Atlanta, Conley Assocs.	404-447-6992
IL	Glenview, CII	312-792-2508
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	Desoto, Midtec Assocs.	913-441-6565
MD	Ellicott City, Doss Elctrns.	301-465-1336
MA	Needham, A & M Elctrns.	617-444-8170
MO	St. Louis, John G. Macke Co.	314-432-2830
NM	Albuquerque, PLS Assocs.	505-255-2330
NY	Lynbrook, HLJ Comp. Tech.	516-599-2999
NY	Macedon, M. M. Hare Co.	315-986-3742
NC	Raleigh, Conley Assocs.	919-876-9862
OH	Cleveland, Baehr-Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr-Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr-Greenleaf & Assocs.	513-439-0724
OR	Portland, Syscom Sls. Co.	503-644-2505
UT	Salt Lake City, PLS Assocs.	801-466-8729
WA	Bellevue, Syscom Sls. Co.	206-641-5080

COMMUNICATIONS TECHNOLOGY CORP., 2237 Colby Ave., Los Angeles, CA 90064, Tel: 213-478-5061, TWX: 910-342-6983; Empl.: 250

COMMUNICATION TECHNIQUES INC., 36 Route 10, East Hanover, NJ 07936, Tel: 201-884-2580, TWX: 710-986-8265; FSC No.: 53213; *Sls. Mgr.:* Louis R. Trummel

COMPAC™

COMPAC, 279 Skidmore Rd., Deer Park, NY 11729, Tel: 516-667-3933, TWX: 510-227-1064; FSC No.: 62099; Empl.: 50; *Sls. Mgr.:* Peter C. Rao .... **A•1594, 1706-1707; C•1046-1049**

Local Sales Offices & Reps

AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Agoura, Cal-Rep	213-991-1940
CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
FL	Clearwater, Beacon Elctrn. Assoc.	813-796-2378
IL	Prospect Heights, R-Tek, Inc.	312-459-6170
IN	Ft. Wayne, R-Tek, Inc.	219-432-8783
MA	Haverill, L-K Assoc.	617-373-1313
NJ	Haddonfield, Mills-Brown Assoc.	609-429-1005
NY	Deer Park, Compac	516-667-3933
NY	Stoney Brook, Gama Metro	516-751-2072
NY	Utica, B. D. Hummel Co.	315-736-7821
TN	Johnson City, Beacon Elctrn. Assoc.	615-282-2421
TX	Garland, Carey, McMahill & Zerbe	214-681-1414
TX	Houston, Carey, McMahill & Zerbe	713-771-1500
VA	Fairfax, Schibley Assocs.	703-591-3008

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AR	Little Rock, Component Distrs.	501-227-6278
CA	Cupertino, Elctrn. Resources	408-996-8858
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
LA	New Orleans, Component Distrs.	504-525-9668
NY	Deer Park, R. F. Comp. Sources	516-242-6748
NY	Utica, B. D. Hummel Co.	315-736-7821
NC	Raleigh, Component Distrs.	919-781-0262
VA	Falls Church, Component Distrs.	703-241-8227

COMPACT SOFTWARE, INC., Comsat Corp., 1131 San Antonia Rd., Palo Alto, CA 94303, Tel: 415-966-8440; *Sls. Mgr.:* Henry Wong

COMPEX CORP., 35A East Main St., Marlton, NJ 08053, Tel: 609-596-9388; Empl.: 13

Local Sales Offices & Reps

AZ	Phoenix, Odyssey 1	602-246-8846
CA	North Hollywood, Crown Elctrns., Inc.	213-877-3550
CA	Saratoga, E. Reid Miller, Corp.	408-257-6927
FL	Boca Raton, R.W. Mitscher Inc.	305-368-3841
NH	Amherst, Callahan & Tremblay	603-883-9000
NJ	Englewood, Cooper Assocs.	201-871-4985
NJ	Morrestown, Stern Assocs.	609-234-0661
NM	Alburquerque, Odyssey 1	505-265-6645
NY	Buffalo, R.W. Mitscher Co., Inc.	716-633-7970
OH	Lancaster, Cain-Forlaw Co., Inc.	614-654-4800
TX	Dallas, Texas Avionics	214-363-6324
Can	Neapean, Ont., Intrade Canada, Inc.	613-727-1272

COMPLEXX SYSTEMS INC., 4930 Research Dr., Huntsville, AL 35805, Tel: 205-830-4310, Telex: 880114; Empl.: 30; *Sls. Mgr.:* Bill Thomas; *Dist. Mgr.:* Pat Bourgeois

COMPLIANCE DESIGN INC., 593 Massachusetts Ave., Boxboro, MA 01719, Tel: 617-264-4668; *Sls. Mgr.:* Ira Barry

COMPONENT GENERAL, INC., 13620 Wright Cir., Tampa, FL 33625, Tel: 813-855-6655; Empl.: 30; *Sls. Mgr.:* James A. Cook

Local Sales Offices & Reps

CA	Irvine, EBA	714-857-6079
CA	Los Angeles, EBA	213-822-7510
CA	Palo Alto, Mollard Mktg.	415-961-0456
DC	Washington, M. Lader Co.	202-296-2497
MA	Andover, Bee Assoc.	617-475-2124
MN	Minneapolis, Comstrand	612-788-9234
MO	Grandview, R. R. Burton	816-763-5385
NY	Bayside, Robert Diamond Inc.	718-423-7330
NY	Buffalo, Ed Westgren Assoc.	716-632-0011
PA	Lafayette Hill, M. Lader Co.	215-825-3177
PA	Murrysville, Pittsburgh Sls. Assoc.	412-327-3268
EXP	CT, Stamford, Control Devices	203-322-7300

COMPONENT MFG. SVC., INC., 1 Component Park, W. Bridgewater, MA 02379, Tel: 617-580-0111, TWX: 710-390-1081; Empl.: 500; *Sls. Mgr.:* R. E. Owens; *Dist. Mgr.:* R. E. Owens

COMPONENT RESEARCH CO. INC., 1655-26 St., Santa Monica, CA 90404, Tel: 213-829-3615, TWX: 910-343-6864; FSC No.: 12517;Multiple; Empl.: 230; *Sls. Mgr.:* Sylvia Kellerman .... **A•1014-1063**

COMPONENTS CORP., 6 Kinsey Pl., Denville, NJ 07834, Tel: 201-627-0290; FSC No.: 26364; Empl.: 20; *Sls. Mgr.:* W. H. Gordon

COMPONENT SPECIALTIES CORP., 9143 E. La Rosa Dr., Temple City, CA 91780, Tel: 213-283-0015; FSC No.: 28984; Empl.: 45; *Sls. Mgr.:* D.R. Heins

CP COMPUTER PRODUCTS™

POWER CONVERSION GROUP

COMPOWER DIV., Computer Prods., Inc., 2220 Lundy Ave., San Jose, CA 95131, Tel: 408-942-1600, Telex: 172760 Compower Corp.; Empl.: 116; *Sls. Mgr.:* Lyle Bennett; *Dist. Mgr.:* Tazz A. Pettebone .... **D•1446, 1552-1558, 1584-1585**

Refer to Computer Prods., Inc., Pompano Beach, FL for sales offices and representatives and for distributor listings.

COMPUCART, Versa Tec Corp., 107 N. Rome Ave., Tampa, FL 33606, Tel: 800-237-9024, 813-251-2431

COMPUCORP, 2211 Michigan Ave., Santa Monica, CA 90404, Tel: 213-829-7453, Telex: 4720106, TWX: 910-342-6510; Empl.: 450; *Sls. Mgr.:* Joe Thorpe; *Dist. Mgr.:* Richard Venn

COMPU-LITE CORP., 711 W. 17th St. #F12, Costa Mesa, CA 92627, Tel: 714-645-1501; FSC No.: 51420; Empl.: 50; *Sls. Mgr.:* W.D. Cobben

COMPUNETICS, INC., 2000 Eldo Rd., Monroeville, PA 15146, Tel: 412-373-8110; Empl.: 100; *Sls. Mgr.:* Jerry Schmitt

Local Sales Offices & Reps

CT	Marion, Sands Co., Inc.	203-628-4363
FL	Ft. Lauderdale, Southland Comp., Inc.	
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Mound, Allyn Assocs.	612-472-4784
MO	St. Louis, Harris-Hauson Co.	314-432-3611
NJ	Wayne, SHL Assocs.	201-790-1714
NC	Smithfield, ADI	919-934-8136
OH	Cleveland, Jim Finnegan & Co.	216-238-5905

COMPUPRO, 3506 Breakwater Ct., Hayward, CA 94545, Tel: 415-786-0909; *Sls. Mgr.:* Jim Lanphear; *Dist. Mgr.:* Kevin Coonan

COMPUSCAN, INC., 81 Two Bridges Rd. Bldg. No. 2, Fairfield, NJ 07006, Tel: 201-575-0500; Empl.: 300 +; *Sls. Mgr.:* Peter F. Polizzano

COMP-U-STAFF, 1 Investment Pl., Towson, MD 21204, Tel: 301-828-0788; Empl.: 180; *Sls. Mgr.:* Catherine Harper

COMPUTALKER, Compuvoice, Inc., 1730 21st Street, Santa Monica, CA 90404, Tel: 213-828-6546; Empl.: 5; *Sls. Mgr.:* Ron Anderson; *Dist. Mgr.:* Ron Anderson

COMPUTER AVIONICS, 2 Southgate Dr., Mt. Carmel, IL 62863, Tel: 618-263-4343; Empl.: 64; *Sls. Mgr.:* Jerry R. Hart

COMPUTER CABLE & PRODS. INC., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735, Tel: 516-293-1610, Telex: 14-3155, TWX: VERTEX FDLE; FSC No.: 6T500; Empl.: 100; *Sls. Mgr.:* Michael Scanzano; *Dist. Mgr.:* Penny Shaw

COMPUTER COMPONENTS INC.
629 FIFTH AVENUE, PELHAM, NEW YORK 10803

COMPUTER COMPONENTS, INC., 629 Fifth Ave., Pelham, NY 10803, Tel: 914-738-1611; FSC No.: 12965; Empl.: 25; *Sls. Mgr.:* G. Tsokris .... **B•1307**

COMPUTER CONVERSIONS CORP., 6 Dunton Ct., E. Northport, NY 11731, Tel: 516-261-3300, TWX: 510-226-0448; FSC No.: 51086; Empl.: 100; *Sls. Mgr.:* S. J. Renard .... **D•1140-1141**

Local Sales Offices & Reps

CA	Buena Park, Motion Control	714-994-6952
CA	N. Hollywood, Crown Elctrns.	213-877-3550
CO	Denver, WH Howard Co.	303-426-3499
IL	Downers Grove, GnH Sls.	312-985-3764
MA	Brookline, Technology Prods.	617-731-0858
MI	Newport, Industrial Sensors	313-289-3374
MN	Minneapolis, Busch Elctrns.	612-835-2044
NY	Penfield, Barthel Entprs.	716-377-3018
NC	Kannapolis, Bass & Assocs.	704-933-1762
PA	Ingoma, Greye Glass	412-366-6664
TX	Dallas, Jacobson Co.	214-363-7584

COMPUTER CORP. OF AMERICA, 675 Massachusetts Ave., Cambridge, MA 02139, Tel: 617-492-8860, Telex: II 710-320-6479, TWX: 710-320-6479; *Sls. Mgr.:* Mr. Robert Roda

COMPUTER DESIGN & APPLICATIONS INC., 411 Waverly Oaks Rd., Waltham, MA 02154, Tel: 617-647-1900, Telex: 232-2240; *Sls. Mgr.:* Thomas Goliash

COMPUTER DETAILING CORP., 301 York Rd., Warminster, PA 18974, Tel: 215-675-4831; Empl.: 10; *Sls. Mgr.:* Norman Atterman

COMPUTER DEVICES, 749 Middlesex Turnpike, Nutting Lake, MA 01865, Tel: 617-663-4980, Telex: 949398; Empl.: 100; *Sls. Mgr.:* Robert L. Hengen; *Dist. Mgr.:* Dick Leeman

COMPUTER DEVICES CORP., 63 Austin Blvd., Commack, NY 11725, Tel: 516-543-4220; Empl.: 50 .... **A•1487**

Local Sales Offices & Reps

MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
EXP	NY, New Rochelle, Montclair Elctrns.	914-576-1400

COMPUTER DYNAMICS, 105 S. Main St., Greer, SC 29651, Tel: 803-877-7471; *Sls. Mgr.:* Kurt Priester

COMPUTER FIELD SERVICES, INC., 6 Federal Street, Danvers, MA 01923, Tel: 617-774-2930; *Sls. Mgr.:* Stephen B. Miles

COMPUTER INSTRS., 100 Madison Ave., Hempstead, NY 11550, Tel: 516-483-8200, TWX: 510-222-4189; Empl.: 50; *Sls. Mgr.:* F. Cooper; *Dist. Mgr.:* F. Mitchell

COMPUTER MAINTENANCE CORP., 405 Murray Hill Pkwy, East Rutherford, NJ 07073, Tel: 201-866-6400; Empl.: 61; *Sls. Mgr.:* Anthony Scordo

COMPUTER OPTICAL PRODUCTS, INC.
Subsidiary of Hathaway Corp

COMPUTER OPTICAL PRODS., INC., Sub. of Hathaway Corp., 9353 Eton Ave., Chatsworth, CA 91311-5866, Tel: 818-882-0424, TWX: 215-406; Empl.: 150; *Sls. Mgr.:* Brian Gillespie

THE COMPUTER PLACE, D & D Financial Entprs. Inc., 4595 Van Epps Rd., Brooklyn Hts., OH 44131, Tel: 216-351-7444, TWX: 810-421-8446; Empl.: 41; *Sls. Mgr.:* William C. Briggs

COMPUTER POWER, 124E W. Main St., High Bridge, NJ 08829, Tel: 201-735-8000, Telex: 847481; FSC No.: 3643; Empl.: 145; *Sls. Mgr.:* George A. Ardolino; *Dist. Mgr.:* Stanley A. Smith, Jr.

COMPUTER PRODUCTS™
POWER CONVERSION GROUP

COMPUTER PRODS. INC., Power Conversion Grp., 2981 Gateway Dr., Pompano Bch., FL 33069-4803, Tel: 305-974-5500, TWX: 510-956-3098; FSC No.: 62125; Empl.: 800; *Sls. Mgr.:* Martin L. Gross; *Dist. Mgr.:* Dale T. Raveney .... **D•1446, 1551-1585**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls. Engrg.	205-533-2100
AZ	Tempe, Elec-Com Assocs.	602-967-8644
CA	Danville, Power Conversion Grp.	415-837-8593
CA	Folsom, Manco	916-985-0370
CA	Los Angeles, Power Partners, Inc.	213-215-0800
CA	Santa Clara, Manco	408-496-6611
CO	Parker, Parker Webster Co.	303-841-4888
FL	Coral Springs, EPM Corp.	305-755-5387
FL	Orlando, EPM Corp.	305-425-6149
GA	Atlanta, Electro-Mech Sls. Engrg.	404-447-6478
ID	Boise, Intermountain Technlg.	208-322-5022
IL	Des Plaines, Janus, Inc.	312-298-9330
IL	Glenview, Power Conversion Grp.	312-998-6715
IN	Indianapolis, Fred A. Dorsey & Assocs.	317-842-0060
KS	Overland Park, J. F. Guernsey Co.	913-381-2225
KY	Louisville, Fred A. Dorsey & Assocs.	502-426-3540
MD	Columbia, Professional Reps.	301-992-7460
MA	Woburn, Power Conversion Grp.	617-933-0237
MI	Livonia, Lowell Wendt Mktg.	313-464-2722
MN	Bloomington, Smiley Scott Assocs.	612-888-5551
MO	Florissant, J. F. Guernsey Co.	314-921-5720
NJ	Englewood, Tecnimat	201-569-4200
NM	Albuquerque, Elec-Com Assocs.	505-898-6101
NY	Binghamton, Empire Tech. Assocs.	607-772-0651
NY	Fayetteville, Power Unltd.	315-637-5291
NC	Raleigh, Electro-Mech Sls. Engrg.	919-851-8165
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-252-6700
OK	Bixby, MGR Elctrns.	918-369-5186
OR	Portland, Power Sources Unltd.	503-292-0820
PA	Norristown, Denco	215-630-8990
TN	Nashville, Electro-Mech Sls. Engrg.	615-885-0073
TX	Austin, MGR Elctrns.	512-250-0926
TX	Dallas, MGR Elctrns.	214-238-5246
UT	Salt Lake City, Parker Webster	801-266-9939
WA	Lynnwood, Power Sources Unltd.	206-743-6641
WI	Milwaukee, Janus, Inc.	414-476-9104

Local Distributors

CA	Milpitas, Power Systems Distrs.	408-263-1063
CA	N. Hollywood, B. J. Wolfe Entprs.	213-877-5518
CT	Milford, R. C. Comps.	203-847-0006
FL	Ft. Lauderdale, Dielco	305-973-8700
IL	Chicago, Bell Inds.	312-982-9210
MD	Columbia, Aztech Elctrs.	301-995-1760
MA	Wilmington, RC Comps.	617-273-1860
MI	Livonia, LWC Distrs.	313-464-7700
OH	Cleveland, Alpha Distrs.	216-526-3716
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Norristown, Century Elctrn. Comps.	215-631-5400
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Norvell Elctrns.	713-777-1666
WA	Bellevue, Bell Inds.	206-747-1515
WI	Waukesha, Bell Inds.	414-547-8879
Can	Concord, Ontario, Kaytronics	416-669-2262
Can	Kanata, Ontario, Kaytronics	613-592-6606
Can	Surrey, BC, Kaytronics	604-581-5005
Can	Ville St. Pierre, Quebec, Kaytronics	514-367-0101

COMPUTERS INTERNATIONAL, 3540 Wilshire Blvd., Los Angeles, CA 90010, Tel: 213-386-3111, TWX: 910-321-4209; FSC No.: 381-7467; *Dist. Mgr.:* Jim Baker

COMPUTER SYSTEM ASSOCS., 7564 Trade St., San Diego, CA 92121, Tel: 619-566-3911; Empl.: 10; *Sls. Mgr.:* Patricia Chovinard; *Dist. Mgr.:* Patricia Chovinard

COMPUTER SYSTEMS PRODUCTS, 740 Washington Ave N, Minneapolis, MN 55401, Tel: 612-338-0995, 800-422-2537; Empl.: 20+; *Sls. Mgr.:* Tom Kalgrem; *Dist. Mgr.:* Gary Doan

COMPUTER TALK, INC., Box 148, Morrison, CO 80465, Tel: 303-697-5485; Empl.: 20

COMPUTER TERMINAL SYS., 89 Arkay Drive, Hauppauge, NY 11788, Tel: 516-435-2916, Telex: 291411, 291413, TWX: 510-224-6050; FSC No.: 33948; Empl.: 120; *Sls. Mgr.:* K. Oliver

COMPUTERVISION CORP., 201 Burlington Rd., Bedford, MA 01730, Tel: 617-275-1800

COMPUTERWARE, INC., 8480-I Tyco Rd., Vienna, VA 22180, Tel: 703-821-8200; Empl.: 14; *Sls. Mgr.:* Betsy Henderson

COMPUTERWISE, 4006 E 137th Terr., Grandview, MO 64030, Tel: 816-765-3330; Empl.: 20; *Sls. Mgr.:* William W. Brown; *Dist. Mgr.:* William W. Brown

COMPUTROL DIV. KIDDE AUTOMATED SYS., INC., 15 Ethan Allen Hwy., Ridgefield, CT 06877-6297, Tel: 203-544-9371, Telex: 643358; Empl.: 90; *Sls. Mgr.:* Chuck Brewer

COMPUTYPE, INC., 2285 W. County Road "C", St. Paul, MN 55113, Tel: 612-633-0633, 800-328-0852, TWX: 910-563-3699

COMSPEC INC., 10700 Hammerly 5120, Houston, TX 77043, Tel: 713-461-4487, TWX: 910-881-4763; Empl.: 41; *Sls. Mgr.:* Rick Risinger; *Dist. Mgr.:* Rick Risinger

COMSTRON CORP., 200 E. Sunrise Hwy., Freeport, NY 11520, Tel: 516-546-9700, TWX: 510-225-3699; Empl.: 97 .... **A•1327-1329, 1595; D•1204-1205**

Local Sales Offices & Reps

AZ	Phoenix, Odyssey 1	602-246-8846
CA	Anaheim, Blair Assocs.	714-635-1350
CA	San Diego, Interstate Mktg. Assocs.	714-292-8117
CA	Sunnyvale, Applied Sys.	408-773-0616
CA	Woodland Hills, Interstate Mktg. Assocs.	213-883-7606
CO	Castle Rock, Odyssey I	303-688-3555
FL	Altamonte Springs, Dyne-A-Mark Corp.	305-831-2097
FL	Clearwater, Dyne-A-Mark Corp.	813-441-4702
FL	Fort Lauderdale, Dyne-A-Mark Corp.	305-944-5031
FL	Ft. Lauderdale, Reynolds & Assocs.	305-581-6611
FL	Melbourne, Reynolds Assocs.	305-259-7000
FL	Palm Bay, Dyne-A-Mark Corp.	305-727-0192
FL	St. Petersburg, Reynolds & Assocs.	813-360-1484
GA	Acworth, Reynolds & Assocs.	404-451-9558
GA	Marietta, Comstron/Southeast	404-973-3325
IL	Arlington Heights, Dytec Cen.	312-394-3380

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IN	Indianapolis, Dytec Cen.	317-247-1316
KS	Lenexa, Dytec South	913-888-0215
MI	Madison Hts., WKM Assocs.	313-588-2300
MN	St. Paul, Dytec North	612-645-5816
MO	Maryland Hts., Dytec South	314-569-2990
NJ	Englewood Cliffs, Sci. Dvcs. East	201-871-3916
NM	Albequerque, Odyssey 1	505-265-6645
NC	Spring Hope, Reynolds & Assocs.	305-259-7000
OH	Dayton, WKM Assocs., Inc.	513-434-7500
OH	Independence, WKM Assocs., Inc.	216-524-5930
PA	Pittsburgh, WKM Assocs., Inc.	412-892-2953
PA	Spring House, Sci. Dvcs. East	215-643-3335
TX	Dallas, Marcom	214-351-4532
VA	McLean, Creative Mktg. Assocs.	703-442-9100
VA	McLean, Creative Mktg. Assocs.	703-440-9100

COMTECH MICROWAVE CORP., Comtech Corp., 63 Oser Ave., Hauppauge, NY 11788, Tel: 516-435-4646, Telex: 971403 COMMIC HAUP; FSC No.: 61381; *Sls. Mgr.:* M. Javits

COM/TECH SYSTEMS, 505 Eighth Ave., New York, NY 10018, Tel: 212-594-5377; Empl.: 9

COMTEC INFOR. SYS., INC., 53 John St., Cumberland, RI 02864, Tel: 401-724-8500, TWX: 710-387-1171; Empl.: 75; *Sls. Mgr.:* R. A. Hamilton

COMTEK, INC., 309 Breesport, San Antonio, TX 78216, Tel: 512-340-8253

C-con COMPONENTS CONCEPT INDUSTRIES

CONCEPT INDUSTRIES, App-Rep, Inc., 3641 San Gabriel River Pkwy., Pico Rivera, CA 90660, Tel: 213-699-0918, Telex: 883123; Empl.: 17; *Sls. Mgr.:* Brad Marsh; *Dist. Mgr.:* Kathy Sawyer .... **A•1064-1065, 1833**

Local Sales Offices & Reps

CA	Huntington Beach, Mil-Com Sls.	714-840-2424
CA	Livermore, O'Reilly Elctrns.	415-443-5343
FL	Indian Harbor Beach, Bill Toy Assocs.	305-773-5805
IL	Medina, Gentry Sls.	312-893-9352
SC	Tega Cay, NU South Sls.	803-548-2238

Local Distributors

CA	Irvine, Kelex Elctrns.	714-863-1230
CA	La Selva Beach, Coast Comps.	408-684-1185
CA	Livermore, O'Reilly Elctrns.	415-443-5343
CA	Los Angeles, All Elctrns.	213-380-8000
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	Santa Clara, Capacitors Unlimited	408-946-7676
CA	Tustin, Caltronics	714-730-0350
FL	Melbourne, T. C. Pridmore	305-727-2491
NY	Dix Hills, Aries Elctrns.	516-499-0369
TX	Garland, J & S Elctrns.	214-487-8808

CONCORD DATA SYSTEMS, 303 Bear Hill Rd., Waltham, MA 02154, Tel: 617-890-1394, Telex: 95-1793; Empl.: 160

CONCORD ELCTRNS., 30 Great Jones St., Dept. JE, New York, NY 10012, Tel: 212-777-6571, TWX: 710-581-4930; Empl.: 225; *Sls. Mgr.:* Josie Wheaton .... **C•1174-1175**

CONDENSER PRODS., P.O. Box 997, Brooksville, FL 33512, Tel: 904-796-3561; Empl.: 26; *Sls. Mgr.:* Pat K. Johnson

CONDITIONING SEMICONDUCTOR DEVICES, Box 2116, Wayne, NJ 07470, Tel: 201-335-6723, Telex: 219023; FSC No.: 60644; Empl.: 20; *Sls. Mgr.:* A. G. Zimmerly; *Dist. Mgr.:* Jill Mullen

CONDOR INC.
D.C. POWER SUPPLIES

CONDOR D.C. POWER SUPPLIES, INC., 201 Flynn Rd., Camarillo, CA 93010, Tel: 805-484-2851, 800-235-5929, Telex: 910-336-1140; Empl.: 220; *Sls. Mgr.:* Fred Adams .... **D•1587-1599**

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech	205-881-9298
CA	Pasadena, RDX Corp.	213-681-3451
CA	San Diego, RDX Corp.	619-292-7744
CA	Sunnyvale, RDX Corp.	408-734-4500
CO	Denver, R. Mktg.	303-455-5360
FL	Casselberry, Pen-Tech	305-645-3444
FL	Deerfield Beach, Pen-Tech	305-421-4989
GA	Marietta, Pen-Tech	404-424-1931
IL	Schaumberg, Engrg. Prods.	312-882-7640
IN	Greenfield, Engrg. Prods.	317-894-7156
IA	Coralville, Engrg. Prods.	319-354-5344
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Wayland, Daner Hayes, Inc.	617-655-0888
MN	Edina, Engrg. Prods.	612-835-9022
NJ	Bellmawr, TAI	609-933-2600,215-627-6615
NY	Yonkers, Sonkin Assocs.	914-968-7736
NC	Greensboro, Pen-Tech	919-852-6000
OH	Dayton, Thompson Assocs.	513-435-7733
PA	Mars, Thompson Assocs.	412-776-6495
TX	Dallas, Seaton Corp.	214-380-0414
UT	N. Salt Lake City, R. Mktg.	801-298-2631
WA	Bellevue, Al Smith Co.	206-746-6770

Local Distributors

CA	Costa Mesa, FLW	800-225-5359
CA	Hayward, FLW	415-786-9070
FL	Orlando, GMI	305-894-3354
IL	Schaumberg, Engrg. Prods.	312-882-7640
MD	Wheaton, Brimberg Sls.	301-946-2760
MI	Madison Heights, McNaughton-McKay	313-399-7500
MN	Edina, Engrg. Prods.	612-835-9022
NY	Yonkers, Kintronics	914-968-8282
TX	Houston, American Analog	713-941-7265
Intl	Belgium, Mulder-Hardenburg	031-680032
Intl	Denmark, Danika Supp.	09-432122
Intl	England, Gresham/Powerdyne	(025-672)4246
Intl	Finland, Oy Ferrado AB	0-550002
Intl	France, AK Electronique	01-5755353
Intl	Holland, Mulder-Hardenburg BV	023-319184
Intl	Norway, Powerbox AS	02-535-837
Intl	Sweden, Power Box AB	0518-11920
Can	Toronto, Ont., Duncan Inst. Ltd.	416-742-4448

CONDOR PACIFIC INDS., INC., 8053 Deering Ave., Canoga Park, CA 91304, Tel: 818-347-8331, Telex: 65-1442; Empl.: 40

CONDOR SYSTEMS, INC., 2605 S. Winchester Blvd., Campbell, CA 95008, Tel: 408-866-5900, Telex: 184819 Systems SANTA; FSC No.: 62065; *Sls. Mgr.:* Dick Keenly; *Dist. Mgr.:* Ed Brown

CONDUCTIVE RUBBER TECHNLG., 1235 Coast Village Rd., Santa Barbara, CA 93108, Tel: 805-969-5805, Telex: 658-305

CONECTRIX, INC., 376 E. Gunderson St., Carol Stream, IL 60188, Tel: 312-653-1460

CONFORMING MATRIX, Box 5126, Pt. Pl. Sta., Toledo, OH 43611, Tel: 419-729-3777; Empl.: 35

CONKLIN INSTR. CORP., West Rd., Pleasant Valley, NY 12569, Tel: 914-635-2136; FSC No.: 914-635-2510; Empl.: 65; *Sls. Mgr.:* Tom Dolan

Local Sales Offices & Reps

CT	Bethel, Gemini Elctrn. Sls.	203-748-5506
GA	Newnan, Dolan Assocs.	404-251-1102
NJ	Kinnelon, R.J. Alvarez, Inc.	201-838-5641
OH	Howard, Denman Assocs.	614-397-6240
WA	Seattle, BF Sls. & Engrg.	206-364-3287

CONNECT-AIR INTERNATIONAL, INC., 50 37th St. N.E., Auburn, WA 98002, Tel: 206-939-4880, TWX: 910421-1492; Empl.: 50; *Sls. Mgr.:* Ron Jones

CONNECTICUT HARD RUBBER CO., See CHR Inds.

CONNECTICUT MICROWAVE CORP., 106 Powder Mill Rd., Box 389, Canton, CT 06019, Tel: 203-693-4247; FSC No.: 50974; Empl.: 16; *Sls. Mgr.:* S. T. Urbank

CONNECTOR CORP., 6025 N. Keystone Ave., Chicago, IL 60646, Tel: 312-539-3108, TWX: 910-221-6059 .... **C•1176-1177**

CONNECTOR INDS. OF AMER. DIV., Microdot Mfg., 639 N. Wayne, Cincinnati, OH 45215, Tel: 513-733-3680; FSC No.: 32076; Empl.: 35; *Sls. Mgr.:* K. C. Neal

CONNOR-WINFIELD CORP., 109 Turner Ct., POB L, W. Chicago, IL 60185, Tel: 312-231-5270, TWX: 910-230-3231; FSC No.: 21022; Empl.: 35; *Sls. Mgr.:* John Hoag .... **A•1331-1334**

Local Sales Offices & Reps

CA	Agoura Hills, C.D.H. Assocs.	818-707-1970
CA	Los Altos, Frauman Assocs.	415-941-0660

CONOLOG CORP., 5 Columbia Rd., Somerville, NJ 08876, Tel: 201-722-8081

CONRAC CORP., System Comps. Div., 1700 S. Mountain Ave., Duarte, CA 91010, Tel: 213-359-9141, Telex: 96-5978; Empl.: 200; *Sls. Mgr.:* Albert N. Caputo

CONRAC DIV., Conrac Corp., 600 N. Rimsdale Ave., Covina, CA 91722, Tel: 213-966-3511, Telex: 67-0437; Empl.: 450

CONSELL, 463 Payne Dr., Cheshire, CT 06410, Tel: 203-272-5750; Empl.: 3; *Sls. Mgr.:* A. R. Aikman

CONSOLIDATED CONTROLS, 15 Durant Ave., Bethel, CT 06801, Tel: 203-743-6721, Telex: 969615, TWX: 710-456-0446; FSC No.: 02750; Empl.: 650; *Sls. Mgr.:* A.F. Jakubauskas

CONSOLIDATED ELECTRONIC WIRE & CABLE, 11044 King St., Franklin Park, IL 60131, Tel: 312-455-8830, TWX: 910-227-1705; FSC No.: 73612; Empl.: 57; *Sls. Mgr.:* Karl Rankin; *Dist. Mgr.:* Steve Boynton

CONSOLIDATED PRODUCTS CORP., P.O. Box 67, Idyllwild, CA 92349, Tel: 714-659-2183

CONSOLIDATED RESISTANCE CO. AMERICA, 222 Lake Ave., Yonkers, NY 10701, Tel: 914-YO3-5900; Empl.: 20

CONSOLINK CORP., 1275 S. Sherman Dr., Longmont, CO 80501, Tel: 303-651-2014, TWX: 910-320-0786; Empl.: 40; *Sls. Mgr.:* Dan Zec; *Dist. Mgr.:* Rhonda Cashion

CONSUMERTRONICS, 2011 Crescent Dr., Alamogordo, NM 88310, Tel: 505-434-0234; Empl.: 5; *Sls. Mgr.:* Laurie Laurencia

CONTACT, INC., 5 Elm Ave., Hudson, NH 03051, Tel: 603-883-7708; FSC No.: M07015; Empl.: 11; *Sls. Mgr.:* T. Foresta; *Dist. Mgr.:* R. Reid

CONTACT EAST, 7 Cypress Dr., Burlington, MA 01803, Tel: 617-272-5051; *Sls. Mgr.:* Kai Juel

CONTACT ELECTRONICS, INC., 30 Plymouth St., Fairfield, NJ 07006, Tel: 201-575-7660, 800-221-1451, Telex: 130-216; Empl.: 50; *Sls. Mgr.:* Thomas E. Bodnar; *Dist. Mgr.:* Jaime N. Korosler

CONTEL INFO. SYS., INC., Continental Tel. Corp., 130 Steamboat Rd., Great Neck, NY 11024, Tel: 516-829-5900; Empl.: 450

CONTINENTAL DATA SYS., 131 N. Ludlow St., Dayton, OH 45402, Tel: 513-222-8626; Empl.: 4

CONTINENTAL ELECTRONICS MFG. CO., P.O. Box 270879, Dallas, TX 75227, Tel: 214-381-7161, Telex: 73-398; FSC No.: 52151; Empl.: 400; *Sls. Mgr.:* R. L. Floyd, Domestic Broadcast

CONTINENTAL RESOURCES, INC., 175 Middlesex Tpke., Bedford, MA 01730, Tel: 617-275-0850, TWX: 710-326-0833; Empl.: 275; *Sls. Mgr.:* Michael Mattleman

CONTINENTAL SPECIALTIES CORP., See Global Specialties Corp.

CONTINENTAL WIRE & CABLE, Gulton Rd., P. O. Box 1863, York, PA 17405, Tel: 717-792-2644, Telex: 84-0437; Empl.: 250; *Sls. Mgr.:* Edward W. Holland III; *Dist. Mgr.:* William L.Druck

CONTOURS, INC., P.O. Box 1041, Middletown, CT 06457, Tel: 203-347-5694; FSC No.: 033501; *Sls. Mgr.:* Peter L. DeVit

CONTRAVES GOERZ CORP., 610 Epsilon Dr., Pittsburgh, PA 15238, Tel: 412-967-7700, Telex: 86-6237, TWX: 710-664-2082; FSC No.: 51261; *Sls. Mgr.:* Henry M. Voss; *Dist. Mgr.:* Ronald L. Ekas

CONTROL CONCEPTS CORP., P.O. Box 1380, Binghamton, NY 13902-1380, Tel: 607-724-2484; Empl.: 41; *Sls. Mgr.:* Oral R. Evans .... **B•1233**

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Scottsdale, Power Specialists	602-996-4100
CA	Los Alamitos, Power Specs.	213-594-9418
CA	Redwood City, Ault Assocs.	415-367-1710
CA	Simi Vally, Power Specialist Co.	
CA	Vista, Power Specialist Co.	619-726-4799
FL	Melbourne, Saber Assocs.	800-432-6288
GA	Norcross, Saber Assocs.	800-327-0853
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282
IN	Fort Wayne, Domino	219-747-5621
MA	Needham, Shain Assocs.	617-449-4380
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MI	Portage, Electro Sls. Assocs.	616-323-2416
MN	Springlake Park, Holmgren Assocs.	612-786-7641
NY	Binghamton, TAE-Rep, Inc.	607-692-3705
NY	Great Neck, Phase 4, Inc.	516-482-1790
NY	Rochester, TAE-Rep, Inc.	726-586-8710
NC	Clayton, Saber Assocs.	800-327-0853
OH	Cleveland, Electro Sls. Assocs.	216-261-5440
OH	Dayton, Electro Sls. Assocs.	513-426-5551
OK	Edmond, Data Aids	405-478-5000
OR	Portland, SPS Elctrns.	503-297-6919
PA	Montgomeryville, Eastern Sci. Mktg.	215-368-4570
NJ	Vincentown, Eastern Scientific Mktg.	609-268-0250
TX	Austin, Data Aids	512-327-8600
TX	Dallas, Data Aids	214-620-1551
TX	The Woodlands, Data Aids	713-363-3838
WA	Redmond, SPS Elctrns.	206-392-5256
WI	Glendale, Stapleman Corp.	414-352-5777
Can	Toronto, Ont., Norgay Entrps., Ltd.	416-239-3025

CONTROL DATA CORP., P.O. Box O, Minneapolis, MN 55440, Tel: 1-800-828-8001 Operator 82, In MN 612-921-4400; Empl.: 50,000

CONTROL ELCTRNS. CO., INC., 107-B Allen Blvd., Farmingdale, NY 11735, Tel: 516-694-0125; FSC No.: 95924; Empl.: 60; *Sls. Mgr.:* Harold Goldstein; *Dist. Mgr.:* Jack Leonard .... **A•1488**

Local Sales Offices & Reps

CA	Sherman Oaks, R.T. Assocs.	213-788-7588
FL	Melbourne, VPI	305-727-3305
FL	Tampa, VPI	813-832-2041
IL	Chicago, Electro-Tech Mktg. Assoc.	312-676-3151
MD	Ellicott City, VPI	301-461-2525
MA	W. Medway, J. Gallagher	617-533-7292
MN	Fridley, Teskey & Assocs.	612-571-0876
PA	Montgomery, VPI	215-474-3200
TX	Dallas, Texas Avionics Co.	214-363-6324
WI	Brookfield, Electro-Tech Mktg. Assocs.	414-785-9554
EXP	FL, Hallandale, Emec	305-925-6366

CONTROL ENGRG., INC., 1686 Riverdale St., West Springfield, MA 01089, Tel: 413-781-1330; Empl.: 7; *Sls. Mgr.:* Mark Kimball

CONTROL EQUIP. CORP., 171 Lincoln St., Lowell, MA 01851, Tel: 617-459-0573; Empl.: 10

CONTROLEX/EANCO, See Fincor

CONTROL INDS. INC., 530 Burnside Ave., Inwood, NY 11696, Tel: 212-471-9800; Empl.: 40

CONTROL LASER CORP., 11222 Astronaut, Orlando, FL 32821, Tel: 305-851-2540, Telex: 564407; *Sls. Mgr.:* John F. Rogers

CONTROLLED ENVIR. EQUIP. CORP., 3 Delta Drive, Westbrook, ME 04092, Tel: 207-854-9126; Empl.: 5; *Sls. Mgr.:* M. F. Peck

CONTROLLED POWER COMPANY

CONTROLLED POWER CO., 1955 Stephenson Hwy., Troy, MI 48083, Tel: 1-800-521-4792, TWX: 810-232-3401 .... **D•1876, 1910-1915**

Local Sales Offices & Reps

AL	Birmingham, James E. Heusser Agy., Inc.	205-836-3896
AK	Anchorage, Alaska Computer Environment	907-562-2406
AZ	Phoenix, Gruber Assocs.	602-863-2655
CA	LaJolla, Wheelock	619-454-3473
CA	Mountainview, Westech Sls.	415-961-1422
CO	Monument, Precision Environments	303-480-3330
DE	Wilmington, Data Concepts Corp.	302-654-3388
GA	Atlanta, United Engrg. Co. Inc.	404-256-4871
IL	Hoffman Estates, Carvel Engrg.	312-885-8800
IN	Carmel, Ralph Wendel	317-844-2230
KS	Mission, West & Assocs.	913-246-5356
KY	Louisville, Jenkins & Assocs.	502-451-4441
MI	Lansing, Hammond Assocs., Inc.	517-372-4112
MI	Lathrup Village, Carpenter-Cunningham & Assocs.	313-559-9610
MN	Edina, Carvel Engrg.	612-835-7929
MO	Ballwin, Cassidy & Assocs.	314-391-1802
NJ	Cherry Hill, Data Concepts Corp.	609-429-1510
NJ	Englewood Cliffs, Power Conversions & Control	201-569-0015
NM	N.E. Albequerque, Sun Data Sys., Inc.	505-292-1022
NY	Buffalo, Bromor Co.	716-874-4595
NC	Winston Salem, Carrington Elctrl.	919-968-8580
OH	Cleveland, Carter, McCormick & Peirce	216-779-5100
OH	Englewood, Carter, McCormick & Peirce	513-836-0951
OR	Beaverton, Ratec Corp.	503-643-5824
PA	Pittsburgh, Carter, McCormick & Peirce	412-372-4415
SC	Maldin, Carrington Elec. Sls.	803-297-9769
TN	Nashville, Jenkins & Assocs., Inc.	615-256-7606
TX	Dallas, Engineered Computer Rooms	214-644-1963
WA	Seattle, R. W. Campbell	206-622-3403
WV	Charleston, Dave Gandy & Assocs.	304-343-7414
WI	New Berlin, Carvel Engrg.	414-784-7007
Can	Nepean, Ontario, Mech-Co., Ltd.	613-225-0210

CONTROL MODULE, 380 Enfield St., Enfield, CT 06082, Tel: 203-745-2433, Telex: 643167; Empl.: 160; *Sls. Mgr.:* Peter C. DiMaria

CONTROL-O-MATION, INC, 7300 W. Huron River Dr., Dexter, MI 48130, Tel: 313-426-3935; Empl.: 70; *Sls. Mgr.:* Richard Lundy

CONTROL PRODUCTS, INC., 280 Ridgedale Ave., E. Hanover, NJ 07936, Tel: 201-887-9400; FSC No.: 81901; Empl.: 62; *Sls. Mgr.:* J. R. Nile

CONTROL PRODS., Devar, Inc., P.O. Box 589, Bridgeport, CT 06601, Tel: 203-368-6751, Telex: 96-4234; Empl.: 80; *Sls. Mgr.:* T. W. Tomasko

CSI CONTROL SCIENCES INCORPORATED

CONTROL SCIENCES, INC., 9509 Vassar Ave., Chatsworth, CA 91311, Tel: 818-709-5510, Telex: 4970496(CSI); FSC No.: 53317; Empl.: 14; *Sls. Mgr.:* Rhod Zimmerman .... **D•1142-1146**

Local Sales Offices & Reps

IL	Rolling Meadows, KMA Sales	312-398-5300
IN	Ft. Wayne, J & B Engrg.	219-483-2813
MN	St. Paul, Northstar Motion & Control	612-770-5311
MO	Peculiar, PEM Sales	816-884-4784
MO	St. Louis, PEM Sales	314-427-7200
NY	Victor, A & D Devices	716-924-9171
OH	Cleveland, Geotronix	216-526-2535
OH	Columbus, Geotronix	614-457-8472
PA	Media, Homer Smith Sls.	215-543-2434
WI	Milwaukee, KMA	414-259-1771

CONTROLS UNLIMITED, INC., 4823 North Ridge Rd., Perry, OH 44081, Tel: 216-259-2500; Empl.: 35

CONTROL SYSTEMS, 2855 Anthony Lane, Minneapolis, MN 55418, Tel: 612-789-2421, Telex: 756601

CONTROL TECHNOLOGY CO., 41-16 29th St., Long Island City, NY 11101, Tel: 718-361-2133; FSC No.: 14545; Empl.: 35; *Sls. Mgr.:* H. Cooper .... **D•1986-1987**

Local Sales Offices & Reps

CA	Claremont, W. Roth & Assocs.	714-621-1019
Can	Montreal, Que., Control Tech. Elctrns. CTC Canada, Ltd.	514-733-3279

CONTROL TECHNOLOGY, INC., 8200 N. Classen Blvd., Ste. 101, Oklahoma City, OK 73114, Tel: 405-840-3163, Telex: 910-831-3231; *Sls. Mgr.:* Charles Weddington; *Dist. Mgr.:* Charles Weddington

CONVER CORP., 10629 Bandley Dr., Cupertino, CA 95014, Tel: 408-255-0151, TWX: 910-338-2036; Empl.: 40; *Sls. Mgr.:* Robert Lloyd; *Dist. Mgr.:* Lyne Hare

CONVERSION EQUIP. CORP., 330 W. Taft Avenue, Orange, CA 92665, Tel: 714-637-2970; Empl.: 50; *Sls. Mgr.:* Patrick M. D'Acre

CONVERTER CONCEPTS INC

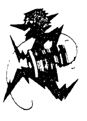
CONVERTER CONCEPTS, INC., Industrial Pkwy., Pardeeville, WI 53954, Tel: 608-429-2144, TWX: 910-280-2630; Empl.: 120; *Sls. Mgr.:* Michael J. Schoenwald; *Dist. Mgr.:* Michael J. Schoenwald .... **D•1600-1603**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-883-1712
AZ	Phoenix, Thor Engrg.	602-437-1463
CA	Goleta, The Thorson Co.	805-964-8751
CA	Hayward, Pacific Mktg.	415-887-1620
CA	Signal Hill, The Thorson Co.	213-595-0361
FL	Boca Raton, Perrott Assocs.	305-792-2211
FL	Clearwater, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assoc.	305-298-7748
GA	Atlanta, JWL Assocs.	404-429-8010
IL	Rolling Meadows, KMA Sls.	312-398-5300
MA	Natick, Wayland Engrg. Sls.	617-655-6080
MN	Minneapolis, JMI	612-861-3343
NY	Syracuse, Pi-Tronics	315-455-7346
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Dayton, Bradcor	513-294-5477
OH	Euclid, Bradcor Elctrns.	216-261-0888
PA	Glenside, Koebert Assoc.	215-887-2310
TX	Garland, Tesco	214-681-1376
TX	Houston, Tesco	713-777-1443
WA	Linnwood, Power Sources Unltd.	206-784-3336
WI	Milwaukee, KMA Sales	414-259-1771
Can	Rexdale, Ont., Electro-Source, Inc.	416-675-4490

CONVEX CORP., P.O. Box 17225, Dulles Intl. Airport, Washington, DC 20041, Tel: 703-661-8900; Empl.: 24

COOL-AMP CONDUCTO-LUBE CO., 8621 S.W. 17th Ave., Portland, OR 97219, Tel: 503-244-2230; Empl.: 5; *Sls. Mgr.:* Audrea Dick



COONER WIRE CO., 9186 Independence Ave., Chatsworth, CA 91311, Tel: 818-882-8311; *Sls. Mgr.:* Steven W. Smith .... **C•1820-1826**

Local Sales Offices & Reps

CA	Cupertino, Cooner Wire Co.	408-773-1444

COOPER GROUP, PO Box 30100, Raleigh, NC 27622, Tel: 919-781-7200, Telex: 579497

C0-ORD SWITCH DIV., See LVC Inds., Inc.

COORS PORCELAIN, 600 Ninth St., Golden, CO 80401, Tel: 303-278-4000, Telex: 45593; Empl.: 1700

COOSOL, 3013 Harbor Blvd., Costa Mesa, CA 92626, Tel: 714-545-2216; Empl.: 20; *Sls. Mgr.:* Aram Solomonian; *Dist. Mgr.:* Aram Solomonian

CORBY INDS. INC., P. O. Box 2838, Allentown, PA 18001, Tel: 215-433-1412, Telex: 847318 CORBYUHL; Empl.: 22; *Sls. Mgr.:* Glenn M. Matz; *Dist. Mgr.:* Lewis S. Walters

CORCOM, INC., 1600 Winchester Rd., Libertyville, IL 60048, Tel: 312-680-7400, TWX: 687-1058; FSC No.: 05245; Empl.: 1000 .... **A•1596**

Local Sales Offices & Reps

AL	Huntsville, Robert O. Whitesell	205-883-5110
AZ	Phoenix, I.S.D.S.	602-971-6250
CA	Los Angeles, I.S.D.S.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, I.S.D.S.	619-571-1544
CA	Santa Ana, I.S.D.S.	714-973-2162
CA	Woodland Hills, I.S.D.S.	818-883-7130
CO	Arvada, Straube Assocs.	303-426-0890
CT	Madison, Conti-Younger Assocs.	203-245-1136
CT	Norwalk, Wincor Sls.	203-348-7741
FL	Maitland, E.I.R. Inc.	305-660-9600
FL	Oldsmar, E.I.R. Inc.	813-786-2156
FL	Plantation, E.I.R. Inc.	305-581-6905
FL	Plantation, E.I.R. Inc.	305-791-8243
ID	Boise, Cascade Comps.	208-343-9886
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Ft. Wayne, Robert O. Whitesell	219-432-5591
IN	Indianapolis, Robert O. Whitesell	317-359-9283
IN	Kokomo, Robert O. Whitesell	317-457-9127
IA	Cedar Rapids, PMR, Inc.	319-362-9177
KS	Overland Park, PMR, Inc.	913-381-0004
KS	Wichita, PMR, Inc.	316-684-4141
KY	Louisville, Robert O. Whitesell	502-426-7696
MD	Ellicott City, Marketing Technlg.	301-465-5944
MA	Burlington, Conti-Younger Assocs.	617-273-1582
MI	Grand Rapids, Robert O. Whitesell	616-942-5420
MI	Southfield, Robert O. Whitesell	313-559-5454
MI	St. Joseph, Robert O. Whitesell	616-983-7337
MN	Edina, Mel Foster Co.	612-941-9790
MO	Maryland Heights, PMR, Inc.	314-569-1220
NM	Albuquerque, Straube Assocs.	505-292-0428
NY	Endicott, Noeth-Honsinger Assocs.	607-754-3214
NY	Manhasset, Win-Cor Elctrn. Sls.	516-627-9474
NY	Pittsford, Noeth-Honsinger Assocs.	716-586-9002
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Cincinnati, Robert O. Whitesell	513-521-2290
OH	Cleveland, Robert O. Whitesell	216-447-9020
OH	Columbus, Robert O. Whitesell	614-888-9396
OH	Dayton, Robert O. Whitesell	513-298-9546
OR	Lake Oswego, Cascade Comps.	503-635-2227
PA	Pittsburgh, Robert O. Whitesell	412-963-6161
PA	Trevose, Professional Svc. Assoc.	215-245-0513
TN	Knoxville, Robert O. Whitesell	615-694-9476
TX	Austin, K & H Sls.	512-258-8841
TX	Plano, K & H Sls.	214-423-6520
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Lynchburg, Marketing Technlg.	804-384-6459
WA	Seattle, Cascade Comps.	206-888-3717
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

AL	Huntsville, Pioneer	205-837-9300
AZ	Phoenix, Cetec Elctrns.	602-272-7951
CA	Canoga Park, Marshall Inds.	818-999-5004
CA	Chatsworth, Diplomat Elctrns.	818-314-4411
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	El Monte, Marshall Inds.	213-442-7204
CA	Irvine, Cetec Elctrns.	714-250-4141
CA	Irvine, Marshall Ind.	714-660-0951
CA	San Diego, Cetec Elctrns.	619-278-5020
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, Marshall Ind.	619-578-9600
CA	Santa Clara, Cetec Elctrns.	408-263-7373
CA	South Gate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, Diplomat/Westland	408-734-1900
CA	Sunnyvale, Marshall Ind.	408-732-1100
CO	Denver, Marshall Ind.	303-427-1818
CO	Wheatridge, Diplomat Elctrns.	303-422-9229
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	E. Haven, J.V. Elctrns.	203-499-2457
FL	Clearwater, Diplomat Elctrns.	813-443-4515
FL	Deerfield Beach, Pioneer	305-771-7520
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, Pioneer	305-834-9090
GA	Atlanta, Marshall Ind.	404-923-5750
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer	317-849-7300
MD	Beltsville, Resco/Washington	301-937-9100
MD	Gaithersburg, Pioneer	301-921-0660
MD	Savage, Pyttronic Inds.	301-792-0780
MD	White Marsh, Resco	301-529-0500
MA	Burlington, Marshall Ind.	617-272-8200
MA	Newton, Greene Shaw	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MI	Livonia, Pioneer	313-525-1800
MI	Livonia, R.S. Elctrns.	313-525-1155
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Bellmawr, Mid Atlantic Elctrns. Corp.	609-931-5303
NJ	Totowa, Diplomat Elctrns.	201-785-1830
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Mt. Vernon, QAR Indl. Elctrn. Sls.	914-699-2224
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rochester, Summit Distrs.	716-334-8110
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Pioneer	216-587-3600
OH	Dayton, Pioneer	513-236-9900
OR	Beaverton, Almac Elctrns.	503-641-9070
PA	Montgomeryville, Pyttronic Inds.	215-242-6700
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Pittsburgh, Pioneer	412-782-2300
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Pioneer	214-386-7300
TX	Fort Worth, TTI	817-831-0441
TX	Houston, Pioneer	713-988-5555
UT	Salt Lake City, Diplomat/Alta Land	801-486-4134
WA	Bellevue, Almac Elctrns.	206-643-9992
WI	Milwaukee, Marsh Elctrns.	414-475-6000

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PASSIVE COMPONENTS—Meters, Lamps, Potentiometers, Quartz Crystals & Filters, Xenon Flash Tubes & Trigger Coils, Miniature Speakers & Phone Capsules, Chokes, Coils, IFT, Inductors, Headsets, Boom Mic Headsets, Microphones, Mic Cartridges & Cables, Cords, Cables, Plugs, Jacks, Assemblies, Telephone Handsets, Modular Cords & Jacks, Switches.

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CORD ELECTRONICS, INC., 177 Cantiague Rock Rd., Westbury, NY 11590, Tel: 516-935-3640, Telex: 475-8020; FSC No.: 516-935-0780; Empl.: 25; *Sls. Mgr.:* William Mercurio .... **A•2009; B•1023; C•1827; D•1024, 1605**

Local Sales Offices & Reps

AL	Huntsville, DHR Mktg., Inc.	205-533-5165
AR	Little Rock, Welch & Doby, Inc.	501-455-2199
CA	San Diego, Littlefield & Smith Assocs.	619-455-0055
CA	Saratoga, Frequency Control Assocs.	408-446-0200
CA	Saratoga, Santana Sls.	714-827-9100
CO	Aurora, Sage Sls.	303-750-3501
CT	Manchester, G. M. Assocs.	203-646-4443
FL	Casselberry, HAI Elctrns., Inc.	305-831-4892
FL	Coral Springs, HAI	305-752-7520
GA	Atlanta, DHR Mktg.	404-451-9848
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Indianapolis, Elctrn. Reps.	317-894-1414
IA	Bettendorf, Weisler & Assocs., Inc.	319-344-0566
LA	Manderville, Design Mktg.	713-237-2319
MD	Timonium, Eastern Comps. Sls. Corp.	301-561-5811
MA	Framingham, G.M. Assocs.	617-872-4871
MI	Adrian, Elctrn. Salesmasters	517-263-2500
MI	Livonia, Elctrn. Salesmasters	313-421-2520
MN	Minneapolis, O.E.M. Elctrl. Sls., Inc.	612-559-2448
MS	Jackson, Welch & Doby, Inc.	601-932-5534
MO	Ellisville, Weisler Assocs.	314-394-4543
MO	N. Kansas City, Weisler Assocs.	816-421-1679
NH	Exeter, G. M. Assocs.	603-778-7472
NM	Alburquerque, Syntech	505-266-7951
NY	Jericho (Downstate), J-Square Mktg., Inc.	516-935-3200
NY	Rochester, J. G. Welch Assocs., Inc.	716-244-1100
NY	Utica, J. G. Welch Assocs., Inc.	315-736-7821
NC	Charlotte, DHR Mktg., Inc.	704-335-1215
NC	Greensboro, DHR Mktg., Inc.	919-273-2671
NC	Raleigh, DHR Mktg.	919-876-5450
OH	Beachwood, Elctrn. Salesmasters	800-328-1848
OH	Cleveland, Arthur H. Baier & Assocs.	216-461-6161
OH	Dayton, Arthur H. Baier & Assocs.	513-276-4128
OK	Tulsa, Design Mktg., Inc.	918-622-7744
OR	Beaverton, Quest Mktg., Inc.	503-641-7377
PA	W. Conshohocken, Eastern Comps.	215-825-8610
SC	Greenville, DHR Mktg.	803-235-3594
TN	Memphis, Welch & Doby, Inc.	901-683-8099
TX	Dallas, Design Mktg., Inc.	214-680-9767
TX	Hurst, Design Mktg., Inc.	817-268-2004
TX	Round Rock, Design Mktg., Inc.	512-255-9896
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Bellevue, Quest Mktg., Inc.	206-747-9424
WI	Cedarburg, Bransky Sls.	414-377-6837
PR	Puerto Rico, Casanova Indl. Sls.	809-753-8674
Can	Waterloo, Ont., Rytech Co.	519-743-4521

CORLUND ELCTRNS. CORP., 3543 Old Conejo Rd., Newbury Park, CA 91320, Tel: 805-499-6947; Empl.: 45; *Sls. Mgr.:* John Redmond

CORNELL-DUBILIER ELECTRONICS, 150 Avenue 'L', Newark, NJ 07105, Tel: 201-589-7500, Telex: 03-8366

CORNELL-DUBILIER ELECTRONICS, Div. of Federal Pacific Electric Co., 1605 East Rodney French Blvd., New Bedford, MA 02744, Tel: 617-996-8561

CORNELL-DUBILIER ELCTRNS., Wayne Interchange, Plaza 1, Wayne, NJ 07470, Tel: 201-256-2000; *Sls. Mgr.:* A. Cavuto .... **A•1067, 1597; B•1309**

Local Sales Offices & Reps

AZ	Tempe, Electronics Dvcs. & Sls.	602-438-1547
CA	Los Altos, Ewing-Foley, Inc.	415-941-4525
CA	San Diego, Harvey King	619-566-5252
CO	Westminster, Western Region Mktg.	303-430-8883
FL	Fort Lauderdale, Dyne-A-Mark Corp.	305-771-6501
IL	Rolling Meadows, Eagle Tech. Sls., Inc.	312-991-0700
IN	Carmel, Technology Mktg.	317-844-8462
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MA	Needham Heights, Coakley, Boyd & Abbett	617-444-5470
MI	Detroit, Rathsburg Assocs.	313-882-1717
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	Bridgeton, Dy-Tronix, Inc.	314-291-4771
NY	Syracuse, Leonard D. Allen	315-437-8387
NC	Cary, Montgomery Mktg., Inc.	919-467-6319
OH	Dayton, The Lyons Corp.	513-278-0714
TX	Richardson, R. F. Kimball Co, Inc.	214-231-3447
WA	Bellevue, Northwest Mktg. Assocs.	206-455-5846
PR	Santurce, Sudouest Import Sls. Corp.	809-726-7635

Local Distributors

AL	Huntsville, Arrow Elctrns., Inc.	205-882-2730
AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AZ	Phoenix, Arizona Comp. Co.	602-269-5655
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Tempe, Arrow Elctrns., Inc.	602-968-4800
AZ	Tempe, Bell Inds.	602-966-7800
CA	Chatsworth, Arrow Elctrns., Inc.	213-701-7500
CA	Chatsworth, Integated Elctrns. Corp.	213-009-2200
CA	Chatsworth, QC Comps.	818-700-2622

CA	Chatsworth, Shelley Elctrns.	213-009-3333
CA	Englewood, Hall-Mark Elctrns.	303-694-1662
CA	Fountain Valley, Component Ctr., Inc.	714-979-0433
CA	Garden Grove, Bell Inds.	714-895-7801
CA	Garden Grove, National Capacitor Corp.	714-892-7749
CA	Irvine, Integrated Elctrns. Corp.	714-540-5600
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Sacramento, Arrow Elctrns. Inc.	916-925-7456
CA	San Diego, Arrow Elctrns., Inc.	619-565-4800
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Fernando, Petell Elctrns.	818-365-9841
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Integrated Elctrns. Corp.	408-287-6488
CA	San Jose, Shelley Elctrns. Corp.	408-942-9111
CO	Lakewood, Acacia Sls.	303-232-2882
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Greenwich, Wise Comp.	203-531-4880
CT	Stratford, Utronics, Inc.	203-378-4201
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Hammond Elctrns., Inc.	305-973-7103
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Orlando, Hammond Elctrns., Inc.	305-849-6060
FL	Palm Bay, Arrow Elctrns., Inc.	305-725-1480
GA	Norcross, Arrow Elctrns., Inc.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Itasca, Voyager Elctrns.	312-773-4900
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Rosemont, Advent Elctrns., Inc.	312-297-6200
IL	Schaumburg, Arrow Elctrns., Inc.	312-397-3440
IL	Skokie, Kellner Elctrns.	312-677-1120
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Graham Elctrn. Supp., Inc.	317-634-8202
IA	Cedar Rapids, Advent Elctrns., Inc.	319-363-0221
IA	Cedar Rapids, Bell Inds.	319-395-0730
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
IA	Cedar Ropids, Arrow Elctrns., Inc.	319-395-7230
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
KS	Wichita, RSC Elctrns., Inc.	316-267-5213
LA	New Orleans, William B. Allen, Inc.	504-525-8222
MD	Baltimore, A.S.I. Elctrns.	301-265-5200
MD	Baltimore, Arrow Elctrns., Inc.	301-247-5200
MD	Bethesda, Arrow Elctrns., Inc.	301-564-3000
MD	Columbia, Hall-Mark Elctrns.	301-621-4228
MD	Gaithersburg, Pioneer Washington Elctrns.	301-948-0710
MD	Rockville, Capital Radio Whls., Inc.	301-881-2270
MA	Hingham, Sager Elctrl. Supp.	617-749-6700
MA	Newton, Green-Shaw, Inc.	617-969-8900
MA	North Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Wilmington, RC Comp., Inc.	617-657-4310
MA	Woburn, Arrow Elctrns., Inc.	617-933-8130
MA	Woburn, Jaco Elctrns., Inc.	617-933-7760
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MI	Livonia, Pioneer/Michigan	313-525-1800
MN	Bloomington, Hall-Mark Elctrns.	612-852-3223
MN	Edina, Arrow Elctrns., Inc.	612-830-1800
MN	Minneaolis, Stark Elctrrns. Supp.	612-332-1325
MO	Kansas City, Electronics Supp.	816-931-0250
MO	Maryland Heights, Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Olive Elctrns.	314-426-4500
NH	Manchester, Arrow Elctrns., Inc.	603-668-6968
NJ	Cherry Hill, Hall-Mark Elctrns. Corp.	609-424-7300
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	East Hanover, State Elctrns. Parts Corp.	201-887-2550
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Kenilworth, Federated Purchased	201-272-0505
NJ	Marlton, Arrow Elctrns., Inc.	609-596-8000
NJ	Moorestown, Arrow Elctrns., Inc.	609-235-1900
NM	Albuquerque, Arrow Elctrns., Inc.	505-243-4566
NM	Albuquerque, Electronic Parts Co., Inc.	505-293-6161
NY	Biminghamton, Help Elctrns., Inc.	607-729-3528
NY	Bohemia, Key Comps., Inc.	516-567-7500
NY	Buffalo, Summit Distrs., Inc.	716-877-2800
NY	Central Islip, Semicap Elctrns. Corp.	516-582-4400
NY	Elmsford, Ancar Elctrns. Supp., Inc.	914-592-7100
NY	Farmingdale, Arrow Intl.	516-293-6363
NY	Farmingdale, Semispecialists of Amer.	516-293-2710
NY	Hauppauge, Arrow Elctrns., Inc.	516-231-1030
NY	Hauppauge, Broad Line Elctrns.	800-645-5444
NY	Hauppauge, Fairmont Elctrn.Sls. Corp.	516-231-3312
NY	Hauppauge, Jaco Elctrns., Inc.	516-273-5500
NY	Liverpool, Arrow Elctrns., Inc.	315-652-1000
NY	Melville, Arrow Elctrns., Inc.	516-391-1300
NY	Rochester, Arrow Elctrns., Inc.	716-275-0300
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Rochester Radio Supp. Co.	716-454-7800
NY	Rochester, Simcona Elctrns. Corp.	716-238-3230
NY	Rochester, Summit Elctrns. of Roch., Inc.	716-334-8110
NY	Rockville Center, Douglas Elctrns.	716-764-5710
NY	Rome, Rome Elctrns.	315-337-5400
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Akron, Akron Electrns. Supp. Co.	218-762-8818
OH	Centerville, Arrow Elctrns., Inc.	513-435-5563
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cincinnati, Hughes Peters, Inc.	513-351-2000
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Arrow Elctrns.	614-885-8362
OH	Columbus, Hughes Peters	614-294-5351
OH	Dayton, Bell Inds.	513-434-8231
OH	Dayton, Pioneer Elctrns.	513-236-9900
OH	Dayton, Stotts Friedman	513-298-5555
OH	Highland Heights, Hall-Mark Elctrns.	216-473-2907
OH	Solon, Arrow Elctrns., Inc.	216-248-7500
PA	Montgomeryville, Pyttronic Inds.	215-242-6700
PA	Norristown, Century Elctrn. Co., Inc.	215-631-5400
PA	Phildelphia, Shap Elctrns. Co., Inc.	215-969-3300
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Austin, Arrow Elctrns., Inc.	512-835-4180
TX	Austin, Hall-Mark Elctrns.	512-258-8858
TX	Dallas, Arrow Elctrns., Inc.	214-386-7500
TX	Dallas, Captronics, Inc.	214-340-3592
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Dallas, Harrison Equip. Co.	214-239-2750
WI	Madison, Arrow Elctrns.	608-273-4977
WI	Milwaukee, Electronic Exp.	414-228-8100
WI	Milwaukee, Industrial Elctrns. Corp. of Wis.	414-276-1212
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hall-Mark Elctrns.	414-707-7844
WI	Oak Creek, Arrow Elctrns.	414-764-6600
WI	Waukesha, Bell Inds.	414-784-0235
Can	Calgary, Alb., Varah's	403-255-9550
Can	Don Mills, Ont., Saynor Elctrns.	416-445-2340
Can	Downsview, Ont., Future Elctrns.	416-638-4771
Can	Hamilton, Ont., Varah's	416-561-9311
Can	Ottawa, Ont., Carsten Elctrns.	613-729-5138
Can	Ottawa, Ont., Future Elctrns.	613-820-8313
Can	Ottawa, Ont., Varah's	613-726-8884
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710
Can	Scarborough, Ont., Carsten Elctrns.	416-495-9999
Can	St. Laurent, Que., Carsten Elctrns.	514-334-8321
Can	Vancouver, BC, Future Elctrns.	604-438-5545
Can	Vancouver, BC, Varah's	604-873-3211
Can	Winnipeg, BC, Varah's	204-633-6190

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CORNING GLASS WORKS, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830, Tel: 607-974-8725, Telex: 932481; Empl.: 8000; *Sls. Mgr.:* Graham Wells; *Dist. Mgr.:* Betsey Murray .. **A•1068-1069, 1835**

Local Sales Offices & Reps

AL	Huntsville	205-830-4030
AZ	Phoenix	602-943-6602
CA	Escandido	619-741-0496
CA	Orange	714-771-5160
CA	Santa Clara	408-249-6481
CO	Denver	303-422-4547
FL	Plantation	305-581-3251
FL	St. Petersberg	813-894-1171
FL	Tampa	813-932-1723
FL	W. Palm Beach	305-686-1325
GA	Rosewell	404-992-7240
IL	Arlington Heights	312-228-6070
MD	Columbia	301-964-0225
MA	Littleton	617-486-3125
MN	Eagon	612-544-0206
MN	Shore View	612-780-5044
NY	Horse Head	607-974-8615
NC	Raleigh	919-876-1100
OH	Gahanna	614-476-0028
OR	Beaverton	503-649-9199
PA	Broomall	215-356-5300
PA	Pittsburgh	412-531-2002
TX	Plano	214-578-9360
TX	Round Rock	512-445-1686
Can	Montreal, Que.	514-866-9581

CORNING GLASS WORKS, Memory Prods Dept., 3900 Electronic Dr., Raleigh, NC 27604, Tel: 919-876-1100, TWX: 510-928-1840; Empl.: 17; *Sls. Mgr.:* A. Greenlaw

CORNING GLASS WORKS, Telecomm Prods Dept., BH-5, Corning, NY 14830, Tel: 607-974-9000, Telex: 932498; Empl.: 28,000

CORNING MEDICAL & SCIENTIFIC, See Corning Glass Works, Corning Elctrns.

CORTEC, INC., 15811 Chemical La., Huntington Bch., CA 92649, Tel: 714-897-2529; Empl.: 35

CORTRON DIV., 400 W. Grand Ave., Elmhurst, IL 60126, Tel: 312-279-9110, TWX: 910-254-0154; Empl.: 300; *Sls. Mgr.:* Bob Inglis

COSAR, 3121 Benton St., Garland, TX 75042, Tel: 214-276-9487, 800-527-1207, Telex: 730-764; FSC No.: 20891; Empl.: 50; *Sls. Mgr.:* Jerry Jarka

COSMO PLASTICS CO., 3239 W. 14th St., Cleveland, OH 44109, Tel: 216-861-5594; Empl.: 500; *Sls. Mgr.:* B. Gordon

COSMOS, INC., 19530 Pacific Hwy. S. Suite 102, Seattle, WA 98188, Tel: 206-824-9942, TWX: 910-380-8627; Empl.: 18; *Sls. Mgr.:* Jim Harding; *Dist. Mgr.:* Jim Brewer

COST EFFECTIVE SYSTEMS, INC., Two LeMans Pl., Pine Brook, NJ 07058, Tel: 201-575-5514, Telex: 4944668; *Sls. Mgr.:* Phyllis Gross

COTO
CORPORATION

COTO CORPORATION, 55 DuPont Drive, Providence, RI 02907, Tel: 401-943-2686, TWX: 710-381-8016; Empl.: 200; *Sls. Mgr.:* W. Poisson .... **B•1310-1311**

Local Sales Offices & Reps

CA	Lomita, Component Mktg. Assoc.	213-326-1460
CA	San Diego, D Squared Sls.	619-560-6266
CA	Saratoga, Testco Inc.	408-253-1900
CO	Denver, Spectrum Sls.	303-480-9991
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	Indianapolis, Richmar Elctrns.	317-846-6383
NY	Melville, Jarms Assoc.	516-752-0404
OR	Portland, Ecco Mktg.	503-254-5588
PA	Gladwyn, Manreps	215-649-6300
TX	Plano, Richmar Elctrns.	214-867-8224
VA	Front Royal, Eltron Sls. Ltd.	703-635-7201
WA	Seattle, Ecco Mktg.	206-364-0200
WA	Spokane, Ecco Mktg.	509-924-4410
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

Intl	England, Surrey, Rhopoint	08833-OX-7988

COTRONICS, 3379 Shore Pkwy., Brooklyn, NY 11235, Tel: 718-646-7996; Empl.: 15; *Sls. Mgr.:* Alan Marks

COUNTIS INDS., 2670 Lockheed Way, Carson City, NV 89701, Tel: 702-882-6123; Empl.: 12; *Sls. Mgr.:* T. J. Countis; *Dist. Mgr.:* T. J. Countis

CREATIVE MICRO SYSTEMS, 3822 Cerritos Ave., Los Alamitos, CA 90720, Tel: 213-493-2484; Empl.: 40; *Sls. Mgr.:* Elaine Prossen

COVER CRAFT CORP., 540 Commercial St., Manchester, NH 03102, Tel: 603-889-6811; *Sls. Mgr.:* Terry M. Pratt; *Dist. Mgr.:* Terry M. Pratt

COVOX, INC., 675 D Conger St., Eugene, OR 97402, Tel: 503-342-1271, Telex: 706017; Empl.: 25; *Sls. Mgr.:* M. R. Stewart

CPS INC., 110 Wolfe Rd., Sunnyvale, CA 94086, Tel: 408-738-0530, Telex: 35-7450; FSC No.: 31640; Empl.: 80; *Sls. Mgr.:* Wanda Shearin **D•1607**

Local Sales Offices & Reps

MA	Burlington, Intersell	617-273-3844
NY	Great Neck, Industron Assocs.	516-487-2620

CRAIG SYSTEMS CORP., 10 Industrial Way, Amesbury, MA 01913-4848, Tel: 617-388-5662, TWX: 710-347-0590; FSC No.: 81902; Empl.: 300; *Sls. Mgr.:* Robert A. Legrow; *Dist. Mgr.:* Robert A. Legrow

CRAMER INC., 625 Adams St., Kansas City, KS 66105, Tel: 913-621-6700, TWX: 910-743-6856; Empl.: 200; *Sls. Mgr.:* Thomas R. Hyland

CRAMER COIL & TRANSFORMER CO., INC., 1121 15th Ave., Grafton, WI 53024, Tel: 414-377-7040; Empl.: 65; *Sls. Mgr.:* Philia G. Hayes

CRAMER CO., Mill Rock Rd., Old Saybrook, CT 06475, Tel: 203-388-3574, Telex: 966-453; Empl.: 200; *Sls. Mgr.:* A. V. Beauregard; *Dist. Mgr.:* E. Latourette

Local Sales Offices & Reps

CA	Anaheim, Spectrum Assocs.	714-630-6977
CA	Palo Alto, Mollard Mktg.	415-961-0456
IL	Elk Grove, Martec Assocs.	312-956-8090
NJ	East Orange, Willgold Sls. Corp.	201-678-7700
NY	East Syracuse, Application Specialists Inc.	315-437-2813
NY	Rochester, Application Specialists Inc.	716-586-6226
NC	Charlotte, Motion Tech.	704-525-9855
OH	Medina, J. C. Hofstetter	216-241-4880
PA	Edgemont, White/Whiddett Co.	215-353-6343
WA	Mercer Island, Andersen Assocs.	206-232-0484

CREARE, INC., Etna Rd., P.O. Box 71, Hanover, NH 03755, Tel: 603-643-3800, Telex: 953101; Empl.: 75; *Sls. Mgr.:* R. M. Zieserl

CREATIVE PACKAGING CO., 1202 Kentucky Ave., Indianapolis, IN 46285

CRESTRON ELEC., 101 Broadway, Cresskill, NJ 07626, Tel: 201-894-0660

Sti/Crestronics

A Division of Applied Electro Technology Int.

CRESTRONICS DIV., Applied Electro Technlg., Int., 2220 S. Anne St., Santa Ana, CA 92704, Tel: 714-556-6570, TWX: 910-595-1797; FSC No.: 52797; Empl.: 25; *Sls. Mgr.:* D. Core; *Dist. Mgr.:* D. Dore **D•1609**

CROMEMCO, 280 Bernardo Ave., Mountain View, CA 94043, Tel: 415-964-7400, TWX: 910-379-6988; Empl.: 500; *Sls. Mgr.:* Tom Keating; *Dist. Mgr.:* Tom Keating

CROMPTON INSTRS., 2763 Higgins Road, Elk Grove Village, IL 60007, Tel: 714-841-2901, Telex: 280540, TWX: 692309; FSC No.: 53498; *Sls. Mgr.:* J. Berger

CROMPTON INSTRS., Hawker Siddley, 2763 Old Higgins Rd., Elk Grove Village, IL 60007, Tel: 312-593-1107, Telex: 28-0540; *Sls. Mgr.:* Tony A. Pitt

CROSS ELCTRNS., 100 Commonwealth Dr., Warrendale, PA 15086, Tel: 412-776-1591; Empl.: 35; *Sls. Mgr.:* L. R. Craig

CROSSPOINT, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, Tel: 201-941-4455; FSC No.: FSCM 52116; Empl.: 13; *Sls. Mgr.:* Joseph M. Cartelli; *Dist. Mgr.:* Joseph M. Cartelli **B•1539**

Local Sales Offices & Reps

CA	No. Hollywood, Crown Elctrns.	213-877-3550
CA	Redwood City, Caltronic Assocs.	415-365-2545
CT	Weston, CJA Assoc.	203-226-4317
FL	St. Petersburg, R. L. Matus & Assocs.	813-896-4133
GA	Buford, R. L. Matus & Assocs.	404-945-2946
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
NJ	Wayne, GT Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, A.S.A.	216-662-6080
OH	Dayton, Mohawk Intronics	513-434-8873
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415

CROUSE HINDS CO. - AV. LTG., 1200 Kennedy Rd., Windsor, CT 06095, Tel: 203-683-4300

CROUZET CONTROLS, INC., 1083 State Pkwy., Schaumburg, IL 60195, Tel: 312-843-2200, Telex: 206 297; Empl.: 18; *Sls. Mgr.:* Ben Delcourt **B•1145, 1315-1316, 1541**

Local Sales Offices & Reps

AZ	Phoenix, Flexible Technlg.	602-996-6421
CA	San Marino, Motion Control of So. CA	818-796-0189
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CO	Denver, Control Agency	303-936-6641
FL	Tamarac, Davmik Sls.	305-920-2222
IA	Des Moines, Jos-Co/Melius, Inc.	515-277-8597
MA	Wellesley, Electro Kinetics	617-235-9415
MN	Minneapolis, Jos-Co/Melius.	612-861-3343
MO	Webster Grove, Schutz & Assocs. Ind. Sls., Inc.	314-962-2622
NY	Fairport, Tac Sls.	716-425-1070
NY	Syosset, Motion Control Sls.	516-921-5656
NC	Tryon, Halliday & Assoc.	704-894-8205
OH	Cincinnati, Bob Gilbert & Assocs.	513-574-1932
PA	Bensalem, William D. Staats Co.	215-639-5231
TX	Dallas, Automated Motion Control	214-340-4192
UT	Salt Lake City, Control Agency	801-328-4305
WA	Bellevue, Sea Inc.	206-883-4999
WA	Vancouver, Sea Inc.	206-573-5161
Can	St. Hubert, Que., Decofer	514-678-2252
Can	Weston, Ont., Keldco Controls	416-743-6356

Local Distributors

CA	Burlingame, Elec. Control Devices	415-348-0791
CA	Los Angeles, Master Distr.	213-452-1229
FL	Lakeland, A. A. Elec.	813-665-6941
FL	Pembroke Pines, Donza Intl.	305-987-1122
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Vonnegut Indl. Prods.	317-899-8800/8877
IA	Bettendorf, Custom Controls Ltd.	319-335-4787
MA	Wellesley, Electro-Mechanical Distr.	617-235-1565
MI	Comstock Park, Mor Elec.	616-784-1121
MI	Grand Rapids, S-F Electronics	616-459-0216
MI	Royal Oak, George Instr. Co.	313-280-1111
MI	Saginaw, Fischer-Flack	517-752-4181
MN	St. Paul, Powermation	612-645-0781
NE	Omaha, Lakeland Engrg.	402-734-2600
NJ	Edison, Howman Applied Control Prods.	201-797-3313
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	W. Trenton, Electronic Svc. Div.(Roller Bearing Co)	609-882-7400
NY	Commack, Monarch Comps.	516-499-1770
NC	Asheville, Electric Supply Co.	704-255-8899
NC	Gastonia, J.M.T. Elctrn. Supp.	704-867-4401
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
ND	Bismarck, Border States Elec.	701-258-6060
OH	Cincinatti, Hughes-Peters.	513-351-2000
OH	Cleveland, Reserve Elec. Co.	216-771-5764
OH	Columbus, Hughes-Peters.	614-294-5351
OH	Dayton, Duellman Elctrns.	513-461-5010
OK	Tulsa, Radio.	918-587-9123
OR	Portland, Familian Automated Valve	503-287-8383
PA	Allentown, P. A. Peters.	215-434-5237
PA	Philadelphia, Herbach & Rademan	215-426-1700
SC	Greenville, Holder Elec. Supp.	803-271-7111
TX	Ft. Worth, Swieco.	817-335-6521
WA	Kent, Motors & Controls Corp.	206-872-8010
WA	Seattle, Eicher-Richards Co.	206-523-7888
WI	Waukesha, Powermation	414-542-2868

CROVEN CRYSTALS, 500 Beech St., Whitby, ON, Canada L1N 5S5, Tel: 416-668-3324, TWX: 610-384-2750; FSC No.: 00809; Empl.: 250; *Sls. Mgr.:* R. McCormick **A•1335**

Local Sales Offices & Reps

AZ	Mesa, Sedco Sls.	602-835-6281
CA	San Mateo, Melvin Sls.	415-349-7444
CA	Van Nuys, R.L. Assocs.	213-782-7826
FL	Palm Bay, Spartech Assocs.	305-727-8045
GA	Smyrna, Spartech Assocs.	404-432-3644
MA	Milton, Naton Assoc.	617-698-0670
MO	Blue Springs, Chesco	816-229-1404
MO	St. Charles, Chesco	314-946-6677
NJ	Cherry Hill, Harry J. White	609-428-4544
NY	Melville, Carnes Assocs.	516-694-1600
OH	Englewood, Clayton-Ellier Co.	513-836-3556
TX	Arlington, W. Pat Fralia	817-640-9101
VA	Springfield, Tech Reps Inc.	703-569-6868
WI	Mequon, Artmor Ltd.	414-241-4040

IOR CRYDOM

A DIVISION OF INTERNATIONAL RECTIFIER

CRYDOM DIVISION, Int'l. Rectifier, 1521 Grand Ave., El Segundo, CA 90245, Tel: 213-322-4987, Telex: 67-4660, TWX: 910-348-6283; Empl.: 100; *Sls. Mgr.:* John Deith; *Dist. Mgr.:* Bob Arnstein **B•1312-1314**

Local Sales Offices & Reps

AL	Huntsville, EMA, Inc.	205-830-4030
AZ	Phoenix, Eltron	602-266-2164
CA	Pleasanton, Sierra Sls. Engrg.	415-463-2250
CA	San Diego, Cerco	619-450-1754
CA	Tustin, Morgan Johnson Co., Inc.	714-832-7282
CO	Westminster, Control Agy.	303-427-4179
CT	Fairfield, NRG, Ltd.	203-384-1112
GA	Rosswell, EMA, Inc.	404-992-7240
ID	Boise, N.R. Schultz Co.	208-377-8686
IL	Schaumberg, Microtex, Inc.	312-885-1131
IN	Carmel, Technology Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technology Mktg. Corp.	219-432-5553
KS	Merriam, Midwest Tech. Sls.	913-236-8555
KS	Wichita, Midwest Tech. Sls.	316-262-7240
KY	Louisville, Technology Mktg. Corp.	502-449-7808
MD	Phoenix, Phoenix Elctrn. Sls.	301-628-2066
MA	Lexington, AD Sys. Sls.	617-861-6370
MI	Royal Oaks, Dave Ray & Assocs.	313-280-0000
MN	Eden Prairie, Electronic Innovators, Inc.	612-941-0830
MO	St. Charles, Midwest Tech. Sls.	314-441-1012
NV	Reno, Unitronics Mktg., Inc.	702-825-1978
NJ	Glen Rock, North East Comps. Co., Inc.	201-447-0600
NY	Binghamton, GEN-TECH Elctrns.	607-648-8833
NY	Liverpool, GEN-TECH Elctrns.	315-451-3480
NY	Melville, Parallax Sls.	516-351-1000
NY	Pittsford, GEN-TECH Elctrns.	716-381-2820
NY	Pleasant Valley, GEN-TECH Elctrns.	914-635-3233
NC	Pineville, EMA, Inc.	704-541-0929
NC	Winston Salem, EMA, Inc.	919-784-6953
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Cleveland Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls. Co.	614-431-0474
OH	Dayton, Luebbe Sls. Co.	513-294-0426
OK	Tulsa, ION Assocs., Inc.	918-664-0186
OR	Beaverton, N.R. Schultz Co.	503-643-1644
PA	Pittsburgh, Luebbe Sls. Co.	412-931-0414
PA	Spring House, Deltatronics Inc.	215-542-0250
TN	Donelson, EMA, Inc.	615-883-1414
TN	Jonesboro, EMA, Inc.	615-742-8081
TX	Austin, ION Assocs., Inc.	512-331-7251
TX	Grand Prairie, ION Assocs., Inc.	214-647-8225
TX	Houston, ION Assocs., Inc.	713-977-4354
UT	Salt Lake City, Control Agy.	801-972-8787
WA	Bellevue, N.R. Schultz Co.	206-454-0300
WI	Waukesha, Microtex, Inc.	414-542-5352

Local Distributors

CA	Los Angeles, Kierulff Electronics	213-725-0325
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Pico Rivera, Amfac Elec. Supp.	213-949-7841
CA	San Francisco, South, Stevens Engineering	415-588-9200
IL	Chicago, Newark Elect.	312-784-5100
MA	Hingham, Sager Electric	617-749-6700
NJ	Fair Lawn, Relay Specialties	201-797-3313
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Melville, Arrow Elctrns.	516-694-6800
NY	Westbury, Schweber Electronics	516-334-7474

CRYOMAGNETICS, INC., 795 Oak Ridge Tpk., Oak Ridge, TN 37830, Tel: 615-482-9551; *Sls. Mgr.:* R. M. Ennis, Jr.

CRYSTALOID ELCTRNS., Box 628, Hudson, OH 44236, Tel: 216-655-2429, Telex: 241-244; Empl.: 130; *Sls. Mgr.:* Sharon Werstler

CRYSTEK CORP., P.O. Box 06135, Ft. Myers, FL 33906, Tel: 813-936-2109, TWX: 510-951-7448; FSC No.: 13454; Empl.: 150

CSI Capacitors

CSI CAPACITORS, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069, Tel: 619-747-4000, Telex: 697832; FSC No.: 10026; Empl.: 50; *Sls. Mgr.:* H. R. Smith **A•1070**

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs. of AZ	602-820-1127
CA	San Jose, Comtech Mktg.	408-365-7474
CA	San Jose, Silicon Valley Sls.	408-286-7510
CA	Tarzana, High Voltage Sls.	213-881-9194
FL	Orlando, Glenn Tech. Sls. Co.	305-299-8700
IL	Chicago, Esco Assocs.	312-763-0800
KY	Louisville, K. W. Elctrn. Sls.	512-451-1860
MA	Framingham, Sullivan Tech. Sls.	617-620-0195
NJ	Leonia, Peter E. Schmitt Co.	201-944-2806
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Cazenovia, S. T. Woolard	315-655-8145
OH	Dayton, K. W. Elctrn. Sls.	513-890-2150
PA	Washington Crossing, DVS Co.	215-493-4642
TX	Dallas, Cunningham Comps. Corp.	214-233-4303
TX	Houston, Cunningham Comps. Corp.	713-461-4197

CPSI, 40 Linnell Circle, Billerica, MA 01821, Tel: 617-272-6020, 800-325-3110, TWX: 710-347-0176; Empl.: 150; *Sls. Mgr.:* S. Corbit

C-TEK
INCORPORATED

C-TEK INC., 4 Railroad Ave., Wakefield, MA 01880, Tel: 617-246-1720, Telex: 882485; Empl.: 15; *Sls. Mgr.:* John Vanaman .... **D•1114-1115**

Local Sales Offices & Reps

AZ	Phoenix, Thor Eng.	602-437-1463
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
MA	Waltham, Calibron Instrs.	617-894-6440
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Southfield, Fred H. Gehrke & Assocs.	313-559-5363
MN	St. Paul, Northstar Motion & Control	612-770-5311
NJ	Sparta, E.S. Williams	201-729-4049
NY	Champlain, Premier Automation	514-684-6610
NY	Syosset, Motion Control Sls.	516-921-5656
NC	Charlotte, Jake Rudisill Assocs.	704-377-6901
OH	Cincinatti, KCH Co.	513-931-1686
VA	Richmond, Jake Rudisill Assocs.	804-320-0201
WA	Seattle, Eicher-Richards Co.	206-523-7888

Local Distributors

NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Controlled Motion Prods.	716-381-1933
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Charlotte, Trott Elctrns.	704-376-2237

CTI-CRYOGENICS, 266 Second Ave, Waltham, MA 02254, Tel: 617-890-9400, Telex: 92-3442; Empl.: 350; *Sls. Mgr.:* R. A. Bryce

CTS CORPORATION, 905 North West Blvd., Elkart, IN 46514, Tel: 219-293-7511, TWX: 810-294-2167; Empl.: 8,200; *Dist. Mgr.:* J. C. Wells .... **A•1336-1357, 1663-1667; B•1542-1546**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AL	Mobile, Interep Assocs., Inc.	205-478-1036
AZ	Phoenix, Compass Mktg. & Sls.	602-996-0635
AZ	Tucson, Compass Mktg. & Sls., Inc.	602-293-1220
CA	Calimesa, Eltronics	714-795-1521
CA	Fremont, CTS Corp.	415-659-1704
CA	Los Altos, Ewing & Foley, Inc.	415-941-4525
CA	South Pasadena, CTS Corp.	213-682-1137
CO	Denver, ELCOM	303-337-2300
CT	Wallingford, CompRep Assocs.	203-269-1145
FL	Altamonte Springs, Electrocomp Assocs.	305-429-0802
FL	Deerfield Beach, Electrocomp Assocs.	305-429-0802
FL	Melbourne, Electrocomp Assocs.	305-242-0621
FL	St. Petersburg, Electrocomp Assocs.	813-327-9677
GA	Norcross, Interep Assocs.	404-449-8680
IL	Addison, CTS Corp.	312-543-5021
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
IN	Indianapolis, Elctrn. Reps.	317-894-1414
IA	Cedar Rapids, Seltec Sls. Corp.	319-393-1114
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
MD	Columbia, Professional Reps.	301-992-7460
MA	Westwood, CompRep Assocs.	617-329-3454
MI	Southfield, J. L. Montgomery Assocs.	313-358-2616
MN	Minneapolis, Robert W. Marshall Co.	612-929-0457
MN	Minneapolis, S & R Sls.	612-559-3090
MO	St. Charles, Buckman & Assocs.	314-946-6201
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NM	Albuquerque, Compass Mktg. & Sls.	505-888-0800
NY	E. Syracuse, Nycom	315-437-8343
NY	Jamaica, S-J Sales Assocs.	212-291-3232
NY	Pittsford, Kirby Mktg., Inc.	716-248-8750
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OK	Tulsa, Southern States Mktg.	918-665-8338
OR	Beaverton, Electronics Tech. Sls.	503-641-5180
PA	Mars, Baehr, Greenleaf & Assocs.	412-776-2151
PA	Trevose, P.S.A. Inc.	215-245-0513
TN	Greeneville, Interep Assocs.	615-639-3491
TX	Austin, Southern States Mktg.	512-452-9459
TX	Houston, Southern States Mktg.	713-558-4900
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, ELCOM	801-485-7415
WA	Kirkland, Electronics Tech. Sls.	206-827-8086
PR	Mayaguez, CompRep de Puerto Rico	809-832-9529
Can	Streetsville, Ont., CTS of Canada, Ltd.	416-826-1141

Local Distributors

AL	Huntsville, Hall-Mark/Huntsville	205-837-8700
AL	Huntsville, RM Elctrns. Co., Inc.	205-852-1550
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	Chatsworth, Arrow Elctrns., Inc.	213-701-7500
CA	Garden Grove, Bell Inds.	714-895-7801
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Marshall Inds.	213-443-3724,714-556-6400
CA	Irvine, Ratel Elctrns.	714-768-0855,213-637-0839
CA	Los Angeles, Richey/Western Elctrns., Inc.	213-820-3777
CA	Newport Beach, Arrow Elctrns., Inc.	714-851-8961
CA	Orange, Richey/Western Elctrns., Inc.	714-634-2811
CA	Roseville, Bell Inds.	916-969-3100
CA	San Diego, Arrow Elctrns., Inc.	714-565-4800
CA	San Diego, Marshall Inds.	714-578-9600
CA	San Diego, Richey/Western Elctrns., Inc.	714-271-4511
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	San Jose, Rose Elctrns.	408-263-9700
CA	Santa Clara, Richey/Western Elctrns., Inc.	408-727-7411
CA	Sunnyvale, Arrow Elctrns., Inc.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Marshall Inds.	408-732-1100
CO	Aurora, Arrow Elctrns., Inc.	303-696-1111
CO	Denver, Integrated Elctrns. Co., Inc.	303-292-6121
CO	Englewood, Industrial Elctrns., Inc.	303-694-9444
CT	New Haven, The Green-Shaw Co., Inc.	203-393-0710
CT	Wallingford, Arrow Elctrns., Inc.	203-265-7741
CT	Wallingford, Marshall Inds.	203-265-3822
CT	Wallingford, MIDAN Elctrns., Inc.	203-265-2077
FL	Deerfield Beach, Arrow Elctrns., Inc.	305-429-8200
FL	Fort Lauderdale, Hall-Mark/Miami	305-971-9280
FL	Largo, Graham Elctrns./Bell Inds.	813-541-4434
FL	Orlando, Hall-Mark/Orlando	305-855-4020
FL	Orlando, Marshall Inds.	305-841-1878
FL	Palm Bay, Arrow Elctrns., Inc.	305-725-1480
GA	Norcross, Arrow Elctrns., Inc.	404-449-8252
GA	Norcross, Graham Elctrns./Bell Inds.	404-662-0923
GA	Norcross, Hall-Mark/Georgia	404-447-8000
GA	Norcross, Marshall Inds.	404-923-5750
IL	Bensenville, Hall-Mark Elctrns. Corp.	312-860-3800
IL	Chicago, Bell Inds.	312-982-9210
IL	Lombard, RM Elctrns. Co., Inc.	312-932-5150
IL	Schaumburg, Arrow Elctrns., Inc.	312-397-3440
IL	Shaumburg, Marshall Inds.	312-490-0155
IN	Fort Wayne, Graham Elctrns./Bell Inds.	219-423-3422
IN	Indianapolis, Arrow Elctrns., Inc.	317-243-9353
IN	Indianapolis, Graham Elctrns./Bell Inds.	317-634-8202
IN	Indianapolis, RM Elctrns. Co., Inc.	317-291-7110
IN	Lafayette, Graham Elctrns./Bell Inds.	317-423-5564
KS	Lenexa, Hall-Mark/Kansas City	913-888-4747
KS	Lenexa, Marshall Inds.	913-492-3121
MD	Baltimore, Arrow Elctrns., Inc.	301-247-5200
MD	Baltimore, Hall-Mark/Baltimore	301-796-9300
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Newton, The Greene-Shaw Co., Inc.	617-969-8900
MA	Woburn, Arrow Elctrns., Inc.	617-933-8130
MI	Ann Arbor, Arrow Elctrns., Inc.	313-971-8220
MI	Ann Arbor, Graham Elctrns./Bell Inds.	313-971-9093
MI	Grand Rapids, RM Elctrns. Co., Inc.	616-531-9300
MI	Livonia, Marshall Inds.	313-525-5850
MI	Livonia, RS Elctrns.	313-525-1155
MN	Bloomington, Hall-Mark/Minneapolis	612-854-3223
MN	Edina, Arrow Elctrns., Inc.	612-830-1800
MN	Minneapolis, Industrial Comps., Inc.	612-831-2666
MN	Plymouth, Marshall Inds.	612-559-2211, 612-559-2255
MO	Maryland Hgts., Hall-Mark/St. Louis	314-291-5350
MO	St. Louis, Arrow Elctrns., Inc.	314-567-6888
MO	St. Louis, Graham Elctrns./Bell Inds.	314-821-1541
MO	St. Louis, Olive Elctrns., Inc.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp. Corp.	402-466-8221
NH	Manchester, Arrow Elctrns., Inc.	603-668-6968
NJ	Cherry Hill, Hall-Mark/Cherry Hill	215-355-7300
NJ	Clifton, Vantage Comps., Inc.	201-667-1840
NJ	Fairfield, Arrow Elctrns., Inc.	201-575-5300
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Marlton, Arrow Elctrns., Inc.	609-235-1900
NJ	Mt. Laurel, Marshall Inds.	609-234-9100, 215-627-1920
NM	Albuquerque, Arrow Elctrns., Inc.	505-243-4566
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Buffalo, Summit Distrs.	716-884-3450
NY	East Syracuse, Marshall Inds.	315-432-0644
NY	Endwell, Marshall Inds.	607-754-1570
NY	Farmingdale, Semispecialists of America, Inc.	516-293-2710
NY	Hauppauge, Arrow Elctrns., Inc.	516-694-6800, Ext. 316/317
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Jamaica, Archer Ind. Distrs., Inc.	212-291-3232
NY	Liverpool, Arrow Elctrns., Inc.	315-652-1000
NY	Melville, Arrow Elctrns., Inc.	516-694-6800
NY	Mt. Vernon, QAR Ind. Elctrn. Sls., Inc.	914-699-2224
NY	Rochester, Arrow Elctrns., Inc.	716-427-0300
NY	Rochester, Marshall Inds.	716-235-7620
NY	Rome, Rome Elctrns., Inc.	315-337-5400
NC	Raleigh, Hall-Mark/Raleigh	919-832-4465
NC	Raleigh, RESCO/Raleigh	919-781-5700
NC	Winston Salem, Arrow Elctrns., Inc.	919-725-8711
OH	Centerville, Arrow Elctrns., Inc.	513-435-5563
OH	Cincinnati, Graham Elctrns./Bell Inds.	513-772-1661
OH	Columbus, Graham Elctrns./Bell Inds.	614-895-1590
OH	Dayton, Marshall Inds.	513-236-8088
OH	Solon, Arrow Elctrns., Inc.	216-248-3990
OH	Solon, Hall-Mark/Cleveland	216-349-4632
OH	Solon, Marshall Inds.	216-248-1788
OH	Westerville, Hall-Mark Elctrns. Corp.	614-891-4555
OK	Tulsa, Hall-Mark/Tulsa	918-665-3200
OR	Tigard, Moore Elctrns.	503-684-3100
PA	McKean, ADVACOM/Erie	814-476-7774
PA	Monroeville, Arrow Elctrns., Inc.	412-856-7000
PA	Philadelphia, Philadelphia Elctrns., Inc.	215-568-7400
TN	Nashville, Graham Elctrns./Bell Inds.	615-242-2682
TX	Austin, Arrow Elctrns., Inc.	512-835-4180
TX	Austin, Hall-Mark/Austin	512-258-8848
TX	Austin, Southwest Elctrns., Inc.	512-837-8971
TX	Dallas, Arrow Elctrns., Inc.	214-386-7500
TX	Dallas, Hall-Mark Elctrns., Inc.	214-341-1147
TX	Dallas, Marshall Inds.	214-233-5200
TX	Houston, Arrow Elctrns., Inc.	713-491-4100
TX	Houston, Hall-Mark/Houston	713-781-6100
TX	Richardson, Southwest Elctrns., Inc.	214-234-3050
TX	Stafford, Southwest Elctrns., Inc.	713-491-4900
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Arrow Elctrns., Inc.	206-643-4800
WA	Seattle, Zepher Elctrn. Sls. Corp.	206-241-1980
WI	Oak Creek, Arrow Elctrns., Inc.	414-764-6600
WI	Oak Creek, Hall-Mark/Milwaukee	414-761-3000
WI	Waukesha, Bell Inds.	414-547-8879

CTS CORPORATION, Asheville Division, P.O. Box 100, Skyland, NC 28776, Tel: 704-684-6451, TWX: 510-935-0059; *Sls. Mgr.:* T. B. Haney

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS. CORPORATION*
BERNE DIVISION

CTS CORPORATION, Berne Division, 406 Parr Rd., Berne, IN 46711, Tel: 219-589-3111, TWX: 810-323-1580; Empl.: 1100; *Sls. Mgr.:* Scott Bowman; *Dist. Mgr.:* Cliff Stults .... **A•1836-1844, 2011**

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS CORPORATION, Bentonville Division, 1300 S.E. 8th St., Bentonville, AR 72712, Tel: 501-273-9036

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS OF CANADA, LTD., 80 Thomas St., Streetsville, Ontario, Can. L5M 1Y9, Tel: 416-826-1141

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS ELECTRONICS CORP., PASO ROBLES DIV., Electromechanical Gp., 500 Linne Rd., Paso Robles, CA 93446, Tel: 805-238-0350, TWX: 910-351-6796; *Sls. Mgr.:* Jack Bell; *Dist. Mgr.:* Bob Tarkenton .... **B•1542-1546**

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS FABRI-TEK CONNECTOR INC., 9210 Science Center Dr., Minneapolis, MN 55428, Tel: 612-533-3533, TWX: 910-576-2717; FSC No.: 16512; Empl.: 300; *Sls. Mgr.:* John B. McKee

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS FABRI-TEK, INC., CTS Corporation, 6900 Shady Oak Rd., Eden Prairie, MN 55344, Tel: 612-941-9100, TWX: 910-576-2913; FSC No.: 21542; Empl.: 1400; *Sls. Mgr.:* Bruce Richardson

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS CORPORATION, Elkhart Division, 1142 W. Beardsley Ave., Elkhart, IN 46514, Tel: 219-295-3575

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS ELECTRONICS CORP.,, Knights Division, 400 Reimann Ave., Sandwich, IL 60548, Tel: 815-786-8411, TWX: 910-642-0860; Empl.: 500; *Sls. Mgr.:* Larry Barbary; *Dist. Mgr.:* Larry Barbary .... **A•1336-1357**

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS CORPORATION, Microelectronics Div., 1201 Cumberland Ave., W. Lafayette, IN 47906, Tel: 317-463-2565, TWX: 810-342-1882; Empl.: 505; *Sls. Mgr.:* David C. Anderson .... **A•1662-1667**

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS ELECTRONICS CORP., Halex Division, 1202 McGaw Ave., Irvine, CA 92714, Tel: 714-261-6381, TWX: 910-595-2648; Empl.: 70; *Sls. Mgr.:* Gene P. Markley .... **A•1662-1667**

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS CORPORATION, Monon Division, Highway 16 West, Monon, IN 47959, Tel: 219-253-6666

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS ELECTRONICS CORP., San Jose Division, 660 Lenfest Rd., San Jose, CA 95133, Tel: 408-251-1600, Telex: 910-997-8006; Empl.: 500; *Sls. Mgr.:* Ed King; *Dist. Mgr.:* Charles Nadler

'Refer to CTS Corp., Elkhart, IN, for sales offices & representatives & for distributor listings.'

CTS FABRI-TEK CONNECTOR, INC., 400 Cokato St., Cokato, MN 55321, Tel: 612-941-9100

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS PRINTEX, INC., Circuits Division, 47010 Kato Rd., Fremont, CA 94538, Tel: 415-659-1770

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CTS CORPORATION, Tool, Die & Machine Division, 3000 Engle Rd., Fort Wayne, IN 46809, Tel: 219-747-0531

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

CUESTA SYSTEMS, INC., 3440 Roberto Ct., San Luis Obispo, CA 93401, Tel: 805-541-4160; *Sls. Mgr.:* David V. Dickey

CUPLEX, INC., 1500 E. Hwy. 66, Garland, TX 75040, Tel: 214-276-0333, TWX: 910-860-5098; *Sls. Mgr.:* Grady C. Young

CURRENTECHNOLOGY CORP., 135 Prestige Pk. Circle, E. Hartford, CT 06108, Tel: 203-289-6831, TWX: 710-425-6063; *Sls. Mgr.:* Bob Ramage

CURRENT TECHNOLOGY, INC., 1400 S. Sherman, #202, Richardson, TX 75081, Tel: 214-238-5300; *Sls. Mgr.:* Barry Epstein; *Dist. Mgr.:* Peter Diamond

CURTIS ELECTRO DEVICES, INC., Box 4090, Mountain View, CA 94040, Tel: 415-964-3846; Empl.: 12; *Sls. Mgr.:* J. Curtis

CURTIS INDS., 8000 West Tower Ave., Milwaukee, WI 53223, Tel: 414-354-1500, TWX: 910-262-3035; FSC No.: 73631; Empl.: 160; *Sls. Mgr.:* P. J. McDonnell; *Dist. Mgr.:* A. M. Hungsberg .... **A•1599; C•1178; D•1978**

Local Sales Offices & Reps

AL	Huntsville, K & E Assocs.	205-883-9720
AZ	Scottsdale, Memco Sls., Inc.	602-952-2254
AR	Hot Springs, Automation Supp., Inc.	501-767-5444
CA	Fullerton, GRU Assocs.	714-738-0903
CA	Santa Clara, Gagner-Toomey Assocs., Inc.	408-244-2200
CO	Parker, TMA/COLORADO	303-841-3435
CT	Milford, Sales Engrg.	203-877-2001
CT	New Fairfield, Sales Engrg. Co.	203-746-5604
FL	Altamonte Springs, Lawrence Assocs.	305-339-3855
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
FL	W. Melbourne, Lawrence Assocs.	305-724-8294
GA	Doraville, K & E Assocs.	404-448-7025
IL	Downers Grove, Richmar Elctrns. Corp.	312-968-0118
MD	Gaithersberg, Naudain Assocs., Southern	301-258-5040
MI	Farmington Hills, W. R. Hummon & Assocs. Inc.	313-474-0661
MN	Spring Lake Park, Holmgren Assocs. Inc. of MN	612-786-7641
MO	Kansas City, Delltron Co., Inc.	816-436-6445
MO	St. Louis, Delltron Co., Inc.	314-869-4779
NH	Salem, Sales Engrg. Co.	603-893-5521
NJ	Manville, DynoRep, Inc.	201-685-0135
NJ	Marlton, Naudain Assocs.	609-235-1801
NY	Rochester, Ossmann Comp. Sls.	716-424-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
NY	Vestal, Ossmann Comp. Sls. Corp.	607-754-3264
NC	Raleigh, Crossroads Elctrn. Assocs.	919-362-4099
OH	Aurora, Nationwide Comps., Inc.	216-425-3896
OH	Carmel, Nationwide Comp., Inc.	317-872-7207
OH	Dayton, Nationwide Comps., Inc.	513-299-5174
OH	Willoughby, Nationwide Comp.	216-946-3226
OR	Portland, Electronic Mktg., Inc.	503-252-0610
RI	Warwick, Sales Engrg.	401-738-1319
TN	Signal Mountain, Automation Supp., Inc.	615-866-6623
TX	Arlington, ProComp Sls. Co.	817-640-4336
TX	Houston, ProComp Sls. Co.	713-556-9622
UT	Salt Lake City, TMA/COLORADO	801-483-1009
WA	Redmond, Electronic Mktg. Grp.	206-883-0962
WI	Milwaukee, Richmar Elctrns.	414-781-1730
Can	Ontario, Chartwell Elctrns.	416-477-0400

Local Distributors

AL	Birmingham, M. G. Elctrns. & Equip.	205-328-4525
AL	Montgomery, Southern Controls	205-277-5030
AZ	Phoenix, Dalis Elctrns. Supp.	602-258-8151
AZ	Phoenix, Electro-Comps. Distr.	602-258-2665
AZ	Phoenix, McGraw Edison Co.	602-275-4731
AR	El Dorado, Electra Inc.	501-862-4901
CA	Buena Park, Control Design	714-521-5040
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Orange, County Wholesale Elec.	714-633-6440
CA	San Carlos, Control Design Supp.	415-592-4806
CA	San Jose, Rose Elctrns.	408-263-9700
CA	Santa Clara, Allied Elctrns.	408-985-2323
CA	Santa Monica, Master Distrs.	213-395-2637
CA	So. San Francisco, Steven Engrg.	415-583-5868
CO	Colorado Springs, Summit Fasteners	303-593-7700
CO	Denver, Integrated Elctrns.	303-534-6121
CT	Fairfield, W.M. Entprs.	203-333-0129
CT	Hartford, Electrical Supp.	203-527-7111
FL	Alta Monte, Control Des. Supp.	305-788-3220
FL	Lakeland, A-A Electric	813-665-6941
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Miami, Hummel Indl. Sls.	305-651-0196
FL	Winter Park, Deanco	305-671-5100
GA	Atlanta, A.C. Equip.	404-451-2747
GA	Atlanta, A-A Electric	404-449-8670
GA	Dalton, Dick Henderson Indl.	404-278-8307
GA	Marietta, Deanco	404-429-0126
GA	Stone Mountain, Control Des. Supp.	404-979-3500
IL	Addison, Lectro Comps.	312-543-1680
IL	Chicago, Electro-Kinetics	312-595-6700
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elk Grove Village, Nu-Way Elctrns.	312-437-7120
IL	Genoa, Control Des. Supp.	815-784-6515
IL	Hoffman Estates, Control Design	312-882-7232
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio & Elec.	309-691-4840
IL	Quincy, Klaus Radio, Inc.	217-223-7560
IL	Rockford, Muntz Elec.	815-968-8866
IN	Elkhart, Elkhart Supp.	219-264-4156
IN	Ft. Wayne, Graham Elec.	219-423-3422
IN	Indianapolis, Control Design	317-788-4559
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Peerless Elctrn.	317-635-2361
IN	Mishawaka, Panel Parts	219-259-0026
IN	South Bend, Koontz-Wagner Elec.	219-232-2051
IN	Wabash, Wabash Elec. Supp.	219-563-4146
IA	Marion, Brememan & Assocs.	319-377-6394
IA	Marion, Control Des. Supp.	319-373-2923
IA	West Des Moines, Ramco	515-225-6933
KS	Kansas City, Kornfeld-Thorp Elec.	913-321-7070
KS	Wichita, L Comp	316-265-5100
KY	Lexington, American Elec. Supp.	606-353-5664
KY	Louisville, Peerless Elctrn. Equip.	502-637-7677
LA	Harahan, MG Elctrn.	504-733-0070
LA	Lafayette, Ralph's Indl. Elctrns.	318-234-4507
ME	Aberdeen, Harco Elctrns.	301-838-7990
ME	Portland, Leen Co.	207-774-6266
ME	Portland, Rockingham Elec. Supp.	207-772-4614
MD	Gaithersburg, Deanco	301-948-5444
MA	Allston, Apparatus Svc.	617-787-1300
MA	Middleboro, Glynns Elctrns.	617-947-4262
MA	Springfield, T. F. Cushing	413-788-7341
MA	West Springfield, Control Engrg.	413-781-1330
MA	Woburn, Brownell-Electro	617-935-7820
MI	Augusta, Great Lakes Elctrns.	616-731-4156
MI	Detroit, Madison Elec.	313-875-1560
MI	Grand Rapids, S-F Elctrn. Supp.	616-495-0216
MI	Hibbing, NWR Elctrns. Corp.	218-262-5228
MI	Madison Hgts., McNaughton-McKay	313-399-7500
MI	Muskegon, Fitzpatrick Elec. Supp.	616-722-6621
MN	Minneapolis, Control Design	612-721-1628
MN	Minneapolis, Stark Elctrn. Supp.	612-332-1325
MO	Maryland, Lcomp St. Louis	314-291-6200
MO	St. Louis, Control Design	314-426-3150
MO	St. Louis, L Comp, Inc.	314-291-6200
NJ	Englewood, Techn. Elctrn. Distrs.	201-894-0800
NJ	Fairfield, Relay Specialties	201-797-3313
NY	Albany, Adirondack Elctrns.	518-456-0203
NY	Bohemia, Kay Comp.	516-567-7500
NY	Buffalo, Wehle Elec.	716-854-3270
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Henrietta, CAM/RPC Ind.	716-334-5510
NY	Ithaca, Deanco, Inc.	607-257-4444
NY	Mamaroneck, Logicomp Elec.	914-698-9332
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Wehle Elec.	716-275-0200
NC	Charlotte, Dixie Elctrns.	704-377-5413
NC	Greenboro, Hammond Elec.	919-275-6391
NC	Greensboro, Hammond Elect.	919-275-6391
NC	Winston-Salem, Dixie Elctrns.	919-724-5961
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Akron, Akron Elctrn. Supp.	216-773-9183
OH	Cincinnati, Hughes-Peters	513-251-2000
OH	Cleveland, Gateway Megatech	216-944-5801
OH	Columbus, Hughes-Peters	614-294-5351
OH	Columbus, McJunkin Corp.	614-294-3711
OH	Dayton, Esco Inc.	513-226-1133
OH	Toledo, Girkins Elec.	419-243-9238
OH	Warren, REM Elctrn. Supp.	216-373-1300
OH	Wickliffe, Gateway Megatech	216-444-5801
OK	Tulsa, Altair Co.	918-252-5781
OK	Tulsa, Oil Capitol Elctrns.	918-622-8520

PA	Erie, REM Elctrns.	814-453-5626
PA	Malvern, Control Design	215-296-0150
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Lindley Elec.	215-329-7005
PA	Pittsburgh, CAM/RPC Indl. Elctrns.	412-782-3770
PA	Pittsburgh, Mosebach Elec.	412-488-5000
PA	Yeadon, Earl B. Beach Co.	215-622-2210
PA	York, Electronic Comp.	717-843-8971
SC	Columbia, Dixie Elctrns.	803-779-5332
SC	Florence, Dixie Elctrns.	803-669-8201
SC	Greenville, Dixie Elctrns.	803-232-5357
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Knoxville, Dixie Elctrns.	615-938-4131
TX	Austin, Active Comp. Tech.	512-452-5254
TX	Austin, Altair Co.	512-837-4970
TX	Dallas, Active Comp. Tech.	214-980-1880
TX	Dallas, Control Design	214-358-1441
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Active Comp. Tech.	713-496-4000
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, Kimball Elctrn.	801-328-2075
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Kent, C. B. Parsons & Co.	206-762-7373
WA	Seattle, C. B. Parsons & Co.	206-762-7373
WI	Cedarburg, A-A Electric	414-377-8000
WI	Green Bay, A-A Elec.	414-499-0258
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Milwaukee, Midwestern Elec.	414-449-1500
WI	New Berlin, Control Design	414-784-1015

CURTIS

CURTIS INSTRS., INC., 200 Kisco Ave., Mt. Kisco, NY 10549, Tel: 914-666-2971, TWX: 710-571-2163; FSC No.: 18530; Empl.: 95; *Sls. Mgr.:* Rhoda McDonald ..**D•1117**

Local Sales Offices & Reps

CA	Burlingame, Polach & Bensinger	415-697-2525
CA	Seal Beach, Texel Engrg.	213-596-9411
CO	Littleton, Grifco	303-795-1989
FL	Longwood, NSL Assocs.	305-629-5226
IL	La Grange Park, Bierhaus Sls.	312-354-5100
IN	Ft. Wayne, Aktron Sls.	219-747-3650
MA	Brookline, Harman Assocs.	617-232-6687
MN	Minnetonka, S. J. Collins	612-933-7661
NY	Manhasset, WinCor Elctrn. Sls. Corp.	516-627-9474
OH	Chagrin Falls, K. F. Naverz	216-338-8450
PA	Media, W. Reeves Assocs.	215-566-6709
TX	Dallas, Etron Corp.	817-498-8924
WA	Lynnwood, Blum & Assocs.	206-775-6656
WI	Milwaukee, Bierhaus Sls.	414-963-0318

CUSHMAN ELCTRNS., 2450 N. 1st St., San Jose, CA 95131, Tel: 408-263-8100, TWX: 810-338-0556; Empl.: 400; *Sls. Mgr.:* Harris Fuller

CUSTOM CABLE, 242 Butler, Westbury, NY 11590, Tel: 516-334-3600; Empl.: 15; *Sls. Mgr.:* J. Michelman; *Dist. Mgr.:* D. Pollack

CUSTOM COIL & TRANSFORMER, Box 2369, Zanesville, OH 43701, Tel: 614-452-6973, TWX: 810-238-2629; Empl.: 80

CUSTOM CONNECTOR, 1738 E. 30th St., Cleveland, OH 44114, Tel: 216-241-1679; Empl.: 36; *Sls. Mgr.:* Larry Weider

CUSTOM CONTROL SYS., 21 E. Canon Perdido St., Santa Barbara, CA 93101, Tel: 805-965-7577; Empl.: 2; *Sls. Mgr.:* Fred Winter

CUSTOM ELCTRNS., Browne St., Oneonta, NY 13820, Tel: 607-432-3880, TWX: 510-241-8292; FSC No.: 23280; Empl.: 110; *Sls. Mgr.:* D. Hathaway

Local Sales Offices & Reps

CA	Brea, Masco Elec.	714-529-0866
CA	San Jose, Richards Assocs.	408-297-3010
IL	Chicago, Rozner Sls.	312-283-0022
MD	Ellicot City, Nelson Assocs.	301-747-7887
MA	Stow, Musello Assocs.	617-369-5900
TX	Houston, Custom Elctrns., Inc.	713-686-4874
EXP	NY, Baldwin, Milano Bros. Intl.	516-223-9000

CUSTOM PRODS. GRP., Sys. Dev. Corp.-A Burroughs Co., P.O. Box 517, Paoli, PA 19301, Tel: 215-648-7660, Telex: 215-647-9961, TWX: 510-668-7243; *Sls. Mgr.:* Spiro Greenwood; *Dist. Mgr.:* Sarah Jones-Chambers

CUSTOM SCI. INSTRS., 13 Wing Dr., Cedar Knolls, NJ 07927, Tel: 201-538-8500, Telex: 25-4328; Empl.: 20; *Sls. Mgr.:* Henry J. Bultman, Jr.

CUTLER HAMMER GRP., EATON CORP., Aerospace Controls/Systems Div., 2074 Whitfield Ave. East, Sarasota, FL 33578, Tel: 813-758-7726

CUTLER-HAMMER, INC., SHALLCROSS RESISTOR PRODS., See RCL Shallcross, Inc.

CUTLER-HAMMER PRODS., See Eaton Corp./Cutler-Hammer Prods.

CVC PRODS., 525 Lee Rd., Rochester, NY 14603, Tel: 716-458-2550, Telex: 97-8269; Empl.: 160; *Sls. Mgr.:* Steven Rothstein

CW INDUSTRIES, 130 James Way, Southhampton, PA 18966, Tel: 215-355-7080, Telex: 831470; FSC No.: 79727; Empl.: 450; *Sls. Mgr.:* Keith D. Nelson

CYBERNETIC MICRO SYS., P.O. Box 3000, 3000 Hwy. 84, San Gregorio, CA 94074, Tel: 415-726-3000, Telex: 171-135 Attn: CYBERNETICS; *Sls. Mgr.:* K. Moty

CYBERSONIC CORP., Box 38, Glenside, PA 19038, Tel: 215-885-1734, Telex: 83-4753; Empl.: 11; *Sls. Mgr.:* Norman Rivers

CYBERSYSTEMS, INC., 7540 South Memorial Pkwy., Huntsville, AL 35802, Tel: 205-883-4410; FSC No.: 66; Empl.: 25; *Sls. Mgr.:* Mike Long

CYBER SYS., INC., 2031 E. Cerritos Ave., Anaheim, CA 92806, Tel: 714-722-2051, Telex: 692-375; *Sls. Mgr.:* Charles Muhle

CYCLO-TRONICS, INC., 1345 N. Old Rand Rd., Wauconda, IL 60084, Tel: 312-526-0800; Empl.: 10

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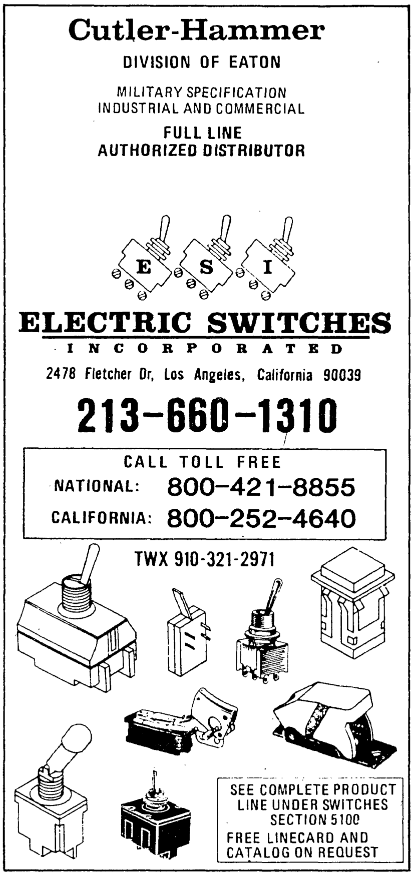

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CYTEC CORP., 107 N. Washington St., E. Rochester, NY 14445, Tel: 716-381-4740; *Sls. Mgr.:* Harry Turner **D•1207**

Local Sales Offices & Reps

MA	Burlington, Tritek	617-272-4550
NY	Frankfort, Kapital Sls.	315-896-4225

DABURN ELCTRNS. & CABLE, 70 Oak St., Norwood, NJ 07648, Tel: 201-768-5400, TWX: 710-991-9856; FSC No.: 25706; *Sls. Mgr.:* Randy Hibshman **C•1828-1837**

Local Sales Offices & Reps

CA	Anaheim, Galaxie Sls.	714-752-1580
CA	Palo Alto, Reliable	415-494-3266
CO	Aurora, Sage Sls.	303-750-3501
FL	Casselberry, H A, Inc.	305-695-8592
FL	Coral Springs, H A, Inc.	305-752-7520
GA	Atlanta, Eff Mktg. Force	404-948-6023
IL	Elgin, Markar Sls.	312-888-2207
IN	Carmel, STB & Assocs.	317-844-9227
LA	Kenner, Assoc. Mktg. Grp.	504-443-5072
MA	No. Scituate, W. A. Hendrickson	617-545-0652
MI	Grand Rapids, Carl Orwant Assocs.	616-241-4927
MN	Minneapolis, R. K. Sls.	612-786-5713
MO	Raytown, Marty Taraski	816-358-1442
NY	N.Y.C., Robt. Smith Assocs.	212-541-4885
NY	Plainview, Robt. Smith Assocs.	516-681-3155
OH	Cincinnati, John Olsen Co.	513-574-7711
OH	Goshen, John Olsen Co.	513-722-1497
OR	Hillsboro, Rhodes Sls.	503-640-6666
PA	King of Prussia, Freedman-Malta	215-337-9211
PA	Pittsburgh, John Olsen Co.	412-279-2550
TX	Dallas, Assoc. Mktg. Grp.	214-241-7190
VA	Arlington, Howard Golonpaul & Assocs.	703-525-5898
Can	Montreal, Que., Avotronics	514-697-2135

DADEN ASSOCS., 23011 Moulton Pkwy., Ste. A12, Laguna Hills, CA 92653, Tel: 714-770-1522, TWX: 910-596-1324; FSC No.: 57032; Empl.: 26; *Sls. Mgr.:* Dennis Hook

Local Sales Offices & Reps

CA	Los Angeles, McDougall-McLaughlin	213-477-8556
CA	Saratoga, E. Reid Miller Corp.	408-257-6927
FL	Winter Park, Microwave Mktg.	305-678-2141
MA	Chelmsford, BBC	617-256-6593
TX	Dallas, Southwest Microwave Elctrns.	214-669-1195

DAICO INDUSTRIES, INC.

DAICO INDS., INC., Box 5225, Compton, CA 90224, Tel: 213-631-1143, TWX: 910-346-6741; FSC No.: 28983; Empl.: 170; *Sls. Mgr.:* James Adamson **A•1708-1709**

Local Sales Offices & Reps

AZ	Phoenix, Faser Tech. Sls.	602-948-4404
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Los Angeles, Midwin & Olifson	213-838-3455
CA	San Diego, Midwin & Olifson, Inc.	619-571-0177
FL	Palm Bay, Spartech Assocs.	305-727-8045
GA	Smyrna, Spartech Assocs.	404-446-7300
IL	Mt. Prospect, Cain-Forlaw Co.	312-253-3578
ME	Ogunquit, Micronic Assocs.	617-933-2121
MD	Burtonsville, Eastern Instrmn.	301-384-8500
NJ	Hackensack, Technical Mktg. Assocs.	201-342-4008
OH	Lancaster, Cain-Forlaw Co.	614-654-4800
PA	Newtown Square, SWR Assocs.	215-353-6711
TX	Dallas, McDonald Assocs.	214-238-1858

DAI-ICHI SHOJI OF AMER., INC., 150 Fifth Ave., New York, NY 10011, Tel: 212-691-9050, Telex: 429120 DSANY; Empl.: 3; *Sls. Mgr.:* A. Takayama **A•1071; B•1548-1549; C•1179**

DALE ELECTRONICS, INC., Columbus Div., Box 609, 2064 12th Ave., Columbus, NE 68601, Tel: 402-564-3131; FSC No.: 91637; Empl.: 2800; *Sls. Mgr.:* Darrel Smejkal; *Dist. Mgr.:* Jerry Jilek **B•1025-1027**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-883-1712
AZ	Tempe, Dale Elctrns. Sls.	602-966-0291
CA	Los Alamitos, Reed Elctrn. Mktg.	213-598-6676
CA	Redwood City, J. S. Heaton Co.	415-367-9000
CA	San Diego, Reed Elctrn. Mktg.	619-452-1456
CO	Loveland, Dale Elctrns. Sls.	303-667-7500
FL	Lake Park, Graham Assocs.	305-622-4049
FL	Melbourne, Graham Assocs.	305-773-6631
FL	Winter Garden, Graham Assocs.	305-656-9369
GA	Marietta, JWL Assocs.	404-429-8010
ID	Boise, LD Elctrns.	208-343-2741
IL	Chicago, Indl. Reps.	312-647-7755
IN	Fort Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
KS	Shawnee Mission, Dale Sls.	913-432-9140
MD	Glen Burnie, Tri-Mark	301-761-6000
MA	Wakefield, Howard C. Jappe Co.	617-245-9359
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Bloomington, Merrill Franklin Co.	612-854-9446
MO	St. Louis, Industrial Reps., Inc.	314-227-7401
NJ	Fairlawn, Kaelber & Mack	201-797-7782
NY	Commack, Kaelber & Mack	516-499-2924
NY	Ithaca, Dale Elctrns. Sls.	607-272-6212
NC	Pineville, JWL Assocs.	704-541-5750
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns., Inc.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
OR	Beaverton, LD Elctrns.	503-649-6177
PA	Horsham, TMI	215-441-4300
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Dallas, E. F. Aymond Co.	214-826-7620
TX	Houston, E. F. Aymond Co.	713-880-8229
TX	San Antonio, E. F. Aymond Co.	512-366-1526
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Milwaukee, Indl. Reps.	414-259-0965

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Phoenix, T.T.I., Inc.	602-861-0222
AZ	Tempe, Acacia Sls., Inc.	602-894-2874
AZ	Tempe, Hamilton/Avnet	602-231-5100
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Avnet Elctrns.	818-700-6264
CA	Chatsworth, Hamilton/Avnet	818-700-6536
CA	Chatsworth, Shelly Elctrns.	818-998-3333
CA	Chatsworth, T.T.I., West	818-709-1010
CA	Costa Mesa, Avnet Elctrns.	714-754-6021
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2883
CA	Culver City, Hamilton/Avnet	213-558-2662
CA	Huntington beach, Inductor Supp., Inc.	714-891-4524
CA	Irvine, Acacia Sls.	213-971-2428
CA	Ontario, Hamilton/Avnet	714-989-8816
CA	Sacramento, Hamilton/Avnet	916-920-3150
CA	San Diego, Anacia Sls., Inc.	619-565-4365
CA	San Diego, Hamilton/Avnet	619-571-7536
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	San Jose, T.T.I., Inc.	408-943-9155
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Hamilton/Avnet	408-734-3358
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Commerce City, Waco Elctrns.	303-289-4743
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Hamilton/Avnet	303-740-1020
CO	Lakewood, Acacia Sls., Inc.	303-232-2882
CT	Danbury, Hamilton/Avnet	203-797-2802
CT	Stratford, Electro/Comp.	203-375-5811
FL	Ft. Lauderdale, Hamilton/Avnet	305-979-5211
FL	Orlando, T.T.I., II	305-859-1000
FL	Palm Beach Gardens, Legri S. Resistor	305-845-7101
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Tampa, Shelley Elctrns., Inc.	813-884-0946
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Atlanta, Specialty Distr. Co., Inc.	404-873-2521
GA	Norcross, Hamilton/Avnet	404-447-7504
GA	Norcross, T.T.I., Inc.	404-662-0911
IL	Bensenville, Hamilton/Avnet	312-860-8558
IL	Chicago, Bell Ind.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Crystal Lake, Sub-Sem	815-459-4139
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Hamilton/Avnet	317-844-9333
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elec.	317-634-8202
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
IA	Cedar Rapids, Hamilton/Avnet	319-362-4757
KS	Overland Park, Hamilton/Avnet	913-541-7922
MD	Beltsville, RESCO	301-937-9100
MD	Columbia, Hamilton/Avnet	301-995-3525
MD	White Marsh, RESCO	301-529-0500
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Woburn, Hamilton/Avnet	617-273-7562
MA	Woburn, T.T.I.	617-938-8800
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-0216
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, R-S Elctrns.	313-525-1155
MI	Livonia, Reptron Elctrns.	313-525-2700
MI	Oak Park, Newark Elec.	313-967-0600
MN	Minneapolis, Stark Elctrns.	612-332-1325
MN	Minnetonka, Hamilton/Avnet	612-932-0674
MO	Earth City, Hamilton/Avnet	314-344-1254
NH	Manchester, Hamilton/Avnet	603-524-9400
NJ	Cherry Hill, Hamilton/Avnet	609-424-0117
NJ	Cranford, G.S.I. Elec.	201-272-6400
NJ	Fairfield, Hamilton/Avnet	201-575-3490
NJ	Kenilworth, Federated Purchaser	201-272-0505
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Bohemia, Shelley Elctrns., Inc.	516-567-7751
NY	Bohemia, L.I., T.T.I., New York	516-567-1500
NY	Buffalo, Summit Distr.	716-884-3450
NY	E. Syracuse, Hamilton/Avnet	315-437-2641
NY	Endwell, A.S.I. Elctrns.	607-754-3823
NY	Farmingdale, Command Elctrns.	516-293-1212
NY	Hauppauge, Fairmont	516-231-3313
NY	Hauppauge, Hamilton/Avnet	516-231-9800
NY	Rochester, Hamilton/Avnet	716-475-9130
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rome, Rome Elctrns.	315-337-5400
NY	Valley Stream, L&S Elctrns.	516-561-2474
NY	W. Hempstead, March Elctrns.	516-486-6511
NC	Raleigh, Hamilton/Avnet	919-878-0819
NC	Raleigh, RESCO	919-781-5700
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Cleveland, Pioneer Standard	216-587-3600
OH	Dayton, Hamilton/Avnet	513-439-6700
OH	Dayton, Pioneer Standard	513-236-9900
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Westerville, Hamilton/Avnet	614-882-7004
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Lake Oswego, Hamilton/Avnet	503-635-8831
OR	Portland, Radar Elec.	503-232-3404
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Pittsburgh, Hamilton/Avnet	412-281-4150
PA	York, E.C.I., Inc.	717-846-5334
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Ft. Worth, T.T.I., Inc.	817-831-0441
TX	Houston, Hamilton/Avnet	713-975-3516
TX	Houston, Lenert Co.	713-225-1465
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Irving, Hamilton/Avnet	214-659-4111
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
WA	Bellevue, Hamilton/Avnet	206-453-5842
WA	Seattle, Radar Elec.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet	414-784-4510

DALE ELECTRONICS, INC., El Paso Div., P.O. Box 26728, El Paso, TX 79926, Tel: 915-592-3253; FSC No.: 91637; Empl.: 272; *Sls. Mgr.:* Douglas Wagenknecht; *Dist. Mgr.:* Jerry Jilek **A•1845-1863**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Norfolk Div., 2300 Riverside Blvd., Norfolk, NE 68701, Tel: 402-371-0080; FSC No.: 91637; Empl.: 1200; *Sls. Mgr.:* Jim Filips; *Dist. Mgr.:* Jerry Jilek **B•1748-1749**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Tempe Div., 1155 W. 23rd St., Tempe, AZ 85282, Tel: 602-967-7874; FSC No.: 22929; Empl.: 139; *Sls. Mgr.:* Mike Brown; *Dist. Mgr.:* Jerry Jilek **A•1358-1359**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE ELECTRONICS, INC., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, Tel: 605-665-9301; FSC No.: 09969; Empl.: 400; *Sls. Mgr.:* John Elliot; *Dist. Mgr.:* Jerry Jilek **A•1231-1237, 2125-2132; C•1180-1183**

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE WESTERN THERMISTOR DIVISION, See Dale Norfolk Division

DAMON/ELCTRNS. DIV., 80 Wilson Way, Westwood, MA 02090, Tel: 617-329-2460, TWX: 710-348-6722; Empl.: 90; *Sls. Mgr.:* Edward J. Doherty **A•1360**

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570

CA	N. Hollywood, Jewett Co.	213-789-8103
CA	Palo Alto, Waldman Assocs.	415-961-4100
DC	Washington, Stemler Assocs.	301-944-8262
FL	Melbourne, Repcom	305-254-1877
MD	Baltimore, Stemler Assocs.	301-944-8262
MA	Waltham, Del Tech Sls.	617-890-1020
NJ	Cherry Hill, Stemler Assocs.	609-966-4070
NJ	Hackensack, T.M.A. Assoc.	201-342-4008
NY	Cazenovia, S. T. Wollard Co.	315-655-8145
TX	Ft. Worth, El-Tec Sls.	817-268-2896

D & B POWER, INC.

D & B POWER, INC., 204 N. Fehr Way, P.O. Box 40M, Bayshore, NY 11706, Tel: 516-586-5955; FSC No.: 54337; Empl.: 25; *Sls. Mgr.:* Gordon Best; *Dist. Mgr.:* Dan Hall .... **D•1610-1611**

Local Sales Offices & Reps

CA	Pasadena, Electro Mecha. Instrs.	818-795-7193
CA	Sunnyvale, Schwerin & Merrill	408-735-7900
MD	Randallstown, Beacon North, Inc.	301-655-2265
NY	Cortland, Net Sls. Co.	607-756-6592
NY	DeRuyter, Net Sls. Co.	315-662-7996
NY	East Setauket, Edgerton Elctrn.	516-751-7089
NY	Fairport, Net Sls. Co.	716-467-4538
NY	Troy, Net Sls. Co.	518-274-4758
VA	Fairfax, Beacon North, Inc.	703-591-1300

Local Distributors

MA	Shannon, Adcour, Inc.	617-784-8123

D & L SALES CO. INC., 296 Preakness Ave., Paterson, NJ 07502, Tel: 201-684-8223/8224; Empl.: 10

DMC DANIELS MANUFACTURING CORPORATION

DANIELS MFG. CORP., 6103 Anno Ave., Orlando, FL 32809, Tel: 305-855-6161, Telex: 564321; FSC No.: 5935; Empl.: 150; *Sls. Mgr.:* John Jago-Ford; *Dist. Mgr.:* Tina Holder .... **C•1741**

Local Sales Offices & Reps

AZ	Scottsdale, Nelligan Co.	602-990-1415
CA	Irvine, DMC Western Sls. Off.	714-660-1901
CO	Englewood, Nelligan	303-761-2121
CT	Orange, DMC Northeastern Sls. Off.	203-799-2343
FL	Zephyrhills, Tool Tronics & Hydrospace	813-782-7177
TX	Fort Worth, Wadco	817-284-4445
UT	Salt Lake City, Nelligan Co.	801-261-1121
WA	Redmond, Pan Pacific Electronics	206-881-7252

Local Distributors

CA	Burbank, Stratos, Inc.	213-245-8914
CO	Englewood, Columbine Fabricators	303-761-2121
CT	Hamden, Connector Company	203-288-0044
FL	Zephyrhills, Tool Tronics & Hydrospace	813-782-7177
NJ	South River, Da-Green Electronics	201-254-2735
TX	Fort Worth, Wadco	817-284-4445
WA	Redmond, Pan Pacific Electronics	206-881-7252
Can	Ontario, Patlon Aircraft	416-624-5572

DAN-L INC., 229 Laurel Rd., E. Northport, NY 11731, Tel: 516-757-8000; FSC No.: 28327; Empl.: 22

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RI	Lincoln, Adams-McGregor	401-726-1300
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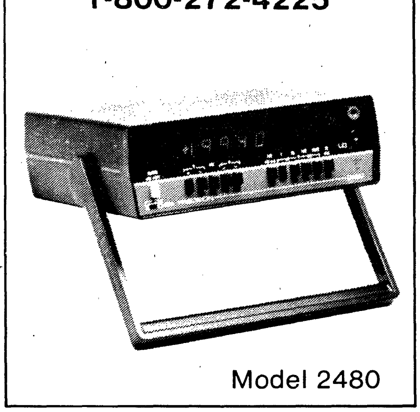

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WA	Seattle, Radar Elec. Co.	206-282-2511
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NJ	Kenilworth, Ventronics, Inc.	201-272-9262
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IA	Des Moines, Miller Mech. Spec., Inc.	515-243-4287
LA	Baton Rouge, Analytical Control	504-928-2292
MA	Peabody, JSR Assocs.	617-532-0348
MI	Troy, R. H. Jackson Co.	1-800-421-4367
MN	Cedar, Bican Co.	612-434-7733
MO	Kansas City, Economy Power & Instr.	816-523-1010
NJ	Middlesex, Buck Sales	201-560-0700
NY	Albany, Robert F. Lamb Co.	518-869-3355
NY	Buffalo, Robert F. Lamb Co.	716-874-4900
NY	Rochester, Robert F. Lamb Co.	714-323-1250
NY	Syracuse, Robert F. Lamb Co.	315-455-2469
NC	Concord, FLW Southeast	704-782-6615
OH	Cincinnati, Merrifield Co.	513-821-8620
OH	Cuyahoga Falls, Baker Industrial Equip.	216-928-1615
OK	Tulsa, Automatic Eng.	918-585-5703
OR	Portland, Branom Instr.	503-283-2555
PA	Coraopolis, Baker Process Equip.	412-264-8271
PA	Warminster, Multi-Measurements, Inc.	215-675-3082
TN	Memphis, FLW Southeast, Inc.	901-345-3563
TX	Dallas, JO Instr.	214-263-2025
TX	Houston, JO Instr.	713-468-8087
WA	Seattle, Branom Instr.	206-762-6050
Can	Calgary, Alberta, Instrument Service Labs	403-255-3448
Can	Toronto, Ontario, Willer Engr.	416-499-4421

Local Distributors

CA	Costa Mesa, FLW, Inc.	714-751-7512
IL	Park Ridge, E.I.A., Inc.	312-298-2290
MA	Waltham, Calibron Instrs.	617-894-6440
MN	Royal Oak, George Instrs.	313-280-1111
NY	Rochester, EIC Elctrns.	716-544-4392
OH	Dayton, National Inst. Dist.	513-435-4503
Can	Richmond, BC, Instrument Svc. Labs	604-278-4511

DATA TECHNOLOGY, INC., 4 Gill St, Woburn, MA 01811, Tel: 617-935-8820, Telex: 95-1351; Empl.: 85; *Sls. Mgr.:* D. Skenderian

DATA TERMINALS & COMMUNICATIONS, 590 Division St., Campbell, CA 95008, Tel: 408-378-1112, TWX: 910-590-2436; *Dist. Mgr.:* Michael R. Wood

DATATEX CORP., 10935 S. Wilcrest Dr., Houston, TX 77099, Tel: 713-495-3100; Empl.: 100; *Sls. Mgr.:* Glenn Messerschmitt; *Dist. Mgr.:* K. Pelletier

DATATRAN CORP., 1195 South Huron St., Denver, CO 80223, Tel: 303-778-0870; Empl.: 2; *Sls. Mgr.:* Cindi L. Kemper; *Dist. Mgr.:* Cindi L. Kemper

DATATRAN LABS, P.O. Box 384, Sussex, NJ 07461, Tel: 914-856-4313; Empl.: 18; *Sls. Mgr.:* Richard E. Johnson

DATA TRANSLATION, 100 Locke Dr., Marlboro, MA 01752, Tel: 617-481-3700, Telex: 4430109; FSC No.: 61867; Empl.: 145; *Sls. Mgr.:* Ellen Wirka

DATATRON, INC., 2942 Dow Ave., Tustin, CA 92680, Tel: 714-544-9970, TWX: 910-595-1589; Empl.: 125

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DATATRONIC SYSTEMS CORP., Computer Sciences Div., P.O. Box 44128, Panorama City, CA 91412, Tel: 818-988-5290; Empl.: 150

DATAVOICE CORP., 180 N. La Salle St. Ste 700, Chicago, IL 60601, Tel: 312-831-4488; Empl.: 8; *Sls. Mgr.:* J. Seifert

DATAWARE SYS. LEASE, INC., 30 Bay St., Staten Island, NY 10301, Tel: 212-447-4911, Telex: 421394, TWX: 710-588-6738; *Sls. Mgr.:* Ben Welwart

DATAWEST, 7333 E. Helm Dr., Scottsdale, AZ 85260, Tel: 602-948-3280, TWX: 910-950-1289

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DATAWRAP, INC., 13 Henshaw St., Woburn, MA 01801, Tel: 617-938-8911; Empl.: 16; *Sls. Mgr.:* Tony Lockwood .... **D•1979**

DATEC, INC., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514, Tel: 919-929-2135; Empl.: 75; *Sls. Mgr.:* Walt Lovett .... **D•1049**

Local Distributors

AZ	Phoenix, Sunwest Data Sys.	602-271-0500
CA	Los Angeles, Mark Assocs.	213-641-1840
CA	San Diego, Western Scientific	619-744-7117
FL	Orlando, Currie, Peak & Frazier	305-855-0843
FL	Plantation, Jetronics	305-472-0900
GA	Alpharetta, Terminals Plus, Inc.	404-475-6686
GA	Atlanta, Infotec, Inc.	404-458-1400
IA	Cedar Rapids, Norand Corp.	319-369-3100
LA	Matairie, T. L. Data (American Teledata)	504-456-1400
MA	Framingham, Data Comm. Sys. Inc.	617-620-1800
MI	Ann Arbor, Complete Technology	313-996-9600
NJ	Cherry Hill, The Datastore, Inc.	609-779-0200
NJ	Northvale, Glasgal Comms.	201-768-8082
NJ	Union, Transnet Corp.	201-688-7800
NM	Albuquerque, Sunbelt Data	505-266-7731
NY	Hauppauge, Manchester Equip. Co.	516-435-1199
NY	Islip, The Technology Consortium	516-293-6898
NC	Durham, Microglyphics	919-493-8444
OH	Brecksville, Electronic Engrg. Co.	216-526-4350
OH	Cleveland, Delta Products Co., Inc.	216-731-3537
OR	Beaverton, Data Dvcs.	503-641-5500

DA-TECH CORP., 92 Steamwhistle Dr., Ivyland, PA 18974, Tel: 215-322-9410; Empl.: 75; *Sls. Mgr.:* Bradford W. Bentz

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DATEL, General Electric Co., 11 Cabot Blvd., Mansfield, MA 02048, Tel: 617-339-9341, Telex: 95-1340, TWX: 710-346-1953; Empl.: 650; *Sls. Mgr.:* H. Batchelder .... **D•1083, 1147, 1346**

Local Sales Offices & Reps

Tech. Mktg., Inc.

AL	Hunstville, Electronic Mfrs' Agts.	205-830-4030
AZ	Phoenix, Tech. Sls.	602-246-1614
CA	Santa Ana, Datel	714-835-2751
CA	Sunnyvale, Datel	408-733-2424
CO	Denver, Cleveland Entprs. of Colo.	303-751-3252
CT	Hamden, JBL Assocs.	203-281-3161
FL	Coral Springs, H. A., Inc.	305-752-7520
GA	Atlanta, Electronic Mfrs' Agts.	404-329-0530
HI	Honolulu, Adtech.	808-941-0708
IL	Elmhurst, Sector Engrg. Sls., Inc.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls., Inc.	317-842-1120
IA	Davenport, Ensco-Rep, Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep Inc.	316-683-1070
MA	Mansfield, Datel	617-339-9341
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MI	Portage, Electro Sls. Assocs.	616-323-2416
MN	Minneapolis, Electro Sls. Assocs.	612-546-4110
MN	Minneapolis, J. R. Assocs.	612-546-4110
MO	Maryland Heights, Ensco-Rep, Inc.	314-423-3935
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Babylon, Astrorep	516-422-2500
NY	Liverpool, R & D Assocs.	315-457-0100
NC	Winston-Salem, Comp. Concepts	919-765-3484
OH	Cleveland, Instrmn Sys., Inc.	216-845-8800
OH	Dayton, Instrmn Sys., Inc.	513-294-2838
OR	Portland, TASCO, Inc.	503-245-8168
PA	Glenside, Wyncote Instrmn.	215-572-6500
PA	Pittsburgh, Instrmn Sys., Inc.	412-243-1111
PA	Pittsburgh, Instrmn. Sys., Inc.	412-823-7005
TX	Austin, Technical Mktg., Inc.	512-835-0064
TX	Carrollton, Tech. Mktg., Inc.	214-387-3601
TX	Houston, Tech. Mktg.	713-777-9228
TX	Houston, Technical Mktg., Inc.	713-783-4497
UT	Salt Lake City, Cleveland Entprs. of Colo.	801-355-8424
VA	Arlington, H. J. Heffernan	703-522-6666
WA	Bellevue, TASCO, Inc.	206-453-1414
WI	Milwaukee, Sector Engrg. Sls., Inc.	414-352-8280

DATOTEK, INC., 13740 Midway Rd., Dallas, TX 75234, Tel: 214-233-1030, Telex: 73-0558; Empl.: 130; *Sls. Mgr.:* T. Peddicord

DATRON INSTRS., INC., 3401 SW 42nd Ave., Stuart, FL 33497, Tel: 305-283-0935, Telex: 525724; FSC No.: 66-15b,66-23F,66 Part II SECT H, J; Empl.: 120; *Sls. Mgr.:* Irene Bugno

DATRON SYSTEMS, INC., 200 West Los Angeles Ave., Simi Valley, CA 93065-1650, Tel: 805-584-1717, TWX: 910-494-2787; FSC No.: 32255; Empl.: 169

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DATTILO ELECTRONICS, 11621 Electron Dr., Louisville, KY 40299, Tel: 502-267-4446; Empl.: 32

DATUM, STORAGE PRODS. DIV., 1363 State College Blvd., Anaheim, CA 92806, Tel: 714-533-6333, TWX: 910-592-1289; FSC No.: 31160; Empl.: 350; *Sls. Mgr.:* Roger Evans

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DATUM INC., Timing/Aacom Divisions, 1363 S. State College Blvd., Anaheim, CA 92806, Tel: 714-533-6333, Telex: 4722045 (intl.), TWX: 910-592-1289; FSC No.: 31160; Empl.: 280; *Sls. Mgr.:* Charles Neumann .... **D•1050, 1148**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.	205-533-5896
AZ	Scottsdale, BFA Corp.	602-994-5400
CA	Anaheim, Datum	714-533-6333
CA	San Diego, M. Ficken	619-292-9392
CA	Santa Clara, Ward/Davis Assocs.	408-245-3700
CO	Denver, BFA Corp.	303-777-8070
CT	Mt. Carmel, Scientific Dvcs.- Connecticut	203-248-9361
FL	Fort Walton Beach, RAM-Z	904-862-2700
FL	S. Palm Beach, RAM-Z	305-388-0784
FL	Sarasota, RAM-Z	813-957-4900
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437

IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MA	Waltham, Scientific Devices-New England	617-890-2252
MA	Wayland, Daner-Hayes	617-655-0888
WI	New Berlin, Marsland	414-786-6611
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
NM	Albuquerque, BFA Corp.	505-292-1212
NM	Las Cruces, BFA Corp.	505-524-9693
OH	Centerville, Micro Sls. Corp.	513-433-8171
OH	No. Olmsted, Micro Sls. Corp.	216-734-3080
OK	Tulsa, Data Mktg. Assocs.	918-299-4818
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	El Paso, BFA Corp.	915-542-1762
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
UT	Salt Lake City, BFA Corp.	801-265-1771
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Seattle, Comptronics	206-284-4842

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DAVIDGE CORP., 1951 Colony St., Mountain View, CA 94043, Tel: 805-688-7707; *Sls. Mgr.:* Don French

THE DAVID HAFLER CO., 5910 Crescent Blvd., Pennsauken, NJ 08109, Tel: 609-662-6355, Telex: 710-892-1475; Empl.: 38

DAVIDSON ELCTRN. DEV. CO., 113 E. 13th St., Erie, PA 16512, Tel: 814-453-7547, Telex: 914-529; Empl.: 27

DAVIES, HARRY, MOLDING CO., 4920 Bloomingdale Ave., Chicago, IL 60639, Tel: 312-622-8966; FSC No.: 72512; Empl.: 140; *Sls. Mgr.:* Leo A. Sera; *Dist. Mgr.:* Leo A. Sera

DAVIS, J. W., & CO., P.O. Box 26177, Dallas, TX 75226, Tel: 214-651-7341; Empl.: 42

DAVIS ELEC. CO., Box 38, Cape Girardeau, MO 63701, Tel: 314-335-5547; Empl.: 40

DAVONG SYSTEMS, INC., 217 Humboldt Ct., Sunnyvale, CA 94089, Tel: 408-734-4900, Telex: 176386; Empl.: 110; *Sls. Mgr.:* John Houghton; *Dist. Mgr.:* Michael Redmond

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DAYTRONIC CORP., 2589 Corporate Pl., Miamisburg, OH 45342, Tel: 513-866-3300, TWX: 810-473-2978; Empl.: 130; *Sls. Mgr.:* John A. Perkins

D-B-DEVELOPMENTS, 7709 Kilbourne Rd., Rome, NY 13440, Tel: 315-339-1265; Empl.: 3

D-CEMCO, INC., 3200 N. San Fernando Blvd., Burbank, CA 91504, Tel: 213-849-6341, TWX: 910-498-2228; Empl.: 30

D-CEMCO, 3200 N. San Fernando Blvd., Burbank, CA 91504, Tel: 213-849-6341, TWX: 970-498-2228; Empl.: 50; *Sls. Mgr.:* Cliff Crowder

DCI INC., 14812 W. 117th Street, P.O. Box 215, Olathe, KS 66061, Tel: 913-782-5672; FSC No.: 58677; Empl.: 9; *Sls. Mgr.:* William D. Cook **D•1347**

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assoc.	602-267-0981
CA	Redwood City, N-S Assocs.	415-851-2703
CA	San Diego, Mesa Engrg.	619-278-8037
CA	Torrance, Cutlass Elctrns. Inc.	714-549-9358
CA	Woodside, N-S Assoc.	415-854-4870
CO	Colorado Springs, J. Smith & Assoc.	303-597-5343
CT	Tolland, R. G. Assoc.	203-875-4201
FL	Melbourne, Saber Assocs.	305-724-0920
IL	Chicago, Commodore I	312-394-5441
IN	Indianapolis, Commodore I	317-636-3318
KS	Shawnee Mission, Vertec	913-677-3200
MA	Danvers, R. G. Assocs.	617-777-3199
MI	Detroit, Michigan Valve & Fitting	313-884-9415
MN	Minneapolis, Trask Engrg.	612-537-2434
MO	St. Louis, Vertec	314-394-6242
NJ	Cherry Hill, Analectro, Inc.	609-424-2883
NJ	Wayne, Ramapo	201-839-6767
NM	Albuquerque, J. Smith & Assoc.	505-265-3406
NY	Latham, L-Tron	518-785-5032
OH	Columbus, R. D. Cloon Assoc.	614-459-2890
PA	Pittsburg, Wainwright Tech. Sls. Inc.	412-487-5055
TX	Richardson, Meas. Sys. & Sls.	214-644-4954

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CA	Chino, Dearborn West	714-591-9393
CA	San Diego, OHM Spun Elctrns.	619-695-8102
CA	Santa Clara, Ferreria Entprs.	408-988-8323
CO	Denver, Kastler Cable & Equip., Inc.	303-571-4455
FL	Orlando, Admiral Sls.	305-352-0046
GA	Atlanta, Southwest Elctrl., Inc.	404-691-0648
IL	Chicago, LGS Sls.	312-456-9616
IL	Wilmette, Joel Wasserman Assocs.	312-256-3566
IN	Indianapolis, Elctrn. Reps.	317-894-1414
MD	Baltimore, Market Line, Ltd.	301-944-2111
MA	Norwood, Mac Innis Co.	617-762-8090
MI	Farmington Hills, R.C. Merchant & Co., Inc.	313-476-4600
MI	St. Joseph, R. C. Merchant & Co.	616-983-7378
MN	Golden Valley, Ambassador Indl. Mktg.	612-542-8437
MS	Jackson, Doby Assocs.	601-981-1138
MO	St. Charles, Buckman & Assocs.	314-946-6201
NJ	Medford, Jack McCoy, Inc.	609-953-0770
NJ	New Brunswick, Synergy Sls.	201-828-5090
NY	Fairport, Net Sls.	716-467-4538
NC	Kernersville, Heritage Sls. Assocs., Inc.	919-996-4374
OH	Cleveland, Depco, K.T.	216-442-6200
OH	Cleveland, Hawkins-Burwell Co.	216-888-1533
WA	Renton, Carlyle Tech. Sls.	206-226-5951

Local Distributors

AL	Madison, Sea Wire & Cable	205-772-9619
CA	Chatsworth, Sonic Wire	213-701-0565
FL	Altamonte Springs, Royce Elctrns.	305-869-4700
FL	Ft. Lauderdale, Pacer Elctrns.	305-462-0902
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Northbrook, Classic Comps.	312-272-9650
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Altex	317-848-1323
IN	Evansville, Hutch & Sons	812-425-7201
IN	Indianapolis, Graham	317-634-8202
IN	Indianapolis, PEI Genesis	317-637-5571
IA	Cedar Rapids, Deeco	319-365-6205
LA	New Orleans, Radio Parts	504-581-5959
MI	Grand Rapids, R. M. Electrns.	616-531-9300
MI	Livonia, RS Elctrns.	313-525-1155
MN	Bloomington, Berquist Corp.	612-835-2322
MN	Bloomington, NWR Elctrns.	612-854-7329
MN	Cambridge, RSI	612-689-4870
MN	Fridley, Voyager	612-571-7766
MN	New Brighton, Chris	612-631-2647
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Dover, Electro Spec	201-361-6300
NJ	E. Brunswick, Brothers Elec.	201-238-2200
NJ	East Hanover, Delburn	201-884-0800
NY	Elmira, CAC Elec. Supp.	607-734-1696
NY	Johnson City, Help Elctrns.	607-729-3528
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Raleigh, Wholesale	919-782-8500
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Mansfield, National Elec. Supp.	419-524-1042
PA	Harrisburg, Pyttronics	717-236-8001
PA	McKean, Advacom	814-476-7774
TN	Nashville, Carlton Bates	615-244-3562
TX	Dallas, Shearson Elec.	214-340-3094
TX	Odessa, Superior Elect.	915-332-0276
UT	Salt Lake City, RA-ELCO	801-487-0571
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WI	Oconomowoc, G.W. Elctrns.	414-367-6003

DECC DIV., See Helionetics, Inc., DECC Div.

DECISION DATA COMPUTER CORP., 100 Witmar Rd., Horsham, PA 19044

DECISION GRAPHICS, 11 Main St., P.O. Box 306, Southboro, MA 01772, Tel: 617-481-4119, TWX: 710-390-1890

DECOM SYS., 340 Rancheros Dr., San Marcos, CA 92069, Tel: 619-744-1002, TWX: 910-322-1758; FSC No.: 55744; Empl.: 44; *Sls. Mgr.:* G. F. Tremain

Local Sales Offices & Reps

AL	Lake Guntersville, Kelley Sys. Corp.	205-582-8677
CA	Los Angeles, L. L. Stoakes, Inc.	213-640-2178
CA	Palo Alto, Egbert Engrg.	415-326-1387
CA	San Diego, L. L. Stoakes, Inc.	619-452-1600
CO	Boulder, Grady Moore Assocs.	303-494-3351
FL	Sarasota, S. Bass Assocs.	813-922-9538
IN	Indianapolis, Loren Green Associates	317-293-9827
KS	Shawnee Mission, Techn. Sls. Assocs.	913-888-3330
MD	Severna Park, Delmarva, Ltd.	301-647-8007
MA	Bedford, Claflin Assocs.	617-275-7428
MO	St. Louis, Techn. Sls. Assocs.	314-725-5361
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
PA	Huntingdon, Rabal Assocs.	215-947-4825
EXP	CA, San Marcos, Decom Sys.	619-744-1002

DE COURSEY ENGRG. LAB., 11828 W. Jefferson, Culver City, CA 90230, Tel: 213-EX7-9668; Empl.: 7

DEGUSSA CORP., 104 New Era Drive, So. Plainfield, NJ 07080, Tel: 201-757-6500, Telex: 4754247; FSC No.: 630673043; *Sls. Mgr.:* Stacey A. Mack

DEK, INC., 3480 Swenson Ave., St. Charles, IL 60174, Tel: 312-377-2575, Telex: 297284 DEK UR; FSC No.: 312-377-0372; Empl.: 115; *Sls. Mgr.:* L. R. Pappone

DELBERT BLINN CO., Box 2007, Pomona, CA 91766, Tel: 714-629-3900; Empl.: 10

DELCO WIRE & CABLE, INC., 257 Rittenhouse Cir., Bristol, PA 19007, Tel: 215-785-0511, Telex: 06-964523, TWX: 510-667-0968; *Sls. Mgr.:* T. Blick

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DEL ELCTRNS. CORP., 250 E. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-699-2000, TWX: 710-562-0130; FSC No.: 01378; Empl.: 180 **A•2133; D•1614-1615**

Local Sales Offices & Reps

AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Mountain View, Leddy Assocs., Inc.	415-969-6313
CA	Pasadena, A-F Sales Engrg.	213-681-5631
CO	Lakewood, Trembly Assocs.	303-233-9544
IL	Elmhurst, Scott Assocs.	312-279-5681
MA	Burlington, TriTek	617-272-4550
MI	Dearborn, Pitcher-Poulin	313-582-5450
NV	Las Vegas, Trembly Assocs.	702-739-9770
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Smithtown, T & K Sls.	516-724-3456
PA	Ardmore, Martin Assocs.	215-649-6332
UT	Salt Lake City, Trembly Assocs.	801-486-5292

DELEVAN DIV., American Precision Inds. Inc., 270 Quaker Rd., E. Aurora, NY 14052, Tel: 716-652-3600, Telex: 91-293; FSC No.: 99800; Empl.: 400; *Sls. Mgr.:* R. Nareau **A•1238**

Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
AZ	Phoenix, Toward Engrg.	602-955-3193
CA	Culver City, Bestronics	213-870-9191
CA	El Toro, Delevan	714-768-5522
CA	Freemont, Advanced Technlg. Sls.	415-651-0123
CA	Irvine, Bestronics	714-261-7233
CA	San Diego, Bestronics	619-693-1111
CA	Woodland Hills, Bestronics	213-704-5616
CO	Aurora, High Tech Assocs.	303-695-1990
FL	Deerfield Beach, Conley & Assocs.	305-421-7180
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Doraville, Conley & Assocs.	404-447-6992
IL	Downers Grove, Momak Sls.	312-963-6400
IN	Fort Wayne, Walter W. Bieberich	219-432-2537
IN	New Albany, Walter W. Bieberich	812-945-3187
IA	Cedar Rapids, Lorenz Sls.	319-377-4666

KS	Parker, S. W. Wollard	913-898-6552
MD	Lutherville, D. A. Dougherty Sls. Co.	301-321-7890
MA	Boston, P. J. Engrg. Sls. Co.	617-924-5950
MN	Mendota Hgts., G-II Sls.	612-454-3086
NJ	Bellmawr, TAI	609-933-2600
NJ	Parlin, Martech Assocs.	201-721-2200
NY	Endicott, Tech-Mark	607-748-7473
NY	Manhassett, Martech Assocs.	516-627-1151
NY	Mendon, Tech-Mark	716-624-3840
NY	Utica, Tech-Mark	315-733-0575
NC	Raleigh, Conley & Assoc.	919-876-9862
OH	Beachwood, Electronic Salesmasters	216-831-9555
TX	Irving, Kite Elctrn. Sls. Co.	214-438-9336
Can	Mississauga, J. G. Weiss Co. Ltd.	416-673-0011
Can	Nepean, J. G. Weiss Co. Ltd.	613-726-1436
Can	North Vancouver, J. G. Weiss Co. Ltd.	604-987-3833
Can	St. Laurent, J. G. Weiss Co. Ltd.	514-337-5022
Can	Winnipeg, J. G. Weiss Co. Ltd.	204-783-4387

Local Distributors

CA	Chatsworth, IEC	213-998-2200
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Santa Clara, WDG/Santa Clara	408-727-2500
FL	West Palm Beach, Nurmi Elctrn. Supp. Co.	305-686-8553
MD	Savage, Pyttronics Inds. Inc.	301-792-0780
MA	Boston, P. J. Engrg. Supp.	617-783-0510
NJ	New Brunswick, Brothers Elctrns.	201-238-2200
NY	Bohemia, Car-Lac	516-567-4200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Milgray/New York	516-420-9800
PA	Norristown, Century Elctrn. Comp.	215-631-5400
TX	Dallas, R. V. Weatherford Co.	214-931-7333
TX	Fort Worth, Patco Supply	817-429-8596
Can	Burnaby B.C., R-A-E Indl. Elctrns. Ltd.	604-291-8866
Can	Don Mills, Ontario, Saynor Elctrns. Ltd.	416-445-2347
Can	Montreal, Quebec, Prelco Elctrns. Ltd.	514-389-8051
Can	Pointe-Claire Quebec, Future Elctrn.	514-694-7710

DELTA DATA SYSTEMS CORP., 2595 Metropolitan Dr., Trevose, PA 19047, Tel: 215-322-5400, Telex: 510-667-1650; Empl.: 280; *Sls. Mgr.:* Gene Mitchell

DELTA DESIGN, 5775 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-292-5000, TWX: 910-335-1215; Empl.: 159; *Sls. Mgr.:* Bob Williams

DELTA ELECTRONIC CONTROLS CORP. (DECC), See Helionetics, Inc., DECC Div.

DELTA ELECTRONIC IND. USA, Delta Elctrn. Ind. Co. Ltd., 3401 Investment Blvd., Ste. 5, Hayward, CA 94545, Tel: 415-785-5231, 415-785-5235, Telex: 4992342 DELTAITTHY; Empl.: 1207; *Sls. Mgr.:* Elson Chang; *Dist. Mgr.:* Bruce Cheng .... **A•1600-1601; D•1616-1617**

Local Sales Offices & Reps

AL	Huntsville, Technlg. Mktg. Assocs. Inc.	205-883-7893
CA	Burbank, Tri-Electro Sls., Inc.	818-954-9955
CO	Aurora, Mountain View Mktg. Ltd.	303-699-1665
CT	Wallingford, Midstate Elctrns.	203-265-9900
GA	Atlanta, Technlg. Mktg. Assocs., Inc.	404-257-0374
FL	Melbourne, Technlg. Mktg. Assocs., Inc.	305-676-3776
FL	Pompano Beach, Technlg. Mktg. Assocs., Inc.	305-942-0774
IL	Chicago, United Prods. Co.	312-631-1122
IN	Indianapolis, Electronic Sls. & Engrg., Inc.	317-849-4260
IA	Cedar Rapids, Palatine Engrg. & Sls. Inc.	319-365-8071
KS	Mission, Palatine Engrg. & Sls. Inc.	913-831-0555
MA	Woburn, Mascon Inc.	617-938-8950
MI	Ypsilanti, Tamco, Inc.	313-572-1950
MN	Edina, Monroe Hanna	612-925-5700
MO	Hazelwood, Palatine Engrg & Sls.	314-839-0800
NJ	Kenilworth, Ventronics	201-272-9262
NY	Penfield, Tech. Assocs., Inc.	716-385-4240
NC	Charlotte, Robert W. Chapman & Co.	704-525-2421
OH	Centerville, Omega Sls., Inc.	513-434-5507
OH	University Hgts., Omega Sls., Inc.	216-381-1404
OK	Tulsa, Advance Tech. Sls., Inc.	918-664-0482
OR	Portland, Jas. J. Backer & Co.	503-297-8744
PA	McKean, Ecco Elctrns. Sls.	814-476-1376
SC	W. Columbia, Robert W. Chapman & Co.	803-256-0072
TX	Austin, Advance Tech. Sls., Inc.	512-440-7677
TX	Dallas, Advance Tech. Sls., Inc.	214-860-5455
TX	Houston, Advance Tech. Sls., Inc.	713-440-3888
VA	Lynchburg, Burgin-Kreh Assocs., Inc.	804-239-2626
WA	Seattle, Jas. J. Backer Co.	206-285-1300
Can	Astec Comps. Ltd.	416-630-8463

Local Distributors

CA	Irvine, Retel Elctrns.	714-768-0855
CA	Mission Viego, Tri-Electro Sls., Inc.	714-643-9486
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Jose, Capacitors Unlimited	408-946-7676
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Jose, K-Lectron	408-942-9177
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Wallingford, Midstate Elctrns.	203-265-9900
IL	Chicago, Upco Distrs., Ltd.	312-631-1122
IA	Cedar Rapids, Berquist Co.	319-366-8733
MA	Westford, Electronics Specialties Intl., Inc.	617-486-8495
MN	Minneapolis, Berquist Co.	612-835-2322
PA	McKean, Advacom, Inc.	814-476-7774
TX	Allen, Prime Distrbg. Co.	800-442-4008, 800-526-7478

DELTA ELCTRNS., 145 Fayette St., Winston-Salem, NC 27101, Tel: 919-725-4122; Empl.: 45; *Sls. Mgr.:* L. E. Hancock

DELTA ELECTRONICS MFG. CORP., 416 Cabot St., Beverly, MA 01915, Tel: 617-927-1060; FSC No.: 00795; Empl.: 170; *Sls. Mgr.:* S. J. Somerset; *Dist. Mgr.:* C. F. Lassiter

DELTA PRODS., Box 1147, Grand Junction, CO 81501, Tel: 303-242-9000; Empl.: 35; *Sls. Mgr.:* K. D. Braa

DELTA WIRE & CABLE CO., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064, Tel: 312-473-4990; Empl.: 12; *Sls. Mgr.:* Mike Golden; *Dist. Mgr.:* Matt Coleman

DEL-TELEPRODUCTS, 230 N. Market Pl., Escondido, CA 92025, Tel: 619-743-8344; Empl.: 30; *Sls. Mgr.:* Genrik Sirvis

DELTROL CONTROLS, 2745 S. 19th St., Milwaukee, WI 53215, Tel: 414-671-6800; Empl.: 300 .... **B•1320-1321, 1464-1465**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-883-1712
CA	Canoga Park, Cummings & Assocs.	818-340-6035
CT	Marion, Sands Co., Inc.	203-628-4363
FL	Lighthouse Point, Jack Krutek & Assocs.	305-931-6544
GA	Marietta, JWL Assocs.	404-429-8010
IL	Glenview, E. J. McCaffrey & Assocs.	312-272-2820
IN	Carmel, Nationwide Comps.	317-872-7207
MI	Farmington Hills, W. R. Hummon & Assocs.	313-474-0661
MN	St. Paul, Kencotronics, Inc.	612-645-7717
MO	Ballwin, Weisler & Assocs.	314-394-4543
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NY	Babylon, Astrorep., Inc.	516-422-2500
NY	Rochester, Omni Sls.	716-342-5270
NC	Pineville, JWL Assocs.	704-541-5750
OH	Willoughby, Nationwide Comps.	216-946-3226
OR	Portland, Control Dvcs. N.W.	503-230-7171
TX	Garland, R. May Assocs.	214-276-5214
TX	Houston, Weisler & Assocs.	713-467-1862
UT	Salt Lake City, Cummings & Assocs.	801-261-4836
WI	Milwaukee, Werking Ind. Sls.	414-964-2225
Can	Pointe Claire, Que., Elcom GBM, Inc.	514-697-4556

Local Distributors

AL	Birmingham, American Elctrn. Supp.	205-942-4656
AL	Montgomery, Southern Controls	205-277-5030
AZ	Phoenix, Elctrns. Parts Co.	602-277-7281
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Anaheim, Electro Comps. Distrs.	714-634-0222
CA	Buena Park, Control Design	714-521-5040
CA	Canoga Park, C & A Elctrns.	213-340-6022
CA	City of Commerce, Electro Comps. Distrs.	213-727-0200
CA	Los Angeles, Electric Switches	213-664-2125
CA	Mt. View, Corrnett Elctrns.	415-969-5420
CA	Pasadena, Dow Radio Co.	213-793-1195
CA	San Jose, Consolidated Parts	408-263-9521
CA	Tustin, Western Switches	714-731-4333
CO	Colorado Springs, Centennial Elctrns.	303-633-4666
CO	Denver, Fistell's Elctrn. Supp.	303-629-1312
CO	Denver, Integrated Elctrns.	303-534-6121
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	New Haven, Hatry Elctrns.	203-787-5921
CT	Shelton, Century Elec.	203-736-2684
FL	Altamore Springs, Control Des.	305-788-3220
FL	Ft. Lauderdale, Peerless Radio Corp.	305-566-5966
FL	Ft. Lauderdale, SE Elctrns.	305-563-4131
FL	Jacksonville, Mitchell Elctrns.	904-356-8427
FL	Lakeland, Switch Controls	813-644-7564
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, A-C Equip.	404-451-2747
GA	Atlanta, Georgia Control Ctr.	404-876-8833
GA	Stone Mountain, Control Des.	404-979-3502
ID	Boise, Kimball Elctrns.	208-342-3559
IL	Chicago, Otto Frankenbush	312-647-0755
IL	Elk Grove Village, GBL	312-593-3222
IL	Genoa, Control Design	815-784-6515
IL	Kankakee, Blitz Elctrl. Supp.	815-933-5536
IN	Gary, G. W. Berkheimer	219-887-0141
IN	Indianapolis, Control Design	317-788-4559
IN	Lafayette, CWY Elctrns.	317-447-4617
IA	Cedar Rapids, Iowa Radio Supp.	319-364-6154
IA	Davenport, Warren Radio	319-322-5301
IA	Marion, Control Des.	319-373-2923
IA	West Des Moines, Ramco Co.	515-225-6933
KS	Kansas City, Kornfield Thorp Elec.	913-321-7070
KS	Topeka, Carroll Radio	913-234-6677
KY	Ashland, Ashland Elec. Co.	606-324-4107
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Louisville, Peerless Elctrn. Equip.	502-637-7677
LA	Shreveport, Indl. Elec. Supp.	318-222-9459
MD	Aberdeen, Harco Elctrns.	301-838-7990
MA	Boston, Ralph Pill Elec. Supp.	617-269-8200
MA	Brighton, Interstate Elctrns. Equip.	617-782-9000
MA	Burlington, QPL Elctrns.	617-229-2424
MA	Newton Upper Falls, Instock Prods.	617-964-6200
MI	Augusta, Great Lakes Elec.	616-731-4156
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Flint, Roth Elec. Supp.	313-234-8661
MN	Minneapolis, Control Design	612-721-6555
MO	Kansas City, Western Extralite	816-421-8404
MO	St. Louis, Control Design	314-426-3150
MO	St. Louis, Van Sickle Radio Elctrns.	314-621-5000
NE	Omaha, West Dodge Elec.	402-393-8071
NJ	Edison, William Elctrns. Supp.	201-985-3700
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Paterson, Feldman Brothers	201-742-7329
NJ	Raritan, Masters Elctrn.	201-725-3533
NY	Hempstead, Elctrn. Equip. Co.	516-895-5757
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rochester, Masline Elctrns.	716-546-5373
NC	Charlotte, Control Des.	704-588-4410
NC	Raleigh, Southeastern Radio Supp.	919-828-2311
ND	Grand Forks, Border States	701-772-3477
OH	Columbus, McJunkin Corp.	614-294-3711
OH	Medina, Wolff Bros. Supp.	215-725-3451

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OH	Wickliffe, Gateway Elctrns.	216-944-8565
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Dunn Elec.	503-285-0214
PA	Erie, REM Elctrns.	814-453-5626
PA	Malvern, Control Design	215-296-0150
PA	Philadelphia, Lindley Elec.	215-329-7005
SC	Greenville, Hammond Elec.	803-233-4421
SD	Aberdeen, Plainco	605-225-7100
TN	Chattanooga, Curle Elctrns.	615-266-4728
TN	Knoxville, CED	651-521-6262
TN	Memphis, Warren Radio	901-274-2460
TX	Dallas, Control Design	214-358-1441
TX	Dallas, Watson Elec. Supp.	214-742-8441
TX	Garland, J & S Elec.	214-487-8808
TX	Lubbock, R & R Elec. Co.	806-765-7727
TX	San Antonio, Blackburn Drives Controls	512-349-2621
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
VA	Ashland, Hermitage Distrs.	801-328-2075
VA	Staunton, Southern Elec.	703-886-6218
WI	Manitowoc, Englewood Elec.	414-684-6653
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Control Design	414-784-1015

DELTRON, INC., P.O. Box 1369, Wissahickon Ave., N. Wales, PA 19454-9990, Tel: 215-699-9261, TWX: 510-661-8061; Empl.: 175-180; *Sls. Mgr.:* Jack Phillips

DELTRONIC CRYSTAL INDS., 215 Rt. 10, Bldg. 3, Sec. 5, Randolph, NJ 07869, Tel: 201-361-2222, Telex: 13-6170; Empl.: 8

DENNIS CHEMICAL, 2700 Papin St., St. Louis, MO 63103, Tel: 314-771-1800; Empl.: 70; *Sls. Mgr.:* Charles F. Seger III; *Dist. Mgr.:* Charles F. Seger III

DENNISON KUBE, Div. Dennison Computer Supplies Inc., 132 Calvary St., Waltham, MA 02254-0472, Tel: 617-899-0012, Telex: 94-0179; FSC No.: 17691; Empl.: 150; *Sls. Mgr.:* Alfred J. Black

DENNISON MFG. CO., 300 Howard St., Framingham, MA 01701, Tel: 617-879-0511, Telex: 948-478; FSC No.: 5975;2310; Empl.: 8000; *Sls. Mgr.:* Dan Shearn; *Dist. Mgr.:* Marlene Hajduk

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DENSITRON CORP., 20775 Western Ave., Torrance, CA 90501, Tel: 213-618-9647, TWX: 910-349-6200; FSC No.: 62483; Empl.: 65; *Sls. Mgr.:* Robert Turner; *Dist. Mgr.:* Robert Turner **B•1029-1031**

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mktg., Inc.	205-837-7363
AZ	Phoenix, Chaparral Elctrn., Inc.	602-252-0897
CA	Laguna Hills, Comp. Mktg. Assocs.	714-951-6046
CA	Lomita, Comp. Mktg. Assocs.	213-326-1460
CA	San Mateo, Comp. Mktg. Assocs.	415-345-7373
CA	Simi Valley, (CMA) Repco	805-583-5710
CO	Arvada, Delconec	303-422-7023
FL	Coral Springs, E.P.M. Corp.	305-755-5387
FL	Orlando, E.P.M. Corp.	305-425-6149
GA	Atlanta, Elctrn. Mktg. Assoc., Inc.	404-448-1215
IL	Park Ridge, Bob Burns & Assocs., Inc.	312-775-1233
IA	Davenport, Ensco-Rep, Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep, Inc.	316-683-1071
MA	Braintree, Nova Assocs.	617-848-9330
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	Minneapolis, Electro-Serv	612-338-3475
MO	Maryland Heights, Ensco-Rep, Inc.	314-423-3935
NY	Mastic, Optimum Sls. Co.	516-589-4664
NY	Rochester, J. G. Welch Assocs.	716-244-1100
NY	Utica, J. G. Welch Assocs.	315-736-7821
NC	Raleigh, Elctrn. Mktg. Assoc., Inc.	919-847-8800
OH	Dayton, Dynel Co.	513-434-6467
PA	Wynnewood, Metz-Benham Assocs., Inc.	215-896-7300
SC	Greenville, Elctrn. Mktg. Assoc., Inc.	803-233-4637
TX	Austin, Delta Comp., Inc.	512-458-4288
TX	Seagoville, Delta Comp., Inc.	214-287-6333
UT	Salt Lake City, Delconec, Inc.	801-531-6177
WA	Seattle, J. J. Assocs., Inc.	206-246-6619
WI	Milwaukee, Taylor Mktg. & Sls.	414-332-1211

DESIGNATRONICS, INC., See Automatic Coil Corp., Sub. Designatronics, Inc.

DESIGN AUTOMATION, INC., 809 Massachusetts Ave., Lexington, MA 02173-3992, Tel: 617-862-8998, Telex: 951833 SBSB WOR; Empl.: 5

DESIGN TECHNOLOGY, 7760 Vickers St., San Diego, CA 92111-1871, Tel: 619-268-8194; *Sls. Mgr.:* Pam Hamilton; *Dist. Mgr.:* Sherry Kuzara

DESPATCH INDS., P.O. Box 1320, Minneapolis, MN 55440, Tel: 612-331-1873, Telex: 29-0704; Empl.: 475; *Sls. Mgr.:* T. Hostad

DEST CORP., 2380 Bering Dr., San Jose, CA 95131, Tel: 408-946-7100; Empl.: 50; *Sls. Mgr.:* Richard Dixon

DETORONICS CORPORATION, 10660 E. Rush St., S. El Monte, CA 91733, Tel: 818-579-7130, TWX: 910-587-3436; FSC No.: 29867; Empl.: 45

DEUTSCH CO., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045, Tel: 213-649-1400; *Sls. Mgr.:* Ken Ahmad

DEUTSCH FASTENER, 1315 East Grand Ave., El Segundo, CA 90245, Tel: 213-322-8840, Telex: 66-4453, TWX: 910-348-6676; Empl.: 300; *Sls. Mgr.:* Ian J. Skone-Rees

DEUTSCH RELAYS, INC., 65 Daly Road, East Northport, NY 11731, Tel: 516-499-6000

DEVCO ENGRG., Control Sys. Div., 36 Pier Lane West, Fairfield, NJ 07006, Tel: 201-CA8-0321, Telex: 139-340; Empl.: 36

DEVELCO, INC., 404 Tasman Dr., Sunnyvale, CA 94089-1797, Tel: 408-734-5700, TWX: 910-339-9295; Empl.: 50; *Sls. Mgr.:* W. J. Baker

DEVELOPMENT ASSOCIATES, 1520 S. Lyon, Santa Ana, CA 92705, Tel: 714-835-9512; Empl.: 6

DEXCEL, Div. of Gould, 2285C Martin Ave., Santa Clara, CA 95050, Tel: 408-727-9833, TWX: 910-338-0180; Empl.: 210; *Sls. Mgr.:* Art Kawai

DEXTER RESEARCH CTR., INC., 7300 Huron River Dr., Dexter, MI 48130, Tel: 313-426-3921, Telex: 757075 DEXTER RES UD; Empl.: 22; *Sls. Mgr.:* D. M. Szeles

DGS ASSOCS., 1353 Sarita Way, Santa Clara, CA 95051, Tel: 408-554-1469, Telex: 6502163796

DIALIGHT CORP., 203 Harrison Pl., Brooklyn, NY 11237-1587, Tel: 718-497-7600, TWX: 710-584-5487; Empl.: 400; *Sls. Mgr.:* I. Jaffe **B•1032-1038, 1550-1551**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, Ralph Stitzer Co.	602-997-7415
CA	Anaheim, Westrep	213-404-3881
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CA	San Diego, Westrep	619-566-6580
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Deerfield Bch., Cartwright & Bean	305-429-3400
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Chicago, D. Dolin Sls.	312-498-6770
IN	Indianapolis, Elctrn. Reps.	317-894-1414
KS	Overland Park, Advanced Tech. Sales	913-642-6675
LA	Covington, Cartwright & Bean	504-892-1780
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, Professional Sales For Ind.	612-944-8545
MS	Jackson, Cartwright & Bean	601-981-1170
NY	Liverpool, Gen-Tech	315-451-3480
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Dayton, K.W. Elctrn. Sls.	513-890-2150
OH	Shaker Hgts., K.W. Elctrn. Sls.	216-491-9177
OH	Worthington, K.W. Elctrn. Sls.	614-888-0483
OR	Tigard, Elctrn. Sources	503-684-0040
PA	Allison Park, K.W. Elctrn. Sls.	412-487-4300
PA	Broomall, L.D. Lowery	215-528-5170
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Austin, Tesco	512-834-8374
TX	Garland, Tesco	214-681-1376
UT	Woodscross, Comp. Prods. Sls.	801-292-8882
WA	Bellevue, Elctrn. Sources	206-451-3500
WI	Milwaukee, D. Dolin Sls.	414-482-1111

Local Distributors

AZ	Tempe, Richey Western Elctrns.	602-894-9251
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Chatsworth, Diplomat Westates Elctrns.	213-341-4411
CA	Costa Mesa, Diplomat Westates	714-549-8401
CA	Gardena, Bell Indus.	213-515-1800
CA	Inglewood, Newark Elctrns.	213-671-7387
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CA	San Diego, Fisher/Brownell	714-560-8545
CA	San Diego, Richey Western Elctrns.	714-565-4444
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Santa Clara, Richey Western Elctrns.	408-727-7411
CA	Sun Valley, Richey Western Elctrns.	213-768-3800
CA	Sunnyvale, Bell Indus.	408-734-8570
CA	Sunnyvale, Time Elect.	408-734-9888
CO	Denver, CSID Inc.	303-292-9594
CO	Denver, Newark Denver Elctrns.	303-757-3351
CT	Wallingford, Sager Elctrl. Supply	203-265-4600
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, Specialty Dist.	404-873-2521
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio & Elect.	309-691-4840
IN	Ft. Wayne, Graham Elctrn.	219-423-3422
IN	Indianapolis, Graham Elctrn.	317-634-8202
IN	South Bend, Genesis Elctrn.	219-287-2911
KY	Louisville, P.I. Burks	502-589-3960
LA	Lafayette, Ralph's of Lafayette	318-234-4507
LA	New Orleans, Southern Radio Supp.	504-524-2343
MD	Baltimore, Resco/Baltimore	301-529-0600
MD	Gaithersburg, Pioneer Wash. Elect.	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Springfield, T.F. Cushing	413-788-7341
MA	Wilbraham, Ind'l. Comps.	413-596-3854
MI	Ann Arbor, Wedemeyer Elctrn. Supp.	313-665-8611
MI	Livonia, RS Elctrns.	313-525-1155
MI	Oak Park, Newark Elctrn.	313-967-0600
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	Kansas City, LCOMP	816-221-2400
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	Maryland Hgts., LCOMP	314-291-6200
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NJ	Hanover, State Elctrns.	201-887-2550
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Buffalo, Summit Dists.	716-887-2800
NY	Elmsford, Ancar Elctrns. Supp.	914-592-7100
NY	Endwell, ASI Elect.	607-754-3823
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Hauppauge, Broadline Elec. Dists.	516-231-4100
NY	Long Island City, Dalis Indl. Elect.	212-361-1100
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NY	Woodbury, Pioneer/Harvey	516-921-8700
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Akron, Sun Radio	216-434-2171
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Cleveland, Pioneer-Cleveland	216-587-3600
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Solon, REPCO Elctrn.	216-248-8900
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Almac Elctrns.	503-641-9070
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronic Indus.	215-643-2850
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Pittsburgh, Cam RPC Elect.	412-782-3770
PA	Reading, Barbey Elctrns.	215-376-6116
RI	Providence, Wm. Dandreta	401-861-2800
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Kingsport, Radio Elec. Supp.	615-247-8111
TN	Nashville, Carlton-Bates Co.	615-244-3562
TN	Nashville, Electra Dist.	615-329-3971
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Newark Elctrns.	713-782-4800
TX	Stafford, Harrison Equip.	713-879-2600
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Norfolk, Priest Elctrns.	804-855-0105
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Almac Elctrns.	206-643-9992
WI	Milwaukee, Elctrn. Expeditors	414-228-8100
WI	Milwaukee, Indl. Elect.	414-276-1212
WI	Milwaukee, Marsh Elctrns.	414-475-6000

DIAL PRODS. CO., 19-21 Cottage St., Bayonne, NJ 07002, Tel: 201-HE7-0720; Empl.: 100; *Sls. Mgr.:* Beverly Malen

DIAMOND MAGNETICS, P.O. Box 4736, San Luis Obispo, CA 93403, Tel: 805-544-4019; Empl.: 10; *Sls. Mgr.:* Lyle Nighswonger

DIAMOND SHAMROCK CORP, 1100 Superior Ave, Cleveland, OH 44114, Tel: 216-694-5000

DIANACHART INC., 129 Hibernia Ave., Rockaway, NJ 07866, Tel: 201-625-2299; Empl.: 10; *Sls. Mgr.:* D. Brodie

DI/AN CONTROLS, INC., 944 Dorchester Ave., Boston, MA 02125, Tel: 617-288-7700, TWX: 710-333-1732; FSC No.: 06900; Empl.: 135; *Sls. Mgr.:* C. S. Aspinwall, Jr.; *Dist. Mgr.:* C. S. Aspinwall, Jr.

DIA-NETICS, INC., 18823 Napa St., Northridge, CA 91324, Tel: 818-886-2616; Empl.: 35

DIEGO POWER, 5350 Eastgate Mall, San Diego, CA 92121, Tel: 587-1925; Empl.: 12; *Sls. Mgr.:* Jack Jaquay .... **D•1916**

Local Sales Offices & Reps

CA	Campbell, Elcor Assocs.	408-866-5505
CA	Garden Grove, Elcor Assocs.	714-895-3422
CT	Hamden, AMI, Inc.	203-288-5288
IL	Rolling Meadows, Commodore I	312-394-5441
MA	Acton, AMI, Inc.	617-263-2766
MN	Burnsville, Commodore I	612-894-5488
NJ	Lodi, SDM Reps., Inc.	201-368-0123
NY	Rochester, SDM Reps., Inc.	716-247-8770
OH	Miamisburg, Swenson Assocs.	513-866-3233
WA	Seattle, Datacom Assocs.	206-285-2525

DIELECTRIC COMMUNICATIONS, General Signal, Tower Hill Rd., Raymond, ME 04071, Tel: 207-655-4555, 800-341-9678, Telex: 710-229-6890; FSC No.: 08441; Empl.: 250; *Sls. Mgr.:* Rolf Olsen

DIELECTRIC INSTR. CORP., 761 Franklin Ave., Pittsburgh, PA 15221, Tel: 412-731-6566; Empl.: 7

DIELECTRIC LABS., 69 Albany St., Cazenovia, NY 13035, Tel: 315-655-8710, TWX: 710-541-1530; FSC No.: 55153; Empl.: 65; *Sls. Mgr.:* David Carter

DIETZ DESIGN, INC., 100 Electronics Pkwy., Belton, MO 64012, Tel: 816-331-4911; Empl.: 75

DIETZGEN CORP., 250 Wille Rd., Des Plaines, IL 60018, Tel: 312-635-5200; Empl.: 200

DIGELEC, INC., Affil. Wavetek Corp., 586 Weddell Drive, Suite 1, Sunnyvale, CA 94089, Tel: 408-745-0722, Telex: 821877; *Sls. Mgr.:* Karl Sturz

DIGIAC CORP., 175 Engineers Rd., Hauppauge, NY 11788, Tel: 516-273-8600, TWX: 510-227-9879; Empl.: 25; *Sls. Mgr.:* L. Keckeisen; *Dist. Mgr.:* S. Opperer

DIGI-DATA CORP., 8580 Dorsey Run Rd., Jessup, MD 20794, Tel: 301-498-0200, Telex: 87-580; Empl.: 75; *Sls. Mgr.:* Allen Grams

DIGIMAX INSTRS. CORP., 5625 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-569-6582, Telex: 697120-DATAMAX; FSC No.: 5T492; *Sls. Mgr.:* Dan Burton; *Dist. Mgr.:* Dan Burton

DIGITAL COMMUNICATIONS ASSOCS., INC., 303 Technology Pk., Norcross, GA 30092, Tel: 404-448-1400, Telex: 261333 DCAATL; Empl.: 500; *Dist. Mgr.:* Jerry Buran

DIGITAL DATA SYS., 1551 N.W. 65 Ave., Plantation, FL 33313, Tel: 305-792-3290, Telex: 9109974751 (DIGITAL); Empl.: 20; *Sls. Mgr.:* Floyd Simon; *Dist. Mgr.:* A. Gomez

DIGITAL DEV. CORP., 8650 Balboa Ave., San Diego, CA 92123, Tel: 619-278-9920, Telex: 69-54-30; Empl.: 430; *Sls. Mgr.:* Charles Theodore

DIGITAL DYNAMICS, INC., 108 Water St., Watertown, MA 02172, Tel: 617-923-4315, Telex: 9580076; Empl.: 26; *Sls. Mgr.:* Eric Kapust

DIGITAL ELCTRNS., 26142 Eden Landing Rd., Ste. 2, Hayward, CA 94545, Tel: 415-786-0520, Telex: 334422; *Sls. Mgr.:* Bob Christensen

DIGITAL EQUIP., One Iron Way, Marlborough, MA 01752

digital

DIGITAL EQUIPMENT CORP., 33 Cabot Rd., Woburn, MA 01801, Tel: 800-225-5385 .... **D•1063-1065**

DIGITAL GRAPHIC SYS., 2629 Terminal Blvd., Mountain View, CA 94043, Tel: 415-962-0200; *Sls. Mgr.:* Radcliffe Goddard

DIGITAL MICROSYSTEMS, 1755 Embarcadera, Oakland, CA 94606, Tel: 415-532-3686, TWX: 910-366-7310; Empl.: 200; *Sls. Mgr.:* Terry Forde

DIGITAL MEDIA, 3178 Gibraltar Ave., Costa Mesa, CA 92626, Tel: 714-751-1373; *Sls. Mgr.:* David Scott

DIGITAL PATHWAYS, INC., 1060 E. Meadow Cir., Palo Alto, CA 94303, Tel: 415-493-5544, TWX: 910-379-5034; *Sls. Mgr.:* Jan Legassick

DIGITAL POWER CORP., 686 East Gish Rd., San Jose, CA 95112, Tel: 408-288-5600, TWX: 910-338-0579; *Sls. Mgr.:* Claude Adkins

DIGITAL PRODUCTS, INC., 600 Pleasant St., Watertown, MA 02172, Tel: 617-924-1680; Empl.: 25; *Sls. Mgr.:* William M. Kahn

DIGITAL RADIO CORP., 8901 La Cienega Blvd., Inglewood, CA 90301, Tel: 213-670-8611; *Sls. Mgr.:* Arvin L. Perry

DIGITAL TRANSMISSION TECHNIQUES, INC., P.O. Box 1847, Wayne, NJ 07470, Tel: 201-831-1615; Empl.: 3; *Sls. Mgr.:* Charles Herbst

DIGITEC CORP., 918 Woodley Rd., P.O. Box 458, Dayton, OH 45401, Tel: 513-254-6251, Telex: 6874219 W.U.I.; FSC No.: 16152; Empl.: 135; *Sls. Mgr.:* Jerry Rozek; *Dist. Mgr.:* Jerry Rozek .... **D•1066, 1149, 1348**

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown	205-883-8660
CA	Huntington Beach, AWC	714-969-2468
CA	Santa Clara, Johnson Assocs.	408-984-4626
CT	New Canaan, R. J. Sickles Assoc.	203-966-4630
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-924-3568
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
KS	Shawnee, Marsland Assocs.	913-631-5400
MI	Southfield, Comtel-Instr.	313-358-2505
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-878-2402
NJ	Cedar Grove, KLS	201-785-4450
NJ	Cherry Hill, Sci. Reps.	609-482-0059
NM	Albuquerque, Fry-Gates	505-262-1525
NY	Glens Falls, Glen Instrs.	518-798-1993
NY	Rochester, Glen Instrs.	716-338-7148
OH	Cleveland, Comtel-Instr.	216-442-8080
OH	Dayton, Comtel-Instr.	513-298-7573
PA	Pittsburgh, Comtel-Instr.	412-922-5720
TX	Houston, Adaptive Controls	713-995-9791
UT	Salt Lake City, Meas. Conslts.	801-364-3174
VA	Fairfax, Scientific Reps.	703-385-0600
VA	Richmond, Cavalier	804-794-4033

DIGITECH INDUSTRIES, INC., 66 Grove St., Ridgefield, CT 06877, Tel: 203-438-3731, Telex: 969-623; Empl.: 70

DIGITEK INC., P.O. Box 468, Kenmore, WA 98028, Tel: 206-485-6571; *Sls. Mgr.:* Paul J. McManus; *Dist. Mgr.:* Paul J. McManus

DIGITRAN CO., Becton Dickinson & Co., 3100 New York Dr., Pasadena, CA 91107, Tel: 818-791-5600, Telex: 67-5485, TWX: 910-588-3794; Empl.: 300

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assoc.	205-881-5031
AZ	Scottsdale, Arcom Sls.	602-947-5745
AR	Little Rock, Beacon Elctrn. Assoc.	501-224-5449
CA	Anaheim, Westrep	213-404-3881, 714-527-2822
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Littleton, Omega, Ltd.	303-798-7040
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Clearwater, Beacon Elec. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elec. Assocs.	305-491-1054
FL	Maitland, Beacon Elec. Assocs.	305-647-3498
FL	Melbourne, Beacon Elec. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Ft. Wayne, R. O. Whitesell & Assoc.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assoc.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assoc.	317-457-9127
IA	Des Moines, The Beams Co.	515-255-1148
KS	Shawnee Mission, The Beams Co.	913-631-0300
KY	Louisville, R. O. Whitesell & Assoc.	502-426-7696
MD	Silver Spring, Marktron	301-460-6100
MD	Timonium, Marktron	301-252-7111
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Grand Rapids, R. O. Whitesell & Assoc.	616-942-5420
MI	Southfield, R. O. Whitesell & Assoc.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assoc.	616-983-7337
MO	St. Louis, The Beams Co.	314-569-1060
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	New York, Comp-Tech Sls.	516-593-2628
NY	Rochester, Ossmann Comp. Sls.	716-424-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
NC	Greensboro, Beacon Elctrns. Assoc.	919-275-9997
NC	Raleigh, Beacon Elec. Assoc.	919-787-0330
OH	Cincinnati, R. O. Whitesell & Assoc.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assoc.	216-447-9020
OH	Columbus, R. O. Whitesell & Assoc.	614-888-9396
OH	Dayton, R. O. Whitesell & Assoc.	513-298-9546
PA	Pittsburgh, R. O. Whitesell & Assoc.	412-963-6161
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
UT	Riverton, Omega, Ltd.	801-254-6723
VA	Charlottesville, Marktron	301-460-6100
WA	Bellevue, Underwood Hanify	206-451-8223
WA	Vancouver, Underwood Hanify	503-641-4463
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

Local Distributors

AL	Huntsville, Comp. Distrs.	205-883-7501
AL	Huntsville, Powell Elec.	205-539-2731
AZ	Tempe, Powell Elctrns.	602-967-7538
AR	Little Rock, Comp. Distrs.	501-227-6278
CA	Cerritos, El-Com	213-404-2961
CA	Fullerton, Pyramid	714-773-0781, 213-691-0561
CA	San Diego, El-Com	619-578-0900
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elec.	408-727-9810
CO	Denver, CSID, Inc.	303-292-9594
CT	Hamden, Impact Elctrns.	203-281-1331
FL	Ft. Lauderdale, Comp. Distrs.	305-971-4950
FL	Ft. Lauderdale, Powell Electr./Fla.	305-972-4300
GA	Norcross, Comp. Distrs.	404-441-3320
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
IN	Indianapolis, Graham Elec.	317-634-8202
MD	Columbia, Powell Electr.	301-621-4070
MA	Canton, Impact Sls. Co.	617-821-1500
MA	West Borough, Powell Electrns.	617-336-6100
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	St. Clair Shores, Specialties Mfg.	313-771-2700
MN	St. Paul, Magnuson Elec.	612-227-8495
NJ	Hasbrouck Hgts., Tory Sls.	201-288-5656
NY	Rochester, Modutex Corp.	716-647-9700
NC	Cary, Powell Elec.	919-467-1212
NC	Raleigh, Comp. Distrs.	919-834-9465
OH	Cleveland, Pioneer-Cleveland	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Shannon, Ltd.	503-644-8077, 800-426-4615
PA	Philadelphia, Powell Electr.	215-365-1900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
WA	Kent, Shannon, Ltd.	206-763-0545

DIGITUS CORPORATION, 22 West 25th Street, Baltimore, MD 21218, Tel: 301-467-3223, TWX: 908248 SVCETCY; Empl.: 12; *Sls. Mgr.:* Mr. Henry Mo; *Dist. Mgr.:* Mr. Henry Mo

DILLON, W. C., & CO., National Controls, Inc., 2320 Airport Blvd., Santa Rosa, CA 95401, Tel: 707-527-5555, TWX: 510-744-2076; Empl.: 500

DIMCO-GRAY, 8200 S. Suburban Rd., Dayton, OH 45459, Tel: 513-433-7600, Telex: 288-367; Empl.: 150; *Sls. Mgr.:* R. Cramer

DIMENSIONS UNLIMITED, INC., 1636 Gervais Ave., St. Paul, MN 55109, Tel: 612-770-5630; *Sls. Mgr.:* Dennis Getter

DIODES INC., 9957 Canoga Ave., Chatsworth, CA 91311, Tel: 818-882-4920, 800-821-1178; Empl.: 30; *Sls. Mgr.:* Tim Regan; *Dist. Mgr.:* Tim Regan

DIONICS, 65 Rushmore St., Westbury, NY 11590, Tel: 516-997-7474, TWX: 510-222-0974; Empl.: 85; *Sls. Mgr.:* Mel Geffner

DIO-REY, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, Tel: 201-941-4455; FSC No.: FSCM 52116; Empl.: 13; *Sls. Mgr.:* Joseph M. Cartelli; *Dist. Mgr.:* Joseph M. Cartelli .... **B•1040-1046**

Local Sales Offices & Reps

CA	No. Hollywood, Crown Elctrns.	213-877-3550
CA	Redwood City, Caltronic Assocs.	415-365-2545
CT	Weston, CJA Assoc.	203-226-4317
FL	St. Petersburg, R. L. Matus & Assocs.	813-896-4133
GA	Buford, R. L. Matus & Assocs.	404-945-2946
IL	Lake Zurich, L & B Assocs.	312-438-7917
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
NJ	Wayne, GT Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, A.S.A.	216-662-6080
OH	Dayton, Mohawk Intronics	513-434-8873
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415

DISC INSTRUMENTS, Honeywell, 102 E. Baker St., Costa Mesa, CA 92626, Tel: 714-979-5300, TWX: 910-595-1987; Empl.: 175; *Sls. Mgr.:* Don Risk

DISPLAY DEVICES, Box 667, Encinitas, CA 92024, Tel: 619-753-0113; FSC No.: 26107

DISPLAY INTERFACE CORP., 525 Boston Post Rd., P.O. Box 250, Milford, CT 06460, Tel: 203-877-7661; *Sls. Mgr.:* Leigh H. Hickcox

DISPLAYS, INC., Mifflin Countey Indl. Pk., Rte. 4, Box 6AAA, Lewistown, PA 17044, Tel: 717-242-2541, Telex: 842540; Empl.: 50

Local Sales Offices & Reps

IL	Des Plaines, Esco Assocs.	312-298-5310
MA	Framingham, Bay Colony Reps.	617-620-0607

DISPLEX, INC., Alexander Place, Glen Cove, NY 11542, Tel: 516-671-4400, Telex: 46-6886 NOHILL CI; Empl.: 12; *Sls. Mgr.:* Alan Kushner; *Dist. Mgr.:* Alan Kushner .... **D•1619, 1917**

Local Sales Offices & Reps

CA	Gardena, Bidwell Sls.	213-532-7305
CA	Westlake Village, WEW Entprs.	213-707-1551
IL	Elmhurst, First Rep Co.	312-530-2450
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Needham, Addelco Corp.	617-444-4754
NY	Great Neck, F & F Metro	516-482-4080
OH	Cleveland Heights, Seltech	614-451-3868
OH	Columbus, Seltech	614-451-3865
OR	Portland, Belusko & Co.	503-222-4279
TN	Nashville, Computer Power Corp.	615-366-1703
PR	Casuas, Micro-Tech Sys & Controls.	809-783-0100

DISTRIBUTED COMPUTER SYS., 223 Crescent St., Waltham, MA 02154, Tel: 617-899-6619, TWX: 710-324-6476; Empl.: 32; *Sls. Mgr.:* Garry Stephens

DISTRIBUTED LOGIC CORP. (DILOG), 12800-G Garden Grove Blvd., Garden Grove, CA 92643, Tel: 714-534-8950, Telex: 681399; FSC No.: 95-3205555; Empl.: 105; *Sls. Mgr.:* Dennis Edwards; *Dist. Mgr.:* Dennis Edwards

Distributor

DISTRIBUTOR SPECIALISTS, 632 Santa Monica Blvd., Santa Monica, CA 90401, Tel: 213-393-9666 .... pgs. **708, 775**

DIVERSIFIED CASE CO., Ellis Ave., Off. 2, Whitesboro, NY 13492, Tel: 315-736-3028; Empl.: 75; *Sls. Mgr.:* John Fitzsimmons

DIVERSIFIED ELECTRONICS, INC.

DIVERSIFIED ELCTRNS., INC., Indl. Controls Div., 119 N. Morton Ave., Evansville, IN 47711, Tel: 812-426-2806; Empl.: 55; *Sls. Mgr.:* Ken Qualls ..... **B•1322**

Local Sales Offices & Reps

CA	Danville, Stuart Assocs.	415-837-8197
CA	Signal Hill, California Electro Sls. Co.	213-595-7427
CO	Denver, Empire Elctrl. Sls.	303-744-1776
FL	Leesburg, Diversified Elctrns.	800-874-0619
GA	Atlanta, Grady Duckett	404-451-3529
IL	Des Plaines, Antek/Lincoln, Hodges & Assocs.	312-297-0885
IN	Seymour, Diversified Elctrns. Inc.	812-522-1481
IA	Bettendorf, Weisler & Assocs.	319-344-0566
MD	Fulton, S. Jefferies	301-792-7452
MO	Ellisville, Weisler & Assocs.	314-394-4543
MO	Kansas City, Weisler & Assocs.	816-421-1679
NY	Great Neck, Frank Tylinski Co.	516-466-9070
NC	Charlotte, Sentry Power	704-535-1774
NC	Wake Forrest, Sentry Power Controls	704-535-1774
OH	Cleveland, Arthur Baier	216-461-6161
OH	Cleveland, Syntron, Inc.	216-572-2848
OH	Dayton, Arthur Baier	513-276-4128
OR	Forest Grove, Doran Sls. Assocs., Inc.	503-357-3333
PA	Narberth, S. A. Jefferies	215-664-8500
TX	Houston, Weisler & Assocs.	713-467-1847
UT	Salt Lake City, Conely Engrg. Co.	801-972-5923
WA	Green Acres, Doran Sls. Assocs., Inc.	509-922-2317
WA	Redmond, Doran Sls. Assocs., Inc.	206-855-1885
WI	Janesville, Antek Mktg. Assocs.	608-754-4214
EXP	MO, St. Louis, Brauner Export Co.	314-426-2600
Can	Mississauga, Ont., Knox Elctrl. Specialities, Inc.	416-646-6080

Local Distributors

AL	Birmingham, MG Elctrns. & Equip., Co., Inc.	205-328-4525
AL	Mobile, Specialty Distrg. Co.	205-344-0450
AR	Rogers, Evans Elec. Motor Centers	501-636-0721
CA	Cathedral City, Consolidated Elec.	714-328-1131
CA	Danville, Cal-West Supp.	415-837-8245
CA	Fresno, Electric Motor & Supp.	209-233-1155
CA	Long Beach, Mag-Trol/Long Beach, Inc.	213-435-3451
CA	Palm Springs, Lake Service	619-320-2727
CA	Palo Alto, Elctrl. Matls., Inc.	415-494-0400
CA	Redondo Beach, Elctrl. Power & Controls, Inc.	213-772-8890
CA	South El Monte, Walton Electrical Controls, Inc.	213-442-4610
CO	Denver, Control Comps, Inc.	303-371-2727
CO	Golden, Utility Control & Equip. Co.	303-425-1990
DC	Washington, Wesco	202-833-5250
FL	Crystal River, Crems Indl. Sls.	813-795-2230
FL	Ft. Lauderdale, Graybar Elec.	305-467-1453
FL	Ft. Myers, Con. Elec. Supp. Co.	813-332-1515
FL	Jacksonville, Graybar Elec.	904-356-7611
FL	Lakeland, A-A Elc.	813-665-6941
FL	Largo, Graybar Elec.	813-535-6460
FL	New Port Richey, Pasco Elec. Sup.	813-842-8405
FL	Orlando, Consolidated Elec.	305-849-6532
FL	Tallahassee, Graybar Elec.	904-222-5332
FL	Tampa, Electric Supp. of Tampa	813-872-1894
FL	W. Palm Beach, Nurmi Elctrn. Supp., Inc.	305-686-8553
GA	Albany, Specialty Distrbg. Co., Inc.	912-435-1711
GA	Athens, Specialty Distrbg. Co., Inc.	404-548-1334
GA	Atlanta, Dapco, Inc.	404-458-6341
GA	Atlanta, Specialty Distrbg. Co., Inc.	404-873-2521
GA	Augusta, Speciality Distrbg. Co., Inc.	404-722-1526
GA	Brunswick, Specialty Distrbg. Co., Inc.	912-265-1927
GA	College Park, Specialty Distrbg. Co., Inc.	404-763-3828
GA	Columbus, Specialty Distrbg. Co., Inc.	404-327-7414
GA	Macon, Specialty Distrbg. Co., Inc.	912-743-5421
GA	Marietta, Specialty Distrbg. Co., Inc.	404-422-4333
GA	Norcross, A-A Electric	404-449-8670
GA	Savannah, Graybar Elec.	912-232-1121
GA	Savannah, Specialty Distrbg. Co., Inc.	912-234-1684
GA	Valdosta, Specialty Distrbg. Co., Inc.	912-242-4910
ID	Coeur d'Alene, R. C. Worst & Co., Inc.	208-664-2133
ID	Idaho Falls, Electrical Supp.	208-523-2800
ID	Pocatello, Electrical Supp.	208-233-1362
ID	Rexburg, Electrical Supp.	208-356-7282
IL	Bloomingdale, Seversen Engrg.	312-529-0501
IL	Fairfield, Precision Elec. Co.	618-842-7000
IL	Mt. Prospect, Legend Elctrl. Sls.	312-952-0090
IN	Evansville, Hutch & Son, Inc.	812-425-7201
IN	Indianapolis, Genesis Elec.	317-637-5571
IN	Indianapolis, Jackson Controls Co., Inc.	317-887-3111
IN	Vincennes, Valley Elec.	812-882-7860
KS	Salina, American Elec.	913-823-2248
KY	Louisville, CDE/E & H Elec. Supp. Co.	502-587-0991
KY	Louisville, Peerless Elec.	502-637-7677
KY	Louisville, Peterson Elec. Supp. Co., Inc.	502-491-5010
ME	Auburn, Gilman Elec. Supp.	207-784-6906
MD	Baltimore, Infinity Sys., Inc.	301-358-8500
MD	Baltimore, Wesco	301-327-4300
MD	Salisbury, Wesco	301-742-2193
MN	Minneapolis, Texa Minn Prods.	612-861-2900
MO	St. Louis, United Elec. Supp.	314-771-5555
NE	Omaha, West Dodge Elec.	402-393-8071
NH	Manchester, Graybar Elec.	603-624-4341
NJ	Audubon, Universal Elctrns. Supp. Co.	609-547-3430
NJ	E. Rutherford, A-A Elec.	201-777-5477
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Long Island, Graybar Elec.	212-392-2000
NY	Maybrook, Air Power House	914-457-3113
NY	Whitestone, Power Electro Supp. Co., Inc.	212-767-1447
NC	Charlotte, Southern Elec. Svc. Co.	704-372-4832
NC	Huntersville, Scott Equip.	704-875-1611
OH	Cincinnati, Wesco	513-542-4300
OH	Cleveland, Milner Elec.	216-361-0300
OK	Oklahoma City, Evans Elec. Motor Centers	405-631-1344
OK	Tulsa, Cooper Supp. Co.	918-628-1500
OK	Tulsa, Evans Elec. Motor Centers	918-587-1566
OR	Bend, North Coast Elec. Co., Inc.	503-382-6211
OR	Coos Bay, North Coast Elec. Co., Inc.	503-267-2145
OR	Eugene, North Coast Elec. Co., Inc.	503-343-7701
OR	Klamath Falls, North Coast Elec. Co., Inc.	503-884-4171
OR	Medford, North Coast Elec. Co., Inc.	503-772-7131
OR	Portland, North Coast Elec. Co., Inc.	503-228-5111
OR	Portland, Reed Elec. Sls. & Supp., Inc.	503-223-8191
OR	Tualatin, North Coast Elec. Co., Inc.	503-620-3910
PA	Bala-Cyn-Wyd, Wesco	215-581-9314
PA	Erie, Wesco	814-454-8191
PA	Johnstown, Wesco	814-536-8761
PA	Monroeville, Wesco	412-325-1300
PA	Philadelphia, Mechanical Specialties, Inc.	215-331-5555
PA	Pittsburgh, Wesco	412-255-4290
PA	York, Wesco	717-843-0891
SC	Columbia, J. W. Vaughn Co.	803-779-2690
SC	Greenville, Shealy Elctrl. Whlsrs.	803-242-6880
TN	Chattanooga, Specialty Distrbg. Co., Inc.	615-267-9531
TX	Ft. Worth, Swieco, Inc.	817-335-6521
TX	Houston, Commercial Equip.	713-237-8682
TX	Houston, Hedco	713-224-4771
TX	Midland, Energy Sys., Inc.	915-694-9657
TX	San Antonio, Summers Elec.	512-824-1451
TX	Waco, Smith Pump Co.	817-776-0377
TX	Wichita Falls, Evans Elec. Motor Ctrs.	817-723-7466
UT	S. Salt Lake, Engineered Control Sys., Inc.	801-487-6226
VA	Alexandria, Calvert-Jones Co., Inc.	703-370-5850
VA	Chantilly, Engineered Svcs., Inc.	703-471-6310
VA	Danville, Wesco	804-792-2274
VA	Hampton, Wesco	804-826-6730
VA	Lynchburg, Wesco	804-845-0948
VA	Norfolk, Wesco	804-625-7451
VA	Petersburg, Wesco	804-732-1222
VA	Richmond, Wesco	804-353-7353
VA	Roanoke, Wesco	703-344-3271
WA	Longview, North Coast Elec. Co., Inc.	206-423-1550
WA	Moses Lake, Inland Elctrl. Supp. Co.	509-765-1251
WA	Renton, Debenham	206-251-5055
WA	Richland, Wesco	509-783-1397
WA	Spokane, North Coast Elec. Co., Inc.	509-922-1317
WA	Spokane, Power Pump & Elec. Supp.	509-534-5616
WV	Beckley, Wesco	304-252-8633
WV	Bluefield, Wesco	304-325-6151
WV	Bridgeport, Wesco	304-624-6311
WV	Parkersburg, Wesco	304-485-6541
WI	Cedarburg, A-A Elec.	414-377-7500
WI	Green Bay, Climatic Control Co., Inc.	414-336-4060
WI	Madison, Climatic Control Co., Inc.	608-273-1717
WI	Milwaukee, Climatic Control Co., Inc.	414-259-9070
WI	Monroe, Precision Drive & Control, Inc.	608-328-5600
WY	Casper, Crum Elec. Supp. Co.	307-266-1278
WY	Casper, Wesco	307-266-3740
WY	Gillette, Wesco	307-687-0014
EXP	Jamaica, Kingston, Calcon Exporters	809-926-3320
Intl	St. Thomas, Power Sys., Inc.	809-776-0217
PR	Bayamon, Jenson Protective Dvcs.	809-798-3264

DIVERSIFIED TECHNLG., P.O. Box 748, Ridgeland, MS 39157, Tel: 601-856-4121, Telex: 585326, TWX: 810-966-2626; Empl.: 65; *Sls. Mgr.:* Bill Long; *Dist. Mgr.:* Bill Long

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Local Sales Offices & Reps

AL	Birmingham, Sesco-Birmingham	205-988-8304
AZ	Phoenix, Finn-Pat Co. Inc.	602-954-0301
CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Newark. Jacobson & Assocs.	415-791-2336
CO	Lakewood, Loritz Controls	303-232-7803
CT	Hamden, Pond Tech. Sls.	203-281-0005
FL	North Palm Beach, Sesco-Miami	305-832-0770
GA	Atlanta, Sesco-Atlanta	404-458-6423
IL	Bartlett, JJS Mktg. Svcs.	312-830-1670
LA	Baton Rouge, Sesco-Baton Rouge	504-928-4951
ME	W. Buxton, Pond Tech. Sls.	207-637-2200
MA	Waltham, Pond Tech. Sls.	617-890-5535
MI	Swartz Creek, JJS Mktg. Svcs.	313-635-7305
MN	Chanhassen, Elctrn. Instr. Cnslts.	612-445-7056
MO	Manchester. Control Sys. Des.	314-227-4212
NY	Mt. Vernon, Sonkin Assocs.	914-668-9809
NY	North Syracuse, Naco Elctrns.	315-699-2651
NC	Cary, Sesco-Raleigh	918-467-7482
OK	Tulsa, Sesco-Tulsa	918-622-3868
OR	Portland, Instr. Rep. Assocs.	503-245-6103
PA	King of Prussia, FLW of PA, Inc.	215-337-4343
TN	Knoxville, Sesco-Knoxville	615-588-5455
TX	Austin, Sesco-Austin	512-892-2490
TX	Dallas, Sesco-Dallas	214-231-9364
TX	Houston, Sesco-Houston	713-999-3510
WA	Seattle, Instr. Rep. Assocs.	206-762-0707
EXP	Toronto, Ontario, Versatile Meas. Instr.	416-239-8161

DMA SYS., 601 Pine St., Goleta, CA 93117, Tel: 805-683-3811; *Sls. Mgr.:* Don M. Minami

DOCUMATION, Box 1240, Melbourne, FL 32901, Tel: 305-725-5500, TWX: 510-959-6286; Empl.: 2800; *Sls. Mgr.:* K. Nelson; *Dist. Mgr.:* D. Carson

DODGE-MASTER-REEVES, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

D. O. INDUSTRIES, 317 E. Chestnut St., E. Rochester, NY 14445, Tel: 716-385-4920, Telex: 200802; FSC No.: 716-381-7032; *Sls. Mgr.:* Jeremy Goldstein

DOLAN-JENNER INDS., Box 1020, Woburn, MA 01801, Tel: 617-935-7444, Telex: 94-8161; Empl.; 120; *Sls. Mgr.:* S. Futran; *Dist. Mgr.:* S. Futran

Local Sales Offices & Reps

CA	Hollywood, Duncan Engrg.	213-462-5880
CA	Mountain View, C/G Assocs.	415-968-6062
CO	Denver, Gribble Sls.	303-279-4545
IL	Buffalo Grove, Jim Laganowski Assoc.	312-520-0130
MA	Hingham, R. J. Wilson	617-749-7575
MI	Walled Lake, Static Controls Corp.	313-363-4500
MN	Minneapolis, Gribble Sls.	612-788-7028
MO	Independence, Gribble Sls.	816-796-4333
NJ	Mt. Laurel, Speck Indl. Controls	609-778-8924
NJ	Rivervale, Budd-Tronics	201-666-5030
NY	Frankfort, Kapital Instr. Sls.	315-894-4245
NC	Greensboro, Ron Ingle	919-273-4042
OH	Novelty, Rogers Sls.	216-338-8500
TN	Knoxville, Stephenson Controls & Sys.	615-588-7473
TX	Lewisville, Gribble Sls.	214-221-5109
WI	Cedarburg, TFL Assocs.	414-377-7030

DOLCH LOGIC INSTRS., 2029 O'Toole Avenue, San Jose, CA 95131, Tel: 408-945-1881, TWX: 910-338-2023; *Sls. Mgr.:* Terry Larson

DOLPH, JOHN C., CO., New Rd., Monmouth Junction, NJ 08852, Tel: 201-329-2333; *Sls. Mgr.:* J. E. Rooze

DONGAN ELECTRIC MFG. CO., 2987 Franklin St., Detroit, MI 48207, Tel: 313-964-3500

DONTECH INC., 601-606 Airport Indl. Blvd., Doylestown, PA 18901, Tel: 215-348-5010, Telex: 685 1155 DONTK; *Sls. Mgr.:* Bernard Sherer

DORAN MFG. CO., 2851 Massachusetts Ave., Cincinnati, OH 45225, Tel: 513-681-5424; Empl.: 40; *Sls. Mgr.:* Russ DeMar

DORMAN BOGDONOFF CORP., Corp. Center, Willow Pond, Andover, MA 01810, Tel: 617-470-0001, Telex: 710-347-0333; *Sls. Mgr.:* Charles P. Centore

DORMEYER INDS., 3418 N. Milwaukee, Chicago, IL 60641, Tel: 312-283-4000, TWX: 910-221-3831; Empl.: 400; *Sls. Mgr.:* Richard Henry

DOTRONIX, 160 First St. SE, New Brighton, MN 55112, Tel: 612-633-1742, TWX: 910-563-3541; Empl.: 130; *Sls. Mgr.:* L. R. Lemke

Local Sales Offices & Reps

GA	Atlanta, E. G. Holmes & Assocs.	404-451-6161
ME	Newton, Gerber Sls. Corp.	617-969-2620
MN	New Brighton, Dotronix	612-633-1742
TX	Dallas, MGR	214-238-5246

DOUGLAS ELCTRNS., 718 Marina Blvd., San Leandro, CA 94577, Tel: 415-483-8770

DOUGLAS RANDALL, 6 Pawcatuck Ave., Pawcatuck, CT 06379, Tel: 203-599-2075, Telex: 6814060; Empl.: 125; *Sls. Mgr.:* N. Paulson .... **B•1323-1331**

Local Sales Offices & Reps

AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Anaheim, Galaxie Sls. Int'l.	714-937-5622
CA	Oakland, Powermatic Assoc.	415-635-6825
CA	San Diego, Qualtronics	619-695-0118
CO	Wheat Ridge, Trembly Assoc.	303-421-8900
CT	Yalesville, JMG-Glynn Connecticut	203-265-9452/2498
FL	Maitland, Ellis & Assoc.	305-645-1101
GA	Lilburn, W. A. Stancil	404-962-5643
IL	Chicago, Ropek-Cahill-Vogt	312-631-0070
MA	Norwood, JMG, Inc.	617-762-5333
MI	Southfield, Fred H. Gehrke & Assoc.	313-559-5363
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Kansas City, Delltron Co. Inc.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NV	Las Vegas, Trembly Assoc.	702-739-9770
NJ	Morristown, Andrews & Andrews	201-569-8800
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Fayetteville, C. W. Floring & Assocs.	315-637-4552
NY	Glen Head, Andrews & Andrews	516-692-8686
NY	Rochester, J. G. Welch Assoc.	716-244-1100
NY	Syracuse, C. W. Floring & Assoc.	315-478-2149
NC	Raleigh, Leigh Sls.	919-872-1484
OH	Cleveland, Geotronix Mktg. Assoc.	216-526-2535
OH	Trotwood, Geotronix, Inc.	513-252-6700
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Glenside, Elcom	215-885-1715
TX	Dallas, Paramount Controls	214-341-4561
WA	Bellevue, Caruso & Northcutt	206-454-9699
Can	Mont., Que., Solid State Engrg. Co.	514-481-3313

Local Distributors

CA	Chatsworth, Mil-Comm Dist.	213-998-3111
CA	S. San Francisco, Steven Engrg.	415-588-9200
MA	Middleboro, Glynn Elect.	617-947-4262
OH	Cleveland, Alpha Corp.	216-526-3716
TX	Houston, Alpha Distr. Corp.	713-464-4662
EXP	Jerusalem, Efraim Ben Yakir	
Intl	London, England, Kynmore Eng.	01-839-2371

DOW CHEMICAL CO., 2020 Dow Center, Midland, MI 48640, Tel: 517-636-1000, Telex: 227455, TWX: 810-266-9490; Empl.: 53,300

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Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark	602-968-9037
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CA	Torrance, Detomasi & Grupp, Inc.	213-327-1775
CO	Englewood, Sierra Tech. Grp., Inc.	303-790-1700
FL	Melbourne, Saber Assocs., Inc.	305-724-0920
FL	Melbourne, Saber Assocs., Inc.	305-742-0920
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Cedar Rapids, H. R. Brown Sls. Co.	319-366-0635
MD	Beltsville, Applied Engrg. Conslts.	301-792-2211
MA	Lowell, Matrix Sls., Inc.	617-458-2096
MN	Minneapolis, De Beck-Hays Assocs., Inc.	612-835-4649
MN	St. Paul, De Beck	612-635-4649
MO	St. Louis, Abrams & Assocs.	314-569-0447
NM	Albuquerque, Data Handling	505-884-0284
NY	Casenovia, S. T. Woolard Co.	315-655-8145
NY	Melville, Metro-Mics	516-271-6677
NY	Rochester, Lamb Comps., Inc.	716-323-1250
OH	Cincinnati, Delta Sls.	513-271-5444
OR	Tigard, Components West, Inc.	503-684-6171
PA	Paoli, Tyler Griffin Co.	215-647-1550
TX	Houston, Lear Assocs., Inc.	713-488-7893
TX	Richardson, Lear Assocs., Inc.	214-231-5388
WA	Redmond, Components West, Inc.	206-885-5880
Can	Mississauga, Ont., Vitel Elctrns.	416-676-9720

Local Distributors

TX	Ft. Worth, Allied Elctrns.	817-336-5041

DRACON DIV., See Harris Corp., Dracon Div.

DRAKE, R. L., CO., 540 Richard St., Miamisburg, OH 45342, Tel: 513-866-2421, Telex: 28-8017; *Sls. Mgr.:* Richard Renken; *Dist. Mgr.:* Richard Renken

DRANETZ TECHNOLOGIES, INC, Computer Products Division, 1000 New Durham Rd., P.O. Box 4019, Edison, NJ 08818-4019, Tel: 201-287-3680, Telex: 499-7808, TWX: 710-997-9553; FSC No.: 23207; Empl.: 230; *Sls. Mgr.:* A. Orlacchio .... **D•1167**

Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs., Inc.	205-837-4304
AZ	Scottsdale, Barnhill Assocs., Inc.	602-947-7841
CA	Redondo Beach, Ward/Davis Assocs., Inc.	213-643-6977
CA	Santa Clara, Ward/Davis Assocs., Inc.	408-245-3700
CO	Englewood, Barnhill Assocs., Inc.	303-779-3600
CT	Mount Carmel, Scientific Dvcs. - Conn.	203-248-9361
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FL	Orlando, Datarep, Inc.	305-843-5224

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IN	Indianapolis, Loren Green Assocs. Central, Inc.	317-293-9827
KS	Shawnee, Atech, Inc.	913-268-9644
LA	Lafayette, Kemp Instrs., Inc.	318-269-9452
MI	Brighton, Stress Anls. Svcs.	313-632-6110
MI	Farmington, Carter, McCormic & Peirce, Inc.	313-477-7700
MN	Edina, Carvel Engrg. & Sls. Co.	612-835-7929
MN	Minneapolis, Loren Green Assocs., Inc.	612-571-6666
MO	St. Louis, Atech, Inc.	314-576-2884
NE	Lincoln, Harry Ferris Co.	402-464-6148
NJ	Lodi, SDM Reps., Inc.	201-368-0123
NM	Albuquerque, Barnhill Assocs., Inc.	505-299-7658
NY	Rochester, SDM Reps., Inc.	716-247-8770
NC	Charlotte, Baesel & Assocs., Inc.	704-375-1044
OH	Cleveland, Carter, McCormic & Peirce, Inc.	216-779-5100
OH	Englewood, Carter, McCormic & Peirce, Inc.	513-836-0951
OR	Portland, Topp Engrg. Sls. Corp.	503-244-7265
PA	Monroeville, Carter, McCormic & Peirce, Inc.	412-372-4415
PA	Plymouth Meeting, Elctrn. Mktg. Assocs., Inc.	215-828-7400
TX	Austin, Barnhill Assocs., Inc.	512-451-0217
TX	Houston, Barnhill Assocs., Inc.	713-688-9971
TX	Richardson, Barnhill Assocs., Inc.	214-231-2573
UT	Murray, Barnhill Assocs., Inc.	801-262-3000
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400
Can	Toronto, Ont., Atelco, Inc.	416-497-2208

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Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs., Inc.	205-837-4304
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CA	Redondo Beach, Ward/Davis Assocs., Inc.	213-643-6977
CA	Santa Clara, Ward/Davis Assocs., Inc.	208-245-3700
GA	Atlanta, Kemp Instrs., Inc.	404-452-8050
IL	Elk Grove Village, Loren Green Assocs., Central, Inc.	312-593-0282
IN	Indianapolis, Loren Green Assocs., Central, Inc.	317-293-9827
KS	Shawnee, Atech, Inc.	913-268-9644
LA	Lafayette, Kemp Instrs., Inc.	318-269-9452
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Loren Green Assocs., Inc.	612-571-6666
MO	St. Louis, Atech, Inc.	314-576-2884
NY	Rochester, Harmony Labs	716-458-3376
NC	Charlotte, Baesel & Assocs., Inc.	704-375-1044
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Dayton, Comtel Instrs. Co.	513-298-7573
OH	Hilliard, Comtel Instrs. Co.	614-876-8305
OR	Portland, Topp Engrg. Sls. Corp.	503-244-7265
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
PA	Plymouth Meeting, Electronic Mktg. Assocs., Inc.	215-828-7400
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400-1
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DRANETZ TECHNOLOGIES, INC., Industrial Products Division, 1000 New Durham Rd., P.O. Box 4019, Edison, NJ 08818-4019, Tel: 201-287-3680, Telex: 499-7808, TWX: 710-997-9553; FSC No.: 23207; Empl.: 230; *Sls. Mgr.:* A. Orlacchio

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CA	Orange, Sterling West	714-997-1862
CA	Pasadena, Jim Robins & Assocs.	818-795-9118
CA	San Jose, D.P. Assocs., Inc.	408-296-1492
CO	Wheatridge, MC2	303-431-2262
FL	Melbourne, Datarep, Inc.	305-259-8924
FL	Orlando, Datarep, Inc.	305-843-5224
GA	Atlanta, Kemp Instrs., Inc.	404-462-8050
IL	Elk Grove Village, MEMECO Sls. & Svc. Corp.	312-228-9555
LA	Lafayette, Kemp Instrs., Inc.	318-269-9452
MI	Brighton, Stress Analysis Svcs.	313-632-6110
MN	Bloomington, Arjay Sls.	612-854-4972
MO	Raytown, Power Spec., Inc.	816-353-6550
MO	St. Charles, Gramlich Elec. Power	314-928-1075
NE	Lincoln, Harry Ferris Co.	402-464-6148
NJ	Bayonne, Long, Poveromo & Assocs., Inc.	201-858-3745
NM	Albuquerque, MC2	505-293-9090
NY	Syracuse, O. R. Lawrence Co.	315-455-5587
NC	Charlotte, Baesel & Assocs., Inc.	704-375-1044
OH	Medina, Stress Analysis Svcs.	216-725-7733
OH	Middletown, Stress Analysis Svcs.	513-422-7900
OK	Stillwater, Acudata, Inc.	405-743-1886
OR	Portland, Topp Engrg. Sls. Corp.	503-244-7265
PA	Carnegie, Stress Analysis Svcs.	412-344-5555
PA	Plymouth Meeting, Electronic Mktg. Assocs., Inc.	215-828-7400
TX	Austin, Acudata, Inc.	512-478-1018
TX	Houston, Acudata, Inc.	713-580-2451
TX	Houston, Payne Assocs./EMS Engrg.	713-537-0056
TX	Plano, Acudata, Inc.	214-424-3567
TX	Rockdale, K & K Elctrns.	512-446-3773
UT	Salt Lake City, MC2	801-364-3174
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400-1
Can	Toronto, Ont., Atelco, Inc.	416-497-2208

DRAWN METAL PRODUCTS, 6143 W. Howard St., Niles, IL 60648, Tel: 312-647-8941; Empl.: 60; *Sls. Mgr.:* Tom Amundson

Dreefs

DREEFS SWITCH, INC., 3782 Hawthorn Ct., Waukegan, IL 60087, Tel: 312-662-7667, 800-323-9605, Telex: 703784; Empl.: 63; *Sls. Mgr.:* Ed Magiera; *Dist. Mgr.:* Ed Magiera **B•1553-1555**

Local Sales Offices & Reps

AZ	Tempe, Trembly Assocs., Inc.	602-967-2058
CA	Anaheim, Spectrum Assocs., Inc.	714-630-6977
CA	Sunnyvale, Schwerin Merrill,Inc.	408-735-7900, 312-662-7667
CO	Wheat Ridge, Trembly Assocs., Inc.	303-421-8900
CT	Madison, Reptron Sls.	203-245-2242
IL	Roselle, MSL & Assocs.	312-893-9555
IL	Waukegan, Dreefs Switch, Inc.	800-323-9605
MA	Newton Highlands, WM. Valle Assocs., Inc.	617-965-0002
MO	Raytown, Centech, Inc.	816-358-8100
NJ	Ocean, P. Saftler Assocs.,Inc./Gordon	201-922-3014
NM	Albuquerque, Trembly Assocs., Inc.	505-266-8616
NY	Fulton, P. Saftler Assocs.	315-592-7184
NY	Lynbrook, P. Saftler Assocs.	516-593-7880
OH	Cleveland, Goory Sls. Co.	216-777-2011
OH	Toledo, Jim Finnegan Co.	419-865-5306
OR	Portland, Controltek Sls., Ltd.	503-641-0877
OR	Portland, Controltek, Sls.	503-641-0877
PA	Malvern, Stitzer Assocs.	215-644-5500
TX	Dallas, Blackburn Assocs., Inc.	214-692-8885
TX	Houston, Blackburn Assocs., Inc.	713-463-1354
UT	Salt Lake City, Trembly Assocs., Inc.	801-486-5292
WA	Seattle, Controltek Sls., Ltd.	206-467-0622
WI	Mequon, Badgerep, Inc.	414-241-9200
Can	Concord, Astec Comps.	416-669-4022

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400, 800-538-5112
CA	Torrance, Cypress Elctrns.	213-530-1900
CO	Wheat Ridge, Cypress Elctrns., Inc.	303-431-2622
IL	Wheeling, Hawk Elctrns.	213-459-4030, 800-843-4295
TX	Dallas, Cypress Elctrns., Inc.	214-869-1435
TX	McKinney, Sunbelt Elctrns.	214-542-1432
Can	Mississauga, Ont., Prelco Elctrns., Ltd.	416-745-9370,800-387-3874

DRESSEN-BARNES ELCTRNS., 1600 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-3020, TWX: 910-592-1256; FSC No.: 89321; Empl.: 220; *Sls. Mgr.:* B. Guy

DRESSER INDS., 1505 Elm St., Dallas, TX 75201, Tel: 214-746-6000, Telex: 73-2489, TWX: 910-861-4136; Empl.: 55,000

DUKANE CORP., Communications Sys. Div., 2900 Dukane Dr., St. Charles, IL 60174, Tel: 312-584-2300, Telex: 720426; Empl.: 700; *Sls. Mgr.:* Jack Hollis; *Dist. Mgr.:* Jack Hollis

DUMONT ELCTRNS., See Thomson-CSF Comps. Corp., DuMont Div.

DUMONT INSTRUMENTATION, INC., 75 Mall Dr., Commack, NY 11725, Tel: 516-864-8500, TWX: 510-226-3739; Empl.: 15,000; *Sls. Mgr.:* H. Poschmann

DUMONT OSCILLOSCOPE LABS., 40 Fairfield Pl., W. Caldwell, NJ 07006, Tel: 201-575-8666, Telex: 219236 DOLI-UR; FSC No.: 30669; Empl.: 30; *Sls. Mgr.:* John Carter, Jr.

SYSTRON DUNCAN ELECTRONICS
DONNER DIVISION
A THORN EMI company

DUNCAN ELECTRONICS, INC., 2865 Fairview Rd., Costa Mesa, CA 92626, Tel: 714-545-8261, TWX: 910-595-1128; FSC No.: 5905;Multiple; Empl.: 160; *Sls. Mgr.:* J. Colligan; *Dist. Mgr.:* J. Colligan **A•2012-2013**

Local Sales Offices & Reps

AL	Huntsville, L. & D., Inc.	205-837-1469
AZ	Tempe, Southwest E/M Engrg.	602-941-2828
AR	El Dorado, Kemp Engrg. Co., Inc.	501-862-5869
CA	Irvine, Comar Co.	714-540-1219
CA	Mountain View, Caltron Comps.	415-964-3244
CA	San Diego, Comar Co.	619-565-6097
CO	Denver, Elcom	303-337-2300
CT	Guilford, A & M Elctrn.	203-453-1612
FL	Ft. Lauderdale, ElectroComp Assocs.	305-491-4141
FL	Melbourne, ElectroComp Assocs.	305-242-0621
FL	St. Petersburg, ElectroComp Assocs.	813-822-9677
GA	Atlanta, L. & D., Inc.	404-455-3483
IL	Rolling Meadows, KMA Sales Co.	312-398-5300
KS	Shawnee Mission, Florence & Meyer	913-722-5210
LA	Lafayette, Kemp Engrg. Co.	318-269-9452
MA	Needham, A & M Elctrn.	617-444-8170
MI	Farmington Hills, Elcon Michigan Sls.	313-855-3240
MN	St. Paul, J. J. Exon Co.	612-636-5533
NY	Clinton, Advanced Comps.	315-853-6438
NY	Copiague, Sencor	516-842-7676
NY	Endicott, Advanced Comps.	607-785-3191
NY	N. Syracuse, Advanced Comps.	315-699-2671
NY	Scottsville, Advanced Comps.	716-889-1429
NC	Greensboro, L. & D., Inc.	919-292-3201
NC	Raleigh, L. & D., Inc.	919-876-5301
OH	Dayton, Rockford Controls Ohio	513-898-5452
OH	Euclid, Rockford Controls Ohio	216-731-5250
OH	Reynoldsberg, Rockford Controls Ohio	614-868-5577
OK	Tulsa, Kemp Engrg. Co.	918-663-4501
OR	Portland, Dussault & Assocs.	503-641-8540
PA	Philadelphia, Sencor	215-698-9660
TN	Seymour, Tennessee	615-573-6511
TX	Addison, Kemp Engrg. Co.	214-931-7100
TX	Houston, Kemp Engrg. Co.	713-466-1465
UT	Salt Lake City, Elcom	801-532-7940
VA	Richmond, L. & D, Inc.	804-257-7717
WA	Seattle, Dussault & Assocs.	206-527-5454
WI	Milwaukee, KMA Sales Co.	414-259-1771

Local Distributors

AZ	Phoenix, Aero-Space SW, Inc.	602-861-1785
CA	Hollywood, Yale Radio Elec. Co.	213-465-3186
CA	Sun Valley, Richey Elctrns.	213-875-2862
CO	Englewood, Industrial Elctrns.	303-694-9444
IL	Elk Grove, RM Co.	312-364-6622
IL	Elk Grove Village, GBL Elctrns.	312-593-3220
LA	Baton Rouge, Industrial Elctrn. Supp.	504-926-0513
LA	Shreveport, Industrial Elctrn. Supp.	318-222-9459
MA	Waltham, Sterling Elctrns.	617-894-6200
MN	Minneapolis, The Bergquist Co.	612-835-2322
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NY	Mt. Vernon, Kin-Tronics	914-668-9885
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Akron, Akron Elctrns. Supp.	216-762-8818
OK	Tulsa, Southwest Elctrns.	918-583-7776
OR	Portland, Radar Elec.	503-282-0404
PA	Erie, REM Elctrns. Supp.	814-453-5626
PA	McKeesport, Barno Radio	412-664-9394
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Seattle, Radar Elec.	206-282-2511
WI	Hartland, GW Elctrns.	414-276-1212

DUNEGAN CORPORATION, P.O. Box 3238, Mission Viejo, CA 92690, Tel: 714-831-9131, Telex: 68-3430; FSC No.: 66; Empl.: 70; *Sls. Mgr.:* Mike Kelly

DUOTONE, 6875 S.W. 81st St., S. Miami, FL 33143, Tel: 305-665-1121; Empl.: 20; *Sls. Mgr.:* S. Nester; *Dist. Mgr.:* S. G. Nester

DU PONT CONNECTOR SYSTEMS, 30 Hunter La., Camp Hill, PA 17011, Tel: 800-237-2374, TWX: 510-650-3538; *Sls. Mgr.:* J. McAluney; *Dist. Mgr.:* E. Abbott

DUPONT DE NEMOURS, E. I., & CO., 1007 Market St., Wilmington, DE 19898, Tel: 302-773-3218; Empl.: 130,000

DUPREE, INC., 9835 Dupree St., So. El Monte, CA 91733, Tel: 818-442-4700; Empl.: 60; *Sls. Mgr.:* Beverly Bowdry

DURACELL INTL., S. Broadway, Tarrytown, NY 10591, Tel: 914-591-7000, Telex: 131548, TWX: 710-564-0810; Empl.: 4000

DURAKOOL, 1010 N. Main St., Elkhart, IN 46514, Tel: 219-264-1116, Telex: 25-8482; Empl.: 200; *Sls. Mgr.:* Stan Kalin; *Dist. Mgr.:* Larry Hedeen/Dave Deuel

DURALITH, 525 Orange St., Millville, NJ 08332, Tel: 609-825-6900, TWX: 510-687-7520; Empl.: 500; *Sls. Mgr.:* James Potter

DURGIN & BROWNE, 80 Allen Rd., So. Burlington, VT 05401, Tel: 802-863-6873; Empl.: 35; *Sls. Mgr.:* Chris Riggs

DVE/CALTRONIC CO., LTD., A Sub. of Dee Van Entrp. Co., Ltd., 407 S. Palm Ave., Alhambra, CA 91803, Tel: 818-289-0310 **D•1613**

DY-4 SYSTEMS INC., 888 Lady Ellen Pl., Ottawa, ON, Canada K1Z 5M1, Tel: 613-728-3711, Telex: 053-4969; Empl.: 90; *Sls. Mgr.:* Terry Black

DYLON DATA CORP., 9561 Ridgehaven Ct., San Diego, CA 92123, Tel: 619-292-5584, TWX: 910-335-1524; Empl.: 20; *Sls. Mgr.:* R. A. Comstock; *Dist. Mgr.:* Steve Komarek

DYMA ENGRG., Box 1535, Los Lunas, NM 87031, Tel: 505-865-6700; Empl.: 14; *Sls. Mgr.:* Wiley R. Cunningham; *Dist. Mgr.:* Patrick Cating

DYMEC, 8 Lowell Ave., Winchester, MA 01890, Tel: 617-729-7870, TWX: 710-348-6596; Empl.: 80; *Sls. Mgr.:* Bill Schromm

DYMEK CORP., 1851 Zanker Road, San Jose, CA 95070, Tel: 408-947-8700, Telex: 910-338-2174; Empl.: 65; *Sls. Mgr.:* Dan Cribbs; *Dist. Mgr.:* Dan Cribbs

DYNACIRCUITS INC., 11230 W. Addison, Franklin Park, IL 60131, Tel: 312-451-1700; *Sls. Mgr.:* Fred Stein

DYNAGE/CONTROLS, INC., 2 Willowbrook Rd., Cromwell, CT 06416, Tel: 203-635-6257, Telex: 753243 (OAKLEAFINC); Empl.: 9; *Sls. Mgr.:* Helen S. Mendello

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Mountain View, Claypool Controls Corp.	415-968-7488
CO	Commerce City, Williams Assocs.	303-289-5647
CT	Hamden, Applied Meas., Inc.	203-288-5288
FL	Deland, Dell-Tech Control Co.	904-734-4200
IL	Palatine, Delta Instrmn.	312-934-8328
IN	Indianapolis, R. R. Harden Assocs., Inc.	317-849-1708
LA	Metairie, Slaton & Assocs., Inc.	504-455-3855
MD	Gaithersburg, Powell-Pendergraph, Inc.	301-921-4200
MA	Acton, Applied Meas., Inc.	617-263-2766
MI	Lathrop Village, Electro-Assocs. of Mich., Inc.	313-533-8797
MN	Minneapolis, Busch-Elctrns., Inc.	612-835-2044
MO	Ellisville, Advanced Ind. Sys.	314-458-2034
NJ	Plainfield, Cosine, Inc.	201-654-3551
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Buffalo, Seelbach & Schmitt, Inc.	716-839-2300
OH	Cleveland, Fox & Dole, Inc.	216-476-2625
OH	Dayton, Mohawk Intronics	513-434-8873
OK	Tulsa, Electronic Pneumatic Instrmn.	918-834-8400
OR	Portland, Topp Engrg. Sls. Corp.	503-244-7265
PA	Ingomar, Greye Glass Assocs.	412-366-6664
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
PA	Thornton, Sentech Co.	215-459-4260
TN	Concord, Technical Automation, Inc.	615-966-5107
TX	Corpus Christi, Collinsystems/Pro-Quip	512-887-9711
TX	Houston, Collinsystems/Pro-Quip	713-464-9428
TX	Weatherford, Collinsystems/Pro-Quip	817-599-8252
UT	Salt Lake City, Applied Engrg. Prods.	801-532-5343
VA	Richmond, Powell-Pendergraph, Inc.	804-270-1400
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400
WI	Milwaukee, Star Engrg. Sls. Corp.	414-645-3680

DYNAGE/POWER & MAGNETICS, Division Of Oakleaf, Inc., 2 Willowbrook Road, Cromwell, CT 06416, Tel: 203-635-3510, Telex: 753243 (OAKLEAFINC); Empl.: 9; *Sls. Mgr.:* Helen S. Mendello

Local Sales Offices & Reps

CT	Cromwell, Oakleaf Engrg. Sls.	203-635-5213
NJ	East Rutherford, L & L Comp. Sls.	201-933-8542
SD	Hartford, Oakleaf Engrg. Sls.	605-528-6701

DYNALOY, INC., 7 Great Meadow La., Hanover, NJ 07936, Tel: 201-887-9270, Telex: 642-033; FSC No.: 27908; Empl.: 19

Local Sales Offices & Reps

CA	Westminster, Contronic Devices	714-897-2266
FL	Ft. Lauderdale, Etchomatic	305-563-5060
MA	Waltham, Etchomatic	617-893-2020
MN	Minneapolis, International Sls.	612-831-8423

DYNAMIC AIR ENGRG, INC., EMC Filter Div., 620 E. Dyer Rd., Santa Ana, CA 92705, Tel: 714-540-2081, TWX: 910-595-2588

DYNAMICS, Div. of Waugh Controls Corp., 9001 Fullbright Ave., Chatsworth, CA 91311, Tel: 818-998-8281, Telex: 69-6171; Empl.: 100; *Sls. Mgr.:* Tony Mastroianni

DYNAMICS RESEARCH CORP., Encoder Division, 60 Concord St., Wilmington, MA 01887, Tel: 617-658-6100; *Sls. Mgr.:* Dave Silva **B•1793**

Local Sales Offices & Reps

AZ	Phoenix, Thor Engrg.	602-437-1463
CA	Laguna Beach, Comar Co.	714-240-0140
CA	San Diego, Comar Co.	619-565-6097
CA	San Jose, Motion Sys.	408-246-0641
CO	Aurora, HI Tech.	303-696-7403
CT	Ansonia, Sturdy Corp.	203-734-2186
FL	Tampa, Brawley Tech. Sls.	813-251-6816
MD	Columbia, Tyler Griffen	301-995-1215
MA	Wellesley Hills, Sturdy Corp.	617-235-2330
MI	Southfield, Fred H. Gehrke & Assocs.	313-559-5363
MN	Newport, Applied Motion Technlg.	612-459-0600
MO	St. Louis, Delltron Co.	314-869-4779
NJ	Sparta, E.S. Williams Co.	201-729-4049
NY	Pittsford, Controlled Motion Prods. Co.	714-381-1933
NC	Charlotte, Jake Rudisill Assocs.	704-377-6901
OH	Cincinnati, Kenneth C. Hoffman	513-931-1686
PA	Paoli, Tyler Griffen	215-647-1550
TX	Fort Worth, El-Tech Sls.	817-268-2896
TX	Houston, C.R. Colvin Assocs.	713-961-1262
WI	Colgate, Rep 1 & Assocs.	414-628-4016
Can	Lachine, Que., Electro Design	514-636-4838

DYNAMIC TIME SYSTEMS, INC., 150 West 1230 North, Ste. 2, Provo, UT 84604, Tel: 801-377-9154; *Sls. Mgr.:* Graham Hawkins; *Dist. Mgr.:* Graham Hawkins

DYNAPAR, 1675 Delany Rd., Gurnee, IL 60031, Tel: 312-662-2666, TWX: 910-235-1865; Empl.: 100

DYNAPLEX INC., Interplex, 120-12 28th Ave., Flushing, NY 11354, Tel: 212-961-6750, TWX: 710-582-3048; *Sls. Mgr.:* Lester Zimmerman; *Dist. Mgr.:* Lester Zimmerman

DYNATECH CORP., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702, Tel: 714-558-8755, TWX: 910-595-1951; Empl.: 340; *Sls. Mgr.:* Rick Burbank

DYNATEC INTERNATIONAL, 3594 West 1820 South, Salt Lake City, UT 84104, Tel: 801-973-9500, 800-722-7425; *Sls. Mgr.:* Robert Checketts; *Dist. Mgr.:* Robert Checketts

DYNATRONIX, INC., 105 Power St., Amery, WI 54001, Tel: 715-268-8118, 800-826-7172, TWX: 297861 DYTX UR; Empl.: 25; *Sls. Mgr.:* R. W. Kappler; *Dist. Mgr.:* R. W. Kappler, Natl. Sls. Mgr.

DYNISCO, 10 Oceana Way, Norwood, MA 02062, Tel: 617-769-6600, Telex: 092-4347; Empl.: 153

DYSAN CORP., 5201 Patrick Henry Dr., P.O. Box 58053, Santa Clara, CA 95050, Tel: 408-988-3472, Telex: 171551 DYSAN SNTA

Local Sales Offices & Reps

CA	Culver City, Dysan Corp.	213-215-1754
CA	Fair Oaks, Dysan Corp.	916-966-8039
CA	Santa Clara, Dysan Corp.	408-727-9552
CA	Santa Clara, Dysan Corp.	408-988-3472
CO	Denver, Dysan Corp.	303-452-8487
GA	Atlanta, Dysan Corp.	404-952-0919
IL	Rolling Meadows, Dysan Corp.	312-577-2572
MA	Chelmsford, Dysan Corp.	617-256-1900
MI	Livonia, Dysan Corp.	313-525-8240
MN	Bloomington, Dysan Corp.	612-854-4500
MO	St. Louis, Dysan Corp.	314-434-4011
NJ	Marlton, Dysan Corp.	609-596-8210
NY	Forest Hills, Dysan Corp.	718-268-7656
OH	Rocky River, Dysan Corp.	216-333-3725
TX	Dallas, Dysan Corp.	214-256-7446
TX	Houston, Dysan Corp.	713-961-1461
VA	Springfield, Dysan Corp.	703-941-0566
WA	Bellevue, Dysan Corp.	206-455-4724

DYTRONICS CO., See Ryan Intl. Corp.

DZUS FASTENER, 425 Union Blvd., W. Islip, NY 11795, Tel: 516-669-6000, Telex: 96-1454; FSC No.: 72794; Empl.: 100; *Sls. Mgr.:* George R. Davis

EAGLE ELECTRIC MFG. CO., INC., 45-31 Court Sq., L.I.C., NY 11101, Tel: 212-937-8000, Telex: ITTEAGLE 426774; *Sls. Mgr.:* Joseph Mannarino; *Dist. Mgr.:* John Chambers

EAGLE MAGNETIC COMPANY, INC., P.O. Box 24283, Indianapolis, IN 46224, Tel: 317-297-1030, TWX: 810-341-3386; Empl.: 44; *Sls. Mgr.:* Robert Jackson **C•1723**

EAGLE-PICHER INDS., INC., Elctrns. Div., Box 47, Joplin, MO 64801, Tel: 417-623-8000, TWX: 910-774-4508; Empl.: 700

EAGLE SIGNAL CONTROLS, Mfg. Div. Gulf & Western Inds., Box 16100, Austin, TX 78761, Tel: 512-837-8300; Empl.: 600

EALING OPTICS CO., Ealing Corp., 22 Pleasant St., S. Natick, MA 01760, Tel: 617-655-7000, Telex: 948339; *Sls. Mgr.:* Peter Andreas

E & L INSTRUMENTS, INC., 61 First St., Derby, CT 06418, Tel: 203-735-8774, Telex: 963536; Empl.: 46

EAO SWITCH CORP., 198 Pepe's Farm Rd., P.O. Box 552 MO, Milford, CT 06460, Tel: 203-877-4577, Telex: 96-4347; FSC No.: 61706; Empl.: 19; *Sls. Mgr.:* George T. Bracci **B•1557**

Local Sales Offices & Reps

AL	Huntsville, Conley and Assocs.	205-882-0316
AZ	Scottsdale, Luscombe Engrg. Co. of AZ	602-949-9333
CA	Campbell, Luscombe Engrg. Co. of S.F.	408-370-2020
CA	Pasadena, Luscombe Engrg. Co. of L.A.	213-684-2000
CA	San Diego, Luscombe Engrg. Co. of L.A.	619-295-4300
CO	Boulder, Luscombe Engrg. Co. of CO	303-772-3342
CT	Farmington, Ray Perron & Co., Inc.	203-673-4825
FL	Boca Raton, Conley and Assocs.	305-395-6108
FL	Deerfield Beach, Conley & Assocs.	305-421-7180, 305-358-3735
FL	Oviedo, Conley and Assocs.	305-365-3283
GA	Atlanta, Conley and Assocs.	404-447-6992
FL	Tampa, Conley and Assocs.	813-885-7658
IL	Arlington Hgts., Brainard-Wilson Mktg., Inc.	312-437-2700
IN	Ft. Wayne, M/S Sls. & Assocs.	219-436-3023
IN	Indianapolis, M/S Sls. & Assocs.	317-257-8915
KS	Mission, Mertens Co.	918-432-9323
MD	Columbia, Delta III Assocs., Inc.	301-730-4700
MA	Needham, Ray Perron & Co., Inc.	800-225-4280, 617-449-6162
MI	Plymouth, Jay Mktg. Assocs., Inc.	313-459-1200
MN	Golden Valley, Highland Elctrn. Sls.	612-546-2123
MO	St. Louis, Mertens Co.	314-993-6600
NH	Dover, Ray Perron & Co., Inc.	603-742-2321, 800-225-4280
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NY	Rochester, Apex Assocs., Inc.	716-254-6050
NC	Raleigh, Conley and Assocs.	919-876-9862
OH	Mentor, Jay Mktg. Assocs., Inc.	216-257-5244
OR	Lake Oswego, Luscombe Engrg. Northwest	503-636-6664
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Pittsburgh, R. W. Kneip	412-823-0169
TX	Dallas, Glidden Electro Equip. Co	214-341-0610
TX	Houston, Glidden Electro Equip. Co.	713-681-1415
WI	Milwaukee, Badgerep	414-258-6630

Local Distributors

AL	Huntsville, R.M. Alabama	205-852-1550
AZ	Phoenix, Minarik Elec.	602-233-3000

AZ	Tempe, Fisher Brownell	602-967-1464
CA	Alhambra, Fisher Brownell	714-739-2201
CA	Burlingame, Electric Control Dvcs.	415-348-0791
CA	Gardena, California Switch & Sig.	213-770-2330
CA	Los Angeles, Minarik Elec. Co.	213-624-3161
CA	San Diego, Fisher Brownell	619-560-8545
CA	San Diego, Minarik Elec. Co.	619-560-6632
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Santa Clara, Minarik Elec. Co.	408-727-0575
CA	Van Nuys, Patane Avionics, Inc.	818-988-4455
CO	Denver, CSID, Inc.	303-292-9594
CT	New Canaan, Impact Sls. Co.	203-972-1458
CT	Shelton, Century Elec. Supp.	203-736-2684
FL	Oviedo, Dixie Sls.	305-365-5211
GA	Norcross, Marshall Elctrn. Grp.	404-923-5750
IL	Elk Grove, Martec Assoc.	312-956-8090
IL	Lombard, R.M. Illinois	312-364-6622,800-325-1433
IL	Rosemont, Advent Elctrns., Inc.	312-297-6200
IN	Indianapolis, R.M. Indiana	317-291-7110
KY	Louisville, Peerless Elctrns.	502-637-7674
LA	Baton Rouge, Menard Elctrns.	504-355-0323
LA	Jefferson, Gulfside Co., Inc.	504-733-4481
ME	Scarborough, Nelson & Wright	207-883-4388
MD	Gaithersburg, Axis Elctrns.	301-840-9640, 800-492-3190
MA	Canton, Impact Sls. Co.	617-821-1500
MI	Grand Rapids, R. M. Elctrns. Co.	616-531-9300
MI	St. Claire Shores, SPEMCO Switches	313-771-2700
MN	Minneapolis, Electronic Ctr., Inc.	612-371-5200
NJ	Cranford, Garden State Indl. Elctrns., Inc.	201-272-6400
NY	Bohemia, Key Comps., Inc.	516-567-7500
NY	Buffalo, Summit Distrs., Inc.	716-887-2800
NY	New York, Martin-Audio/Video	212-541-5900
NY	Rochester, Modutex Corp.	716-647-7900
NY	Rochester, Summit Elctrns., Inc.	716-334-8110
NY	Woodside, Switches Unlimited	718-478-5000
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Winston-Salem, Kirkman Elctrns., Inc.	919-722-9131,800-334-8688
OH	Columbus, Electronics Mktg. Corp.	614-299-4161
OH	Highland Hgts., Electronics Mktg. Corp.	216-442-3441
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Minarik Elc. Co.	503-253-3402
PA	Horsham, R. M. Philadelphia	215-674-1181
PA	Lancaster, Advacom	717-299-5615
PA	McKean, Advacom	814-476-7774
PA	Norristown, Kimberly-James Co.	215-666-7286
PA	Pittsburgh, Grant Indl. Controls, Inc.	412-787-9770
TX	Dallas, R.M. Dallas	214-263-8361
TX	Garland, Indl. Equip. Co. of Dallas	214-271-5494
TX	Richardson, Fisher Brownell	214-235-3177
TX	San Antonio, Minarik Elec. Co.	512-822-7097
WA	Bellevue, Integrated Elctrns., Inc.	206-455-2727
WI	Milwaukee, Marsh Elctrns. Corp.	414-475-6000

E-A-R DIV., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, Tel: 317-872-1111, TWX: 810-341-3412; *Sls. Mgr.:* Lawrence K. Landers .... **C•1695**

EASCO/K-D TOOLS, 3575 Hempland Rd., Lancaster, PA 17604, Tel: 717-665-4557, Telex: 848429; *Sls. Mgr.:* Mark Lax

EASTERN AIR DEVICES MOTOR DIV., 1 Progress Dr., Dover, NH 03820, Tel: 603-742-3330, TWX: 510-297-4454; Empl.: 200; *Sls. Mgr.:* H. Dumas .... **B•1146**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
CA	Los Altos, Servo Data	415-964-1325
CA	Tustin, Schoenbachler-Dobson Co.	714-544-1888
CO	Boulder, R. G. Entprs.	303-447-9211
FL	Orlando, Perrott Assoc.	305-275-1132
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
IA	Cedar Rapids, REPCO, South	319-373-0525
MA	Framingham, Gerald Rosen Co.	617-879-5505
MN	St. Paul, REPCO	612-488-0201
MO	Independence, REPCO, South	816-254-3410
NJ	Ridgefield, Rical Assocs.	201-945-5250
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, ELCOM Sls.	315-685-8245
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Paoli, ETC Sales	215-296-3527
TX	Austin, Oeler & Menelaides Inc.	512-453-0275
TX	Dallas, Oeler & Menelaides Inc.	214-361-8876
WA	Seattle, Eltech	206-767-4330
WI	Milwaukee, Berndt Assocs.	414-545-8400

EASTERN DELTA CORP., 29-09 S. Broadway, Fair Lawn, NJ 07410, Tel: 201-797-4200; FSC No.: 18105; Empl.: 35

EASTERN ELCTRNS. MFG. CORP., 180 Roberts St., East Hartford, CT 06108, Tel: 203-528-9821; Empl.: 100; *Sls. Mgr.:* M. Bengala

EASTERN MARKING MACHINES, 422 S Franklin St., Hempstead, NY 11550, Tel: 516-483-7070, Telex: 968095; Empl.: 8; *Sls. Mgr.:* P. Coburn; *Dist. Mgr.:* L. Sherman

EASTERN MICROWAVE, 4 Gill St., Woburn, MA 01801, Tel: 617-935-8600; FSC No.: 30616; Empl.: 45; *Sls. Mgr.:* Maximilian J. Fuchs

EASTERN SMELTING & REFINING CORP., 37-39 Bubier St., Lynn, MA 01901, Tel: 617-599-9000, Telex: 940108; *Sls. Mgr.:* Donald Decareau

EAST PENN. MFG. CO., INC., Main Office, Lyon Station, PA 19536, Tel: 215-682-6361; Empl.: 1200; *Sls. Mgr.:* John Rickolt/Stanley Glass

EASY HEAT-WIREKRAFT, 555 North Michigan St., Lakeville, IN 46536, Tel: 219-784-3011, Telex: 233159; *Sls. Mgr.:* Russell W. Riddle

EATON CORP., Aerospace Controls/Systems Div., 2074 Whitfield Ave., East, Sarasota, FL 33578, Tel: 813-758-7726

EATON CORP., Microwave Components Div., 680 W. Maude Ave., Sunnyvale, CA 94086, Tel: 408-733-3883, TWX: 910-339-9252; FSC No.: 54987; Empl.: 30

Local Sales Offices & Reps

AZ	Tempe, Sierra Technl. Grp.	602-894-2335
CA	Costa Mesa, EBA Microwave	714-857-6079
CA	Sunnyvale, Loeswicks	408-745-6751
FL	Winter Park, Microwave Mktg.	305-678-2141
IA	Cedar Rapids, S & O Sls.	319-393-1845
KS	Merriam, Midwest Tech. Sls.	913-236-8555
ME	Ogunquit, Micronic Assocs.	617-933-2121
MD	Silver Spring, Youth-Nelson Assocs.	301-598-5740
NY	Fayetteville, R. D. Sherman & Co.	315-637-9861
PA	Huntingdon Valley, Rabal Assoc., Inc.	215-947-4825
TX	Dallas, Stevens Sls. Co.	214-350-2476
WA	Seattle, Ecco Mktg.	206-364-0200

EATON CORP., A.I.L. Div., Comac Rd., Deer Park, NY 11729, Tel: 516-595-3094, TWX: 510-227-6073; FSC No.: 00752; Empl.: 2250; *Sls. Mgr.:* H. N. Kreisberg

EATON CORP., Microwave Products Division, 955 Benicia Avenue, Sunnyvale, CA 94086, Tel: 408-730-6300, TWX: 910-339-9556; FSC No.: 27338; Empl.: 400; *Sls. Mgr.:* J. R. Campbell

EATON CORP, Durant Products, 901 S. 12th St., Watertown, WI 53094, Tel: 414-261-4070, TWX: 910-260-3713; Empl.: 400; *Sls. Mgr.:* H. L. Sisson; *Dist. Mgr.:* Dennis G. Walz

EATON CORP., Elctrn. Instrmn. Div., 5340 Alla Rd., Los Angeles, CA 90066; Empl.: 400

EATON CORP., Printer Prods Oper., Technical Research Park, Riverton, WY 82501, Tel: 307-856-4821, Telex: 910 949 4864; Empl.: 185; *Sls. Mgr.:* Rich Phillips; *Dist. Mgr.:* Rich Phillips

EATON CORP., TEST SYS. DIV., Discrete Test, Precision Rd., Danbury, CT 06810, Tel: 203-797-1281, TWX: 710-456-5030; *Sls. Mgr.:* Dennis Riccio

EATON CORP., TEST SYS. DIV., Memory Test Sys., 21135 Erwin St., Woodland Hills, CA 91365, Tel: 213-887-5550, Telex: 69-8489; Empl.: 200 + ; *Sls. Mgr.:* Chuck Winick

EATON CORP, Yig-Tek Prods., 785 Palomar Ave., Sunnyvale, CA 94086, Tel: 408-737-7300, TWX: 910-339-9395; Empl.: 100

EATON CORP./CUTLER-HAMMER PRODS, Aerospace & Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216, Tel: 414-449-7487, Telex: 26-716; FSC No.: 81640; *Sls. Mgr.:* J. R. McDonough; *Dist. Mgr.:* E. G. Caporellie

EBERHARD MFG. CO., DIV., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136, Tel: 216-238-9720, Telex: 98-5301; FSC No.: 19220; *Sls. Mgr.:* Edward Hongosh

EBM INDS., INC., 525 New Britain Ave., Unionville, CT 06085, Tel: 203-674-1515, TWX: 710-423-8723; FSC No.: 62292; *Sls. Mgr.:* Robert Sobolewski ..... **C•1626-1628**

Local Sales Offices & Reps

AL	Huntsville, Raycom	205-859-2017
AZ	Scottsdale, Harris And Croy	602-951-9121
AZ	Tucson, Harris and Croy	602-293-5393
CA	Chatsworth, WCV-Raltech, Inc.	818-700-0933
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Palo Alto, Abbott Engrg.	415-968-2265
CA	San Diego, Cerco	619-450-1754
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Littleton, Simpson Assocs.	303-794-8381
CT	Clinton, Selmark Assocs.	203-573-9088
FL	Melbourne, Raycom, Imc.	305-259-7988
FL	Orlando, Raycom, Inc.	305-859-5504
FL	Plantation, Raycom, Inc.	305-741-6690
FL	Wellborn, Raycom, Inc.	904-963-5023
GA	Fayetteville, Raycom	406-446-9015
IL	Schaumburg, Micro-Tex, Inc.	312-885-1131
IN	Columbus, Technical Reps.	812-376-9226
IN	Indianapolis, Technical Reps.	317-882-4407
KS	Overland Park, Web Elctrns.	913-381-7986
MD	Columbia, Delta III	301-730-4700
MA	Millis, Selmark Assocs.	617-376-2914
MI	Warren, Burcaw Co.	313-573-4605
MI	Wyoming, Burcaw	616-532-2756
MN	St. Paul, Arkco Sls.	612-777-7454
MO	Florissant, Web Elctrns.	314-921-5720
NH	Hopkinton, Selmark Assocs.	603-746-3299
NJ	Marlton, b.g.r. Assocs.	609-983-1020
NJ	Palmyra, RD Indl. Sls.	609-829-4441
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NY	Babylon, Astrorep, Inc.	516-422-2500
NY	Buffalo, Rudell-Merrifield Assocs.	716-634-4300
NY	Skaneateles, ADN/Rudell-Merrifield	315-685-8991
NC	Raleigh, Raycom	919-847-8276
OH	Cleveland, DT/Depco	216-442-6200
OH	West Chester, KT/Depco	513-874-0236
OK	Tulsa, Bonser-Philhower Sls.	918-744-9964
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Harrison City, Rudell-Merrifield Assocs.	412-327-0858
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Dallas, Bonser-Philhower Sls.	214-234-8438
TX	Houston, Bonser-Philhower Sls.	713-531-4144
UT	Midvale, Simpson Assocs.	801-566-3691
WA	Seattle, Earl & Brown Co.	206-284-1121
WA	Seattle, Earl & Brown Co., Inc.	206-284-1121
WI	Waukesha, Mirco-Tex, Inc.	414-542-5352

Local Distributors

AL	Huntsville, Powell Elec.	205-539-2731
AZ	Scottsdale, Hall Elctrns.	602-946-9977
AZ	Tempe, Powell	602-967-7538
CA	Anaheim, Deco Elec.	714-630-8252
CA	Chatsworth, Integrated	213-998-2200
CA	Costa Mesa, Powell	714-754-1717
CA	Fullerton, Pyramid/Fullerton	714-773-0781
CA	Fullerton, Young Sls. Co.	714-871-5355
CA	Hollywood, Yale Elctrns.	213-465-3186
CA	San Diego, Deco Elctrns.	619-693-1595
CA	San Jose, Integrated	408-263-1100
CA	San Jose, Powell Elec.	408-943-9020
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Target Elctrns., Inc.	408-734-5611
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Indl. Elctrns.	303-694-9444
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	New Canaan, Impact	203-972-1458
CT	Wallingford, Cronin Elec.	203-265-3134
FL	Ft. Lauderdale, Powell Elec.	305-979-5606
FL	Melbourne, Eurick	305-254-8718
FL	Melbourne, Raycom, Inc.	305-259-7988
FL	Pompano Beach, Peerless Radio	305-973-4141
FL	Tampa, Reptron	813-855-4656
GA	Atlanta, ACK Radio Supp.	404-351-6340
GA	Fayetteville, Frankland	404-461-4026
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Hoffman Estates, I.E.C. Intercomp	312-843-2040
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Cedar Rapids, Bergouist	319-366-8733
MD	Beltsville, Resco/D.C.	301-937-9100
MD	Columbia, Powell	301-621-4070
MD	White Marsh, Resco/Baltimore	301-529-0500
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Needham, Cronin	617-449-5000
MA	Westborough, Powell	617-366-6100
MA	Wilmington, J.V. Elctrns.	617-273-4300
MI	Bloomington, NWR Elctrns.	612-854-7329
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, S.F. Elctrns.	616-459-0216
MI	Grand Rapids, T & W Elctrns.	616-241-3645
MI	Lansing, Fulton Radio Supp. Co.	517-394-5020/2
MI	Livonia, Reptron	313-525-2700

MN	Minneapolis, Bergquist	612-835-2322
MN	Minneapolis, Control Des. Supp.	612-721-1628
MO	Kansas City, L Comp	816-221-2400
NH	Salem, Glynn Elctrns.	603-893-8313
NJ	Berlin, General Comps.	609-768-6767
NJ	Englewood, Powell Elec.	201-894-0800
NJ	Rockaway, Tonar Indus.	201-586-9000
NY	Central Islip, Domino Comps.	516-582-3050
NY	Farmingdale, Addem Sls.	201-882-0993
NY	Hauppauge, Broadline Elec. Distr.	516-231-4100
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Poughkeepsie, Kabelton, Inc.	914-473-1222
NY	Rochester, Simcona	716-328-3230
NY	Suffern, Nobel Elctrns.	914-357-4500
NC	Cary, Powell Elec.	919-467-1212
NC	Raleigh, Century	919-872-2203
OH	Akron, Akron Elctrns.	216-762-8818
OH	Dayton, Related Comps.	513-253-6116
OH	North Royalton, Related Comp.	216-237-7271
OH	Worthington, Reptron Ohio	614-436-6675
OR	Beaverton, Norvac Elctrns.	503-644-1025
OR	Tigard, Integrated Elctrns.	503-639-9661
PA	Harrisburg, Advacom	717-545-5674
PA	McKean, Advacom/Erie	814-476-7774
PA	Norristown, Century Elctrn. Comp. Co.	215-631-5400
PA	Phildelphia, Powell	215-365-1900
RI	Warwick, Cal-Greg	401-738-6170
TN	Hixson, Techni-Tronics	615-842-0514
WA	Bellevue, Integrated Elctrns./Jaco	206-455-2727
WA	Bellevue, Powell Elec.	206-641-4446
WI	Mequon, Taylor Elec. Co.	414-241-4321
WI	New Berlin, Nep Electrns.	414-785-9100

EBY CO., 2751 Southampton Rd., Philadelphia, PA 19154, Tel: 215-969-4200, TWX: 710-670-0452; FSC No.: 72825; Empl.: 150; *Sls. Mgr.:* C. R. Dedera .... **C•1184-1185**

Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark	602-968-9037
CA	Anaheim, Galaxie Sls. Intl.	714-752-1580
CA	Los Altos, J. W. Wilhoit Co.	415-961-3660
CO	Boulder, R. F. Mayo Assocs.	303-499-2155
FL	Coral Springs, EPM Corp.	305-755-5387
GA	Atlanta, Effective Mktg. Force	404-948-6023
IL	Chicago, Rendell Sls. Co.	312-528-9025
IN	Ft. Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Gassner & Clark	319-393-5763
MD	Glen Burnie, Macrotech Assocs.	301-437-5588
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Brighton, Electronic Sources, Inc.	313-227-3598
MN	Edina, Grayden & Flemmer	612-941-1120
NY	Fairport, Bastian Sls. Agy., Inc.	716-223-0237
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Syracuse, Bastian Sls. Agency, Inc.	325-437-1482
OH	Dayton, J. N. Bailey & Assocs.	513-226-0512
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
PA	Springhouse, Deltatronics, Inc.	215-542-0250
TX	Austin, Stevens Sls. Co.	512-250-5104
TX	Dallas, Stevens Sls. Co.	214-350-2476
VA	Gladys, Ralley Entprs., Inc.	804-283-5656
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699

Local Distributors

AL	Birmingham, American Elec. Supp. Co.	205-254-3280
AL	Huntsville, Contact Elctrns.	205-881-9321
AL	Mobile, Electronic Supp. Co.	205-478-0455
AZ	Phoenix, Lion Elctrn. Distrs.	602-869-9611
CA	City of Industry, Ital Elctrn. Sls.	213-968-8515
CA	Irvine, AMC Milliken	714-549-9811
CA	San Carlos, Logan Elctrns.	415-594-0700
CA	San Jose, Afcom	408-263-0660
CA	Santa Ana, Amcotec Elec. Comp. Sls.	714-957-3003
FL	Miami, Alpeco Intl.	305-592-2985
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-686-8553
GA	Atlanta, Accu-Tech Cable, Inc.	404-455-6422
GA	Atlanta, ACK Radio Supp.	404-351-6340
GA	Atlanta, Prehler Elctrns.	404-447-5540
GA	Atlanta, Specialty Dist. Co., Inc.	404-873-2521
IL	Chicago, Prehler Elctrns.	312-384-6100
IN	Indianapolis, Prehler Elctrns.	317-841-0018
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Hopkinsville, Randolph & Hale	502-885-5357
KY	Louisville, P.I. Burkes Co.	502-589-3960
MD	Columbia, Aztech Elctrns., Inc.	301-995-1760
MI	Farmington Hills, Prehler Elctrns.	313-473-7200
MI	Grand Rapids, S-F Elctrn. Supp. Co.	616-459-0216
MN	Bloomington, Prehler Elctrns.	612-854-4106
NJ	Union, Cougar Elctrns.	201-687-7722
NY	Albany, E.E. Taylor	518-438-7811
NY	Jamaica, Eby Sls. Co. of NY	212-291-3232
NY	Long Island City, Hardware Specialty Co.	212-361-9393
NY	Rome, Rome Elctrns.	315-337-5400
NC	Raleigh, Carolina Cable & Conn.	919-876-9100
NC	Raleigh, Prehler Elctrns.	919-876-9111
NC	Raleigh, Southeastern Elctrns.	919-828-2311
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Dayton, Televox, Inc.	513-294-4499
OH	Middleburg Heights, Prehler Elctrns.	216-243-5510
PA	Allentown, Lehigh Elctrns.	215-433-3045
PA	Philadelphia, Spectrum Elctrns., Inc.	215-748-3010
PA	York, Electronic Comps. for Ind.	717-843-8971
SC	Columbia, Dixie Elec.	803-779-5332
TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Chattanooga, Indl. Elec. Dist., Inc.	615-698-3413
TN	Clarksville, Randolph, Hale & Matthews	615-647-2325
TN	Cookville, Randolph & Parks	615-526-6184
TN	Memphis, Bluff City Distrs.	901-345-9500
TN	Nashville, Randolph & Rice	615-255-5602
TN	Tullahoma, Randolph, Rice & Williams	615-455-4531
TX	El Paso, Midland Specialty Co.	915-533-9555
VA	Roanoke, Peoples Elctrn. Supp.	703-342-8933

ECD CORP., 196 Broadway, Cambridge, MA 02139, Tel: 617-661-4400, TWX: 710-320-6965; Empl.: 40

ECI COMPANY, Box 1565, Terra Haute, IN 47808, Tel: 812-232-4442; Empl.: 3

ECO INSTRS. DIV., Sea Data Corp., 1 Bridge St., Newton, MA 02158, Tel: 617-964-8360, Telex: 951107; Empl.: 40; *Sls. Mgr.:* Jill Shipman

ECOSOFT, INC., 6413 N. College Ave., Indianapolis, IN 46220, Tel: 317-255-6476; Empl.: 6; *Sls. Mgr.:* Emma Alkire

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ECTRON CORP., 8159 Engineer Rd., San Diego, CA 92111, Tel: 619-278-0600, TWX: 910-335-1259; FSC No.: 24856; Empl.: 50; *Sls. Mgr.:* W. W. Hanford ..... **D•1007**

Local Sales Offices & Reps

AZ	Phoenix, Aztec Entprs.	602-944-9185
CA	Costa Mesa, FLW Inc.	714-751-7512
CA	Hayward, FLW Inc.	415-487-2222
CA	San Diego, FLW Inc.	619-277-0993
CA	Van Nuys, FLW Inc.	818-989-5238
CO	Denver, Aztec Entprs.	303-779-5285
FL	Melbourne, Saber Assocs.	305-724-0920
GA	Griffin, Saber Assoc. Inc.	800-327-0853
IL	Elmhurst, Sector Engrg. Sls.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Baton Rouge, Sesco	504-928-4951
MD	Rockville, Elctrn. Mktg. Assoc.	301-744-7700
MA	Needham, Addelco Corp.	617-444-4754
MI	Royal Oak, Satullo	313-549-3910
MN	Minneapolis, Sector Eng. Sls. Inc.	612-593-1809
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	East Syracuse, Ossmann Instrs.	315-437-7052
NY	Plainview, Eastern-Metro Assoc.	516-931-1414
NY	Rochester, Ossmann Instrs.	716-424-4460
NY	Saratoga Springs, Ossmann Instrs.	518-377-8604
NC	Clayton, Saber Assocs.	800-327-0853
OH	Cleveland, Instrmn. Sys.	216-845-8800
OH	Dayton, Instrmn. Sys.	513-294-2838
OK	Tulsa, Sesco	918-622-3868
PA	Pittsburgh, Instrmn. Sys.	412-243-1111
PA	Plymouth Meeting, Elctrn. Mktg. Assoc.	215-828-7400
SC	Columbia, Saber Assoc. Inc.	800-327-0853
TX	Dallas, Sesco	214-231-9364
TX	Houston, Sesco	713-999-3510
UT	Ogden, Aztec Entprs.	801-621-1655
VA	Chesapeake, Elctrn. Mktg. Assoc.	804-482-3318
WA	Seattle, Datacom Assoc. Inc.	206-285-2525
WI	Milwaukee, Sector Eng. Sls. Inc.	414-352-8280

EDAC INC., 20 Railside Rd., Toronto, ON, Canada M3A 1A4, Tel: 416-445-2292, TWX: 610-492-1398; FSC No.: 31781; Empl.: 120; *Sls. Mgr.:* Alan Little; *Dist. Mgr.:* Alan Little

EDA INSTRUMENTS, INC., 4 Thorncliffe Park Dr., Toronto, ON, Canada M4HIHI, Tel: 416-425-7800, Telex: 06 23222; Empl.: 50; *Sls. Mgr.:* Scott Hepburn

EDEN EQUIPMENT CO., 17649 Jacquelyn Lane, Huntington Beach, CA 92647, Tel: 714-842-8181

EDL, INC., 385 Oser Ave., Hauppauge, NY 11788, Tel: 516-435-2808, 1-800-DIAL EDL; Empl.: 50; *Sls. Mgr.:* Donna Oliveri

EDMAN CORP., Subsidiary of Rospatch, 7500 Main St., P.O. Box 750, Fishers, NY 14453-0750, Tel: 716-924-4000, TWX: 510-254-2896; Empl.: 170; *Sls. Mgr.:* Howard Potter

EDO CORP./ELINCO DIV., 272 Main Ave., Norwalk, CT 06851, Tel: 203-847-5861, Telex: 96-5945; FSC No.: 73693; Empl.: 87

EDO WESTERN CORP., EDO Corp., 2645 South 300 W., Salt Lake City, UT 84115, Tel: 801-486-7481/3846, Telex: 388-315; Empl.: 360; *Sls. Mgr.:* Doug Moore

EDWARDS CO., Signaling Prods. Div., P.O. Box 1188, Farmington, CT 06034, Tel: 203-678-0410; *Sls. Mgr.:* Al Canevari; *Dist. Mgr.:* Al Canevari

EECO INCORPORATED, 1601 E. Chestnut Ave., P.O. Box 659, Santa Ana, CA 92702-0659, Tel: 714-835-6000, Telex: 67-8420, TWX: 910-595-1550; Empl.: 625; *Sls. Mgr.:* Frank Bruder; *Dist. Mgr.:* Ken Plount ..... **B•1558-1561**

Local Sales Offices & Reps

CA	El Monte, Cook Entprs.	213-686-2120
AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Thom Luke Sls.	602-941-1901
AR	Fort Smith, Electra Reps.	501-452-4030
CA	Fountain Valley, Bager Elctrns.	714-957-3367
CA	Los Altos, Recht Assocs.	415-964-6321
CA	San Diego, Harvey King Inc.	619-566-5252
CO	Denver, Delltron Co.	303-373-0300
CT	Danbury, Ray Perron & Co.	203-798-6392
CT	Farmington, Ray Perron & Co.	203-673-4825
FL	Pompano Beach, Ema, Inc.	305-943-3732
FL	Winter Park, EMA, Inc.	305-671-6800
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Elk Grove Village, John G. Twist Co.	312-593-0200
IN	Fort Wayne, M/S Sls. & Assoc.	219-484-1904
IN	Indianapolis, M/S Sls. & Assocs.	317-257-8915
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
MD	Rockville, EMA (Elctrn. Mktg. Assts.)	301-881-5300
MA	Needham, Ray Perron & Co.	617-449-6162
MI	Livonia, Lowell Wendt Mktg.	313-464-2722
MN	Bloomington, Elctrn. Sls. Agecy.	612-884-8291
MO	Hazelwood, Palatine Sls.	314-839-0800
NJ	Englewood, Tecnimat	201-569-4200
NY	Endicott, Tech-Mark, Inc.	607-748-7473
NY	Mendon, Techmark, Inc.	716-624-3840
NY	Utica, Techmark, Inc.	315-733-0575
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc. (Engr. Mktg. Assts.)	513-433-2800
OR	Beaverton, Blair Hirsh Co.	503-641-1875
PA	Plymouth Meeting, EMA (Elctrn. Mktg. Assts.)	215-828-7400
TX	Austin, Electra Reps. Inc.	512-339-1163
TX	Dallas, Electra Reps. Inc.	214-248-3852
UT	Salt Lake City, Delltron Co.	800-692-2069
WA	Lynnwood, Blair Hirsh Co.	206-774-8151
WI	Brookfield, John G. Twist Co.	414-782-2670

Local Distributors

CA	San Diego, Fisher Brownell	619-560-8545
AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Marshall Inds.	205-881-9235
AZ	Phoenix, Hall-Mark Elctrns.	602-437-1200
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Alhambra, Fisher Brownell	818-289-0255
CA	Canoga Park, Hall-Mark Elctrns.	818-716-7300
CA	Canoga Park, Marshall Inds.	818-999-5001
CA	El Monte, Marshall Inds.	818-442-7204
CA	Irvine, Marshall Inds.	714-660-0952
CA	San Diego, Fisher Brownell	714-560-8545
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Jose, Hall-Mark Elctrns.	408-946-0900
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Marshall Inds.	408-732-1100
CA	Sunnyvale, Time Electronics	408-734-9888
CA	Tustin, Hall-Mark Elctrns.	714-669-4700
CO	Denver, Marshall Inds.	303-427-1818
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CT	Wallingford, Hall-Mark Elctrns.	203-269-0100
CT	Wallingford, Marshall Inds.	203-265-3822
CT	Wallingford, Sager Electrical Supply Co.	203-265-4600
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Orlando, Marshall Inds.	305-841-1878
FL	Pompano Beach, Hall-Mark Elctrns.	305-971-9280

GA	Atlanta, Marshall Inds.	404-923-5750
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Schaumburg, Marshall Inds.	312-490-0155
IN	Indianapolis, Mar Elctrns., Inc.	317-875-4510
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
MD	Baltimore, Hall-Mark Elctrns.	301-988-9800
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Billerica, Hall-Mark Elctrns.	617-667-0902
MA	Burlington, Marshall Inds.	617-272-8200
MA	Hingham, Sager Elctrn. Supp. Co.	617-749-6700
MI	Livonia, LWC Distrs.	313-464-7700
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Plymouth, Marshall Inds.	612-559-2211
MO	Earth City, Hall-Mark Elctrn.	314-291-5350
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Cherry Hill, Hall-Mark Elctrns.	609-355-7300
NJ	Cherry Hill, Marshall Inds.	609-424-7300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Mt. Laurel, Marshall Inds.	215-627-1920
NM	Albuquerque, International Elctrns.	505-345-8127
NY	Endwell, Marshall Inds.	607-754-1570
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Lynbrook, L.I., Peerless Radio Corp.	516-593-2121
NY	Rochester, Marshall Inds.	716-235-7620
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
OH	Cincinatti, Hall-Mark Elctrns.	513-563-5980
OH	Dayton, Marshall Ind.	513-236-8088
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Solon, Marshall Inds.	214-248-1788
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OR	Beaverton, Almac/Stroum	503-641-9070
OR	Beaverton, Marshall Inds.	503-644-5050
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Marshall Inds.	214-233-5200
TX	El Paso, International Elctrns.	915-598-3406
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Marshall Inds.	713-789-6600
TX	Richardson, Fisher Brownell	214-235-3177
UT	Murray, Hall-Mark Elctrns.	801-268-3779
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Marshall Inds.	206-747-9100
WA	Spokane, Almac Elctrns.	509-924-9500
WI	Oak Creek, Hall-Mark Elctrns.	414-797-7844
Can	Burnaby, BC, RAE Indl. Elec. Ltd.	604-291-8866
Can	Calgary, Alb., Cardinal Ind. Elec. Ltd.	403-259-6817
Can	Edmonton, Alb., Cardinal Ind. Elec. Ltd.	403-483-6266
Can	Ottawa, Ont., Carsten Elctrns., Ltd.	613-729-5138
Can	Scarborough, Ont., Carsten Elctrns., Ltd.	416-495-9999
Can	St. Laurent, Que., Carsten Elctrns., Ltd.	514-334-8321

EEMCO DIV., 4585 Electronics Pl., Los Angeles, CA 90039, Tel: 213-247-7060. TWX: 910-497-2269; FSC No.: 72121; Empl.: 350; *Sls. Mgr.:* D. Haymond; *Dist. Mgr.:* D. Haymond

EEV INC., 7 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-6050, Telex: 6818096; Empl.: 36; *Sls. Mgr.:* Tom Soldano

EFECTOR, INC., 201 So. Gulph Rd., King of Prussia, PA 19406, Tel: 215-337-5500, 800-441-8245, Telex: 84-6437; Empl.: 300; *Sls. Mgr.:* J. Kelly

EFI CORPORATION, 350 West 2700 South, Salt Lake City, UT 84115, Tel: 801-486-5871; Empl.: 35; *Sls. Mgr.:* George O. Stewart

EFRATOM, a division of Ball Corp., 18851 Bardeen Ave, Irvine, CA 92715, Tel: 714-752-2891, Telex: 68-5635; Empl.: 105 .... **A•1361**

Local Sales Offices & Reps

CA	Los Altos, Kolm Mktg. Assoc.	415-948-2635
CA	Los Angeles, Cain Technlg.	213-477-9054
FL	Sarasota, Bass Assocs.	813-922-9538
MA	Natick, Wayland Engrg. Sls.	617-655-6080
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	Huntington, CDB Entprs.	516-692-5200
TX	Houston, Sci. Devices	713-864-1711
TX	Richardson, Sci. Devices	214-231-8106
VA	Fairfax, Scientific Assocs.	703-385-0600

EG&G, INC., Electro-Optics Div., 35 Congress St., Salem, MA 01970, Tel: 617-745-3200, Telex: 681-7405 EGGSA; FSC No.: 25506; Empl.: 500; *Sls. Mgr.:* J. Murachver

EG & G ALMOND INSTRUMENTS, 1330 E. Cypress St., Covina, CA 91724, Tel: 818-967-9521, TWX: 910-584-1320; Empl.: 260; *Sls. Mgr.:* Dave Adams .... **D•1620-1621**

Local Sales Offices & Reps

FL	Orlando, Truex Assocs.	305-859-2160
MA	Lexington, Circuit Sls. Co.	617-861-0567
NY	Yonkers, Sonkin Assocs.	914-968-8282

EG&G BIRTCHER INDUSTRIAL PRODUCTS

EG & G BIRTCHER, 4505 N. Arden Dr., El Monte, CA 91731, Tel: 818-442-2572, Telex: 247345 EGGUR; *Sls. Mgr.:* H. Robert Sproul .... **C•1051-1053**

Local Sales Offices & Reps

AL	Huntsville, Mar-Tec, Inc.	205-883-5910
AZ	Phoenix, Mercury Engrg. Sls.	602-244-0123
CA	Brea, Masco	714-529-0866
CA	San Diego, Masco	619-234-6905
CA	Santa Clara, Nova-Tronix, Inc.	408-727-9530
CO	Broomfield, Connors Co.	303-466-9628
FL	Clearwater, Hutto, Hawkins, Peregory, Inc.	813-797-4447
FL	Maitland, Hutto, Hawkins, Peregory, Inc.	305-831-2474
FL	Pompano Beach, Hutto, Hawkins, Peregoy, Inc.	305-971-5750
GA	Roswell, Mar-Tec, Inc.	404-992-0040
IL	Rollings Meadows, Heartland Technlg. Mktg., Inc.	312-577-9222
KS	Shawnee Mission, Midland Engrg. Sls. Assocs.	913-262-5500
MD	Baltimore, Burgin Kreh Assocs., Inc.	301-265-8500
MA	Burlington, Conti-Younger Assocs., Inc.	617-273-1582
MN	Minneapolis, Hei-Lite Sls., Inc.	612-861-6051
NY	Great Neck, Frank Tylinski Co., Inc.	516-466-9070
NY	Syracuse, IA Hotze Assocs.	315-479-6641
NC	Raleigh, Tingen Technlg. Sls., Inc.	919-878-4440
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OH	Dayton, Jim Finnegan & Co.	513-890-8322
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
TX	Dallas, El-Com Mktg., Inc.	214-241-2166
VA	Lynchburg, Burgin Kreh Assocs., Inc.	804-239-2626
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
WI	Milwaukee, Heartland Technlg. Mktg., Inc.	414-931-0606

Local Distributors

CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Manhattan Beach, Prime Electro Prods.	213-379-1724
CA	San Diego, El-Com	619-578-0900
CA	San Jose, Bisco Inds.	408-946-8980
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Aurora, Jet Elctrns. Supp. Co., Inc.	303-364-5487
FL	Pompano Beach, Peerless Radio Corp. of FL	305-973-4141
IL	Franklin Park, Bisco Inds.	
MA	Winchester, Rush Inds., Inc.	617-729-5800
MN	Minneapolis, Stark Elctrns., Inc.	612-322-1325
NH	Hudson, C & H Elctrns., Inc.	603-882-1133
NY	Bohemia, Car Lac Inds. Sls., Inc.	516-567-4200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rochester, Summit Distrs.	716-334-8110
OH	Englewood, Argent Inds.	513-836-8633
TX	Ft. Worth, Industrial Elctrns.	817-731-7321
TX	Houston, Force Elctrns.	713-561-8644
TX	Irving, Force Elctrns.	214-438-5700
WA	Redmond, Murphy Elctrns.	206-881-1234

EG&G GAMMA SCIENTIFIC, Div. of EG&G Inc., 3777 Ruffin Rd., San Diego, CA 92123, Tel: 619-279-8034, Telex: 697938; Empl.: 75; *Sls. Mgr.:* Robert Ruff

EG&G GEOMETRICS, Div. of EG&G Inc., 395 Java Dr., Sunnyvale, CA 94089, Tel: 408-734-4616, Telex: 357435; FSC No.: 34314; *Sls. Mgr.:* Ross Johnson; *Dist. Mgr.:* Fritz Faber

EG&G RETICON, Div. of EG&G, 345 Potrero Ave., Sunnyvale, CA 94086-4197, Tel: 408-738-4266, Telex: 910-339-9343; *Sls. Mgr.:* John Skurla

EG&G ROTRON

EG & G ROTRON, Commercial Div., Saugerties, NY 12477, Tel: 914-246-3615, Telex: 551496; *Sls. Mgr.:* Michael Keating; *Dist. Mgr.:* Ralph Stevens .... **C•1630-1636**

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	213-404-3881
CA	Chatsworth, EG & G Rotron	818-709-2133
CA	San Diego, Hadden Assoc.	619-565-9444
CA	Santa Clara, Westrep	408-988-8833
CO	Littleton, Lange Sls.	303-795-3600
CT	Stamford, Circuit Sls.	203-322-0240
FL	Apopka, G. Bohman	305-886-1882
GA	Norcross, Over & Over, Inc.	404-449-6205
HI	Honolulu, R. Clark	808-531-5897
IL	Rolling Meadows, Sumer	312-991-8500
IN	Indianapolis, F. J. Campisano	317-253-7651
IA	Cedar Rapids, S & O Sls.	319-393-1845
KS	Raytown, CenTech	816-358-8100
MD	Columbia, L. D. Lowery	301-964-0225
MA	Lexington, Circuit Sls.	617-861-0567
MI	Detroit, Rathsburg Assocs.	313-882-1717
MN	Mendota Heights, G-11 Sales	612-454-3086
MO	Bridgeton, CenTech	314-291-4230
MO	Raytown, CenTech	816-358-8100
NJ	Springfield, F. Sylvester	201-376-3324
NY	Saugerties, Rotron (Commercial Div.)	914-246-3615
NC	Charlotte, Over & Over	704-527-3070
OH	Cincinnati, F. J. Campisano	513-574-7111
OH	Cleveland, Comp., Inc.	216-243-9200
OK	Tulsa, Ammon & Rizos	918-663-8788
PA	Broomall, L. D. Lowery	215-356-5300
TX	Dallas, Ammon & Rizos	214-644-5591
TX	Houston, Ammon & Rizos	713-781-6240
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Lynnwood, Blum & Assocs.	206-775-6656
WI	Brookfield, Sumer, Inc.	414-784-6641
EXP	NY, Great Neck, A. Auriema	516-487-0700

Local Distributors

	Chatsworth, Arrow Elctrns.	818-701-7500
AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Schweber Elctrns.	205-882-2200
AZ	Phoenix, Cetec Elctrns.	602-272-7951
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Tempe, Arrow Elctrns.	602-968-4800
CA	Canoga Park, Hall-Mark Elctrns.	818-716-7300
CA	Canoga Park, Schweber Elctrns.	818-999-4702
CA	El Segundo, Hall Mark Elctrns.	213-643-9101
CA	Gardena, Schweber Elctrns.	213-327-8409
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Hayward, Arrow Elctrns.	415-487-4600
CA	Irvine, Cetec Elctrns.	714-521-7412
CA	Irvine, Schweber Elctrns.	714-863-0200
CA	Los Angeles, Richey/Western	214-820-3777
CA	Sacramento, Arrow Elctrns.	916-925-7456
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Cetec Elctrns.	619-278-5020
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Schweber Elctrns.	619-450-0454
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	San Jose, Hall-Mark Elctrns.	408-773-9990
CA	San Jose, Schweber Elctrns.	408-946-7171
CA	South Gate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Tustin, Arrow Elctrns.	714-838-5422
CA	Tustin, Hall Mark Elctrns.	714-669-0681
CO	Aurora, Hall-Mark Elctrns.	303-696-1111
CO	Denver, R. V. Weatherford	303-428-6900
CO	Englewood, Schweber Elctrns.	303-799-0258
CT	Danbury, Schweber Elctrns.	203-748-7080
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Clearwater, Arrow Elctrns.	813-576-8995
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Deerfield Beach, Arrow Elctrns.	305-429-8200
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Pompono Beach, Hall-Mark Elctrns.	305-971-9280
GA	Atlanta, Schweber Elctrns.	404-449-9170
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Elk Grove, Schweber Elctrns.	312-364-3750
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
KS	Kansas City, Schweber Elctrns.	913-492-2922
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747

KS	Overland Park, Arrow Elctrns.	913-642-0592
MD	Columbia, Arrow Elctrns.	301-995-0003
MD	Columbia, Hall-Mark Elctrns.	301-796-9300
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Billerica, Hall Mark Elctrns.	617-935-9777
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MI	Livonia, RS Elctrns.	313-525-1155
MI	Livonia, Schweber Elctrns.	313-525-8100
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Edina, Schweber Elctrns.	612-941-5280
MN	Minneapolis, I.C.I.	612-831-2666
MO	Maryland Hts., Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Schweber Elctrns.	314-739-0562
NH	Manchester, Arrow Elctrns.	603-668-6968
NH	Manchester, Schweber Elctrns.	603-625-2250
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Buffalo, Summit Elctrns.	716-884-3450
NY	Buffalo, Summit Elctrns.	607-748-8211
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-427-0300
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Ronkonkoma, Hall Mark Elctrns.	516-737-0600
NY	Westbury, Schweber Elctrns.	516-334-7474
NC	Raleigh, Hall-Mark Elctrns.	919-832-4465
NC	Raleigh, Schweber Elctrns.	919-876-0000
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cleveland, Hall-Mark Elctrns.	216-349-4632
OH	Columbus, Arrow Elctrns.	614-885-8362
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Arrow Elctrns.	918-665-7700
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Schweber Elctrns.	918-622-8000
OR	Beaverton, Almac Elctrns.	503-641-9070
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Carrollton, Arrow Elctrns.	214-380-6464
TX	Dallas, Hall-Mark Elctrns.	214-553-4300
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Schweber Elctrns.	713-784-3600
UT	Salt Lake City, Arrow Elctrns.	801-972-0404
UT	Salt Lake City, Hall-Mark Elctrns.	801-268-3779
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	Oak Creek, Arrow Elctrns.	414-764-6600
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000

EG & G ROTRON, Custom Div., Hasbrouck La., Woodstock, NY 12498, Tel: 914-679-5201, TWX: 510-247-9033; FSC No.: 82877; *Sls. Mgr.:* Mike Lyon; *Dist. Mgr.:* Mary Fellows .... **B•1210**

EG & G TORQUE SYSTEMS, 36 Arlington St., Watertown, MA 02172, Tel: 617-924-6000, Telex: 95-1736; Empl.: 200; *Sls. Mgr.:* W. F. O'Leary; *Dist. Mgr.:* H. D. Waddell

EG & G VACTEC, 10900 Page Blvd., St. Louis, MO 63132, Tel: 314-423-4900, TWX: 910-764-0811; Empl.: 250; *Sls. Mgr.:* D. Hartley; *Dist. Mgr.:* D. Hartley .... **B•1210**

Local Sales Offices & Reps

CA	Encino, King-Way Assocs.	818-788-4124
CA	Redwood City, Ault Assocs.	415-367-1710
CO	Arvada, Arrowhead Sls. Corp.	303-423-5556
CT	Gilford, A & M Elctrn. Reps.	203-453-1612
FL	Orlando, EAB Assocs.	305-898-7444
IL	Highland Park, T. B. Hunter Assocs.	312-433-7000
IN	Fort Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
MA	Needham, A & M Elctrn. Reps.	617-444-8170
MI	Southfield, O.E.M. Technical Sls.	313-444-1680
MI	Troy, Scott Elctrns.	313-585-7690
MN	Eden Prairie, Rockmore Sls.	612-941-1390
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515

NJ	Marlton, B.G.R. Assocs.	609-428-2440
NY	Pittsford, C. W. Beach Co.	716-586-3200
NY	Syracuse, C. W. Beach Co.	315-446-9587
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Kettering, Scott Elctrns.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
PA	Pittsburgh, Scott Elctrns.	412-828-1073
TX	Dallas, S. W. Mktg. Assocs.	214-341-8631
WA	Bellevue, N. R. Schultz Co.	206-454-0300

Local Distributors

AZ	Scottsdale, Instate Mktg.	602-244-9050
CA	Encino, King Way West	818-788-4124
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Santa Clara, Allied Elctrns.	408-727-1690
CO	Denver, Integrated Elctrns. Co.	303-534-6121
FL	Orlando, EAB, Inc.	305-898-7444
ID	Boise, N. R. Schultz	208-377-8686
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elgin, Allied Elctrns.	312-697-8200
MO	St. Louis, Olive Indl. Elec.	314-426-4500
OH	Dayton, Televox, Inc.	513-294-4499
OR	Beaverton, N. R. Schultz	503-643-1644
TX	Fort Worth, Allied Elctrns.	817-336-5401
Intl	Reading, Berkshire U.K., Norbain Opto Elctrns. Div.	0734-864411

EG&G WAKEFIELD ENGRG., 60 Audubon Rd., Wakefield, MA 01880, Tel: 617-245-5900, TWX: 710-348-6713; Empl.: 240; *Sls. Mgr.:* Ray A. Radford; *Dist. Mgr.:* Carl Swanson

EH ELECTRONICS, INC., Sub. EH Intl., Inc., 48507 Milmont Drive, Fremont, CA 94538, Tel: 415-651-2340, TWX: 910-366-7258; FSC No.: 13488; Empl.: 67; *Sls. Mgr.:* Donald F. Smith

EHRHORN TECHNOLOGICAL OPERS., INC., P.O. Box 888, Canon City, CO 81212, Tel: 303-275-1613; Empl.: 50; *Sls. Mgr.:* Terry Dillahunty

EIGEN VIDEO, P.O. Box 848, Nevada City, CA 95959, Tel: 916-272-3461, Telex: 298788 EIG UR; FSC No.: 59535; Empl.: 50

EIKONIX CORP., 23 Crosby Dr., Bedford, MA 01730, Tel: 617-275-5070

EI NORTH AMERICA, 15 W. 53rd St. Suite 47E, New York, NY 10019, Tel: 212-315-3099, Telex: 803347 'EINA'

EIP MICROWAVE, INC., 2731 North First St., San Jose, CA 95134, Tel: 408-946-5700, TWX: 910-338-0155; FSC No.: 34257; Empl.: 250; *Sls. Mgr.:* Robert Loft/Bill Dentinger

EITEL MFG., 2835 Laguna Canyon Rd., Laguna Beach, CA 92652, Tel: 714-494-2012; Empl.: 6; *Sls. Mgr.:* H. Mengel

ELANTEC, INC., 1996 Tarob Ct., Milpitas, CA 95035, Tel: 408-945-1323, 800-821-7429, TWX: 910-997-0649; FSC No.: 64762; Empl.: 90; *Sls. Mgr.:* Jerry Zis

ELCO CORP., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652, Tel: 814-643-0700, TWX: 510-691-3117; Empl.: 500; *Sls. Mgr.:* J. J. Smith; *Dist. Mgr.:* John J. Galiney, Jr.

ELCO CORP., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245, Tel: 213-675-3311; *Sls. Mgr.:* T. Tuttle

ELCOM INDUSTRIES, INC., 10268 Bach Blvd., St. Louis, MO 63132, Tel: 314-429-3100

Local Sales Offices & Reps

CA	Anaheim, Magna-Code, Inc.	714-821-7500
MA	Newton Highlands, Butler Assocs., Inc.	617-965-1080

ELCOM SYSTEMS, INC., 932 Clint Moore Rd., Boca Raton, FL 33431, Tel: 305-994-1774; FSC No.: 32424; Empl.: 5; *Sls. Mgr.:* D. Pollachek .... **A•1711**

Local Sales Offices & Reps

EXP	MA, Mattapoisett, Clark Export-Import Co.	617-758-6448

ELCON PRODUCTS INTERNATIONAL COMPANY, 44036 Grimmer Blvd., Fremont, CA 94538, Tel: 415-490-4200, Telex: 910-381-7026; FSC No.: 85901; Empl.: 25; *Sls. Mgr.:* Shirley Gendreau; *Dist. Mgr.:* Shirley Gendreau

ELDEC CORP., Monitor & Control Div., 16700 13th Ave. W., P.O. Box 100, Lynnwood, WA 98046-0100, Tel: 206-743-1313, Telex: 32-8959, TWX: 910-449-2855

ELDEC CORP., Power Conversion Div., 16700 13th Ave. W., P.O. Box 100, Lynnwood, WA 98036, Tel: 206-743-1313, Telex: 32-8959, TWX: 910-449-2855

ELDEC CORPORATION, Sensing Systems Div., 16700 13th Ave. West, P.O. Box 100, Lynnwood, WA 98046-0100, Tel: 206-487-4000, Telex: 32-8959, TWX: 910-449-0873

ELDORADO INSTRS., 7303 Edgewater Dr., Oakland, CA 94621, Tel: 415-638-5656, TWX: 910-366-7258; FSC No.: 54495; *Sls. Mgr.:* Paul Magnusson

ELDRE CORPORATION, 1500 Jefferson Rd., Rochester, NY 14623, Tel: 716-427-7280, TWX: 510-253-4347; FSC No.: 19648; Empl.: 220; *Sls. Mgr.:* Harvey Erdle

Local Sales Offices & Reps

AL	Huntsville, Elctrns. Mktg. Assocs.	205-837-7363
AZ	Tucson, W.J.M. Sls. Co.	602-888-4847
CA	Beverly Hills, ELDRE West	213-271-4485
CA	Palo Alto, ELDRE West	415-325-0838
CO	Denver, Spectrum Sls.	303-480-9991
FL	Altamonte Springs, V. G. Sls. Co., Inc.	305-831-8688
FL	Pompano Bch., V. G. Sls. Co., Inc.	305-971-0900
GA	Atlanta, Electronic Mktg. Assocs.	404-448-1215
GA	Norcross, Elctrns. Mktg. Assocs.	404-448-1215
IL	Oak Park, ELDRE Midwest	312-383-1414
MD	Ellicott City, Arbotek Assocs.	301-461-1323
MA	Brookline, Harman Assocs.	617-232-6687
MO	St. Louis, Cadon Techn. Sls.	314-645-8670
NJ	Haddonfield, Tritek Sls.	609-429-1551
NM	Albuquerque, W.J.M. Sls. Co.	505-898-5917
NY	Rochester, ELDRE Corp.	716-427-7280
NC	Raleigh, Electronic Mktg. Assocs.	919-847-8800
NC	Winston-Salem, lctrns. Mktg. Assocs.	919-722-5151
OH	Cleveland, Marlow Assocs., Inc.	216-991-6500
OH	Columbus, Marlow Assocs., Inc.	614-885-7643
OR	Portland, Electronic Mktg. Grp.	503-252-0610
PA	Pittsburgh, Marlow Assocs., Inc.	412-367-8886
SC	Greenville, Elctrns. Mktg. Assocs.	803-233-4673
UT	Ogden, Spectrum Sls.	801-972-8552
WA	Redmond, Electronic Mktg. Grp.	206-882-0962

ELEC-TEK, INC., 10280 Alliance Rd., Cincinnati, OH 45242, Tel: 513-793-7937; FSC No.: 5U373; Empl.: 10; *Sls. Mgr.:* Rick Groth

ELECTRAC, INC., 1614 Orangethrope Way, Anaheim, CA 92801, Tel: 714-879-6021, Telex: 692433; FSC No.: 016154; Empl.: 21

ELECTRICAL INDS., 691 Central Ave., Murray Hill, NJ 07974, Tel: 201-464-3200, TWX: 710-984-7979; FSC No.: 20093; *Sls. Mgr.:* D.V. Wilson

ELECTRICAL INSTR. SVC., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590;16034A; Empl.: 35

ELECTRICAL PLASTICS CORP., 500 Long Branch Ave., Long Branch, NJ 07740, Tel: 201-870-9500; Empl.: 50

ELECTRICAL STANDARDS DIV., E.S.R.S., Inc., 7337 Greenbush, N. Hollywood, CA 91605, Tel: 818-765-4224; Empl.: 6

ELECTRIC DEVICE, PO Box 337, Canfield, OH 44406, Tel: 216-533-3060

ELECTRIC FIELD MEASUREMENTS, Box 326, W. Stockbridge, MA 01266, Tel: 413-637-1929; Empl.: 3; *Sls. Mgr.:* L. Hegl

Distributor

ELECTRIC SWITCHES, INC., 2478 Fletcher Dr., Los Angeles, CA 90039, Tel: 213-660-1310, TWX: 910-321-2971; Empl.: 42; *Sls. Mgr.:* Louis Lim ..... **B•1516,1517, pgs.605, 614, 616, 632, 635, 637, 638, 639, 651, 657, 669, 672, 675, 676, 688, 689, 701, 709, 711, 719, 724, 726, 731, 736, 747, 751, 753, 766, 767, 768, 781, 786, 789, 794, 801, 803, 816.**

ELECTRIC TACHOMETER, 68th & Upland Sts., Philadelphia, PA 19142, Tel: 215-SA6-7723, Telex: 83-1475; FSC No.: 20049; Empl.: 50; *Sls. Mgr.:* F. M. Porter

ELECTRIC TIME COMPANY, INC., P.O. Box 298, Natick, MA 01760, Tel: 617-653-1341; FSC No.: 6645; Empl.: 10

ELECTRO ASSEMBLIES, 425 Huehl Rd. Bldg. 17, Northbrook, IL 60062, Tel: 312-498-6520

ELECTROCHEM INDS., Wilson Greatbatch Ltd., 10000 Wehrle, Clarence, NY 14031, Tel: 716-759-6901, Telex: 91-386; FSC No.: 6U589; *Sls. Mgr.:* R. Carey; *Dist. Mgr.:* L. Hanitz, M. Brookman

ELECTROCOM INDS., 1105 N. Ironwood Dr., S. Bend, IN 46615, Tel: 219-232-2743; FSC No.: 27114; *Sls. Mgr.:* B. Jaffe

ELECTRO COMP., INC., 2415 Main St, Stratford, CT 06497, Tel: 203-375-5811 .... **A•1864-1865**

EC
ELECTRO-CRAFT CORPORATION

ELECTRO-CRAFT, 1600 2nd St. S., Hopkins, MN 55343, Tel: 612-931-2700 .... **B•1147-1149**

Local Sales Offices & Reps

CA	Westlake Village, Electro-Craft	818-889-3631
CO	Denver, Electro-Craft	303-839-5565
GA	Marietta, Electro-Craft	404-971-2669
IL	Palatine, Electro-Craft Corp.	312-991-4570
MA	Salem, Electro-Craft	603-893-5552
MN	Hopkins, Electro-Craft	612-931-2700
NH	Salem, Electro-Craft	603-893-5552
NJ	Cherry Hill, Electro-Craft	609-662-0555
OH	Cincinnati, Electro-Craft	513-474-4171

Local Distributors

Can	Edmonton, Alb., H.M. Mott Mktg., Ltd.	403-468-1292
Intl	England, Crewe, Electro-Craft, Ltd.	0270-584416
Intl	Finland, Helsinki, Stig Wahlstrom OY	90-5577 x51
Intl	France, Tekelec Airtronic	1-534-7535
Intl	Holland, Rotterdam, Van Gelder Compagnie B.V.	010-156622
Intl	India, Hyderabad, Kashinath & Co.	36942
Intl	Israel, Tel-Aviv, Abiry Agencies (1979), Ltd.	03-254106-253337
Intl	Italy, Milano, Pamoco S.r.l.	02-3452531/5
Intl	Japan, Tokyo 104, Midoriya Electric Co.	03-561-8851
Intl	Sweden, Johanneshov, L. Ostergren El.	08-815013
Intl	W. Germany, Darmstadt, Eduard Bautz G.m.b.H.	06151/82973
Intl	Hong Kong, Kowloon, Nanco Elctrns. Supp. Ltd.	3-335121-10
Intl	Japan, Toshima-Ku Tokyo, Sanyo Denki Co., Ltd.	03-917-5151
Intl	Korea, Seoul, Lucky-Gold Star Intl.	778-247315
Intl	Rep. of China, Taiwan, Sertek	02-7134022-7134027-7135435
Intl	Switzerland, Lohwisst Rasse, EME AG Zurich	019801111

ELECTROCUBE, 1710 So. Del Mar Ave., San Gabriel, CA 91776, Tel: 818-573-3300, TWX: 910-589-1609; FSC No.: 14752; Empl.: 175; *Sls. Mgr.:* E. F. Bryant; *Dist. Mgr.:* E. F. Bryant

ELECTRODATA, INC., 23020 Miles Rd., Bedford Heights, OH 44128, Tel: 216-663-3333, TWX: 810-427-2280; FSC No.: 34-1173465; Empl.: 15; *Sls. Mgr.:* Philip Ardire; *Dist. Mgr.:* Philip Ardire

ELECTRO DESIGN SYS., 100 W. 35th St., Ste. S, National City, CA 92050, Tel: 619-420-2351, Telex: 182827; Empl.: 35

ELECTRODYNAMICS

ELECTRODYNAMICS, INC., A Talley Inds. Co., 1200 Hicks Rd., Rolling Meadows, IL 60008, Tel: 312-259-0740, Telex: 28-1070; FSC No.: 10236; Empl.: 250; *Sls. Mgr.:* Frank Rafferty .... **D•1119**

Local Sales Offices & Reps

CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CA	Hayward, Avionics, Inc.	415-783-1131
CO	Denver, West, Inc.	303-773-8180
CT	Old Saybrook, FJS Assocs.	203-388-5374
FL	Clearwater, Delmac Sls.	813-447-5192
FL	Orlando, Delmac Sls.	305-898-4688
FL	Tamarac, Delmac Sls.	305-726-1330
IA	Cedar Rapids, J.R. Sales Engrg.	319-393-2232
MD	Severna Park, Delmarva Engrg. Assocs., Ltd.	301-647-8007
MA	Winchester, FJS Assocs.	617-729-3135
MN	New Brighton, TWC Sls.	612-636-1770
MO	Maryland Hgts., Midwest Meridian Corp.	314-878-4441
NJ	Clinton, Churchill Assocs.	201-735-8971
NY	Endicott, Noeth Honsinger Assocs.	607-754-3214
NY	Larchmont, Hingston Walsh Assocs., Inc.	914-834-5781
NY	Pittsford, Noeth Honsinger Assocs.	716-586-9002
OR	Portland, Caruso & Northcutt	503-646-4973
PA	Norristown, Rivco January Inc.	215-631-1414
TX	Hurst, Midwest Meridian	817-654-2132
UT	Salt Lake City, Meridian West	801-466-5739
WA	Bothwell, Caruso & Northcutt	206-454-9699

ELECTRO-DYNAMICS DEV. CO., 475 Mt. Hood Dr. S.W., Issaquah, WA 98027, Tel: 206-392-2493; *Sls. Mgr.:* W. A. Pommer

ELECTROFILM, 27727 Avenue Scott, Valencia, CA 91355, Tel: 805-257-2240, Telex: 65-1438; FSC No.: 85932; Empl.: 250; *Sls. Mgr.:* George Hulett

ELECTRO-FILMS, INC., 111 Gilbane St., Warwick Central Indl. Pk., Warwick, RI 02886, Tel: 401-738-9150, TWX: 710-382-0405; Empl.: 100; *Sls. Mgr.:* Frank Urrico .... **A•1866-1867**

Local Sales Offices & Reps

CA	Santa Ana, Weatherman Assocs.	714-544-1304
CA	Sunnyvale, NES Assocs.	408-738-3259
GA	Doraville, BCI, Inc.	404-455-0405
IL	Hinsdale, Willtech Corp.	312-655-4850
IN	Indianapolis, CC Electronics	317-255-1508
MA	Allston, Vector Sls.	617-787-2790
MA	Boston, Vector Assocs.	617-787-2790
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MN	Minneapolis, Comprehensive Tech. Sls.	612-888-7011
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
NY	Kew Gardens, Robert Smith Assocs.	212-780-0097
NY	New York, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
NY	Syracuse, Labtronics	315-455-7314
NC	Charlotte, BCI, Inc.	704-567-0473
NC	Raleigh, BCI, Inc.	919-781-9426
OH	Cleveland, Electro Sls. Assocs.	216-261-5440
OH	Dayton, Electro Sls. Assocs.	513-426-5551
PA	Allison Park, Electro Sls. Assocs.	412-487-3801
PA	Colman, EL Assocs.	215-822-2510
PA	Oreland, EFW Tech. Sls.	215-887-5300
TX	Austin, J. Clay Co.	512-346-7340
TX	Dallas, J. Clay Co.	214-350-1281
TX	Houston, Elctrn. Mktg. Assocs.	713-498-8120
WA	Seattle, MARS	206-747-3292
EXP	MA, Plainville, Teknis, Inc.	617-695-3591

ELECTRO IMPULSE, Box 870, Red Bank, NJ 07701-0870, Tel: 201-741-0404, TWX: 710-722-5717; FSC No.: 91161; Empl.: 99; *Sls. Mgr.:* Mark Rubin ....**C•1637; D•1211**

Local Sales Offices & Reps

CA	Los Angeles, RDH Assocs.	213-396-4100
MA	Reading, Geder Assocs.	617-944-3105
NY	Greenvale, B. D. Aaron & Co.	516-621-0630
TX	Richardson, Spectra Sls. Corp.	214-234-3600
EXP	NJ, Oradell, Sylvan Ginsbury Ltd.	201-261-3200

Local Distributors

CA	Los Angeles, RDH Assocs.	213-396-4100
MA	Reading, Geder Assocs.	617-944-3105
NJ	Oradell, Sylvan Ginsbury	201-261-3200
NY	Greenvale, Bertram D. Aaron & Co.	516-621-0630
TX	Richardson, Spectra Sls.	214-234-3600

ELECTRO INDUSTRIES, Div. E.I. Elctrns., Inc., 1800 Shames Drive, Westbury, NY 11590, Tel: 516-334-0870; Empl.: 20; *Sls. Mgr.:* S. Kagan ..... **D•1350-1351**
For further information call toll free: 800-645-6342

ELECTRO KINETICS CO., Sub. HTL Inds., Inc., 402 E. Gutierrez St., Santa Barbara, CA 93102, Tel: 805-963-2055, TWX: 910-334-1177; FSC No.: 02101; Empl.: 260; *Sls. Mgr.:* N.G. Otis

ELECTROL

ELEC-TROL, INC., 26477 N. Golden Valley Rd., Saugus, CA 91350, Tel: 805-252-8330, Telex: 310-372-0331; FSC No.: 15636; Empl.: 650; *Sls. Mgr.:* Frank Cooper; *Dist. Mgr.:* Barbara J. Owens .... **B•1332-1342**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Assocs.	205-881-5031
AZ	Scottsdale, TC Electronics	602-944-5153
AR	Little Rock, Beacon Elctrn. Assocs.	501-224-5449
CA	Garden Grove, Elsco	714-891-4621
CA	San Jose, Jeff Mallman	408-972-9072
CO	Denver, Elcom	303-337-2300
FL	Boca Raton, Beacon Elctrn. Assocs.	305-392-3500
FL	Clearwater, Beacon Elctrn. Assocs.	813-796-2378
FL	Maitland, Beacon Elctrn. Assocs.	305-647-3498
FL	Melbourne, Beacon Elctrn. Assocs.	305-724-8010
GA	Atlanta, Beacon Elctrn. Assocs.	404-256-9640
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
IN	Granger, Gregory Sls.	219-272-9626
KS	Overland Park, John F. Guernsey Co.	913-381-2225
MA	Framingham, Stone Comps.	617-875-3266
MN	Minneapolis, Westlund & Assoc.	612-866-5002
MO	Florissant, John F. Guernsey Co.	314-921-5720
NY	Clark Mills, KLM-Garner Co.	315-853-6126
NY	Mt. Vernon, Sonkin Assocs.	914-968-8282
NY	North Syracuse, KLM-Garner Co.	315-458-6214
NY	Pittsford, KLM-Garner Co.	716-381-8350
NC	Greensboro, Beacon Elctrn. Assocs.	919-275-9997
OH	Columbus, Mulligan & Assoc.	614-457-2242
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Birchrunville, Jadelectronics	215-296-3800
TX	Houston, Aid Elctrns.	713-955-6204
TX	Irving, Aid Elctrns.	214-790-4761
UT	Salt Lake City, Elcom	801-485-7415
WA	Seattle, Earl & Brown Co.	206-284-1121
WI	Waukesha, Lincoln, Hodges & Assocs.	414-542-3087

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Anaheim, Arrow Elctrns.	714-774-5290
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Irvine, Acacia Sls.	714-549-0954
CA	San Carlos, Control Design	415-592-4806
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	Santa Clara, Patane/Selectronics	408-496-6151
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Van Nuys, Patane Avionics	213-988-4455
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
FL	Palm Bay, Arrow Elctrns.	305-725-1480
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Itasca, Voyager Elctrns.	312-773-4900
IN	Indianapolis, Arrow Elctrns.	317-243-9353
MA	Framingham, Jaks Elctrns.	617-875-3266
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Diplomat Elctrns.	617-935-6611
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Fridley, Voyager Elctrns.	612-571-7766
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NJ	Saddle Brook, Arrow Elctrns.	201-797-5800
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Farmingdale, Arrow Elctrns.	516-293-6363
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Yonkers, Kin-Tronics	914-968-7736
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Dayton, Bell Inds.	513-435-8660
OH	Solon, Repco	216-248-8900
OR	Beaverton, Acacia Sls.	503-646-3377
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Shap Elctrns.	215-969-3300
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Houston, Force Elctrns. Co. of TX	713-772-8510
TX	Irving, Force Elctrns. Co. of TX	214-438-5700
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	Oak Creek, Arrow Elctrns.	414-764-6600

ELECTROL CO., 321 Dewey St., P.O. Box 29, York, PA 17405, Tel: 717-848-1722; Empl.: 30; *Sls. Mgr.:* Debra Dudley; *Dist. Mgr.:* Debra Dudley

ELECTROLOGIC, INC., 1359 28th St., Signal Hill, CA 90806, Tel: 213-595-0551; FSC No.: 213-595-0554; Empl.: 8; *Sls. Mgr.:* Don Masadao

ELECTROMAGNETIC INDUSTRIES, INC., Box 6440, Clearwater, FL 33518, Tel: 813-447-2511

ELECTRO-MAGNETIC PROCESSES, INC., 9616 Owensmouth Ave., Chatsworth, CA 91311, Tel: 818-882-6333, Telex: 499 2240 EMP UI; FSC No.: 51290; Empl.: 70; *Sls. Mgr.:* Arthur Sullivan

ELECTRO MATERIALS CORP. AMER., See EMCA, Sub. Rohm & Haas Advanced Matls. Co.

ELECTROMATIC CONTROLS CORP., 2495 Pembroke Road, Hoffman Estates, IL 60195-2010, Tel: 312-882-5757, TWX: 910-222-3452; FSC No.: 75203; Empl.: 400; *Sls. Mgr.:* Robert Martin

ELECTROMECH, INC., 528 Elm Street, Kearny, NJ 07032, Tel: 201-997-0950; Empl.: 40; *Sls. Mgr.:* Solomon Ezraseneh .... **A•2134**

ELECTRO MECHANICAL DESIGN SERVICES, INC., 16698 Oakmont Ave., Gaithersburg, MD 20877, Tel: 301-840-5710; *Sls. Mgr.:* Patrick E. Roney

ELECTRO-MECHANICS CO., Box 1546, Austin, TX 78767, Tel: 512-835-4684, Telex: 767178

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ELECTRO-MECHANISMS, 2745 E. Huntington Dr., Duarte, CA 91010, Tel: 818-359-2535; FSC No.: 52592; Empl.: 27 .... **B•1466-1467**

Local Sales Offices & Reps

CA	Arcadia, Van Gott & Assoc.	818-445-9729
CA	Redwood City, Hickey Indl. Sls.	415-368-3849
CA	San Diego, Van Gott & Assocs.	619-280-1041
CO	Lakewood, Cristee-Meade Co.	303-232-0287
FL	Ft. Meyers, Rainbow Sls., Inc.	813-332-2210
IL	Addison, Engrd. Sls. Co.	312-832-8425
MD	Baltimore, R. P. Luce	301-752-8200
MN	St. Paul, Vikeland Sls., Inc.	612-645-4647
NJ	Piscataway, R. P. Luce	201-752-8750
NY	Buffalo, Good Comps.	716-634-4400
NY	New Hyde Park, R. P. Luce	516-437-4550
NC	Raleigh, G. P. O'Malley & Assoc., Ltd.	919-848-9865
OH	Dayton, Harvey Teplitz	513-898-4330
PA	Philadelphia, R. P. Luce & Co.	215-233-0999
TX	Dallas, Marcom	214-351-4532
WA	Vancouver, Ray Over Sls.	206-695-6179

ELECTRO-MECH COMPS., 1826 N. Floradale Ave., So. El Monte, CA 91733, Tel: 818-442-7180; FSC No.: 07150; Empl.: 75; *Sls. Mgr.:* Walter H. Trumbull; *Dist. Mgr.:* Margaret W. Ambrose .... **B•1562-1563**

Local Sales Offices & Reps

CA	Los Angeles, Universal Comps. Co.	213-641-4255
CA	San Diego, Qualtronics	619-560-8955
CA	Santa Clara, Engrg. Assocs.	408-988-5001
CO	Englewood, Franklin Sls.	303-789-2526
CT	Milford, Todino Engrg.	203-874-6643
FL	Orlando, Publicover	305-898-9361
IL	Chicago, Indl. Rep.	312-647-7755
IN	Fort Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
MN	Minneapolis, D. A. Case Assocs.	612-869-3700
NJ	Medford, Comp. Conslts.	609-654-5300
NY	Camillus, SHR	315-487-3232
NY	Mamaroneck, Bassin Tech.	914-698-9332
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
OR	Forest Grove, Doran Sls.	503-357-3333
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Leander, McCoy Assocs.	512-259-1109
TX	Richardson, McCoy Assocs.	214-238-1017
VA	Front Royal, Eltron	703-635-7201
WA	Redmond, Doran Sls.	206-885-1885

WI	Milwaukee, Indl. Rep.	414-259-0965

Local Distributors

AZ	Phoenix, Parts Elctrn.	602-258-6476
CA	Los Angeles, Elec. Distr.	213-660-1310
CA	Los Angeles, Master Distrs.	213-452-1229
FL	Pompano Beach, Components South	305-971-0350
NY	Buffalo, Genesee Radio & Parts	716-873-9661
NY	Mamaroneck, Logi Comp Elctrns.	914-698-9332
Intl	England, Kensington, London, G.E. Elctrns.	01-727 0711/3
Intl	Israel, Holon, M.S.R. Engrg. & Dev.	847686
Intl	Switzerland, Oberengstringen, G & P Elctrns.	(01)643231/644555

ELECTRO-METRICS, Penril Corp., 100 Church St., Amsterdam, NY 12010, Tel: 518-843-2600, TWX: 710-446-4798; FSC No.: 18581; Empl.: 105; *Sls. Mgr.:* David Cook

ELECTRO NATL., Matthews Ave., Canton, MS 39046, Tel: 601-859-5511, TWX: 810-990-0938; FSC No.: M-54208; Empl.: 40

ELECTRONETICS, INC., Paine Field Bldg 335, Everett, WA 98204, Tel: 206-355-1855; Empl.: 10

ELECTRON, INC., P.O. Box 28640, San Diego, CA 92128, Tel: 216-681-4700, Telex: 98-0240; Empl.: 85

ELECTRONIC COIL CORP., Farmington Industrial Park, Farmington, CT 06032, Tel: 203-677-6731; Empl.: 127; *Sls. Mgr.:* Raymond Gorski, Jr.

ELECTRONIC COMPONENT ASSEMBLY, INC., 9500 Alto Drive, La Mesa, CA 92041, Tel: 619-464-0910; Empl.: 70; *Sls. Mgr.:* Daniel J. McGillicuddy

ECG ELECTRONIC COMPONENTS GROUPE

ELECTRONIC COMPONENTS GROUPE, Stein Industries, Inc., 14143 21st Ave. No., Minneapolis, MN 55441, Tel: 612-559-0720, TWX: 910-576-1725; *Sls. Mgr.:* Ehrhard Goebel; *Dist. Mgr.:* Tom Coey .... **B•1566**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Scottsdale, SMS & Assocs.	602-998-0831
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Cupertino, F & F Assocs.	408-446-2349
CA	Marina Del Ray, Spec-Rep, Inc.	213-827-7767
CO	Englewood, Electronic Comp. Sls.	303-781-5904
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Ft. Lauderdale, Beacon Elec.	305-491-1054
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Downers Grove, Richmar Elec.	312-968-0118
IN	Indianapolis, Insul-Reps	317-842-5203
IA	Cedar Rapids, Palatine	319-365-8071
KS	Mission, Palatine	913-831-0555
MA	Plainville, Enterprise Tech., Inc.	617-695-4700
MN	Minneapolis, Comps. Representative Groupe	612-894-8055
MO	Hazelwood, Palatine	314-839-0800
NJ	Ho-Ho-Kus, D. J. Fisher Co., Inc.	201-652-0090
NM	Albequerque, Syntech	505-266-7951
NY	Fairport, TAC Sls., Inc.	716-425-1070
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Cleveland, Components, Inc.	216-243-9200
OK	Tulsa, Southern States Mktg.	918-369-3233
TX	Austin, Southern States Mktg.	512-473-2741
TX	Houston, Southern States Mktg.	713-558-4900
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, Quality Comp. Sls.	801-268-8000
VA	Fairfax, Beacon North, Inc.	703-591-1300
WA	Kirkland, A/D Elctrns.	206-821-3205
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

CA	Hollywood, Yale Radio	213-465-3186
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Mountain View, Target Elctrns.	415-961-1170
CA	San Carlos, Logan Elec.	415-594-0700
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Shelton, Century Elec. Supp.	203-736-2684
MD	Beltsville, PSI	301-937-4960
MD	Columbia, D. K. Elctrns.	301-995-1950
MN	Mpls., Glenmark, Inc.	612-941-4825
WA	Seattle, Radar Elec.	509-747-3053

ELECTRONIC CONCEPTS, INC., Box 627 E, Eatontown, NJ 07724, Tel: 201-542-7880, Telex: 7107226661; Empl.: 240; *Sls. Mgr.:* Philip N. Lepore .... **A•1072-1077**

Local Sales Offices & Reps

AZ	Tempe, Piper Sls. Co.	612-949-0048
CA	Colton, Elctrn. Concepts, Inc.	714-824-2525
CA	La Mirada, Select Elctrns.	714-739-8891
CA	Los Gatos, Elctrn. Concepts, Inc.	408-395-4224
CA	San Jose, Landia Sls. Grp.	408-280-5695
CO	Aurora, Sage Sls.	303-750-3501
FL	Sunrise, Electronic Concepts, Inc.	305-748-4604
IL	Wheaton, Elctrn. Concepts, Inc.	312-668-8747
MA	Wakefield, Omni-Rep	617-245-4511
MN	Minneapolis, Components Grp.	612-374-1250
MO	Grandview, Harris-Hanson Co.	816-763-6200
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200, 212-586-8440
OR	Portland, Components West	503-684-1671
MO	St. Louis, Harris-Hanson Co.	314-432-3611
PA	Lansdale, Industrial Comps., Inc.	215-368-3382
TX	Austin, Milred Assocs., Inc.	512-459-8602
TX	Houston, Milred Assocs., Inc.	713-937-0127
TX	Richardson, Milred Assocs., Inc.	214-644-6731
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, Components West	206-885-5880

Local Distributors

IL	Chicago, Nep Elctrns.	312-625-8400
NJ	Teterboro, Elcon Sls.	201-288-8170
TX	Dallas, R. V. Weatherford	214-931-7333
TX	Houston, R. V. Weatherford	713-688-7406
WI	New Berlin, Nep Elctrns.	414-785-9100

ELECTRONIC CONNECTOR DIV., Midland-Ross Corp., One Alewife Pl., Cambridge, MA 02140, Tel: 617-491-5400; *Sls. Mgr.:* Jim Gomes; *Dist. Mgr.:* Karen McMillan

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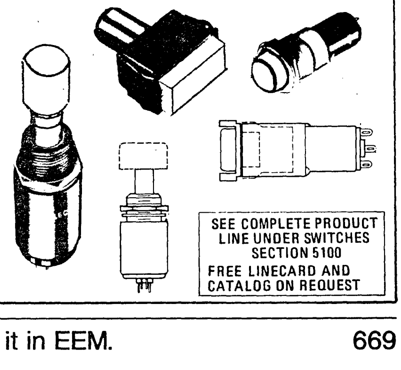

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ELECTRONIC CONVENTIONS, INC., P.O. Box 92275, Worldway Postal Ctr., Los Angeles, CA 90009, Tel: 213-772-2965; *Sls. Mgr.:* William C. Weber, Gen. Mgr.

ELECTRONIC DEV. CORP., 11 Hamlin St., Boston, MA 02127-4198, Tel: 617-268-9696, Telex: 951596; FSC No.: 12619; *Sls. Mgr.:* R. B. Ross .... **D•1213-1215**

Local Sales Offices & Reps

AL	Huntsville, MOCO	205-881-5968
AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CA	Costa Mesa, Feeger, Lucas, Wolf	714-751-7512
CA	Hayward, Feeger, Lucas, Wolf	415-786-9070
CA	San Diego, Feeger, Lucas, Wolf	619-277-0993
CA	Van Nuys, Feeger, Lucas, Wolf	213-989-5237
CO	Englewood, R. A. Mayes Co.	303-761-9447
FL	Winter Haven, Lee Assocs.	813-294-5815
IL	Hoffman Estates, Carvel Engrg.	312-885-8800
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Park, Ramsey Assts.	913-649-6996
MD	Gaithersburg, Powell-Pendergraph	301-921-4200
MA	Hudson, Datarep	617-481-0333
MI	Hazel Park, Tiby Co.	313-547-3550
MN	Edina, Carvel Engrg. & Sls.	612-835-7929
MO	St. Louis, Ramsey Assocs.	314-878-5042
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	E. Syracuse, Ossmann Instrs.	315-437-7052
NY	Rochester, Ossmann Instrs.	716-442-6990
NY	White Plains, Cane Techn. Sls.	914-694-9240
NC	Raleigh, Lee Assocs.	919-848-8818
OH	Cleveland, Tiby Co.	216-371-5335
OH	Dayton, Tiby Co.	513-277-3822
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Willow Grove, Powell-Pendergraph	215-657-0330
TX	Dallas, Tech Rep Mktg.	214-241-2434
TX	El Paso, R. A. Mayes Co.	Enterprise 750
TX	Kemah, Hi Tech Sys.	713-783-3856
UT	West Jordan, R. A. Mayes Co.	801-292-6781
VT	Burlington, Data Reps.	802-864-0933
VA	Richmond, Powell-Pendergraph	804-270-1400
WA	Bellevue, Topp Engrg. Sls.	206-747-5400
WI	New Berlin, Carvel Engrg.	414-784-7007

ELECTRONIC DEVELOPMENT LABS., See EDL Inc.

ELCTRN. DEVICES, 21 Gray Oaks Ave., Yonkers, NY 10710, Tel: 914-965-4400, TWX: 710-560-0021; Empl.: 200; *Sls. Mgr.:* Dennis Dean; *Dist. Mgr.:* Dennis Dean

ELECTRONIC ENCLOSURES, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, Tel: 213-643-8181, TWX: 910-348-6699; FSC No.: 09097; Empl.: 400; *Sls. Mgr.:* Hillard W. Sorey .... **C•1056**

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg. Assocs.	205-833-9630
CA	Campbell, Carlson, Bob	408-370-1284
CA	Los Angeles, Chris Allen Elec. Encl.	213-643-8181
CA	San Diego, De LaTorre & Assocs.	213-323-0922
CO	Denver, Odyssey 1	303-688-3555
FL	Palmetto, Southeast Tech. Sls., Inc.	813-729-3112
IL	Elmhurst, Scott Assocs.	312-279-5681
MD	Randallstown, Imagitron Sls. Co.	301-521-2020
MI	Jackson, Norwood Scroggs Co.	517-750-1170
MN	St. Paul, Charles E. Bohlig & Assocs.	612-944-8404
NJ	Pennsauken, Elctrn. Encls.	609-665-6810
NJ	Randolph, D. Despins Elctrn. Encls.	201-361-2864
NM	Albuquerque, Odyssey 1	505-265-6645
NY	Binghamton, Precision Sls.	607-648-8833
NY	Liverpool, Precision Sls.	315-451-3480
NY	Pittsford, Precision Sls.	716-381-2820
NY	Pleasant Valley, Precision Sls.	914-635-3233
NY	Syracuse, Precision Sls.	315-472-3010
OH	Dayton, Technical Dvcs. Co.	513-890-6811
OR	Portland, Jas. J. Backer Co.	503-297-3776
TX	Houston, Zonk Engrg. Co.	713-895-9131
TX	Richardson, Zonk Engrg. Co.	214-238-7651
WA	Seattle, Jas. J. Backer Co.	206-285-1300

ELECTRONIC ENGRG. CO. OF CAL., See EECO

ELECTRONIC HARDWARE, 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-752-1950; Empl.: 100

ELECTRONIC INSTR. & SPECIALTY CORP., 42 Pleasant St., Stoneham, MA 02180, Tel: 617-438-5300, Telex: 948-025; FSC No.: 14908; Empl.: 180 .... **B•1344-1345**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-881-0413
AL	Huntsville, REMCO (Rakes Engr. & Mktg. Corp.)	205-533-3763
AZ	Glendale, Southwest Elctrn. Mktg.	602-278-0500
CA	Escondido, Cirolia Elctrn. Sls. Inc.	619-489-2452
CA	Granada Hills, C & W Comps.	213-368-4032
CA	Hayward, Pacific Mktg. Inc.	415-887-1620
CA	San Diego, Cirolia Elctrn. Sls.	619-743-3015
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Lighthouse Point, Jack Krutek & Assocs.	305-941-6544
GA	Atlanta, REMCO (Rakes Engr. & Mktg. Corp.)	404-447-6937
IL	Lincolnwood, Saffro & Assocs., Inc.	312-677-9720
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
MD	Woodbine, Naudain Assocs.-Southern	301-442-2270
MA	Stoneham, E I & S	617-438-5300
MN	Minneapolis, Peterson Sls. & Assocs.	612-944-0030
NJ	Perth Amboy, Astrorep	201-826-8050/51
NY	Babylon, Astrorep	516-422-2500
NY	Buffalo, Lynn Assocs., Inc.	716-631-0054
NC	Raleigh, REMCO	919-847-5079
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OR	Portland, SPS Elctrns.	503-297-6919
PA	Norristown, Rivco-January Inc.	215-631-1414
PA	Willow Grove, Harry Nash Assoc.	215-657-2213
TX	Dallas, P. J. Scanlon Co. Inc.	214-231-4661
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
WA	Redmond, SPS Elctrns.	206-323-4140
WA	Seattle, SPS Elctrns.	206-323-4140
WI	Lake Mills, Saffro & Assocs.	414-648-2605

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, Cypress Elctrns.	408-727-7080
CA	Torrance, Cypress Elctrns.	215-530-1900
CT	New Haven, The Greene-Shaw Co.	203-397-0710
MD	Columbia, DK Elctrns.	301-995-1950
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Newton, The Greene-Shaw Co.	617-969-8900
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Troy, Trojan Elctrn. Supp. Co.	518-274-4481
OK	Tulsa, Radio, Inc.	918-587-9123
TX	Houston, Gaumer Co.	713-460-5200

ELCTRN. INSTR. & SPEC. CORP., MC DIV., See Millen Comps.

ELECTRONIC KITS INTL., INC., 791 Redrock Rd., St. George, UT 84770, Tel: 801-628-3627; *Sls. Mgr.:* Gary Gibson; *Dist. Mgr.:* Charles Meinkey

ELECTRONIC MEASUREMENTS, 405 Essex Rd., Neptune, NJ 07753, Tel: 201-922-9300, Telex: 132-424; Empl.: 250; *Sls. Mgr.:* Charles Lehmann ...**D•1622-1625**

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices	205-536-1969
AZ	Phoenix, Sci. Devices	602-957-0401
CA	Huntington Beach, Sci. Devices	714-840-3501
CA	San Diego, Sci. Devices	619-573-0157
CA	San Jose, Sci. Devices	408-554-0455
CO	Broomfield, Sci. Devices	303-469-5145
FL	Orlando, Sci. Devices	305-841-8180
GA	Marietta, Sci. Devices	404-427-8660
IL	Chicago, Comtel	312-539-4838
IN	Indianapolis, Comtel	317-253-1681
IA	Cedar Rapids, Comtel	319-377-9434
MA	Winchester, FJS Assoc.	617-729-3135
MI	Southfield, Comtel	313-358-2510
MN	Wayzata, Comtel	612-476-1551
NM	Albuquerque, Sci. Devices	505-883-3668
NY	East Syracuse, Ossmann Insts.	315-437-7052
NJ	Ridgefield, Rical Assocs.	201-945-5250
NC	Winston-Salem, Sci. Devices	919-765-5776
OH	Dayton, WKM Assoc.	513-434-7500
PA	Pittsburgh, WKM Assoc.	412-892-2953
PA	Plymouth Meeting, Electronic Mktg. Assocs.	215-828-7400
TX	Austin, Alphatech	512-458-9179
WA	Bellevue, Al Smith Co.	206-746-6770
WA	Vancouver, Al Smith Co.	206-892-9912
WI	New Berlin, Comtel	414-544-6042

ELCTRN. MOLDING CORP., 96 Mill St., Woonsocket, RI 02895, Tel: 401-769-3800, TWX: 710-387-1350; FSC No.: 17117; Empl.: 350; *Sls. Mgr.:* Scott R. Tate; *Dist. Mgr.:* Irene S. Dulude .... **C•1186-1188, 1698, 1706-1709**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean of GA	205-830-1540
AZ	Scottsdale, EDP & Assocs., Inc.	602-991-6119
CA	Huntington Beach, Pegasus	714-964-8731
CA	Mountain View, West Mark Assocs.	415-969-1700
CA	Torrance, EMC	213-325-5801
CO	Englewood, Delta Sls., Inc.	303-799-0646
FL	Deerfield Beach, Cartwright & Bean of FL	305-429-3400
FL	Orlando, Cartwright & Bean of FL	305-422-4531
GA	Atlanta, Cartwright & Bean of GA	404-233-2939
IL	Oak Brook, Winner Co.	312-655-3545
IN	Ft. Wayne, Denton Mktg.	219-627-5525
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
LA	Kenner, Cartwright & Bean of TN	504-466-0020
MD	Pasadena, Macrotech Assocs.	301-437-5588
MA	Needham Heights, Todino Engrg. Sls.	617-444-7925
MI	Ferndale, Hilltronics, Inc.	313-398-5556
MN	Hopkins, The Kits Co.	612-933-1888
MS	Jackson, Cartwright & Bean of TN	601-981-1170
MO	St. Louis, Lowell-Kangas & Assocs.	314-821-4050
NJ	Englewood, Harold Gray Assocs.	201-894-0894
NJ	Sicklerville, Brown Assocs.	609-629-2240
NY	Binghamton, Empire Tech. Assocs.	607-772-0651
NC	Charlotte, Cartwright & Bean of GA	704-377-5673
NC	Raleigh, Cartwright & Bean of GA	919-781-6560
TN	Knoxville, Cartwright & Bean of TN	615-693-7450
TN	Memphis, Cartwright & Bean of TN	901-276-4442
TX	Austin, Mil-Rep Assocs.	512-459-8602
TX	Houston, Mil-Rep Assocs.	713-937-0127
TX	Richardson, Mil-Rep Assocs.	214-644-6731
UT	Salt Lake City, Delta Sls., Inc.	801-487-7571
Can	Brampton, Ont., Clark-Hurman Assocs.	416-453-1118
Can	Nepean, Ont., Clark-Hurman Assocs.	613-727-5626

Local Distributors

AL	Huntsville, Electro-Wise, Inc.	205-830-4764
AZ	Phoenix, Heilind Elctrns.	602-437-1060
CA	El Segundo, Force Elctrn.	714-522-1324
CA	San Jose, Force Elctrn.	408-943-1324
CO	Denver, C.S.I.D.	303-292-9594
CO	Wheat Ridge, ACT	303-422-9229
CT	Bethel, Heilind Elctrns.	203-797-8600
CT	Bridgeport, Millenium Elctrns.	203-372-2037
FL	Melbourne, Action Elctrns.	305-725-4920
FL	Orlando, Axtech Elctrns.	305-291-1681
IL	Elk Grove Village, Nu Way Elctrns.	312-437-7120
IA	Cedar Rapids, Bergquist	319-277-5155
MD	Columbia, Aztech Elctrns.	301-995-1760
MA	Boston, Vector Sls.	617-787-2790
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Woburn, EPC	617-935-0400
MI	Grand Rapids, Calder Elctrns	616-698-7400
MN	Minneapolis, Bergquist	612-835-2322
NJ	Pennsauken, RESCO Elctrns.	609-662-4000
NJ	Union, Meridian Supp. Co.	201-839-8665
NM	Albuquerque, Betatron	505-344-2381
NM	Albuquerque, International Elctrns.	505-345-8127
NY	Bohemia, L.I., Car-Lac Elctrns.	516-567-4200
NY	Lynbrook, L.I., Peerless Radio Corp.	516-593-2121
NY	Millbrook, Villarreal Elctrns.	914-677-3447
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Suffern, Nobel Elctrns.	914-357-4500
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, Schuster Elctrns.	513-489-1400
OH	Twinsburg, Schuster Elctrns.	216-425-8134
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Norvac Elctrns.	503-644-1025
PA	Allentown, Lehigh Elctrns.	215-433-3045
TX	Austin, Altair Co.	512-837-4970
TX	Austin, Heilind Elctrns.	512-834-9711
TX	Dallas, Heilind Elctrns.	214-351-2050
TX	Dallas, International Elctrns.	214-233-9323
TX	El Paso, International Elctrns.	915-598-3406
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Lenert Co.	713-225-1465
TX	Richadson, Altair Co.	214-231-5166

ELECTRONIC NAVIGATION INDS, Emerson Electric Co., 100 Highpower Road, Rochester, NY 14623, Tel: 716-427-8300, Telex: 671-1542 ENI UW; FSC No.: 10226; Empl.: 200; *Sls. Mgr.:* Leonard A. Benedict .... **D•1008-1009**

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs.	205-883-8660
AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Los Altos, Jay Stone Assocs.	415-948-4563
CA	Los Angeles, McDougall/McLaughlin Co.	213-477-8556
CO	Wheat Ridge, Trembly Assocs.	303-421-8900
FL	Orlando, W. A. Brown Instrs.	305-425-5505
GA	Norcross, W. A. Brown Instrs.	404-441-2980
IL	Elmhurst, Sector Engrg.	312-530-7850
IN	Indianapolis, Sector Engrg.	317-842-1120
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Mandeville, W. A. Brown Instrs.	504-626-9701
MD	Silver Spring, Gawler Knoop Co.	301-589-4406
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Sector Engrg.	612-593-1809
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NV	Las Vegas, Trembly Assocs.	702-739-9770
NH	Nashua, JPR Elctrn. Sls.	603-889-8285
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Great Neck, RTI, Inc.	516-829-3770
NC	Durham, W. A. Brown Instrs.	919-479-5200
OH	Dayton, WKM Assocs.	216-434-7500
OH	Independence, WKM Assocs.	216-524-5930
PA	Mechanicsville, John Bell Assocs.	215-794-7075
PA	Pittsburgh, WKM Assocs.	412-892-2953
SC	Columbia, W. A. Brown Instrs.	803-798-8070
TN	Oakridge, W. A. Brown Instrs.	615-482-5761
TX	Houston, Lear Assocs.	713-488-7893
TX	Richardson, Lear Assocs.	214-231-5388
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Sci. Dvcs. Northwest	206-747-5169
WI	Milwaukee, Sector Engrg.	414-352-8280
Can	Toronto, Rayonics Scientific	416-736-1600

ELECT. PREC. COMP. CORP., 11 W. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-664-2333; FSC No.: 75898; Empl.: 8; *Sls. Mgr.:* Don Edwards .... **A•1603, 1868; D•1217**

Local Sales Offices & Reps

CA	Granada Hills, W. H. Inds., Inc.	213-363-3910
CO	Denver, Midwest Meridian Corp.	303-341-7550
IL	Elk Grove Village, Midwest Meridian Corp.	312-640-9540
IA	Cedar Rapids, Midwest Meridian Corp.	319-365-6561
MA	Andover, William Crawford Assocs.	617-470-2122
MN	Prior Lake, Midwest Meridian Corp.	612-447-8222
MO	Marylan Heights, Midwest Meridian Corp.	314-878-4441
OH	Fairborn, Midwest Meridian Corp.	513-879-7100
TX	Fort Worth, Midwest Meridian Corp.	817-654-2132
WA	Kirkland, W.H. Industries	206-827-1024

ELECTRONIC PRODS. CORP., Interstate Indl. Plaza, R. D. #5, York, PA 17402, Tel: 717-767-6517; Empl.: 16; *Sls. Mgr.:* M. E. Lehman; *Dist. Mgr.:* M. E. Lehman

ELECTRONIC RELAYS, 30 Plaza Dr., Westmont, IL 60559, Tel: 312-789-8166, TWX: 910-991-3903; FSC No.: 53087; Empl.: 29; *Sls. Mgr.:* Barbara Breibach; *Dist. Mgr.:* Barbara Breibach

ELECTRONIC RESEARCH CO., 7618 Wedd St., Overland Park, KS 66204, Tel: 913-631-6700, TWX: 910-749-6477; FSC No.: 13571; Empl.: 60; *Sls. Mgr.:* Charles Ditzler .... **A•1362**

Local Sales Offices & Reps

Frequency Product

NJ	Riverdale, Comp-Tech Sls.	201-935-5454
NJ	Union, Comp-Tech Sls.	201-687-2484
NY	New Hyde Park, Comp-Tech Sls.	516-593-2628

ELECTRONIC SOLUTIONS, 9255 Chesapeake Drive, San Diego, CA 92123, Tel: 619-292-0242, 800-854-7086, TWX: 910-335-1169; FSC No.: 61081; Empl.: 90; *Sls. Mgr.:* R. J. Felker; *Dist. Mgr.:* Kim E. Mamer .... **D•1084-1086**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Tempe, Mar Tech	602-968-4944
CA	Anaheim, Qualtech South	714-639-9820
CA	Brentwood, Qualtech South	408-732-4800
CA	Los Angeles, Qualtech South	805-495-7100
CA	San Diego, Mesa Engrg.	619-278-8021
CA	Sunnyvale, Qualtech	408-732-4800
CT	Canton, Bell Controls	603-882-6984
FL	Melbourne, Southeastern First Rep	305-259-6373
GA	Atlanta, Remco	404-447-6937
IL	Chicago, Mar-Con Assocs.	312-675-6450
IA	Des Moines, The Beams Co.	515-255-1148
KS	Shawnee Mission, The Beams Co.	913-631-0300
MD	Rockville, Spectro	301-294-9770
MA	Nashua, Bell Controls	603-882-6984
MI	Livonia, Lowell Wendt	313-464-2722
MN	Minneapolis, Micro Res.	612-830-1454
MO	St. Louis, The Beams Co.	314-434-8448
NH	Nashua, Bell Controls	603-882-6984
NM	Albuquerque, Mar Tech Assocs.	602-968-4944
NJ	Springfield, Gebhardt Mktg.	201-376-4415
NC	Raleigh, Remco	919-847-5079
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-252-6700
OR	Portland, Thorson Co., N.W.	503-644-5900
PA	Jenkintown, Monument Tech. Assocs.	215-884-3737
TX	Austin, Acudata	512-478-1018
TX	Houston, Acudata	713-580-2451
TX	Plano, Acudata	214-424-3567
WA	Bellevue, Thorson Co., N.W.	&
WI	Waukesha, Computer & Sys. Sls.	414-544-1141

Local Distributors

CA	Mountain View, I/O Sls., Inc.	415-968-1080
CT	Danbury, Pilgrim Elctrns.	203-792-7274
Can	Mississauga, Ont., Allan Crawford Assocs.	416-678-1500

ELECTRONIC SPACE SYS. CORP., Old Powder Mill Rd., Concord, MA 01742, Tel: 617-369-7200, Telex: 923480 ESSCO WCRD; FSC No.: 15175; Empl.: 82; *Sls. Mgr.:* Susan M. Cuevas

ELECTRONIC SPECIALISTS, 171 South Main St., Natick, MA 01760, Tel: 617-655-1532, 800-225-4876, Telex: 955-329 ATTN: ESP; Empl.: 42; *Sls. Mgr.:* Alice Brown

ELECTRONIC SPECIALTY DIV., ElecSpec Corp., 14511 N.E. 13th Ave., Vancouver, WA 98668-3501, Tel: 206-574-5000, Telex: 360-453, TWX: 910-469-8782; FSC No.: 98927;Multiple; Empl.: 250; *Sls. Mgr.:* L. Fuller .... **B•1346-1347**

Local Sales Offices & Reps

CA	Anaheim, Gabriel & Assocs.	713-666-0660
CA	San Jose, Ruppert Sls. & Engrg.	408-998-8717
CT	Bethel, Livera-Polk Assocs.	203-744-1426
FL	Lighthouse Point, Jack Krutek & Assocs.	305-941-6544
KS	Wichita, BAKA Corp.	316-682-8411
MD	Timonium, Eastern Comp.	301-561-5811
MN	Hopkins, The Kits Co.	612-933-1888
NJ	Madison, Livera-Polk Assocs.	201-377-3239
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Eastern Comp.	919-787-3416
PA	West Conshohocken, Eastern Comp.	215-825-8610
TX	Dallas, MARCOM	214-351-4521
TX	Houston, MARCOM	713-271-5635
VA	Annandale, Eastern Comp.	703-354-0723

ELECTRONIC SYS. & PROGRAMMING, See Augat/ES)sP, Inc.

ELECTRONIC TRANSFORMER CORP., P.O. Box 188, Totowa, NJ 07511, Tel: 201-942-2222; FSC No.: 72149; Empl.: 130; *Sls. Mgr.:* Dan Rovine

ELECTRONIC TRANSISTORS, 112-15 Northern Blvd., Flushing, NY 11368, Tel: 212-651-7200, Telex: 96-0173; FSC No.: 12045; Empl.: 45; *Sls. Mgr.:* Mike Byrnes; *Dist. Mgr.:* Mike Byrnes

ELECTRONIC TREND PRODS., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014, Tel: 408-996-7401, Telex: 345516; Empl.: 3; *Dist. Mgr.:* Gene Selven

ELECTRONIC WATTMETER CO., 2275 Sixth St., Sarasota, FL 33577, Tel: 813-953-5355; Empl.: 6

ELECTRONIZED CHEMICALS CO., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887, Tel: 617-657-8030, Telex: 68-17284

ELECTRON-MACHINE CORP., Box M, Umatilla, FL 32784, Tel: 904-669-3101, Telex: 56-4300; Empl.: 55; *Sls. Mgr.:* S. K. Kemp V.P. Mktg

ELECTRON PRODUCTS, 2084 Central Ave., Duarte, CA 91010, Tel: 818-359-8281, Telex: 910-333-9810; FSC No.: 99515; Empl.: 65; *Sls. Mgr.:* Ann Meunier; *Dist. Mgr.:* Ann Meunier

ELECTRO-NUMERICS, 1811 Reynolds, Irvine, CA 92714, Tel: 714-250-1501, Telex: 68-5612; FSC No.: 51666; Empl.: 24

ELECTRO-OPTICAL INDS., Box 3770, Santa Barbara, CA 93130, Tel: 805-964-6701, Telex: 65-8427; Empl.: 130

ELECTRO-PACIFIC, 5782 Thornwood Dr., Goleta, CA 93017, Tel: 805-964-0751; FSC No.: 29853; Empl.: 60; *Sls. Mgr.:* Verne White

ELECTRO PHYSICS, 1910 West Birchwood Ave., Chicago, IL 60626, Tel: 312-274-9669; Empl.: 6; *Sls. Mgr.:* Abe Siegelman

ELECTROPHYSICS CORP., 48 Spruce St., Nutley, NJ 07110, Tel: 201-667-2262, Telex: 642277

ELECTRO-PREP, LTD., Rt 28A, P.O. Box 437, Cataumet, MA 02534, Tel: 617-563-5559; *Sls. Mgr.:* J. Anderson

ELECTRO-RACK PRODUCTS CO., 1742 S. Clementine St., Anaheim, CA 92802, Tel: 714-776-5420; FSC No.: 26073; Empl.: 25; *Sls. Mgr.:* Allen Benson

ELECTRO RENT CORP., 4209 Van Owen Place, Burbank, CA 91505, Tel: 818-843-1221, Telex: 314225, TWX: 910-498-2238; Empl.: 350; *Sls. Mgr.:* R. Tarullo

ELECTRO SCIENTIFIC INDS., 13900 N.W. Science Pk. Dr., Portland, OR 97229, Tel: 503-641-4141, Telex: 474-2064; FSC No.: 11837; Empl.: 1100; *Sls. Mgr.:* Dick Donaca

Local Sales Offices & Reps

Impedance Measuring Devices

CA	Anaheim, Gary Ingbretson	714-995-2141
TX	Austin, Pete Fugger	512-258-7362
PA	Sewickley, Charles Molitor	412-255-1577
NC	Cary, Gay Gasque	919-481-0058
OR	Portland, Stan Gressel	503-641-4141

Laser Trimming & Processing Systems

IN	Kokomo, Doug Goad	317-453-9293
CA	San Jose, Tom White	408-243-8700
GA	Rosewell, Jack Fedon	404-998-0545
MN	Minneapolis, Tom Goodnow	612-870-9192
NH	Nashua, Roy Johnson	603-888-7605
NJ	Mt. Laurel, John Alpaugh	609-235-2474
OR	Portland, Stan Gressel/Russ Schlager	503-641-4141
TX	Plano, Doug Dickinson	214-867-4647

ESF
Electro-Space Fabricators, Inc.

ELECTRO SPACE FABRICATORS, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, Tel: 215-682-7181; Empl.: 205; *Sls. Mgr.:* T. Roth .... **C•1054-1055**

Local Sales Offices & Reps

AL	Huntsville, Mackan, Smith & Assocs.	205-539-8000
CA	Irvine, Vale Assocs.	714-551-4004, 4821
CA	San Jose, Silicon Valley Sls.	408-286-7510
CA	San Jose, Silicon Valley Sls.	408-371-8814
CO	Boulder, Starsales	303-440-4193
CT	Bridgeport, Betronic Assocs.	203-374-6404
FL	Lighthouse Point, Jack Krutek & Assocs.	305-941-6544
FL	Madeira Beach, MacKay, Smith & Assocs.	813-393-7144
FL	Orlando, MacKay, Smith & Assocs.	305-277-1513
GA	Norcross, MacKay, Smith & Assocs.	404-449-7444
IL	Northbrook, Raines & Assocs.	312-498-0890
MD	Pikesville, Imagitron Sls.	301-521-2020
MD	Pikesville, Imagitron Sls. Co.	800-638-3592
MA	Waltham, Betronic Assocs.	617-894-8400
MN	Minneapolis, Jen-Ray Sys.	612-831-5060
NJ	Boonton, Winter Assocs.	201-334-3434
NY	Morrisville, Promark-Electrns.	315-662-3310
NY	Morrrisville, Promark Elctrns., Inc.	315-662-3310
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
OH	Galion, James R. Bright	419-468-3787
OK	Tulsa, Advance Techn. Sls.	918-664-0482
PA	Doylestown, Monteiro Assocs.	215-345-5855
PA	McKean, Ecco Electrns. Sls.	814-476-1376
PA	McKean, ECCO	814-476-1376
TN	Chattanooga, MacKay, Smith & Assocs.	615-899-6951
TX	Austin, Advance Techn. Sls.	512-459-1351
TX	Dallas, Advance Techn. Sls.	214-340-1300
TX	Houston, Advance Techn. Sls.	713-440-3888
WA	Auburn, Elctrn. Sls. Northwest	206-839-5808
WA	Maple Valley, Electrn. Sls. Northwest	206-432-1002
Can	Downsview, Ont., Designtronics	1-416-747-1171

ELECTROSPACE SYS., INC., P. O. Box 831359, Richardson, TX 75083-1359, Tel: 214-783-2004, TWX: 910-867-4768; FSC No.: 33875; Empl.: 1,269

ELECTRO STANDARDS LAB., INC., P.O. Box 9144, Providence, RI 02940, Tel: 401-943-1164, Telex: 697-2057 ESLAB; Empl.: 20; *Sls. Mgr.:* R. B. Sepe; *Dist. Mgr.:* R. B. Sepe

ELECTROSTATIC CONSLTG. ASSOCS., 556 Lowell Rd., Groton, MA 01450, Tel: 617-448-5485; Empl.: 5; *Sls. Mgr.:* Paul Malinaric

ELECTROSTATICS, 7718 Clairemont Mesa Blvd., San Diego, CA 92111, Tel: 619-279-1414; FSC No.: 34538; Empl.: 17

ELECTRO STYLUS, 31 Cheyenne Blvd., Colorado Springs, CO 80906, Tel: 303-633-5969; Empl.: 10; *Sls. Mgr.:* L. F. Murray; *Dist. Mgr.:* M. L. Murray

ELECTRO SWITCH, King Ave., Weymouth, MA 02188, Tel: 617-335-5200, TWX: 710-388-0377; FSC No.: 82121; Empl.: 260; *Sls. Mgr.:* H. F. Peters .... **B•1564-1565**

Local Sales Offices & Reps

AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Los Angeles, Wiley	213-666-1611
CA	Moraga, W. Nott & Co.	415-376-1922
CA	San Diego, Wiley Co.	619-571-2881
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Winter Park, Floritronics	305-886-4818
GA	Atlanta, Holman-Gillespie	404-992-8820
IL	Elk Grove Village, Electro Switch	312-593-2225
IA	Bettendorf, H. J. Weisler & Assocs.	319-344-0566
MD	Gathersburg, Naudain Assocs.	301-258-5040
MI	Ferndale, Hilltronics	313-398-5556
MN	St. Paul, Kencotronics	612-645-7717
MO	Ellisville, H. J. Weisler & Assocs.	314-394-4543
MO	No. Kansas City, H.J. Weisler & Assocs.	816-421-1679
NJ	Fairfield, Electro Switch	201-227-6559
NJ	Marlton, Naudain Assocs.	609-983-5300
NY	Rochester, Sweetco Assocs.	716-225-2383
NY	Utica, Sweetco Assocs.	315-797-6721
NC	Winston-Salem, L. G. White Southern, Inc.	
NC	Winston-Salem, L.G. White Southern	919-725-3612
OH	Dayton, Rockford Controls	513-898-5452
OH	Euclid, Rockford Controls	216-731-5250
OH	Reynoldsburg, Rockford Controls	614-868-5577
PA	Pittsburgh, R. F. Clark	412-242-9500
SC	Greenville, L.G. White Southern	803-271-0630
TX	Bellaire, Brice Co.	713-666-1788
TX	Dallas, Brice Co.	214-233-9808
UT	Woodscross, Comp. Prods. Sls.	801-292-8882
VA	Richmond, L.G. White Southern	804-740-7093
WA	Seattle, C.B. Parsons & Co.	206-762-7373
WI	Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

CA	Concord, Omega	415-671-7796
CA	Los Angeles, Electric Switches	213-660-1310
CO	Denver, Wesco	303-573-7550
FL	Ft. Lauderdale, Peerless Radio Corp. of Fla.	305-973-4141
GA	Atlanta, Georgia Control Ctr.	404-876-8833
IL	Bridgeview, Midco Comp. Sls.	312-599-7777
MD	Kensington, Marine Air Supp.	301-949-9560
MA	Sharon, Adcour	617-784-8123
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-0216
MN	St. Paul, K. D. I.	612-645-7717
MO	St. Louis, Industrial Svc. Labs	314-535-5760
NY	Hempstead, Electronic Equip. Co.	516-538-5510
NC	Winston-Salem, General Prods. Co.	919-725-3612
OH	Euclid, Rockford Controls Ohio	216-731-5250
OK	Tulsa, Nelson Elec. Supp.	918-583-1212
PA	Conshohocken, I/O Elec. Supp. Corp.	215-825-4610
TX	Bellaire, Barclay Whls.	713-666-1788
WA	Seattle, C.B. Parsons Co.	206-762-7373
WI	Milwaukee, I/O Elec. Supp. Corp.	414-963-9050

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ELECTRO VECTOR, INC., 6555 Covey Rd., Forestville, CA 95436, Tel: 707-887-2292, TWX: 510-746-6024; *Sls. Mgr.:* Wayne Brigden

ELECTROVERT INC., 399 Executive Blvd., Elmsford, NY 10523, Tel: 914-592-7322, Telex: 646186; *Sls. Mgr.:* Steve Vineis

ELECTROVERT USA CORP., 10969 Shady Trail, #101, Dallas, TX 75220, Tel: 214-353-9950, Telex: 4630186; FSC No.: 1-214-350-4991; Empl.: 175; *Sls. Mgr.:* Tom Gill

Local Sales Offices & Reps

CA	Santa Ana	714-835-2033
CA	Santa Clara	408-739-6015
CO	Denver	303-423-5598
GA	Norcross	404-441-3644
IL	Rosemont	312-678-5557
NH	Manchester	603-625-5877
NY	Elmsford	914-592-7322
TX	Dallas	214-353-9950

ELECTRO WEAVE, 425 Shrewsbury St., Worcester, MA 01604, Tel: 617-752-8932, TWX: 710-340-0635; FSC No.: 54207; Empl.: 18; *Sls. Mgr.:* C. J. Nowasacki

ELFAB CORP., 1097 Yates Street, Lewisville, TX 75067, Tel: 214-221-8776, 214-233-3033, TWX: 910-860-5460; Empl.: 350; *Sls. Mgr.:* Kermit Dye; *Dist. Mgr.:* Bud Addington .... **C•1190-1191**

Local Sales Offices & Reps

AL	Brownsboro, J.H.U. Assocs.	205-536-7455
AZ	Tempe, Delta Elec.	602-224-1601
CA	Escondido, Cirolia Elctrn. Sls.	619-743-3015
CA	Los Alamitos, Reed Elctrns. Sls.	714-821-9600
CA	Santa Clara, Elfab Corp.	408-988-1716
CA	Tustin, Elfab Corp.	714-731-2515
CO	Littleton, Lange Sls., Inc.	303-795-3600
FL	Goldenrod, Sunland Assocs.	305-365-9533
FL	Winter Park, Elfab Corp.	305-678-7759
GA	Atlanta, J.H.U. Assocs.	404-662-0792
IL	Arlington Heights, Brainard-Wilson Mktg.	312-437-2700
IL	Crystal Lake, E. S. Healy & Assocs.	815-459-4386
MD	Hunt Valley, Phoenix Elctrn. Sls.	301-628-2066
MA	Hopkinton, Marathon Sls., Ltd.	617-875-3566
MI	Grand Rapids, R. P. Urban Assocs.	616-245-0511
MN	Edina, Mel Foster Tech Sls.	612-941-9790
MO	St. Charles, Microtronics	314-946-8500
NJ	Cherry Hill, Elfab Corp.	609-795-6262
NY	N. Syracuse, Advanced Comps.	315-699-2671
NC	Raleigh, Rick Burns Assoc., Inc.	919-876-2224
OH	Dayton, Duane Thompson & Assocs.	513-237-9422
OK	Oklahoma City, Ammon & Rizos Co.	405-942-2552
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-644-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Lange Sls., Inc.	910-925-4006
WA	Seattle, Blum & Assocs.	206-285-2590
PR	Rio Piedras, D. K. Mktg.	809-765-5380

Local Distributors

CA	Santa Clara, Cetec Elctrns.	408-748-8550

ELFORM, INC., 521 Dunn Circle, Sparks, NV 89431, Tel: 702-356-1734, Telex: 170037; *Sls. Mgr.:* Roger R. Reinke

ELGAR
An Onan/McGraw-Edison Company

ELGAR CORP, An Onan McGraw Edison Co., 9250 Brown Deer Rd., San Diego, CA 92121, Tel: 619-450-0085, Telex: 211063 ELSD UR, TWX: 910-335-1246; FSC No.: 25965; Empl.: 375; *Dist. Mgr.:* Steve Larson .... **D•1918-1922**

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech Assocs.	205-881-9298
AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Costa Mesa, Ward Davis Assocs.	714-556-0755
CA	Pasadena, A & F Sls.	213-681-5631
CA	Redondo Beach, Ward/Davis Assocs.	213-973-7772
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	San Jose, D.P. Assocs.	408-296-1492
CA	Santa Clara, Ward Davis Assocs.	408-245-3700
CO	Wheat Ridge, Trembly Assocs.	303-421-8900
FL	Casselberry, Pen-Tech Assocs.	305-645-3444
FL	Deerfield Beach, Pen-Tech Assocs.	305-421-4989
GA	Marietta, Pen-Tech Assocs.	404-424-1931
IL	Arlington Heights, Dytec/Central	312-394-3380
IL	Hoffman Estates, Carvel Engrg.	312-885-8800
IN	Indianapolis, Dytec/Central	317-247-1316
KS	Lenexa, Dytec/South	913-888-0215
MD	Rockville, Elctrn. Mktg. Assocs.	301-881-5300
MA	Woburn, P. Jenks Assocs.	617-938-0488
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Edina, Carvel Engrg.	612-835-7929
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Maryland Hgts., Dytec/South	314-569-2990
NV	Las Vegas, Trembly Assocs.	702-739-9770
NJ	Fairfield, G & A Sls.	201-575-8080
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Fairport, NACO Elctrns. Corp.	716-223-4490
NY	Great Neck, RTI	516-829-3770
NY	North Syracuse, NACO Elctrns. Corp.	315-699-2651
NY	Utica, NACO Elctrns. Corp.	315-732-1801
NC	Greenboro, Pen Tech Assocs.	919-852-6000
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OK	Edmond, Data Aids Assocs.	405-478-5000
OR	Beaverton, Northwest Test & Meas.	503-646-9966
OR	Portland, Topp Engrg.	503-244-7265
PA	Pittsburgh, WKM Assocs.	412-892-2953
PA	Plymouth Meeting, Elctrn. Mktg. Assocs.	215-828-7400
TX	Austin, Data Aids Assocs.	512-327-8600
TX	Dallas, Data Aids Assocs.	214-620-1551
TX	Woodlands, Data Aids Assocs.	713-363-3838
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Topp Engrg.	206-747-5400
WA	Redmond, Northwest Test & Meas.	206-881-8857
WI	Elm Grove, Dytec Central Inc.	414-784-9686
WI	New Berlin, Carvel Engrg.	414-784-7007
EXP	CA, San Diego, Elgar Intl. Corp.	619-565-1155

Local Distributors

CA	Inglewood, Cal. Micro	213-671-6075
IL	Arlington Heights, Peak Distrs., Inc.	312-394-3380
MN	St. Paul, Dytec North, Inc.	612-645-5816
MO	Maryland Heights, Dytec Distrs.	314-569-2990
NJ	Hackensack, Logon, Inc.	201-646-9222
NY	North Syracuse, Naco Elctrns. Corp.	315-699-2651
NC	Greensboro, Pen-Tech Sls.	919-852-6000
OH	Dayton, National Distrs., Inc.	513-434-7500
PA	Penllyn, Promark Distrs., Inc.	215-643-3400
TX	Woodlands, Data Aids Assocs.	713-363-3838
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

ELGENCO, INC., Box 460, Hurricane, UT 84737, Tel: 801-635-4954; FSC No.: 15455; *Sls. Mgr.:* Duane Beecher .... **D•1218-1223**

Local Sales Offices & Reps

CA	Sherman Oaks, Windsor Dynamics	818-990-4173
CA	Woodside, N-S Assocs.	415-851-2703
CT	Hamden, Polytek Assoc.	203-288-5246
MA	Waban, Polytek Assoc.	617-881-4741

NJ	Marmore, Holdsworth & Co.	609-398-4340
NM	Albuquerque, Technology Mktg. Assoc.	505-345-8921
PA	Newtown Square, Holdsworth & Co.	215-356-8550

ELGIN ELECTRONICS, Combustion Engineering, 5533 New Perry Hwy., Erie, PA 16509-3570, Tel: 814-864-4921, TWX: 510-699-6870; Empl.: 500; *Sls. Mgr.:* C. G. Searles

Local Sales Offices & Reps

CA	Chatsworth, Elgin Elctrns.	818-700-0299
GA	Atlanta, Elgin Elctrns.	404-925-2572
IN	Redkey	317-369-2012
PA	Wayne	215-687-6100
TX	Fort Worth, Elgin Elctrns.	817-429-7331

ELIN DIV., California Instrs. Co., Div. of Norlin Ind., 5150 Convoy St., San Diego, CA 92111, Tel: 619-279-8620, Telex: 695-047; FSC No.: 16067; Empl.: 90; *Sls. Mgr.:* W.W. Hanford

ELITE ELECTRONICS, INC., 1408 Summit - Suite #5, Plano, TX 75074, Tel: 214-881-0026; Empl.: 3

ELITE SOFTWARE DEVELOPMENT, INC., P.O. Drawer 1194, Bryan, TX 77806, Tel: 409-846-2340, Telex: 910-997-6760; Empl.: 4; *Sls. Mgr.:* Terri J. King

ELMA ENGRG., 1066 E. Meadow Circle, Palo Alto, CA 94303, Tel: 415-494-7303, Telex: 345-560; FSC No.: 59810; Empl.: 50

ELMAG, 54 Clark St., Newark, NJ 07104, Tel: 201-481-1600; FSC No.: 23160; Empl.: 25

ELM SYSTEMS, 1101 Brown St., Wauconda, IL 60084, Tel: 312-526-5003; *Sls. Mgr.:* T. A. McCollum

Elmwood Sensors Inc.
Subsidiary of FASCO®

ELMWOOD SENSORS, 500 Narragansett Park Drive, Pawtucket, RI 02861, Tel: 401-727-1300, Telex: 6814066 ELMWOOD, TWX: 710-381-6413; Empl.: 700; *Sls. Mgr.:* Gary Polkow **B•1750**

Local Sales Offices & Reps

AL	Decatur, Tenn. Tech. Sls.	205-350-0630
AZ	Phoenix, O'Donnell SW	602-944-9542
AR	Hot Springs, Ion Assoc.-Arkla	918-664-018
CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	San Jose, O'Donnell Assocs.	408-263-6500
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Boulder, Front Range Mktg.	303-443-4780
FL	Coral Springs, CBC Electronics	305-755-1111
GA	Atlanta, Tenn. Tech. Sls.	404-622-5784
IL	Arlington Heights, Thermek	312-577-6900
IN	Fort Wayne, O. Bromberg	219-456-6010
KY	Louisville, O. Bromberg	502-245-8916
MA	Danvers, C. H. Burnham Assoc.	617-774-0111
MI	Brooklyn, Engineered Comps.	517-592-3236
MN	Minneapolis, C. Listug Sls.	612-537-6740
MO	Creve Coeur, Hill & Co.	314-432-1136
MO	St. Louis, Hill & Co.	314-432-1136
NH	Durham, C. H. Burnham Assoc.	603-868-2282
NY	Fairport, Bastian Sls.	716-223-0237
NY	Larchmont, G. M. Moch Co.	914-834-3530
NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Charlotte, Tenn-Tech Sls.	704-525-6295
NC	Raleigh, Tenn-Tech	919-226-3610
OH	Cincinnati, O. Bromberg	513-771-9333
OH	Cleveland, Allied Entprs.	216-779-0080
OK	Tulsa, Ion Assoc.	918-664-0186
OR	Hillsboro, Temco-Northwest	503-648-8171
PA	Huntington Valley, Omega Elctrns. Sls.	215-947-4135
PA	Murrysville, Allied Entprs.	412-325-3200
RI	Johnston, C. H. Burnham Assoc.	401-231-7475
TX	Austin, Ion Assocs.	512-331-7252
TX	Grand Prairie, Ion Assocs.	214-647-8225
TX	Houston, Ion Assocs.	713-977-4354
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Midlothian, Daniel E. Boehling Assocs.	804-794-5879
WA	Bellevue, Lehr Assocs.	206-453-9993
WA	Bothell, Temco Northwest	206-821-5434
WI	Milwaukee, R. Zingler	414-351-5005
Can	Mississauga, Ont., Andy Baumen Assocs.	416-828-2600

ELNA AMERICA, INC., 153 E. Savarona Way, Carson, CA 90746, Tel: 213-327-6090, Telex: 68-6427, TWX: 910-346-6730; *Sls. Mgr.:* Don L. Bilsing; *Dist. Mgr.:* Isao Kikuchi

ELNETIC ELCTRNS., 1730 21st St., Santa Monica, CA 90404, Tel: 213-828-9541; FSC No.: 98460; Empl.: 25; *Sls. Mgr.:* Ernest H. Carlson, Jr.

ELNIK INSTRS., 3 Edison Place, Fairfield, NJ 07006, Tel: 201-882-8033, Telex: 13-0567; Empl.: 8; *Sls. Mgr.:* Claus J. Joens

ELOGRAPHICS, 105 Randolph Rd., Oak Ridge, TN 37830, Tel: 615-482-4100; *Sls. Mgr.:* R. Highfill

ELPAC COMPS., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440, TWX: 910-595-1513; Empl.: 130; *Sls. Mgr.:* Rod Bolton **A•1078-1079**

Local Sales Offices & Reps

AZ	Tempe, Sunwest Mktg. Assocs.	602-838-7586
CA	San Diego, Wes-K Assocs.	619-578-2040
CA	Santa Clara, Westrep	408-988-8833
CA	Van Nuys, Wes-K Assocs.	213-989-3070
CO	Arvada, Wescom Mktg.	303-422-7619
CT	Milford, Todino Engr. Sls.	203-874-6643
FL	Orlando, OEM Mktg. Corp.	305-299-1000
IL	Highland Park, Bransky Sls.	312-433-2375
MA	Needham Heights, Todino Engr. Sls.	617-444-7925
MN	Bloomington, Smiley-Scott Assocs.	612-888-5551
NJ	Englewood, Harold Gray Assocs.	201-894-0894
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Hickord, J. C. Hofstetter Co.	412-356-2305
TX	Richardson, Mech-Tron	214-437-4833
UT	Salt Lake City, Wescom Mktg.	801-466-9594
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Cedarburg, Bransky Sls.	414-377-8507

Local Distributors

AZ	Phoenix, T.T.I.	602-861-0222
CA	Chatsworth, Mil-Comm	213-998-3111
CA	Garden Grove, Megacap	714-891-5176
CA	Irvine, Kelex	714-863-1230
CA	San Jose, T.T.I.	408-943-9155
FL	Orlando, T.T.I. Florida	305-859-1000
IL	Northbrook, Classic Components	312-272-9650
IL	Skokie, Kellner Elctrns.	312-677-1120
MA	Wilmington, Aved Elctrns.	617-657-8311
MA	Woburn, T.T.I., Inc. NE	617-938-8800
MO	Maryland Heights, Ensco Distribg., Inc.	314-423-3935
NJ	S. Hackensack, Waltech	201-641-7300
NY	Bohemia, T.T.I.	516-567-1500
NY	Elmsford, Ancar	914-592-7100
OK	Tulsa, Altair Co.	918-252-5781
TX	Austin, Captronics	512-459-4328
TX	Dallas, Captronics	214-340-3592
TX	Ft. Worth, T.T.I.	817-429-1440
TX	Houston, Altair Co.	713-462-3029
WI	Mequon, Taylor Elec. Dists.	800-558-8921
WI	Racine, Badger Elctrns.	414-637-1256, 414-933-6685

ELPAC POWER SYS., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440, TWX: 910-595-1513; Empl.: 270; *Sls. Mgr.:* Randy Bilsley; *Dist. Mgr.:* Randy Bilsley **D•1626-1631**

Local Sales Offices & Reps

AL	Huntsville, K&E Assoc.	205-883-9720
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Parker, A-5 Co.	303-841-3651
CT	Yalesville, The Newscott Co.	203-269-2654
FL	Casselberry, Semi	305-831-2822
GA	Doraville, K&E Assoc.	404-448-7025
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Ft. Wayne, F. J. Campisano	219-747-2633
IN	Indianapolis, F. J. Campisano	317-253-7651
KS	Overland Park, Electri-Rep	913-649-2168
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Needham Hgts., Newscott Co.	617-444-1923
MI	Brighton, Michigan Mktg.	313-229-6218
NJ	Cedar Knolls, TAM	201-285-9094
NY	S. Hauppauge, TAM	516-348-0800
NC	Greenboro, Imagitron Sls.	919-292-5474
OH	Cincinnati, F. J. Campisano	513-574-7111
OH	Cleveland, F. J. Campisano	216-749-5550
OK	Tulsa, ION Assocs.	918-664-0186
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Coraopolis, F. J. Campisano	412-264-5151
TX	Austin, Ion Assocs	512-346-7160
TX	Grand Prairie, ION Assocs.	214-647-8225
TX	Houston, Ion Assocs.	713-977-4354
UT	Murray, A-5 Co.	801-483-1034
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AL	Marshall Inds.	
AL	Birmingham, ACK Radio Supp.	205-322-0588
AL	Huntsville, Powell Elec.	205-539-2731
AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Phoenix, Heilind Elec.	602-437-1060
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Costa Mesa, Powell Elec.	714-754-1717
CA	El Monte, Marshall Inds.	213-442-7204
CA	San Jose, Powell Elec.	408-943-9020
CO	Denver, Marshall Inds.	303-427-1818
CT	Bethel, Heilind Elec.	203-797-8600
CT	Wallingford, Marshall Inds.	203-265-3822
CT	Wallingford, Sager Elctrns.	203-265-4600
FL	Ft. Lauderdale, Powell Elec.	305-979-5000
FL	Orlando, Marshall Inds.	305-841-1878
GA	Atlanta, ACK Radio Supp.	404-351-6340
GA	Norcross, Marshall Inds.	404-923-5750
IL	Chicago, Newark Elctrns.	312-638-5100
IL	Northbrook, Classic Comps.	312-272-9650
IL	Schaumburg, Marshall Inds.	312-490-0155
IN	Indianapolis, RM Elctrns.	317-291-7110
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Burlington, Marshall Inds.	617-272-8200
MA	Burlington, QPL Elctrns.	617-229-2424
MA	Hingham, Sager Elctrns.	617-749-6700
MI	Grand Rapids, RM Elec.	616-531-9300
MI	Livonia, Marshall Inds.	313-525-5850
MN	Plymouth, Marshall Inds.	612-559-2211
MO	St. Charles, Finnigan Elec.	314-946-6201
NH	Hudson, Heilind Elec.	603-883-9536
NJ	Cranford, Garden State Indl.	201-272-6400
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Mt. Laurel, Marshall Inds.	609-234-9100
NY	Hauppauge, Broadline Elctrns.	212-895-6232
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Johnson City, Marshall Inds.	607-798-1611
NY	Rochester, Marshall Inds.	716-235-7620
NC	Greensboro, Hammond	919-275-6391
OH	Dayton, Marshall Inds.	513-236-8088
PA	Philadelphia, Shap Elctrns.	215-969-3300
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Austin, Marshall Inds.	512-458-5654
TX	Dallas, Heilind Elec.	214-351-2050
TX	Dallas, Marshall Inds.	214-233-5200
TX	Dallas, RM Elctrns.	214-235-3100
TX	Houston, Heilind Elec.	713-988-2711
TX	Houston, Marshall Inds.	713-789-6600
TX	Houston, Newark Elctrns.	713-782-4800
WA	Bellevue, Marshall Inds.	206-747-9100
WI	New Berlin, Classic Comps.	414-786-5300
WI	New Berlin, RM Elctrns.	414-784-4420

ELPA MARKETING IND., Thorens & Atlantic Ave., Garden City Park, NY 11040, Tel: 516-746-3002

Technacell™
by Elpower®

ELPOWER; 2117 S. Anne St., Santa Ana, CA 92704, Tel: 714-540-6155, Telex: 678354 ELPOWER SNA; Empl.: 200; *Sls. Mgr.:* D. Keil; *Dist. Mgr.:* Ronnie LeFevre **D•1418-1420**

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Hayward, Pacific Mktg.	415-887-1620
CO	Denver, Moss Mktg.	303-455-7205
CT	Milford, Todino Engrg. Sls. Co.	203-874-6643
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Chicago, G. Mcl. Cole Co.	312-774-3535

IN	Indianapolis, Elctrn. Mktg. Conslts.	317-253-1668
KS	Overland Park, Thomas L. Dowell & Assocs.	913-648-7373
MA	Needham Heights, Todino Engrg.	617-444-7925
MI	Livonia, Electronic Salesmasters	800-321-1848
MN	Edina, Restronics	612-941-9135
MO	St. Louis, Thomas L. Dowell & Assoc.	314-849-4234
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NJ	Marlton, Twin Sls.	609-966-4070
NY	Chappaqua, Masin Esco	914-238-8337
NY	East Syracuse, Nycom, Inc.	315-437-8343
NY	Hauppauge, Masin Esco	516-273-3500
OH	Beachwood, Electronic Salesmasters	216-831-9555
PA	Bensalem, Twin Sls.	215-638-4850
TX	Dallas, R. E. Nesbitt Co.	214-357-4601
VA	Herndon, Stinson Assocs.	703-620-0088
WA	Seattle, Northmar	206-524-5170

Local Distributors

AL	Huntsville, Components Distrs.	205-883-7501
CA	Cerritos, El Com	213-404-2961
CA	Fremont, Terminal Sls.	415-656-7722
CA	Gardena, Culver Elctrn. Sls.	213-538-2811
CA	Mountain View, Energy Sls.	415-969-0800
CO	Denver, Hensley Battery	303-455-3643
CT	Middletown, Mid-State Elctrns.	203-347-5638
FL	Ft. Lauderdale, Component Dist.	305-971-4950
GA	Atlanta, Custom Alarm Prods.	404-458-0990
IL	Downers Grove, Telecommunication Dvcs.	312-971-3460
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	New Orleans, Allen Supp. Corp.	504-525-8222
MD	Savage, Pyttronic	301-792-0780
MI	Livonia, Alarm Supp. Co.	313-591-9100
MN	Burnsville, Power Trust Grp.	612-890-1360
MO	St. Louis, Olive Elctrns.	314-426-4500
MO	St. Louis, Van Sickle Radio	314-621-5000
NJ	Hanover, State Elctrns Pts.	201-887-2550
NY	Jackson Hgts., A-1 Alarmatic	212-639-8300
OR	Portland, Radar Elec.	503-232-3404
PA	Allentown, A. A. Peters	215-434-5237
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Richmond, AVCC Elctrns.	804-359-6071
WA	Seattle, Radar Elec.	206-282-2511

EL-RAD MFG., 2800 W. Cullom Ave., Chicago, IL 60618, Tel: 312-478-7300, TWX: 910-221-0104; FSC No.: 11253; Empl.: 225; *Sls. Mgr.:* Marvin S. Christ

Local Sales Offices & Reps

J. J. Riley Assocs.

AZ	Scottsdale, Memco Sls.	602-241-2254
AR	Little Rock, Jaro Electro Sls.	214-231-6654
CA	Huntington Beach, J. J. Riley Assoc.	714-841-1411
CA	Mountain View, Westech Sls.	415-961-1422
FL	Pompano Beach, Cole-Tek	305-781-8110
IL	Elk Grove Village, I R O Co.	312-593-0644
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MD	St. Louis, Abrams & Assocs.	314-569-0447
MI	Benton Harbor, Mc Nabb & Assocs.	616-925-2166
NJ	Baltimore, Faion Lott & Co.	301-744-4611
NM	Phoenix, Memco Sls.	602-952-2254
TX	Richardson, Jaro Electro Sls.	214-231-6654

ELTEC INSTRUMENTS INC., P.O. Box 9610, Daytona Bch., FL 32020, Tel: 904-253-5328, TWX: 810-832-6294; Empl.: 120; *Sls. Mgr.:* Douglas S. Armstrong

EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543, Tel: 914-698-8434, TWX: 710-566-1128; Empl.: 70; *Sls. Mgr.:* Dennis Hanley

EMCO HIGH VOLTAGE CO., 11126 Ridge Road, Sutter Creek, CA 95685, Tel: 209-223-3626; Empl.: 38 .... **D•1632**

EMCON INC., Sub. of Kyocera Intl., 11620 Sorrento Valley Rd., San Diego, CA 92138, Tel: 619-459-4355, TWX: 910-322-1130; Empl.: 500; *Sls. Mgr.:* Bob Goodman; *Dist. Mgr.:* George Maines

EMCOR PRODUCTS, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, Tel: 507-289-3371, TWX: 910-565-2374; *Sls. Mgr.:* John Horton .... **C•1057**

EMC TECHNOLOGY INC, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034, Tel: 609-429-7800, Telex: 710 896 0193; FSC No.: 24602; Empl.: 75; *Sls. Mgr.:* Peter Semitschew

Local Distributors

CA	Los Altos, SIDCO, Inc.	415-949-0440
CA	Malibu, RL Comp., Inc.	213-456-9021
NJ	E. Windsor, Micro-Lambda, Inc.	609-443-3113

EMERGENCY BEACON CORP., 15 River St., New Rochelle, NY 10801, Tel: 914-235-9400; Empl.: 25; *Sls. Mgr.:* Judith L. Weber

EMERGENCY POWER ENGINEERING INC., 3580 Cadillac Ave., Costa Mesa, CA 92606, Tel: 714-557-1636, Telex: 183535; Empl.: 356; *Sls. Mgr.:* Warren Caves

EMERSON, INDL. CONTROLS DIV., 3300 Standard St., Santa Ana, CA 92702, Tel: 714-545-5581, Telex: 67-8460; Empl.: 800; *Sls. Mgr.:* R. L. Calvin

Please call factory for sales offices and nearest rep.

EMERSON & CUMING, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021, Tel: 617-828-3300, TWX: 710-348-1324; Empl.: +500

EMHART CANADA, LTD., See Mallory Components Div.

EMICO INC., Box 368, Dublin, PA 18917, Tel: 215-249-9330, TWX: 510-665-9583; FSC No.: 85925; Empl.: 170; *Sls. Mgr.:* R. Jones .... **D•1352-1353**

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe	213-684-2000
CO	Arvada, Arrowhead Sls. Co.	303-423-5556
FL	Semenole, Chaco Sls.	813-397-4843
IL	Chicago, Ropek & Cahill	312-631-0070
IN	Carmel, S T B & Assocs.	317-844-9227
KS	Shawnee Mission, Robinson & Assocs.	913-262-1374
MD	Silver Spring, H.R. Sieber Co.	301-681-3770
MA	Braintree, Anderson Sls. Co.	617-848-9194
MN	Minneapolis, H.M.R., Inc.	612-888-2122
NJ	Marlton, B.G.R. Assocs.	609-428-2440
NY	Syracuse, Nycom, Inc.	315-437-8343
NY	Yonkers, Sonkin Assoc.	914-968-8282
NC	Charlotte, Electro-Rep. Assocs.	704-527-2530
OH	Rocky River, Loesch Assocs.	216-333-0077
TX	Rowlett, Campion Sls.	214-475-8313
WA	Redmond, Eclipse Mktg.	206-885-6991
WI	Colgate, Rep I and Assocs.	414-628-4016

EMI GENCOM INC., See THORN EMI Gencom Inc.

EMI TECHNOLOGY INC., See THORN EMI Technology Inc.

E/M LUBRICANTS, INC., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906, Tel: 317-463-2511, Telex: 27-9428; FSC No.: 11770

Local Sales Offices & Reps

CA	Mt. View	415-961-5865
CA	North Hollywood	213-875-0101
CO	Denver	303-371-6771
CT	New Britain, E/M Lubricants, Inc.	203-224-9148
GA	Atlanta	404-361-2550
IL	Lombard	312-620-6808
MA	Auburn	617-792-6919
MI	Roseville	313-779-6460
MN	New Brighton	612-780-3202
OH	Dayton	513-254-8481
PA	Sharon Hill	215-461-1015
TX	Ft. Worth	817-834-8817

EMM SEMI, SUB OF EM & M, See GTE Microcircuits

EMM/SESCO, 20630 Plummer St., Chatsworth, CA 91311, Tel: 213-998-9090, Telex: 691404, TWX: 910-494-4990; *Sls. Mgr.:* Russ Summers

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EMPRO MFG. CO., INC., P.O. Box 26060, Indianapolis, IN 46226, Tel: 317-823-4478; Empl.: 25 .... **D•1224**

Local Sales Offices & Reps

CA	La Canada, Lew Brooks Co.	213-790-8358
CA	Santa Ana, Lew Brooks Co.	714-544-8900
GA	Atlanta, Brownell Electro Inc.	404-762-5181
IL	Chicago, Best Rep Co.	312-992-1055
MA	Burlington, E.I.L. Instr.-Mancib Div.	617-272-9450
NJ	Belleville, D. F. Tobias & Co.	201-751-8680
OH	Cleveland, Weschler Elec. Corp.	216-238-2550
PA	Philadelphia, Sunshine Sci. Instr. Inc.	215-673-5600
TX	Houston, Ev Smith Sls.	713-649-5756

EMR DATA SYSTEMS, DIV. SANGAMO- WESTON, Box 3041, Sarasota, FL 33578, Tel: 813-371-0811, Telex: 052-890, TWX: 810-864-0406; Empl.: 1100; *Sls. Mgr.:* F. V. Hinkel

E M S DEVELOPMENT CORP., 200 Allen Blvd., Farmingdale, NY 11735, Tel: 516-694-2886, TWX: 510-224-6480; FSC No.: 51435; Empl.: 115; *Sls. Mgr.:* Ed Simkovich

EMULOGIC, 3 Technology Way, Norwood, MA 02062, Tel: 617-329-1031; *Sls. Mgr.:* Robert Smith

ENCLOSURE CORP., 4529 Adams Circle, Cornwells Hts., PA 19020, Tel: 215-638-9550; FSC No.: 32360; Empl.: 106; *Sls. Mgr.:* Gene Goldner

ENCODER DIV., LITTON SYSTEMS, INC., See Litton Encoder Div.

ENCODER PRODS., 1601B Dover Rd., Sandpoint, ID 83864, Tel: 208-263-8541, TWX: 510-776-1595; Empl.: 70; *Sls. Mgr.:* Vance Conner

ENDEVCO, 30700 Rancho Viejo Rd., San Juan Capistrano, CA 92675, Tel: 714-493-8181, Telex: 68-5608, TWX: 910-596-1415; FSC No.: 95411; Empl.: 400; *Sls. Mgr.:* C. Bowes

Local Sales Offices & Reps

AL	Huntsville, &	205-536-4454
CA	Anaheim	714-831-9200
CA	San Francisco, &	415-552-1763
CT	West Mystic	203-572-0571
FL	Orlando, &	305-855-4535
IL	Chicago	312-754-3888
MD	Annapolis, &	301-269-8800
NJ	Lambertville, &	201-254-9600
TX	Dallas	214-458-7720

Local Distributors

MI	Charlotte, RDP Assocs.	517-543-6212
OH	Cleveland, RDP Assocs.	216-659-3138
OH	Dayton, RDP Assocs.	513-253-6175

ENDICOTT COIL, 22 E. Charlotte St., Binghamton, NY 13905, Tel: 607-797-1263, Telex: 932411; Empl.: 140; *Sls. Mgr.:* Norman Aprile .... **A•1239, 2135**

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Local Sales Offices & Reps

CA	Laguna Hills, Component Mktg. Assocs.	714-951-6046
CA	Lomita, Component Mktg. Assoc.	213-326-1460
CA	Saratoga, Testco	408-253-1900
CO	Denver, West Incorporated	303-773-5150
CT	Bloomfield, SIR Assocs.	203-243-9343
FL	Pompano Beach, Cole-Tek Assocs.	305-781-8110
GA	Atlanta, Wallace Electronics	404-471-6297
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, J & W Sls.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Wichita, PMR, Inc.	316-684-4141
MA	Bedford, SIR Assocs.	617-275-5550
MI	West Bloomfield, Granneman & Assocs.	313-661-4891
MN	Minneapolis, Jos-Col Melius	612-861-3343
MO	Maryland Hts., PMR, Inc.	314-569-1220
NE	Overland Park, PMR, Inc.	913-381-0004
NJ	Livingston, Eagle Sls. Co.	201-992-2030
NY	Albany, H. C. Johnson Agencies	716-632-7880
NY	Buffalo, H. C. Johnson Agencies	716-632-7880
NY	Jericho, Metro-Tech	516-935-3330
NY	Rochester, H. C. Johnson Agencies	716-482-3000
NC	Kernersville, Wallace Electronics	919-996-2742
OH	Dayton, Dynel Co.	513-434-6467
PA	Glenshaw, H. C. Johnson Agencies	412-487-1246
PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
TX	Austin, Mil-Rep Associates	512-258-2828
TX	Houston, Mil-Rep Associates	713-937-0127
TX	Richardson, Mil-Rep Associates	214-644-6731
UT	Salt Lake City, West Inc.	303-773-8180
WA	Bellevue, Testco	206-454-7422
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

Can	Toronto, Norgay Entprs., Ltd.	416-239-3025

ENERCO, INC., 9615 W. Marginal Way S., Seattle, WA 98108, Tel: 206-762-1422; Empl.: 5; *Sls. Mgr.:* Lee Rabie

ENERGETEC SYSTEMS, INC., 130 E. St. Charles Rd., Carol Stream, IL 60188, Tel: 312-653-1920, Telex: 910-380-8574; Empl.: 40

ENERGY CONCEPTS, PO Box 128, Carlsbad, CA 92008, Tel: 619-942-3144; FSC No.: 01830; Empl.: 6; *Sls. Mgr.:* Marilyn Decarlo

ENERGY, LTD., 4714 Upshur Street, Bladensburg, MD 20710, Tel: 301-699-1144; FSC No.: Easylink 62837736; Empl.: 6 .... **D•1923**

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ENGD. PROD., Div. of Acme Elec. Corp., 40 Water St., Cuba, NY 14727, Tel: 716-968-2400, Telex: 91-6451, TWX: 510-245-2700; Empl.: 850; *Sls. Mgr.:* Dick Milne

ENGINEERING & ELCTRN. DEVICES, 1024 N. McCadden Pl., Los Angeles, CA 90038, Tel: 213-463-4175; Empl.: 4; *Sls. Mgr.:* John H. Aulbach, Jr.; *Dist. Mgr.:* Henry C. Lerner

ENGINEERING DESIGN & SLS., Rt. 2, Box 305, Danville, VA 24540, Tel: 804-685-7073; Empl.: 50; *Sls. Mgr.:* Mark Gignac

ENGINEERING SOFTWARE CO., Infotech Mgmt, Inc., Three Northpark East, #901, 8800 N. Central Expwy., Dallas, TX 75041, Tel: 214-361-2431

ENGLER INSTRUMENTS OPERATION, Stemco Truck Products Division, 250 Culver Ave., Jersey City, NJ 07305, Tel: 201-332-5353, TWX: 710-730-5236; FSC No.: 07446; Empl.: 1200; *Sls. Mgr.:* Bob Halpin

ENI, INC., See Electronic Navigation Inds., Inc.

ENI POWER SYS., 3000 Winton Rd. S., Rochester, NY 14623, Tel: 716-473-7330, Telex: 97-8283; FSC No.: 10226; Empl.: 200; *Sls. Mgr.:* L. A. Benedict

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ENTER COMPUTER, INC., 6867 Nancy Ridge Drive, San Diego, CA 92121, Tel: 619-450-0601, Telex: 181740; *Sls. Mgr.:* Robert Curtis

ENTERPRISE SYS. CORP., P.O. Box 698, Dover, NH 03820, Tel: 603-742-7363; Empl.: 20; *Sls. Mgr.:* G. E. Perrine

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Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CA	Long Beach, Saber Entprs.	213-595-5646
CA	Pleasanton, Secco Assocs.	415-484-1030
CA	San Diego, Saber Entprs.	619-271-1523
CO	Colorado Springs, J. Smith & Assoc.	303-597-5343
CT	Hamden, Pond Tech. Sls.	203-281-0005
GA	Atlanta, Quantum Meas.	404-351-3531
IN	Plainfield, Stress Analysis Svcs.	317-839-8235
MI	Brighton, Stress Analysis Svcs.	313-632-6110
NJ	Hopatcong, Measurements, Inc.	201-770-1281
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NY	Clarence, Trott Electrns.	716-634-8500
NY	Pittsford, Trott lectrns.	716-586-8251
NC	Chapel Hill, Quantum Meas.	919-933-7408
OH	Dayton, Stress Analysis Svcs.	513-263-8036
OH	Medina, Stress Analysis Svc.	216-725-7733
PA	Frazer, Measurements, Inc.	215-644-7142
VA	Fredericksburg, Measurements, Inc.	703-373-5520
Can	Ontario, Intertechnology	416-445-5500

ENTRELEC DIV., See Cogenel, Inc./Entrelec Div.

ENVIRONMENTAL COMM., 3150 Pullman St., Costa Mesa, CA 92627, Tel: 714-557-7800, TWX: 910-595-1781; FSC No.: 16450; Empl.: 65; *Sls. Mgr.:* Joseph Hughes

ENVIRONMENTAL CONTAINER SYS., INC., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526, Tel: 503-476-8871, TWX: 510-755-0777; FSC No.: 24995; Empl.: 135

Local Sales Offices & Reps

AR	Little Rock, Advance Tech. Sls.	501-794-1618
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Englewood, Electronic Comp. Sls., Inc.	303-781-5904
CT	Wallingford, Apex Assocs.	203-269-8401
FL	Clearwater, Brennan Assocs., Inc.	813-446-5006
GA	Atlanta, Brennan Assocs., Inc.	404-395-7527
MA	Westwood, Apex Assocs.	617-326-5042
NJ	Teaneck, Noreast Tech. Sls.	201-833-2044
OK	Tulsa, Advance Tech. Sls.	918-664-0482
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888

EOTEC CORP., 420 Frontage Road, W. Haven, CT 06516, Tel: 203-934-7961, Telex: 358190; Empl.: 24; *Sls. Mgr.:* Robert L. Belard

EOTEC CORPORATION, Fiber Optic Interconnect Group, 420 Frontage Road, West Haven, CT 06516, Tel: 203-934-7961, Telex: 358190; Empl.: 24; *Sls. Mgr.:* Lou Maiolo

E.P.E. CORP., P.O. Box 5238, Manchester, NH 03108, Tel: 603-669-9181, Telex: 943536; Empl.: 65; *Sls. Mgr.:* James D. Bell; *Dist. Mgr.:* Thomas S. Bell

EPIC, INC., 150 Nassau St., New York, NY 10038, Tel: 212-349-2470, Telex: 12-6531; Empl.: 8; *Sls. Mgr.:* Peter Letica

EPICOM, INC., 411 Josiane Court, Altamonte Springs, FL 32701, Tel: 305-331-1640; Empl.: 15; *Sls. Mgr.:* W. R. Adams; *Dist. Mgr.:* W. R. Adams

EPOCH ENTERPRISES, LTD., 3541 N. Olive Rd., Tucson, AZ 85719, Tel: 602-887-1970, 888-5167, Telex: 4995542; Empl.: 2

EPOXYLITE CORP., 9400 Toledo Way, P.O. Box 19671, Irvine, CA 92713, Tel: 714-951-3231; Empl.: 60

EPOXY TECHNOLOGY, INC., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821, Tel: 800-227-2201, Telex: 94-7140; FSC No.: 33246; Empl.: 18

Local Sales Offices & Reps

AZ	Phoenix, Wadsworth/Bryant	602-275-7366
CA	Atherton, Wadsworth/Bryant	415-321-3619
CA	Hacienda Heights, Wadsworth/Bryant	818-330-5592
CO	Boulder, Specialty Sales Co.	303-444-0954
FL	Fort Pierce, Hyber-Sem	305-464-0461
IL	Chicago, E. Przechera Sls. Co.	312-725-1933
MA	Newton, Normell Assoc.	617-969-5478
MI	Royal Oak, Murray A. Percival Co.	313-548-1971
NJ	Clinton, Price-Tech Inc.	201-735-9797
NY	Fair Haven, Feikert Assoc.	315-652-5577
OH	Dayton, Berberich Assoc.	513-433-0342
OR	Beaverton, Demarest Assoc.	503-643-0141
TX	Arlington, Whitehead & Assoc.	817-261-5794
UT	West Jordan, Specialty Sales Co.	801-561-0222
WA	Seattle, Demarest Assoc.	206-523-3210

EPSCO, 920 Westwood Ave., Addison, IL 60101, Tel: 312-543-0410; FSC No.: 53003; Empl.: 8 .... **D•1634**

Local Distributors

AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	San Francisco, VWR Scientific Inc.	415-468-7150
CO	Denver, Newark Elctrns.	303-757-3351
FL	Marathon, Marathon Wholesale Electric Supply	305-743-2262
FL	Miami, Aero Quality Sls.	305-592-5055
GA	Warner Robbins, Omnia Supp.	912-929-2948
HI	Honolulu, Honolulu Elctrn.	808-949-5564
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elmhurst, McMaster-Carr Supp.	312-834-9600
IL	Skokie, Sargent-Welch Sci.	312-677-0600
IN	Evansville, Hutch & Son	812-425-7201
IN	Indianapolis, Electro Prods.	317-298-8255
LA	New Orleans, Radio Parts	504-581-5959
MA	Lynn, Land Elctrns.	617-592-2220
MI	Flint, Shand Elctrns.	313-743-8940
MI	Lansing, Fulton Radio	517-394-5020
MO	Kansas City, Walters Radio Supp.	816-531-7015
NJ	Bridgeport, VWR Scientific Corp.	609-467-2600
NM	Albuquerque, Walker Radio	505-247-2288
NY	New York, Colonial Hardware Corp.	212-741-8989
OH	Dayton, The John A. Becker Co.	513-226-1341
OH	Warren, Rem Elctrns. Supp.	216-373-1300
PA	Pittsburgh, Fischer Scientific Co.	412-562-8300
SC	Charleston, Wholesale Inds. Elec.	803-722-2634
TX	Dallas, Wholesale Elctrns.	214-824-3001
TX	Ft. Worth, Allied Elctrns.	817-336-5401
UT	Salt Lake City, Newark Elctrns.	801-486-1048
VA	Norfolk, Avec Elctrns.	804-627-3502
WI	Milwaukee, Industrial Elctrns. Supp.	414-276-1212

EPSCO MICROWAVE, 411 Providence Hwy., Westwood, MA 02090, Tel: 617-329-1500, TWX: 710-348-0484; FSC No.: 15894; Empl.: 185; *Sls. Mgr.:* John M. Shalhoub

EPSILON-LAMBDA ELCTRNS. CORP., 427 Stevens St., Geneva, IL 60134, Tel: 312-232-9611, TWX: 910-237-1684; Empl.: 30; *Sls. Mgr.:* Robert Knox

EQUIPTO, 225 S. Highland Ave., Aurora, IL 60507, Tel: 312-859-1000, TWX: 910-232 0845; Empl.: 300; *Sls. Mgr.:* Ralph Zettinger

EQUIPTO ELCTRNS. CORP., 351 Woodlawn Ave., Aurora, IL 60507, Tel: 312-897-4691; FSC No.: 14002;Multiple; *Sls. Mgr.:* Larry Suggett .... **C•1059**

Local Sales Offices & Reps

AL	Mobile, Hollingsworth & Still	800-241-5712
AZ	Tempe, Burland Assoc.	602-894-5564
CA	Anaheim, Spectrum Assocs.	714-630-6977
CA	Milpitas, Ward Elctrn. Packaging Sls.	408-945-0420
CO	Littleton, Grifco	303-795-1989
CT	Bridgeport, Technical Instrs.	203-368-4582
FL	Ft. Lauderdale, Hollingsworth & Still	800-241-5712
FL	Tampa, Hollingsworth & Still	800-241-5712
GA	Norcross, Hollingsworth & Still	404-447-1700
IN	Ft. Wayne, Scott Elctrns.	219-484-7865

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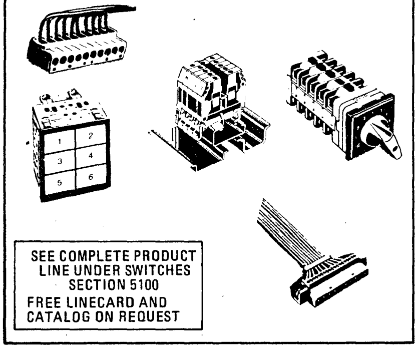

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MA	Wilmington, Technical Instrs.	617-944-3930
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NJ	Englewood, Tecnimat	201-569-4200
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TX	Grand Prairie, ION Assocs., Inc.	214-647-5225
TX	Houston, ION Assocs., Inc.	713-977-4354
WA	Seattle, S.J.I. Corp.	206-763-8981

ERA POLY-PLANAR DIV., 311 E. Park St., Moonachie, NJ 07074, Tel: 201-641-3650, TWX: 710-990-5064; Empl.: 100; *Sls. Mgr.:* John Apelian

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CA	Los Angeles, Astralonics	213-706-0488
CA	Orange County, Astralonics	213-691-6123
CA	San Diego, Astralonics	619-789-2256
CA	Westlake Village, Astralonics	818-706-3936
CT	Milford, Todino Engrg. Sls.	203-874-6643
GA	Smyrna, B-C Elctrn. Sls., Inc.	404-436-5169
MA	Needham Heights, Todino Engrg. Sls.	617-444-7925
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NY	Babylon, Astrorep, Inc.	516-422-2500
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Austin, Beacon	512-331-5115
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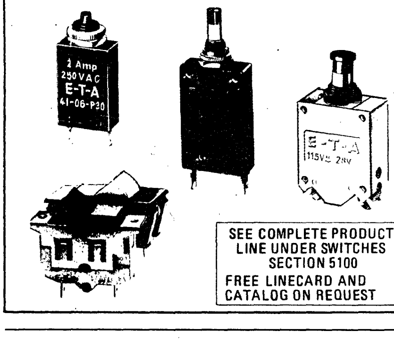

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ERGOTRON, INC., 1621 E. 79th Street, Minneapolis, MN 55420, Tel: 612-854-9116, 800-328-9839, Telex: 290766; Empl.: 8; *Sls. Mgr.:* Keith A. Jentoft

ERICSON MFG. CO., 4215 Hamann Pkwy., Willoughby, OH 44094, Tel: 216-951-8000, Telex: 98-5390; *Sls. Mgr.:* J. E. (Jay) Ericson, Jr.

ERIE TECHN. PRODS., See Murata Erie No. Amer., Inc.

ERIE TECHNOLOGICAL PRODUCTS, 645 West 11th St., Erie, PA 16512, Tel: 814-453-5611

ERM, 27 Water St., Wakefield, MA 01880, Tel: 617-246-3550.

ERNI COMPS. CORP., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005, Tel: 312-577-8620, TWX: 910-687-0260; *Sls. Mgr.:* J. Garratt; *Dist. Mgr.:* G. F. Zib

ESC

ESC ELCTRNS. CORP., 534 Bergen Blvd., Palisades Pk., NJ 07650, Tel: 201-947-0400, TWX: 710-991-9780; Empl.: 120 ...... **A•1508-1521, 1604-1605**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Mesa, Sedco Sls.	602-835-6281
AZ	Tucson, Sedco Sls., Inc.	602-298-1758
CA	Culver City, Westaironics	213-641-4122
CA	Santa Clara, Rodgers Assocs.	408-984-8110
CO	Westminster, D/Z Assocs.	303-429-9369
CT	Bridgeport, Betronic Assocs.	203-374-6404
FL	St. Petersburg, QXI, Inc.	813-821-2281
FL	Tamarac, QXI, Inc.	305-392-2626
GA	Norcross, Interep Assocs., Inc.	404-449-8680
IL	Elk Grove, Carlson Elctrn. Sls. Co.	312-956-8240
IN	Indianapolis, J & W Sls.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls. Co.	319-377-6341
KS	Merriam, Midwest Tech. Sls.	913-236-8555
MA	Waltham, Betronic Assocs.	617-894-8400
MN	Minneapolis, R-J, Inc.	612-866-3661
MO	St. Charles, Midwest Tech. Sls.	314-441-1012
NY	New York City, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
OH	Cincinnati, Makin Assocs.	513-871-2424
OR	Beaverton, Ravencraft	503-646-9261
NJ	Marlton, BGR Assocs.	609-983-1020
TN	Greeneville, Interep Assocs., Inc.	615-639-3491
TX	Plano, Zeus Engrg.	214-423-2027
UT	Salt Lake City, D/Z Assocs.	801-268-2876
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WI	Milwaukee, Carlson Elctrn. Sls. Co.	414-476-2790
EXP	NJ, Palisades Pk., ESC Elctrns. Corp.	201-947-0400

ESE, 142 Sierra St., El Segundo, CA 90245, Tel: 213-322-2136; FSC No.: 58525; Empl.: 25; *Sls. Mgr.:* R. Mayers; *Dist. Mgr.:* R. Mayers

ESICO, INC., Box 247, Deep River, CT 06417, Tel: 203-526-5361; Empl.: 45; *Sls. Mgr.:* Robert W. Mead

ESNA DIV., 2330 Vauxhall Rd., Union, NJ 07083, Tel: 201-686-6000, Telex: 1-38243, TWX: 710-985-4677; Empl.: 700

ESNA DIV., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083, Tel: 201-686-6000, Telex: 1-38243, TWX: 710-985-4677; Empl.: 600; *Sls. Mgr.:* W. H. Riley; *Dist. Mgr.:* A. H. Wighton

ESPEY MFG. & ELECTRONICS CORP., 223-239 Ballston Ave., Saratoga Springs, NY 12866, Tel: 518-584-4100

E^2 TECHNOLOGY CORP., 4475 Dupont Ct #9, Ventura, CA 93003, Tel: 805-644-9544, Telex: 887971 E Sq. Tech. UD; Empl.: 15; *Sls. Mgr.:* Larry D. Emery

ESSCO INDS., P.O. Box 515, Sierra Madre, CA 91024-0515, Tel: 818-355-8315; Empl.: 33

ESSEX CONTROLS, See Stancor Products

ESSEX CONTROLS DIV., ESSEX GRP., See Essex Controls, United Technologies

ESSEX GROUP, 9933 13th St., Ft. Wayne, IN. 46809, Tel: 219-478-1521; Empl.: 300-500; *Sls. Mgr.:* J. Scott

ESSEX GRP., ESSEX TERMINALS/CONNECTORS, See United Technologies, Comps. Div. Terminals

ESSEX GRP., Power Conductor Div., 2601 S. Adams, Marion, IN 46953, Tel: 317-664-6211, TWX: 317-667-6972; Empl.: 700; *Sls. Mgr.:* J. Burdick

ESTERLINE ANGUS INSTR. CORP., Box 24000, Indianapolis, IN 46224, Tel: 317-244-7611, Telex: 027-419; FSC No.: 72264; Empl.: 250 + ; *Sls. Mgr.:* James Banks

ESTES ENGRG. CO., 930 Marine Dr., Port Angeles, WA 98362, Tel: 206-457-0904; FSC No.: 22590; Empl.: 28

E-SYSTEMS, Garland Div., Box 226118, Dallas, TX 75266, Tel: 214-272-0515, TWX: 910-860-5187; Empl.: 1927

E-SYSTEMS, Greenville Div., P.O. Box 1056, Greenville, TX 75401, Tel: 214-457-4694, Telex: 73-2392; *Sls. Mgr.:* C. L. Byrom

E-SYSTEMS, Melpar Div., 7700 Arlington Blvd., Falls Church, VA 22046

E-SYSTEMS, Memcor Div., 1320 Flaxmill Rd., Huntington, IN 46750, Tel: 219-356-4300, TWX: 810-333-1530; FSC No.: 24681; Empl.: 450; *Sls. Mgr.:* Ray Vanderspool ...... **A•1869, 2015**

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
CA	Santa Ana, Cal-Tronic Sls.	714-979-4863
CA	Santa Clara, D.H. Ross	408-988-8111
CO	Denver, West, Inc.	303-692-0131
FL	Indialantic, Raycom	305-727-8860
GA	Atlanta, Murcota	404-875-2525
IL	Chicago, D. Dolin Sls.	312-286-6200
IN	Ft. Wayne, Menze Sls.	219-747-5616
MI	St. Clair Shores, J.M. Thorpe	313-779-6363
MO	Blue Springs, Chesco	816-229-1404
MO	St. Charles, Chesco	314-946-6677
NH	Atkinson, Mark Rep Assoc.	603-362-4526
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NY	Hauppauge, Masin Esco	516-273-3500
NY	Pittsford, Noeth-Honsinger	315-586-9002
NC	Burlington, Murcota	919-585-1577
NC	Winston-Salem, Murcota	919-723-1001
OH	Cleveland, Glover Sls.	216-842-4520
PA	Newtown Square, G.M. Conneen	215-353-2241
TX	Dallas, SW Elctrn. Ind.	214-233-9816
TX	Houston, SW Elctrn. Ind.	713-729-1670
UT	Salt Lake City, West, Inc.	801-966-0171
WA	Redmond, Barrett-Squibb	206-885-6991

E-T-A CIRCUIT BREAKERS, 7400 N. Croname Rd., Chicago, IL 60648, Tel: 312-647-8303, Telex: 253780; Empl.: 20; *Sls. Mgr.:* John J. Palsir

Local Sales Offices & Reps

CA	Pleasanton, Moulthrop Sls.	415-463-0450
CA	Tustin, Sierra-Pacific Eng.	714-731-3411
CO	Denver, Challenge Sls.	303-450-2402
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Orlando, EAB Inc.	305-898-7444
IL	Arlington Heights, Thermek	312-577-6900
IN	Ft. Wayne, Needler Sls. Co.	219-447-2123
IN	Indianapolis, Needler Sls. Co.	317-255-8056

MA	Boston, Eagle Assocs.	617-444-3446
MI	Detroit, Hilltronics	313-398-5556
MN	Minneapolis, Chris & Assocs.	612-432-1823
MO	Kansas City, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NY	New York, Schmitt Indl. Mktg. Corp.	516-486-3510
NY	Rochester, Robert F. Lamb Co.	716-323-1250
NY	Syracuse, Robert F. Lamb Co.	315-455-2469
OH	Cincinnati, J. O. Olsen Co.	513-574-7711
OH	Cleveland, J. O. Olsen Co.	216-662-3454
OR	Portland, Temco Northwest	503-648-8171
PA	Pittsburgh, J. O. Olsen Co.	412-279-2550
TN	Hendersonville, Stark & Assoc.	615-822-1667
TX	Austin, Delta Comps.	512-458-4288
TX	Dallas, Delta Comps.	214-287-6333
UT	Salt Lake City, Frank Merchant	801-277-3775
VA	Fairfax, Beacon North	703-591-1300
WA	Seattle, Temco Northwest	206-488-1254
WI	Milwaukee, Star Engineering	414-645-3680

ETI ELECTRONICS, 5751 Miami Lakes Dr., Miami Lakes, FL 33014, Tel: 305-556-4000, Telex: 80-3347; *Sls. Mgr.:* R. Grossman; *Dist. Mgr.:* S. Zucker

ETI SYSTEMS

ETI SYSTEMS, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054, Tel: 619-757-7770, TWX: 910-322-1396; FSC No.: 952 762672; *Sls. Mgr.:* Bill Tice; *Dist. Mgr.:* Bill Tice ...... **A•2016-2017; B•1150-1152; D•1120-1121**

Local Sales Offices & Reps

CT	Washington, Tri-Com Assocs.	203-563-2241
IL	Arlington Heights, Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
LA	Covington, HBT Assocs.	504-892-4045
MA	Burlington, Tri-Com Assocs.	617-272-8163
MA	Newburyport, Tri-Com Assocs.	617-465-3205
MI	Livonia, Lowell Wenot	313-464-2722
MN	Minneapolis, Intl. Elctrns.	612-571-0000
NJ	Morristown, Andrews & Andrews	201-569-8800
NY	Huntington, Andrews & Andrews	516-692-8686
OH	Cleveland, Baehr Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr Greenleaf & Assocs.	513-439-0724
OR	Hillsboro, Rhodes Sls. Corp.	503-640-6666
PA	Dowington, Homersmith, Inc.	215-269-3637
PA	Evans City, Baehr Greenleaf	412-776-2151
PA	Media, Homersmith, Inc.	215-543-2434
TX	Dallas, Allied Comp., Inc.	214-238-0408
TX	Houston, Allied Comp., Inc.	713-988-1600
TX	Hurst, Allied Comp., Inc.	817-589-0456
TX	Round Rock, Allied Comp., Inc.	512-244-1166
VA	Roanoke, Homersmith, Inc.	703-774-7411
WA	Kent, Rhode Sls. Corp.	206-251-5396
WI	Waukesha, Brainard-Wilson	414-797-7940

Local Distributors

AZ	Tempe, Anjon Enterprises	602-894-1332
CA	Anaheim, A To Z Elctrns.	714-634-3620
CA	Canoga Park, Tim-Co. Sls.	213-992-5040
CA	Garden Grove, Allied Elctrns.	714-544-0731
CA	Hayward, Allied Elctrns.	415-487-5250
CA	Los Angeles, Allied Elctrns.	213-725-7111
CA	San Jose, Allied Elctrns.	408-727-1690
CA	San Jose, Vader Elec.	408-971-0288
CO	Wheatridge, Allied Elctrns.	303-425-7144
CT	Hamden, Allied Elctrns.	203-248-8900
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0500
FL	Jupitor, Brosey Entprs.	305-746-2439
GA	Atlanta, Allied Elctrns.	404-237-3366
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Lisle, Components, Inc.	312-852-7707
MD	Marlow Heights, Allied Elctrns.	301-423-0161
MA	Holliston, Add Elctrns.	617-478-4200
MA	Wilmington, Allied Elctrns.	617-942-0150
MA	Woburn, Mac Bearing Co.	617-933-2110
NY	Mineola, Allied Elctrns.	516-248-2360
NY	Port Washington, Connector Concepts Corp.	516-883-3800
NC	Raleigh, Allied Elctrns.	919-467-0720
OH	Cleveland, Allied Elctrns.	
OH	Cleveland, Specialized Comp. Sls.	216-464-0405
OK	Oklahoma City, Trice Wholesales Elec.	405-524-4411
OK	Tulsa, Allied Elctrns.	918-663-7630
OR	Beaverton, Shannon, Ltd.	503-644-8077
PA	Bala Cynwyd, Allied Elctrns.	215-667-6940
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Lenert Co.	713-225-1465
TX	Humble, Allied Elctrns.	713-852-3730
WA	Kent, Shannon, Ltd.	206-763-0545
WA	Seattle, Allied Elctrns.	206-767-5772
WI	Milwaukee, Allied Elctrns.	414-355-8866
WI	Oshkosh, Electronic Inds.	414-235-8930

ETM ELECTROMATIC INCORPORATED

ETM ELECTROMATIC, 470 San Antonio Ave., Palo Alto, CA 94306, Tel: 415-494-1505; *Sls. Mgr.:* Wes Henderson ...... **D•1226-1227, 1638**

ETRI

ETRI, INC., 608 Broome St., P.O. Box 5006, Monroe, NC 28110, Tel: 704-289-5423, TWX: 810-649-1352; FSC No.: FAX 704-283-7170; *Sls. Mgr.:* G. Wolf ... **C•1638-1640**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Los Gatos, Nor-West Elctrns.	408-395-1190
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Bestronics	619-693-1111
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Altamonte Springs, Semitronics Assocs.	305-831-8233
FL	Clearwater, Semtronics Assocs.	813-461-4675
FL	Ft. Lauderdale, Semtronics Assocs.	305-731-2484
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
IN	Ft. Wayne, Advanced Comp. Sls.	219-484-0722
IN	Indianapolis, Advanced Comp. Sls.	317-545-6441
IA	Cedar Rapids, PMR, Inc.	319-362-9177
KS	Overland Park, PMR, Inc.	913-381-0004
MA	Lexington, John E. Boeing Co., Inc.	617-862-2500
MI	Birmingham, Favco Techn. Reps.	313-644-0173
MN	Minneapolis, Milt Westlund Assocs.	612-866-5002
MO	Maryland Heights, PMR, Inc.	314-569-1220
NJ	Cherry Hill, Trinkle Sls., Inc.	609-795-4200
NY	Endicott, Noeth-Honsinger	607-754-3214
NY	Manhasset, Win-Cor Elctrns.	516-627-9474
NY	Pittsford, Noeth-Honsinger	716-586-9002
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Cincinnati, Makin & Assocs., Inc.	513-871-2424
OR	Wilsonville, RTS, Inc.	503-638-5670
TX	Austin, Nova Mktg.	512-343-2321
TX	Dallas, Nova Mktg.	214-750-6082
TX	Houston, Nova Mktg.	713-988-6082
WA	Vashon, RTS, Inc.	206-285-1363
WI	Janesville, Antek/Lincoln Hodges & Assocs.	608-754-4214
WI	Waukesha, Lincoln, Hodges & Assocs.	414-542-3087
PR	Santurce, John E. Boeing Co., Inc.	809-722-6942
Can	Monroe, NC, ETRI, Inc.	704-289-5423

Local Distributors

AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Tempe, Acacia Sls., Inc.	602-894-2874
AZ	Tempe, Fisher Brownell	602-967-1464
CA	Alhambra, Fisher-Brownell	818-289-0255
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Irvine, Acacia Sls., Inc.	714-660-0834
CA	San Diego, Acacia Sls., Inc.	619-565-4365
CA	San Diego, Fisher Brownell	619-560-8545
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Acacia Sls., Inc.	408-745-7200
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Lakewood, Acacia Sls., Inc.	303-232-2882
CT	Milford, RC Comps.	203-874-0006
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Altamonte Springs, Pioneer Elctrns.	305-834-9090
FL	Deerfield Beach, Pioneer Elctrns.	305-428-8877
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
IL	Addison, L-Comp	312-628-1400
IL	Bensenville, Milgray Elctrns.	312-350-0490
IL	Elk Grove Village, RM Elctrns.	312-364-6622
IL	Itasca, Voyager Elctrns.	312-773-4900
IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, RM Elctrns.	317-291-7110
KS	Overland Park, Milgray Elctrns.	913-236-8800
KS	Wichita, L-Comp	316-265-5100
MD	Gaithersburgh, MS Elctrns.	301-921-0200
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Wilmington, R C Comps. Inc.	617-273-1860
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, LWC Distrs.	313-464-7700
MN	Minneapolis, Industrial Comps.	612-831-2666
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, L-Comp	816-221-2400
MO	Maryland Heights, L-Comp	314-291-6200
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Marlton, Milgray Elctrns.	609-983-5010
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Pittsford, Milgray Elctrns.	716-385-9330
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Charlotte, Electronic Mktg. Corp.	714-394-6195
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Alpha Distrs.	216-526-3716
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Columbus, Electronic Mktg. Corp.	614-299-4161
OH	Dayton, Electronic Mktg. Corp.	513-439-4711
OH	Highland Heights, Electronic Mktg. Corp.	216-442-3441
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Acacia Sls., Inc.	503-646-3377
PA	Allentown, P.A. Peters	215-434-5237
PA	Montgomeryville, Pyttronics Inds.	215-643-2850
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Milgray Elctrns.	214-248-1603
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Force Elctrns. of TX	713-561-8644
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Irving, Force Elctrns. of TX	214-438-5700
TX	Richardson, Components Ctr.	214-644-3444
TX	Richardson, Fisher-Brownell	214-235-3177
UT	Salt Lake City, Bell Indus.	801-972-6969
VA	Charlottesville, Virginia Radio & Supp.	804-296-4184
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, RM Elctrns.	414-784-4420
Can	Markham, Ont., International Rectifier	416-475-1897
Can	Vancouver B.C., Intek Elctrns.	604-324-6831

E-TRONICS, 16774 Schoenborn, Sepulveda, CA 91343, Tel: 213-892-7279; Empl.: 28

EUBANKS ENGRG., 1307 So. Myrtle Ave., Monrovia, CA 91016, Tel: 818-357-7011, Telex: 675403; Empl.: 90; *Sls. Mgr.:* J. Reed

EVANS & SUTHERLAND COMPUTER CORP., P.O. Box 8700, 580 Arapeen Dr., Salt Lake City, UT 84108, Tel: 801-582-5847, Telex: 389492, TWX: 910-925-5818; Empl.: 850; *Sls. Mgr.:* William Elstun

EVANS ELECTRONICS, Box 5055, Berkeley, CA 94705, Tel: 415-653-3083

EVAPORATED COATINGS, P.O. Box 160, Huntingdon Valley, PA 19006, Tel: 215-947-1465; Empl.: 24; *Sls. Mgr.:* Stephen L. Schaffer

EVENTIDE, INC., One Alsan Way, Little Ferry, NJ 07643, Tel: 201-641-1200, TWX: 710-991-8715; Empl.: 38; *Sls. Mgr.:* Michele Natter; *Dist. Mgr.:* Michele Natter

EVEREADY-ENERGIZER, See Union Carbide Battery Prods. Div.

EVEREST INTERSCIENCE, INC., P.O. Box 345, Tustin, CA 92681, Tel: 714-992-4461, 714-730-0747, Telex: 295368 EVER OR; Empl.: 11; *Sls. Mgr.:* Steve A. Giffin

Local Sales Offices & Reps

AL	Huntsville, Newcomb Assocs.	205-837-3233
CA	Gardena, Instrument Lab.	213-327-3282
CO	Littleton, Radco Elctrns.	303-794-4279
IL	Decatur, Mueller Sls.	217-442-6379
IA	Cedar Rapids, Mueller Sls.	319-365-1196
LA	Baton Rouge, Allesco	504-928-1571
MN	Golden Valley, Mueller Sls.	612-544-8888
NE	Omahab'	402-571-3033
NY	Buffalo, Seelbach & Schmitt Inc.	716-839-2300
OH	Cincinnati, Pro-Con Analytical	513-272-3300
OR	Portland, Fairman B. Lee Co.	503-283-9442
PA	Havertown, Shelby Jones Co.	215-446-6600
TX	Dallas, Allesco	817-261-3966

TX	Houston, Allesco	713-771-0115
WA	Seattle, Fairman B. Lee Co.	
WI	Brookfield, Mueller Sls.	414-781-5310

EVERETT/CHARLES AUTOMATION SYS. INC., 6101 Cherry Ave., Fontana, CA 92335, Tel: 714-899-2411, TWX: 4720716; *Sls. Mgr.:* Jim Meadville

EVERETT/CHARLES CONTACT PRODS. INC., 700 E. Harrison Ave., Pomona, CA 91767, Tel: 714-625-5551, Telex: 67-55-78, TWX: 910-581-1210; Empl.: 100; *Sls. Mgr.:* Bud Fabian

EVERETT/CHARLES TEST EQUIP. INC., 2887 N. Towne Ave., Pomona, CA 91767, Tel: 714-621-9511, TWX: 910-581-3838; Empl.: 200; *Sls. Mgr.:* Jim Malloy

EVERSHED & VIGNOLES, LTD., Acton Lane, Chiswick, London, England W4 5HJ, Tel: 01-994-3670, Telex: 22583; Empl.: 300; *Sls. Mgr.:* J. Gilpin

EV-GAME INC., See EVG, Inc.

EVI, INC., 8970 F Route 108, Columbia, MD 21045, Tel: 301-964-1660; Empl.: 4 **D•1639**

EWALD INSTRS., Rte. 7R, Kent, CT 06757, Tel: 203-927-3278

EWC® INC.

EWC, INC., 725 Federal Ave., Kenilworth, NJ 07033, Tel: 201-245-3200, 800-526-4048, TWX: 710-996-5993; FSC No.: 15387;MIL-T-27D; Empl.: 210; *Sls. Mgr.:* C. G. Hiotis; *Dist. Mgr.:* C. G. Hiotis **A•2136-2148**

Local Sales Offices & Reps

AZ	Mesa, Cummings & Assoc.	602-994-9027
CA	Canoga Park, Cummings & Assocs.	818-340-6035
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CO	Denver, Cummings & Assocs., Mktg. Inc.	303-455-6860
CT	Ridgefield, Phoenix Sales	203-438-9644
FL	Apopka, Tech-Rep Assoc.	813-577-2779
FL	Greenacres City, Tech-Rep. Assoc.	813-577-2779
FL	St. Petersberg, Tech-Rep. Assoc.	813-577-2779
FL	Winter Park, Tech-Rep Assoc.	813-577-2779
IL	Pallatine, T-Squared Assoc.	312-991-2144
IN	Fort Wayne, Giesting & Assoc.	219-486-1912
IA	Cedar Rapids, Lorenz Sales	319-377-4666
KS	Overland Park, Lorenz Sales	913-649-5556
MI	Coloma, Geisting & Assoc.	616-468-4200
MI	Farmington Hills, Giesting & Assoc.	313-478-8106
MN	St. Paul, Proud Inds.	612-646-9428
NE	Lincoln, Lorenz Sales	402-475-4660
NJ	E. Brunswick, Winch Assoc.	201-828-4615
NY	Cortland, Net Sales	607-756-6592
NY	Roslyn Heights, Winch Assoc.	516-621-6378
NY	Troy, Net Sls. Co.	518-274-4758
NY	Webster, Net Sales	716-467-4538
OH	Cincinnati, Giesting & Assoc.	513-385-1105
OH	Cleveland, Giesting & Assoc.	216-261-9705
OH	Dayton, Giesting & Assoc.	513-433-5832
OR	Portland, DHS Sales	503-285-9790
PA	Bensalem, Stemler Assoc.	215-638-4850
PA	Greensberg, Pro-Mark	412-832-3800
RI	Worwick, Cal-Greg Comps.	401-738-6170
RI	Worwick, Monette Eng. & Assoc.	401-885-2205
TX	Irving, Impaq Sales	214-257-3677
UT	Salt Lake City, Cummings & Assocs., Mktg. Inc.	801-263-8131
VA	Reston, Stinson Assoc.	703-471-0723, 703-620-0088
VA	Troutville, Stinson Assoc.	703-992-5459
Can	Montreal, Solid State Engrg.	514-481-3313

Local Distributors

CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	San Diego, Park-West Inc.	619-277-8433
CA	Woodland Hills, C & A Elctrns.	213-340-6036
CT	Norwalk, Park Dist.	203-853-2010
FL	West Palm Beach, Nurmi Elctrn. Supp.	305-686-8553
IL	Arlington Heights, Reptron Elctrns.	312-593-7070
MD	Baltimore, Whitney Dist.	301-944-8080
OR	Portland, Dunn Elctrns.	503-285-0214
OR	Portland, Radar Elec.	503-233-3691
PA	McKean, Advocom Elctrns.	814-476-7774
WA	Seattle, Radar Elec.	206-282-2511

EXACT ELECTRONICS, Div. of Dynatech Nevada Inc., Box 1925, 2000 Arrowhead Dr., Carson City, NV 89701, Tel: 702-883-3400, 800-648-7952, Telex: 170054; FSC No.: 34511; Empl.: 60; *Sls. Mgr.:* Joe Foster

EXAR

EXAR CORP., P. O. Box 62229, 750 Palomar Ave., Sunnyvale, CA 94086, Tel: 408-732-7970, TWX: 910-339-9233; Empl.: 550; *Dist. Mgr.:* Jack Hanoka **A•1668-1669**

Local Sales Offices & Reps

AZ	Scottsdale, Summit Sls.	602-998-4850
CA	Los Angeles, Landa/Minyard, Inc.	213-879-0770
CA	San Diego, Harvey Kinc	619-566-5252
CA	Santa Clara, Criterion Sls.	408-988-6300
CO	Golden, Candal, Inc.	303-233-0155
CT	Ridgefield, Phoenix Sls	203-438-9644
FL	Orlando, Donato & Assocs.	305-352-0727
GA	Tucker, Rep Inc.	404-938-4358
IL	Des Plaines, Janus, Inc.	312-298-9330
MD	Baltimore, Comp. Sls.	301-484-3647
MA	Westwood, Mass Tech Sales	617-329-8820
MN	Minneapolis, Dan'l Engrg.	612-854-7550
MO	St. Louis, KKB & Co.	314-647-2400
NM	Albuquerque, Syntech	505-266-7951
NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, Trionic Assocs.	516-466-2300
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Columbus, McFadden Sls.	614-459-1280
OR	Tigard, Comps. West	503-684-1671
TN	Jefferson City, Rep Inc.	615-475-4105
TX	Carrollton, Technical Mktg.	214-387-3601
WA	Redmond, Comps. West	206-885-5880
WI	Milwaukee, Janus, Inc.	414-476-9104

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
CA	Anaheim, Zeus Comps.	714-632-6880
CA	Irvine, IEC/Jaco	714-660-1055
CA	Sunnyvale, Bell Indus.	408-734-8570
CA	Tustin, A.V.E.D.	213-770-0871
CT	East Haven, J.V. Elctrns.	203-469-2321
FL	Clearwater, Future Elctns.	813-596-8295
GA	Comming, Pan American	404-577-2144
IL	Arlington Hgts., Reptron	312-593-7070
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Deeco	319-377-5795
MA	Norwood, Gerber Elctrns.	617-329-2400
MI	Grand Rapids, R.M. Elctrns.	616-531-9300
MN	Minneapolis, Merit Elctrns.	612-546-5583
NJ	Berlin, GCI	609-768-6767
NY	Melville, Diplomat Elctrns.	516-454-6400
OH	Columbus, Reptron Elctrns.	614-436-6675
OK	Tulsa, Quality Comps.	918-664-8812
OR	Beaverton, Western Microtechnology	503-641-9312
PA	Philadelphia, Almo Elctrns.	215-698-4000
TX	Dallas, Act/ Diplomat Elctrns.	214-980-1818
WA	Seattle, Radar Elec. Co., Inc.	206-282-2511
WI	Berlin, RM Elctrns., Inc.	414-784-4420
Can	Pt. Claire, Que., Future Elctrns.	514-694-7710

exatron
automatic test equipment

EXATRON AUTOMATIC TEST EQUIP., 3513 Ryder St., Santa Clara, CA 95051, Tel: 408-737-7111, 800-EXA-TRON, Telex: 172-090; Empl.: 14; *Sls. Mgr.:* Kathryn Henderson

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech Assocs.	205-881-9298
AZ	Phoenix, Zeus Elctrns.	602-263-6022
CA	Covina, Romar Intl.	213-332-8548
CA	Sunnyvale, C.C.L.M.	408-578-6119
CO	Denver, Zeus Elctrns.	303-321-4246
FL	Casselberry, Pen Tech Assocs.	305-678-6809
FL	Deerfield Beach, Pen Tech Assocs.	305-421-4989
GA	Marietta, Pen Tech Assocs.	404-424-1931
IL	Chicago, Solid St. Elctrns. of IL	312-889-8033
MA	Tyngsboro, J. R. Sls.	617-649-3449
MN	Edina, P.E.C./Levi	612-944-8540
NJ	Vincentown, JRM Elctrns.	609-859-2106
NM	Albuquerque, Zeus Elctrns.	505-842-6633
NC	Greensboro, Pen Tech Assocs.	919-852-6000
OH	Hudson, Technical Sls.	216-656-3978
OR	Beaverton, Northwest Test & Meas.	503-646-9966
TX	Dallas, Elctrn. Prod. Spec.	214-985-1932
UT	Salt Lake City, Zeus Elctrns.	801-534-0500
WA	Redmond, Northwest Test & Meas.	206-881-8857
Can	Burlington, Ont., Arbell, Inc.	416-632-9494

EXCELLON AUTOMATION, 24215 Garnier St., Torrance, CA 90505, Tel: 213-325-8000, Telex: 67-4562; Empl.: 570; *Sls. Mgr.:* R. Schreuders

EXCEL PRODS., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903, Tel: 201-249-6600, TWX: 710-480-6255; Empl.: 360; *Sls. Mgr.:* Jack Luch; *Dist. Mgr.:* Jack Luch

EXCEL SPECIALTY CORP., 6335 N. Broadway, Chicago, IL 60660, Tel: 312-262-4781; Empl.: 50

EXCEL TECHNOLOGY INTL. CORP., 4-5 Stryker La., Hillsborough Indl. Pk., Belle Mead, NJ 08502, Tel: 201-874-4747, TWX: 910-333-9588; *Sls. Mgr.:* Michi Chen **B•1050-1052**

Local Sales Offices & Reps

CA	Marina Del Ray, Electro-Optical Mktg.	213-822-0702
CA	San Diego, Uni-Rep	619-746-5131
CA	San Jose, Cerco	408-298-1918
FL	Coral Springs, HAI Elctrns.	305-752-7520
GA	Norcross, Mountain Electro Prods., Inc.	404-469-0603
IL	Westchester, W. G. Brouillette & Assocs., Inc.	312-345-6500
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	E. Brunswick, Kong Sys.	201-390-8523
NM	Azcapotzaico, Dicopel	561-32-11
OR	Portland, Frank Jackson, Assoc.	503-292-2638
TX	Dallas, Southwest Elctrn. Inds.	214-690-9881
TX	Houston, Dunkel Elctrn. Assocs.	713-729-1670

EXERGETIC SYS., INC., 1499 Franklin St., Oakland, CA 94612, Tel: 415-763-3460; *Sls. Mgr.:* R. W. Beckwith

EXIDE CORP., 101 Gibraltar Rd., Horsham, PA 19044, Tel: 215-674-9500, TWX: 215-725-7397; Empl.: 2200

EXIDE ELCTRNS., P.O. Box 58189, Raleigh, NC 27658, Tel: 919-872-3020, TWX: 510-928-0598; FSC No.: 31795; Empl.: 900; *Sls. Mgr.:* Richard King

EXPRESS TEST CORP., 239 Commercial Street, Sunnyvale, CA 94086, Tel: 408-732-9999, Telex: 4942091; *Sls. Mgr.:* Frank S. Gavin

EXTECH INTERNATIONAL CORP., 150 Bear Hill Rd., Waltham, MA 02154, Tel: 617-890-7440, Telex: 940913; *Sls. Mgr.:* Neal DeWitt

EYRING RESEARCH INST., INC., 1455 W. 820 N., Provo, UT 84601, Tel: 801-375-2434, TWX: 882000; FSC No.: 801-374-8339; Empl.: 350

E-Z-HOOK, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006, Tel: 818-446-6175, TWX: 910-582-1614; FSC No.: 08505; Empl.: 23; *Sls. Mgr.:* C. Haskin; *Dist. Mgr.:* P. Wood

FABRICAST, 2517 Seaman Ave., P.O. Box 3176, S. El Monte, CA 91733, Tel: 818-443-3247; FSC No.: 13345; Empl.: 8 **B•1154-1159**

FABRI-TEK CIRCUITS, INC., Circuits Division, 1560 Tenth Ave., Baldwin, WI 54002, Tel: 715-684-3381

Refer to CTS Corp., Elkhart, IN, for sales offices and representatives and for distributor listings.

FAB-TEK INC., 68 Morgan Ave., Danbury, CT 06810, Tel: 203-743-3312; Empl.: 5

FACET ENTERPRISES, INC., Elmira, NY 14903, Tel: 607-737-8011, Telex: 93-2490, TWX: 510-252-1594; Empl.: 400; *Sls. Mgr.:* Gary Packard

FACIT, INC., 9 Executive Park Dr., Merrimack, NH 03054, Tel: 603-424-8000

FAIRCHILD CAMERA & INSTR. CORP., 464 Ellis St., 20-2271, Mountain View, CA 94042, Tel: 415-962-5011, Telex: CORPHQ. MVAC; Empl.: 16,000; *Sls. Mgr.:* David Miller

FAIRCHILD CAMERA & INSTR. CORP., Digital Div., 333 Western Avenue, So. Portland, ME 04106, Tel: 207-775-8700, Telex: 710-221-1980; *Sls. Mgr.:* Dan Bongatti; *Dist. Mgr.:* Brigid O'Rourke

FAIRCHILD CAMERA & INSTR. CORP., Linear Div., 313 Fairchild Dr., Mountain View, CA 94139, Tel: 415-962-4011, Telex: MVLD

FAIRCHILD CAMERA & INSTR. CORP., Memory & High Speed Logic Div., P. O. Box 5000, Puyallup, WA 98373, Tel: 206-841-6000, TWX: 310-449-4425; *Sls. Mgr.:* Jim Brye

FAIRCHILD MICROCONTROLLER DIV., Fairchild Camera & Instr. Corp., 450 National Ave., Mountain View, CA 94042, Tel: 415-962-3838, TWX: 910-379-5091

FACTRON/SCHLUMBERGER, Titusville, 1400 White Dr., Titusville, FL 32780, Tel: 305-267-7212, TWX: 510-950-3043; Empl.: 103; *Sls. Mgr.:* Becki Rubin

FAIRCHILD WESTON, DATA RECORDERS, P.O. Box 3041, Sarasota, FL 33578, Tel: 813-371-0811, Telex: 4991610, TWX: 810-864-0406; FSC No.: GS-00K-8301-S0078; Empl.: 750; *Sls. Mgr.:* Steve Hoff .... **D•1228**

Local Sales Offices & Reps

AZ	Mesa, Vic Myers Assocs.	602-897-7378
CA	Cupertino, Fairchild Weston	408-257-1813
CA	Laguna Hills, Elotek Sys.	714-830-4856
CA	Westlake, Fairchild Weston	213-889-1057
CO	Fort Collins, Vic Myers Assocs.	303-223-8907
CT	Higganum, Intersell	203-528-5357
FL	Fort Walton Beach, RAM-Z Assocs.	904-862-2700
FL	Maitland, Wade H. Boggs	305-647-2226
ID	Rathdrum, Hood Engrg. Sls., Inc.	208-772-7235
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Burlington, Intersell	617-273-3844
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Lovis, Marsland Assocs.	314-991-1399
NJ	Cedar Grove, KLS Assocs.	201-785-4450
NM	Albuquerque, Vic Myers Assocs.	505-884-6878
NY	Rochester, Scientific Dvcs. NY	716-334-2445
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
PA	Devon, Fairchild Weston	215-687-3220
TX	Conroe, Fairchild Weston	713-539-1315
WA	Bellevue, D.P.M., Inc.	206-747-3309
WI	New Berlin, Marsland Assocs.	414-786-6611

FAIRCHILD WESTON, See Weston Controls, Div. Fairchild

FAIRCHILD - WESTON - TELEMETRY, P.O. Box 3041, Sarasota, FL 33578, Tel: 813-377-5566, Telex: 052-890, TWX: 810-864-0406; FSC No.: 06141; Empl.: 825; *Sls. Mgr.:* Wyatt Bishop

FAIR-RITE PRODS., PO Box J, Wallkill, NY 12589, Tel: 914-895-2055, TWX: 510-249-4819; FSC No.: 34899; Empl.: 200 + ; *Sls. Mgr.:* B. G. Tolen

Local Sales Offices & Reps

AL	Huntsville, Macro-Mktg. Assocs.	205-883-9630
CA	Anaheim, Micrometals	714-630-7420
CA	Sunnyvale, Schwerin & Merrill Assocs.	408-735-7900
CO	Aurora, A-G Elctrns.	303-690-0964
CT	W. Hartford, R. S. Pettigrew & Assocs.	203-236-5891
FL	New Smyrna Beach, J. Wetzel	904-423-5707
IL	Marshall, Fair-Rite Prods.	618-584-2944
IN	Indianapolis, Frank J. Campisano Co.	317-253-7651
MI	Southfield, J. L. Montgomery Assocs.	313-358-2616
MN	Bloomington, Holmes & Ladky Assocs. of Minn.	612-884-2125
NY	Hempstead, Kahgan Sls.	516-538-2300
OH	Cincinnati, F. J. Campisano & Assocs.	513-574-7111
OR	Portland, Freed Assocs.	503-289-5320
PA	Easton, Kendon Co.	215-253-3100
TX	Dallas, S.E.I., Inc.	214-690-9881
VA	Front Royal, Eltron Sls., Ltd.	703-635-7201
VA	Roanoke, A. B. Kreger & Co.	703-989-4738
WI	Milwaukee, Frank W. Ladky Assocs.	414-351-2112

FANCORT INDUSTRIES, INC., 31 Fairfield Place, W. Caldwell, NJ 07006, Tel: 201-575-0610; Empl.: 10; *Sls. Mgr.:* Ron Corey; *Dist. Mgr.:* Ron Corey

F & M SYSTEMS CO., See Texas Controls

FAN-S CORP., 7158 Industrial Pk. Blvd., Mentor, OH 44060, Tel: 216-951-3300, Telex: 985319; Empl.: 75; *Sls. Mgr.:* John Hallums; *Dist. Mgr.:* William Forkins

FARADAY ELECTRONICS, 743 Pastoria, Sunnyvale, CA 94086, Tel: 408-749-1900, Telex: 706738; Empl.: 41; *Sls. Mgr.:* Lou Panetta

FARIA, THOMAS G., CORP., P.O. Box 0983, Uncasville, CT 06382, Tel: 203-848-9271; Empl.: 225; *Sls. Mgr.:* A. Knupp

FARINON DIV., Harris Corp., 1691 Bayport, San Carlos, CA 94070, Tel: 415-594-3000, Telex: 34-8491; *Sls. Mgr.:* Jan Graaf

FARRAND CONTROLS, Div. of Farrand Industries, Inc., 99 Wall St., Valhalla, NY 10595, Tel: 914-RO1-2600, Telex: 646-640; Empl.: 120; *Sls. Mgr.:* George A. Quinn; *Dist. Mgr.:* George A. Quinn ... **B•1796**

FASCO INDUSTRIES, INC., Div. of Hawker Siddeley Grp. Plc., 601 North Federal Highway, Boca Raton, FL 33432, Tel: 305-368-0600, Telex: 51-5612; *Sls. Mgr.:* O. J. Binnette; *Dist. Mgr.:* Paul R. Reid

FASTEX, 195 Algonquin Rd., Des Plaines, IL 60016, Tel: 312-299-2222, TWX: 910-233-2786; FSC No.: 02768

FAST FEEDBACK TECHNOLOGIES, 1505 Aviation Blvd., Redoudo Beach, CA 90278, Tel: 213-379-6100; Empl.: 4; *Sls. Mgr.:* M. Lacas

FCM PLASTICS, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505, Tel: 616-451-4502, TWX: 810-273-6038; *Sls. Mgr.:* Patrick K. Parsons

F-DYNE ELCTRNS., 449 Howard Ave., Bridgeport, CT 06605, Tel: 203-367-6431, TWX: 710-453-0087; Empl.: 175; *Sls. Mgr.:* Robert Furst

FEDERAL PACIFIC, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

FEEDBACK, 620 Springfield Ave., Berkeley Hghts., NJ 07922, Tel: 201-464-5181; Empl.: 28; *Sls. Mgr.:* M. J. Lawson

FEMA ELCTRNS. CORP., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816, Tel: 201-238-1223, Telex: 299425 FEMA UR; Empl.: 10 to 20; *Sls. Mgr.:* Bob Cheng

FEMCO, INC., P.O. Box 26710 Parkmoor Sta., San Jose, CA 95159, Tel: 408-946-1188, Telex: 17-1618, TWX: 910-338-2290

FENWAL, INC., 400 Main St., Ashland, MA 01721, Tel: 617-881-2000; Empl.: 1000; *Sls. Mgr.:* John W. Rice

FENWAL ELCTRNS., 63 Fountain St., Framingham, MA 01701, Tel: 617-872-8841, Telex: 299550; Empl.: 500; *Sls. Mgr.:* W. M. Minnucci; *Dist. Mgr.:* Chester Tricca .... **B•1751**

Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs., Inc.	205-882-0316
AZ	Phoenix, Dorton Entprs., Inc.	602-944-2957
CA	Cupertino, Codella Mktg. Grp., Inc.	408-257-2561
CA	Los Angeles, Landa/Minyard, Inc.	213-879-0770
CO	Denver, Elcom, Inc.	303-337-2300
CT	Southington, Andrews Airtronics, Inc.	203-621-6158
FL	Deerfield Beach, Conley & Assocs., Inc.	305-421-7180
FL	Oviedo, Conley & Assocs., Inc.	305-365-3283
FL	Tampa, Conley & Assocs., Inc.	813-885-7658
GA	Doraville, Conley & Assocs., Inc.	404-447-6992
IL	Chicago, Century Elctrns. Corp.	312-777-9700
IN	Noblesville, Century Elctrns. Corp.	317-849-2026
IA	Cedar Rapids, Palatine Engrg. & Sls., Inc.	319-365-8071
KS	Mission, Palatine Engrg. & Sls., Inc.	913-831-0555
MD	Woodbine, Naudain Assoc. So., Inc.	301-442-2270
MA	Danvers, Andrews Airtronics, Inc.	617-246-2450
MI	Ferndale, Hilltronics, Inc.	313-398-5556
MN	So. St. Paul, Northport Engrg., Inc.	612-457-8000
MO	Hazelwood, Palatine Engrg. & Sls., Inc.	314-839-0800
NY	Huntington, CDB Entprs.	516-692-5200
NY	Kingston, R. P. Kennedy Co., Inc.	914-876-2700
NY	Rochester, R. P. Kennedy Co., Inc.	716-271-6322
NY	Rochester, R. P. Kennedy Co., Inc.	716-271-1910
NC	Raleigh, Conley & Assocs., Inc.	919-876-9862
OH	Cleveland, Arthur H. Baier Co.	216-461-6161
OH	Dayton, Arthur H. Baier Co.	513-276-4128
OR	Portland, Jas. J. Backer Co.	503-297-8744
OR	Salem, Jas. J. Backer Co.	503-362-0717
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
PA	Wynnewood, Metz-Benham Assoc., Inc.	215-896-7300
TX	Austin, W. Pat Fralia Co. & Assoc., Inc.	512-835-7911
TX	Bedford, W. Pat Fralia Co. & Assoc., Inc.	817-267-3577
TX	Houston, W. Pat Fralia Co. & Assoc., Inc.	713-772-1572
UT	Salt Lake City, Elcom, Inc.	801-485-7415
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Milwaukee, Century Elctrns. Corp.	414-645-3680
EXP	MA, Framingham, Fenwal Elctrns.	617-872-8841

Local Distributors

CA	Burlingame, Rose Elctrn. Distr.	408-263-9700
CA	Chatsworth, Mil-Comm Distr.	213-998-3111
CO	Denver, Newark-Denver Elctrn. Supp.	303-757-3351
CO	Englewood, Indl. Elctrns. Corp.	303-694-9444
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
GA	Norcross, Newark Elctrns.	404-321-0413
IL	Chicago, Newark Elctrns. Corp.	312-638-4411
IN	Indianapolis, Graham Elctrns. Supp.	317-634-8202
MD	Beltsville, Newark Elctrns.	301-937-5085
MA	Woburn, Newark Elctrns.	617-935-8350
MI	Grand Rapids, Newark Elctrns.	616-241-6681
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Minneapolis, Stark Elec.	612-332-1325
NJ	Springfield, Newark Elctrns.	201-376-9500
NY	Buffalo, Summit Dists.	716-887-2800
NY	Huntington, CDB Dev. Corp.	516-692-5200
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Warrensville Heights, Newark Elctrns.	216-587-1700
OK	Tulsa, Radio, Inc.	918-587-9123
PA	Wynnewood, Metz-Benham Assoc., Inc.	215-896-7300
TX	Fort Worth, Patco Supply	817-429-8596
UT	Salt Lake City, Standard Supp.	801-486-3371

FERNO-SALESMAKER, Ferno-Washington, Inc., 70 Well Way, Wilmington, OH 45177, Tel: 513-382-1451, Telex: 214282; Empl.: 300; *Sls. Mgr.:* Gary Hiles

FERRANTI ELEC., 87 Modula Ave., Commack, NY 11725, Tel: 516-543-0200, TWX: 510-226-1490; *Sls. Mgr.:* Mike Kennett

FERRETEC INC., 1701A Fortune Dr., San Jose, CA 95131, Tel: 408-263-1216, TWX: 910-338-2353; *Sls. Mgr.:* Allen E. Rosenzweig

Local Sales Offices & Reps

AZ	Mesa, P.C.L. Elctrns.	602-892-9329
CA	San Jose, MCH Assocs.	408-246-7330
CA	Torrance, DeTomasi & Grupp Inc.	213-327-1775
FL	Mebourne Beach, Millett Assocs.	305-725-5055
IL	Wauconda, Cudahy Sls. Co.	312-526-2484
MD	Severna Park, Delmarva Engrg. Assocs.	301-647-8007
MA	Chelmsford, BBC	617-452-7211
MO	Leasburg, EIR Co.	314-245-6860
NY	Great Neck, Phase Four Inc.	516-482-1790
NY	Utica, B. D. Hummel Co.	315-736-7821
PA	Elkins Park, Snow Assocs.	215-379-4700
TX	Dallas, Tritex Technical Sls., Inc.	214-247-3041

FERRO CORP., Composites Div., 34 Smith St., Norwalk, CT 06852, Tel: 203-853-2123, Telex: 96-5929; *Sls. Mgr.:* Kenneth W. Kubofcik

FERRO CORP., Ottawa Chem. Div., 700 N. Wheeling St., Toledo, OH 43605, Tel: 419-691-3507

FERRO, Thick Film Sys. Div., 27 Castilan Dr., Santa Barbara, CA 93117, Tel: 805-968-5000, Telex: 98-0165; Empl.: 39; *Sls. Mgr.:* Cliff Ruderer

FERRO CERAMIC GRINDING, INC., 247 Water St., Wakefield, MA 01880, Tel: 617-245-1833; Empl.: 14; *Sls. Mgr.:* Philip Strasnick

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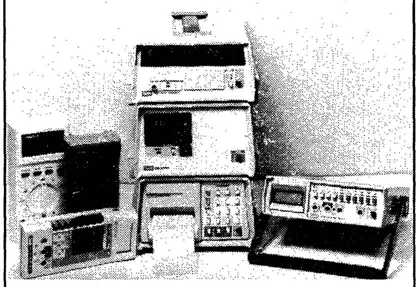

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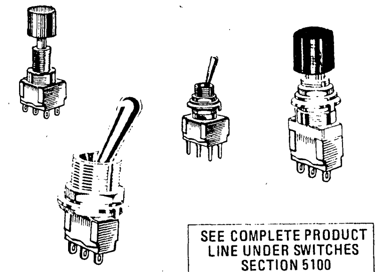

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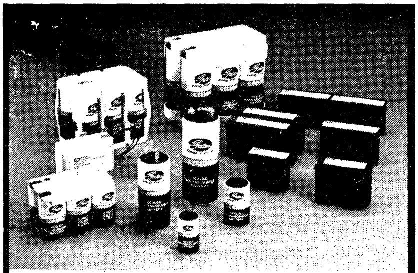

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CA	San Gabriel, R. G. Moye Co.	213-283-1669
CO	Denver, Nelson Co.	303-573-1516
CT	Marlborough, Precision Sls.	203-295-0580
GA	Smyrna, B-C. Elctrn. Sls.	404-436-5169
MD	Baltimore, B. White & Co.	301-484-5400
NY	Pittsford, Noeth-Honsinger Assoc.	716-586-9002
NY	White Plains, QED Elctrns.	914-946-3424
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Trotwood, I. Atkind & Assoc.	513-837-4750
PA	King of Prussia, Freedman-Malta Assoc.	215-337-9211
EXP	NY, Plainview, Morhan Exp.	516-293-5582

FTS • FREQUENCY AND TIME SYSTEMS, INC.

FREQUENCY AND TIME SYSTEMS, INC., DATUM, INC., 34 Tozer Rd., Beverly, MA 01915, Tel: 617-927-8220, Telex: 94-0518 FTS BVLY; FSC No.: 56219; Empl.: 126; *Sls. Mgr.:* Richard Kelley .... **A• 1364 -1365; D• 1230**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.	205-533-5896
AZ	Tempe, Mar Tech Assocs., Inc.	602-968-4944
CA	Anaheim, Datum Timing	714-533-6333
CA	Santa Clara, Ward-Davis Assocs.	408-245-3700
FL	Coral Springs, Electrocraft	305-753-8666
FL	Largo, Electrocraft	813-530-4749
FL	Winter Park, Electrocraft	305-628-4705
IL	Park Ridge, Electronic Instr. Assocs.	312-298-2290
IN	Indianapolis, Electronic Instr. Assocs.	317-257-7231
IA	Hiawatha, Gassner & Clark Co.	319-393-5763
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Lexington, Del-Con Sls.	617-862-1118
MN	Minneapolis, Electronic Instr. Assocs.	612-374-5628
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
NY	Bayside, Robert Diamond, Inc.	718-423-7330
NY	Liverpool, R & D Assocs.	315-457-0100
NC	Burlington, P.J. Nahser Co., Inc.	919-226-8053
OH	Centerville, Micro Sls. Corp.	513-433-8171
TX	Houston, Lear Assocs., Inc.	713-488-7893
TX	Richardson, Lear Assocs., Inc.	214-231-5388
WA	Kirkland, Manon Engrg.	206-827-7449
Can	St. Laurent, Que., RF Microwave, Ltd.	514-335-2335

FREQUENCY CONTROL PRODS., INC., American Time Prods. Div., 61-20 Woodside Ave., Woodside, NY 11377, Tel: 212-458-5811, TWX: 710-582-2637; FSC No.: 59559;03040; *Sls. Mgr.:* Sanford Cohen - Crystals, Ed Cohen - Oscillators Servo, John Murray - Electro Optic

FREQUENCY DEVICES™

FREQUENCY DEVICES, INC., 25 Locust St., Haverhill, MA 01830, Tel: 617-374-0761, TWX: 710-347-0314; Empl.: 60; *Sls. Mgr.:* Warren Munroe .... **A•1609; D•1231**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs. Mid-South, Inc.	205-533-5896
CA	San Jose, Texel North	408-272-6836
CA	Seal Beach, Texel	213-596-9411
IL	Palatine, Kingston Comps., Inc.	312-359-7990
MA	Holbrook, McLellan Assocs.	617-767-4771
NJ	East Brunswick, Winch Sls. Assocs.	201-828-4615
NY	Roslyn Heights, Winch Sls. Assocs.	516-621-6376
TX	Houston, TCI Elctrns.	713-774-5019
Can	Don Mills, Ontario, R. D. Assocs.	416-444-0959

FREQUENCY ELCTRNS., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553, Tel: 516-794-4500, TWX: 510-223-0418; Empl.: 350; *Sls. Mgr.:* A. Lazar .... **A•1366-1367**

Local Sales Offices & Reps

CA	Mountainview, Disman-Baker	415-969-3010
FL	Orlando, Truex Assoc.	305-859-2160
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Cochituate, High-Tech Sls.	617-653-3838
NJ	East Windsor, Micro Lambda	609-443-3113
NJ	W. Orange, E-F Techn. Sls.	201-731-7203
NY	Huntington Sta., E-F Techn. Sls.	516-549-1818
OH	Cleveland, Tiby Co.	216-371-5335
TX	Houston, Spectra Sls. Corp.	713-783-8333
TX	Richardson, Spectra Sls. Corp.	214-234-3600
VA	Charlottesville, Marktron	804-973-5874
EXP	NY, New York, Henley Elctrns.	212-986-5544

FREQUENCY SELECTIVE NETWORKS, INC., 69-20 Garfield Ave., Woodside, NY 11377, Tel: 718-424-7500; FSC No.: 56662; Empl.: 30; *Sls. Mgr.:* Michael L. Izzolo .... **A•1369**

Local Sales Offices & Reps

FL	Ft. Lauderdale, Donato Assoc.	305-733-3450
MN	Bloomington, 2M Sls.	612-888-7414
NY	Huntington, Carnes Assocs.	516-694-1600
OH	Dayton, Aschbacher Assocs.	513-252-7785

FREQUENCY SOURCES, KSW Semiconductor Div., 16 Maple Rd., Chelmsford, MA 01824, Tel: 617-256-8101, TWX: 710-343-0404; FSC No.: 50101; Empl.: 80

FREQUENCY WEST, INC., 3140 Alfred St., Santa Clara, CA 95054, Tel: 408-727-8500, TWX: 910-338-0163; FSC No.: 8F150; Empl.: 158; *Sls. Mgr.:* James K. McGuinness

FRESNEL OPTICS, Div. of Alliance Tool Corp., 1300 Mt. Read Blvd., Rochester, NY 14606, Tel: 716-647-1140, Telex: 97-8322; *Sls. Mgr.:* Helmut Walter

FRONT PANEL DEVICES, INC., 530 Burnside Ave., Inwood, NY 11696, Tel: 212-471-9800, Telex: 645-580; Empl.: 20; *Sls. Mgr.:* Michael Geller

FSI/FORK STANDARDS INC., 666 Western Ave., Lombard, IL 60148, Tel: 312-231-3511, 312-932-9380; FSC No.: 14986; Empl.: 20; *Sls. Mgr.:* A. E. Toht; *Dist. Mgr.:* A. E. Toht

FTS SYS., POB 158, Stone Ridge, NY 12484, Tel: 800-824-0400, TWX: 510-247-0547; Empl.: 100; *Sls. Mgr.:* T. N. Thompson, Jr.

FUJI-SVEA, P.O. Box 3375, Torrance, CA 90510, Tel: 213-533-1221, Telex: 182-392

FUJITSU

FUJITSU AMERICA, INC., 918 Sherwood Dr., Lake Bluff, IL 60044, Tel: 312-295-2610, Telex: 206196, TWX: 910-651-2259; Empl.: 40 .... **B•1349-1368; C•1104, 1195-1224**

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls.	602-957-3570
CA	San Diego, Earle Assocs., Inc.	619-278-5441
CA	San Jose, Applied Elctrn. Mktg.	408-971-9377
CA	Thousand Oaks, SC Cubed	805-496-7307
CA	Tustin, SC Cubed	714-731-9206
CO	Denver, Donohue Sls.	303-455-1719
FL	Altamonte Springs, 'C' Assocs.	305-831-1717
FL	Pompano Beach, 'C' Assocs.	305-972-9200
IA	Cedar Rapids, R. W. Kunz & Assocs.	319-396-5386
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
IL	Elk Grove Vl., John G. Twist	312-593-0200
IL	Highland Park, Bransky Sls.	312-433-2375
KS	Prairie Village, R. W. Kunz & Assocs., Inc.	913-648-3535
ME	E. Sabago, Electrical Comps. Inc.	207-787-3145
MD	Baltimore, Component Sls., Inc.	301-484-3647
MA	Fall River, Elec. Comps.	617-674-0064
MA	Longmeadow, Elec. Comps.	413-567-0153
MA	Natick, Elec. Comps.	617-655-2225
MI	Warren, DEM Elctrn. Sls.	313-575-9444
MN	Bloomington, John G. Twist	612-835-2120
MO	St. Louis, R. W. Kunz & Assocs., Inc.	314-966-4977
NJ	Bellmawr, TAI Corp.	609-933-2600
NJ	Parlin, JMR Sls.	201-254-8484
NY	E. Setauket, JMR Sls.	516-689-8871
NY	E. Syracuse, Nycom, Inc.	315-437-8343
NC	Charlotte, Robert W. Chapman Co.	704-525-2421
NC	Greensboro, Robert W. Chapman	919-275-0003
NC	Raleigh, Robert W. Chapman	919-782-2624
OH	Columbus, McFadden Sls.	614-459-1280
OR	Aloha, Whisler Sls. Co.	503-649-9078
PA	Greensburg, Pro-Mark	412-832-3800
TX	Garland, Savarese & Assocs.	214-475-8360
UT	Bountiful, Anderson Assocs.	801-292-8991
VA	Richmond, Component Sls., Inc.	804-741-4072
WA	Bellevue, Whisler Sls. Co.	206-643-1463
WI	Brookfield, John G. Twist	414-782-2670
WI	Cedarburg, Bransky Sls.	414-377-6837
Can	Concord, Ont., Votran Elctrns., Inc.	416-669-9870, 416-661-5190

Local Distributors

CA	Brisbane, Automated Process Controls	415-467-6162
CA	Buena Park, Control Design Supp.	714-521-5040
CA	San Carlos, Control Design Supp.	415-592-4808
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Ana, Pacesetter Elctrns.	714-557-7131, 213-233-5800
CA	Santa Monica, Distr. Specialists	213-393-9666
CA	Torrance, Cypress Elctrns.	213-533-6005, 714-761-3366
CO	Denver, CSID	303-292-9594
CO	Wheat Ridge, Cypress Elctrns.	303-431-2622
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Altamonte Springs, Control Design Supp.	305-788-3220
FL	Lakeland, A-A Elec.	813-665-6941
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
GA	Atlanta, Prehler Elctrns., Inc.	404-447-5540
GA	Stone Mountain, Control Design Supp.	404-979-3500
IL	Addison, L Comp.	312-628-1400
IL	Bensenville, Milgray Elctrns., Inc.	312-350-0490
IL	Carol Stream, Lectro Comps.	312-690-0520
IL	Chicago, Prehler Elctrns., Inc.	312-384-6100
IL	Genoa, Control Design Supp.	815-784-6519
IL	Northbrook, Classic Comp. Supp.	312-272-9650
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Indianapolis, Classic Comps. Supp., Inc.	317-872-4777
IN	Indianapolis, Control Design Supp.	317-788-0551
IA	Cedar Rapids, Bergquist	910-525-1335
IA	Marian, Control Design Supply, Inc.	319-373-2923
KS	Wichita, L Comp.	316-265-5100
ME	Gray, Longhill Electro-Tech	207-657-2183
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Burlington, Q.P.L. Elctrns.	617-947-2424
MA	Middleboro, Glynn Electronics	617-947-4262
MA	Natick, Tec-Con Elctrns.	617-655-9333
MA	Somerville, Electro Sls.	617-666-0500
MI	Farmington Hills, Prehler Elctrns., Inc.	313-473-7200
MN	Burnsville, Custom Connections	612-894-4090
MN	Minneapolis, Bergquist	612-835-2322
MN	Minneapolis, Control Design Supp.	612-721-1628
MO	Kansas City, L Comp.	816-221-2400
MO	Maryland Heights, L Comp.	314-291-6200
MO	St. Louis, Control Design Supp.	314-426-3160
MO	St. Louis, Interstate Industrial Elctrns.	314-423-4322

NE	Omaha, Radio Equip.	402-341-7700
NJ	Marlton, Milgray Elctrns.	609-983-5010
NJ	Nutley, Vantage Comps.	201-667-1840
NY	Buffalo, Summit Distrs., Inc.	716-887-2800
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Pittsford, Milgray Elctrns.	716-385-9330
NC	Charlotte, Control Design Supp.	704-588-4410
NC	Raleigh, Prehler Elctrns., Inc.	919-876-9111
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Middleburg Heights, Prehler Elctrns., Inc.	216-243-5510
OH	Solon, Repco	216-248-8900
OK	Tulsa, Altair Co.	918-252-5781
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Malvern, Control Design Supp.	215-296-0150
PA	McKean, Advacom, Inc.	814-476-7774
TX	Austin, Altair Co.	512-837-4490
TX	Dallas, Control Design Supp.	214-358-1441
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Dallas, Milgray Elctrns.	214-248-1603
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, ACT/Diplomat	801-486-4134
WA	Bellevue, Integrated Elctrns., Inc.	206-455-2727
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, Classic Comp. Supp.	414-786-5300
WI	New Berlin, Control Design Supp.	414-784-1016
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	Racine, Badger Elctrn. Parts Co.	414-637-1256

FURMAN SOUND, INC., 30 Rich St., Greenbrae, CA 94904, Tel: 415-927-1225, Telex: 172029 SPXSRFL; *Sls. Mgr.:* Diane Poole; *Dist. Mgr.:* Diane Poole

FURNAS ELEC., 1197 McKee St., Batavia, IL 60510, Tel: 312-879-6000, Telex: 72-0458; Empl.: 1360; *Sls. Mgr.:* T. W. Thornton; *Dist. Mgr.:* R. Lanser

FUSECOM, 14864 NE 95th St., Redmond, WA 98052, Tel: 206-881-2442; *Sls. Mgr.:* Bruce Barndt

Distributor

FUSES UNLIMITED, 9300 Mason Av., Chatsworth, CA 91311, Tel: 818-882-1515 .... **B•1234**

FUSION INC., 4658 E. 355th. St., Willoughby, OH 44094, Tel: 216-946-3300, Telex: 98-0445; Empl.: 85; *Sls. Mgr.:* Raymond C. Yuhasz

GABRIEL ELCTRNS., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074, Tel: 207-883-5161, Telex: 95-0113; Empl.: 135; *Sls. Mgr.:* D. B. Crisman

GALILEO ELECTRO-OPTICS CORP., Galileo Pk., Sturbridge, MA 01518, Tel: 617-347-9191, TWX: 710-347-1190; FSC No.: 28719; Empl.: 330; *Sls. Mgr.:* L. P. Thompson

GALITE, 2 Tower Dr., Wallingford, CT 06492, Tel: 203-265-7126, TWX: 710-476-0764; FSC No.: 56447; *Sls. Mgr.:* James W. Campbell, Jr.

GAMBLE, CHARLES T., INDS., 605 Perkins La., Delanco, NJ 08075, Tel: 609-461-1900; Empl.: 150; *Sls. Mgr.:* W. Snyder

GAMMA HIGH VOLTAGE RESCH. INC., 152 S. MacQuesten Pkwy., Mt. Vernon, NY 10550, Tel: 914-667-5050 .... **D•1644-1645**

Local Sales Offices & Reps

IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
MD	Timonium, Eastern Comps.	301-561-5811
NJ	Nutley, Irwin Brill Sls.	201-667-0653
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NC	Raleigh, Eastern Comps.	800-223-3850
PA	W. Conshocken, Eastern Comps.	215-825-8610

GAMMA SCIENTIFIC INC., 3777 Ruffin Rd., San Diego, CA 92123, Tel: 619-279-8034, Telex: 69-7938; Empl.: 65; *Sls. Mgr.:* G.C. Unangst

GANDALF DATA, INC., 1019 S. Noel Ave., Wheeling, IL 60090, Tel: 312-541-6060, TWX: 910-651-4951; Empl.: 350; *Sls. Mgr.:* Ken Charbauski

GANDALF TECHNOLOGIES, INC., 350 E Dundee Rd., Suite 301, Wheeling, IL 60090, Tel: 312-459-6630, TWX: 910-651-4951

GAP INSTR., 40 Oser Ave., Hauppauge, NY 11787, Tel: 516-273-0909, TWX: 510-227-6237; FSC No.: 00607; Empl.: 50

GARDINER ELCTRNS., 4729 North 7th Ave., Phoenix, AZ 85013, Tel: 602-274-9681

GARDINER SOLDER CO., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, Tel: 312-847-0100, TWX: 910-221-2510; Empl.: 100; *Sls. Mgr.:* John A. Seyda .... **C•1738**

Local Sales Offices & Reps

AZ	Phoenix, Astro Prods.	602-268-2948
AZ	Phoenix, Tooltronics, Inc.	602-257-0768
CA	Glendale, Tooltronics, Inc.	818-240-4000
CA	La Mirada, Gardiner Solder	714-994-6350
CA	Santa Clara, Tooltronics, Inc.	408-496-6000
CO	Littleton, West Mark Denver, Inc.	303-979-3720
FL	Merritt Island, James A. Kennedy Assocs.	305-452-9821
GA	Tucker, Electrical Concepts, Inc.	404-491-3154
IA	Princeton, Johnson Mfg.	319-289-5123
MA	Woburn, Yankee Tech Sls.	617-935-6278
MI	East Detroit, Fred Harris & Assocs.	313-776-5430
MO	St. Charles, Phillips & Assocs.	314-441-0148
NJ	Norwood, Wilson Inds.	201-767-7060
NJ	Scotch Plains, Gardiner Solder Co.	201-232-1965
NC	Charlotte, Electro-Rep Assocs., Inc.	704-527-2530
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Carnegie, Lloyd K. Lombardi	412-279-2017
TX	Dallas, Elctrn. Production Specialists	214-422-5476
TX	El Paso, Aztec Microelectronics	915-581-6130
WA	Bellevue, Doland Co.	206-454-4952
PR	Rio Tiedras, Electronic Sls. Assocs.	809-762-6459

Local Distributors

CA	So. San Francisco, Electrical Specialty Co.	415-589-9611
AL	Birmingham, E.I.S., Inc.	205-252-9046
AZ	Phoenix, Elctrl. Specialty Co.	602-275-5736
CA	Anaheim, Advance Electrical Sls., Inc.	714-870-0300
CA	Anaheim, Elctrl. Specialty Co.	714-630-7050
CA	Belmont, Advance Elctrl. Sls.	415-592-4550
CA	Chino, Tracy Elctrns.	714-591-4736
CA	Fawnskin, Pat Dooley	714-866-3413
CA	Glendale, Mac Donald & Co.	818-241-1101
CA	Lakeside, CASCO	619-560-9319
CA	Los Angeles, Elctrl. Specialty Co.	213-724-9600
CA	Los Angeles, John Cameron Supply Co.	213-870-7403
CA	San Diego, Casco	619-560-9319
CA	San Diego, Elctrl. Specialty Co.	619-560-1800
CA	San Diego, Hi-Tech Metals Co.	619-270-8081
CA	Santa Clara, RGB Electro Indl. Tool	408-980-1300
CA	Simi Valley, Cal-Pacific Suppliers	213-998-4982
CO	Denver, Advance Elctrl. Sls.	303-388-0923
CO	Denver, Elctrl. Specialty Co.	303-321-0226
CO	Denver, Integrated Elec.	303-292-6121
CT	Wallingford, ASTECH	203-265-4241
FL	Boca Raton, KIMCO	305-994-0590
FL	Clearwater, Your Production Cupboard	813-447-2581
FL	Orlando, E.I.S., Inc.	305-855-7100
FL	Orlando, Mavidon Entprs.	305-298-7324
FL	Palm Bay, Enstice Tool Grinding	305-734-2100
GA	Atlanta, E.I.S., Inc.	404-355-1651
IL	Addison, International Soldering Supplies	312-628-8083
IL	Bensenville, MASTCO	312-595-0414
IL	Chicago, Fay Elec. Wire Corp.	312-267-9222
IL	Hillside, Complete-Reading Electric Co.	312-547-5400
IN	Indianapolis, Complete-Reading Electric Co.	317-872-3710
IA	Princeton, Johnson Mfg. Co.	319-289-5123
KS	Louisburg, Ambrose Sls. Co.	913-541-8476
KY	Louisville, E.I.S., Inc.	502-636-0384
LA	New Orleans, Complete-Reading Elec. Co.	504-733-9435
MD	Baltimore, Complete-Reading Elec. Co.	301-646-1330
MA	Leominster, Elctrn. Tool Specialists	617-534-3324
MA	Woburn, Pacer Elctrns.	617-935-8330
MI	Warren, Complete-Reading Elec. Co.	313-755-6020
MN	Edina, Complete-Reading Elec. Co.	612-831-8145
MN	Minneapolis, W. D. Forbes Co., Inc.	612-378-1917
MN	New Brighton, Chris Elctrns.	612-631-2647
MN	St. Paul, Nordic Elctrns.	612-228-9027
MO	Kansas City, Complete-Reading Elec. Co.	816-471-5966
MO	Maryland Heights, Complete-Reading Elec. Co.	314-569-1611
MO	St. Charles, Finnigan Wire & Cable	314-946-6201
NV	Carson City, Gibson Tool Co.	702-883-3566
NH	Manchester, E.P.E. Corp.	603-669-9181
NJ	Livingston, Robert McKeown Co., Inc.	201-992-0700
NJ	Stirling, Janel	201-647-5600
NY	Fairport, Pacer Elctrns.	716-377-0462
NY	Farmingdale, S.A.I.	516-293-2710
NY	Liverpool, Complete-Reading Elec. Co.	315-457-1350
NY	Sidney, Wingate & Assocs.	607-563-2113
NC	Charlotte, E.I.S., Inc.	704-392-7366
NC	Raleigh, E.I.S., Inc.	919-781-4750
OH	Cincinnati, E.I.S., Inc.	513-771-4073
OH	Cleveland, Complete-Reading Elec. Co.	216-827-8891
OH	Mentor, Kimco	216-255-1992
OK	Tulsa, Complete-Reading Elec. Co.	918-664-4000
OR	Portland, Elctrl. Specialty Co.	503-227-3601
PA	Pittsburgh, Complete-Reading Elec. Co.	412-788-1580
RI	Warwick, Bayside Tech Inds.	401-737-5366
TN	Memphis, E.I.S., Inc.	901-947-4176
TN	Nashville, E.I.S., Inc.	612-883-0862
TX	Beaumont, Complete-Reading Elec. Co.	713-842-2117
TX	Dallas, Complete-Reading Elec. Co.	214-827-8891
TX	El Paso, Elctrl. Specialty Co.	915-594-8251
TX	Garland, Complete Reading Elec. Co.	214-840-6000
TX	Houston, Complete-Reading Elec. Co.	713-691-0080
TX	Houston, Fay Elec. Wire Corp.	713-923-2825
TX	Plano, Fay Elec. Wire Corp.	214-422-2797
UT	Salt Lake City, Electrical Specialty Co.	801-972-4184
VA	Bluefield, Complete-Reading Elec. Co.	703-322-5424
VA	Richmond, E.I.S., Inc.	804-649-9221
WA	Kirkland, R G B Electro Indl. Tool	800-958-5811
WA	Seattle, Advanced Elctrl. Sls., Inc.	206-575-4323
WA	Tukwila, Electrical Specialty Co.	206-241-1010
WV	Bluefield, E. I. S.	703-322-5424
WI	Mequon, Complete-Reading Elec. Co.	414-241-3880
WI	Oshkosh, Fay Elec. Wire Corp.	414-426-0792
EXP	PR, Carolina, E. I. S.	809-757-6565
PR	San Juan, Distributronics, Inc.	809-781-0631

GAR ENTERPRISES, 2029 N. Lincoln Ave., Pasadena, CA 91103, Tel: 818-798-0785; Empl.: 25

GARNER GLASS CO., 177 S. Indian Hill Blvd., Claremont, CA 91711, Tel: 714-624-5071; Empl.: 50; *Sls. Mgr.:* Joseph C. Hyatt

GARRY MFG. CO., DIV. OF BRAND-REX CO., 9 Queen Anne Ct., Laghorne, PA 19047, Tel: 215-949-2300; Empl.: 250; *Sls. Mgr.:* Tom Malek; *Dist. Mgr.:* Bob D'Autrachy

GASKET INTL. INC., 49 Ackerman St., Bloomfield, NJ 07003, Tel: 201-338-6814; Empl.: 5; *Sls. Mgr.:* Russell L. Steinman

GATES, GEO. W., & CO., INC., Hempstead Tpke. & Lucille Ave., Franklin Sq., NY 11010, Tel: 516-352-2904; Empl.: 10; *Sls. Mgr.:* T. E. Schulz, Jr

GATES DATA PRODUCTS, Gates Corporation, 2455 Executive Circle, Colorado Springs, CO 80906, Tel: 303-579-0330; *Sls. Mgr.:* Donald D. Stucker; *Dist. Mgr.:* Gregory D. Easton

GATES ENERGY PRODS., 1050 S. Broadway, Denver, CO 80217, Tel: 303-744-4806, Telex: 045-511, TWX: 910-931-2658; Empl.: 500; *Sls. Mgr.:* R. O. Hammel; *Dist. Mgr.:* M. R. Harrison

GATEWAY COMMUNICATIONS INC., 16782 Redhill Ave., Irvine, CA 92714, Tel: 714-261-0762; *Sls. Mgr.:* David S. McMaster

GAVITT WIRE & CABLE, Brookfield, MA 01506, Tel: 617-867-6476; Empl.: 75

GAYNOR ELEC. CO., 135 South Main St., P.O. Box 316, Thomaston, CT 06787-0316, Tel: 203-283-4388; Empl.: 50; *Sls. Mgr.:* John Swanson; *Dist. Mgr.:* John Swanson

Local Sales Offices & Reps

CA	Chatsworth, Porter Co.	818-700-0808
CT	Madison, United Comps.	203-562-4002
IL	Elk Grove Village, Control Sls.	312-595-2110
MN	St. Louis, Lestronix	612-926-8466
NJ	Mountain Lakes, Browning-Naughton Co., Inc.	201-335-2029
OH	Cleveland, Jubell Assoc.	216-831-0364
OH	Mentor, Appliance Elctrns.	216-257-6019
WI	Thiensville, Control Sls.	414-242-4580

G B INSTRUMENTS INC., 2030 Coolidge St., Hollywood, FL 33020, Tel: 305-920-0225, TWX: 510-954-9813; FSC No.: 31601; Empl.: 30; *Sls. Mgr.:* B. J. Weiss

GC ELCTRNS., 400 S. Wyman St., Rockford, IL 61101, Tel: 815-968-9661, Telex: 237-318, TWX: 257318 GC Elect; Empl.: 360; *Sls. Mgr.:* Owen Jackson

GCI, INC., 14520 Lima Rd., Fort Wayne, IN 46818, Tel: 219-637-5520, TWX: 883910; Empl.: 108; *Sls. Mgr.:* C. Ward

GECO, 145 Penn St., Millheim, PA 16854, Tel: 814-349-5555; Empl.: 21

GEC TECHNOLOGY CORP., 4430 Forest Lane, Garland, TX 75042, Tel: 214-276-1164

GEMCOR, See General-Electro-Mechanical Corp.

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GEMINI, 103 Mensing Way, Cannon Falls, MN 55009, Tel: 507-263-3957; *Sls. Mgr.:* Gary Pearson ...**C•1060-1061**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-836-1469
AZ	Phoenix, Ken Maynard Assocs.	602-581-8107
AR	North Little Rock, Leo Barker Co.	501-834-2537
CA	Orange, XBX Sls., Inc.	714-998-8200
CA	San Diego, Qualtronics	619-560-8955
CA	San Jose, Gemini, Inc.	408-225-3362
CO	Arvada, Delconec, Inc.	303-422-7023
FL	Key Largo, Jerrold Helbein & Assocs.	305-367-3025
GA	Atlanta, L & D, Inc.	404-455-3483
IL	Palatine, JRS Assocs.	312-991-6626
IN	Noblesville, Century Elctrns.	317-849-2026
IA	Cedar Rapids, Dick Taylor	319-364-2282
LA	Folsom, Leo Barker Co.	504-796-9825
MA	Brookline, Harman Assocs.	617-232-6687
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Bloomington, Heil's Temi	612-854-2001
MO	St. Louis, Harris Hanson Co.	816-763-6200
NY	New York, Reuse Pkg.	212-939-6080
NY	Rochester, Leonard D. Allen, Inc.	716-377-3530
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Thomasville, Jerrold Helbein & Assocs.	919-476-2365
OH	Cleveland, Jim Finnegan Co., Inc.	216-238-5905
OH	Dayton, Jim Finnegan & Co., Inc.	513-890-8322
OR	Beaverton, Underwood-Hanify	503-641-4463
PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
TN	Knoxville, L & D, Inc.	615-573-6511
TX	Dallas, J. Clay Co.	214-350-1281
TX	Houston, J. Clay Co.	713-583-2912
UT	Salt Lake City, Medax	801-266-4545
WA	Bellevue, Underwood-Hanify	206-451-8223
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GENERAL ATRONICS CORP., 1200 E. Mermaid Lane, Philadelphia, PA 19118, Tel: 215-233-4100

GENERAL AUTOMATIC CORP., 70 Liberty St., Metuchen, NJ 08840, Tel: 201-494-9300; Empl.: 59; *Sls. Mgr.:* M. Barron

GENERAL BUSINESS TECH., 1891 McGraw Avenue, Irvine, CA 92714, Tel: 714-261-1891; Empl.: 32

GENERAL CABLE CO., Cornish Products Div., 160 Water Street, Williamstown, MA 01267, Tel: 413-458-8171

GENERAL CABLE CO., Fiber Optics Div., 160 Fieldcrest Ave., Raritan Ctr., Edison, NJ 08818, Tel: 201-225-4780, Telex: 642892; *Sls. Mgr.:* Pieter de Bruijn

GENERAL COMPUTERS, 1624 Veteran Ave., Los Angeles, CA 90024; Empl.: 10

GENERAL CONNECTOR CORP., 80 Bridge St., Newton, MA 02158, Tel: 617-244-5706

GENERAL CONTROL CO., 1200 Soldiers Field Rd., Boston, MA 02134, Tel: 617-782-7440; Empl.: 25

GENERAL DATACOMM, INC., Rt. 63, Middlebury, CT 06762-1299, Tel: 203-574-1118; *Dist. Mgr.:* Vince Dailey

GENERAL DEVICES, Box 39100, Indianapolis, IN 46239-9632, Tel: 317-897-7000, Telex: 27-2169; Empl.: 220 ...**C•1062-1065**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs., Inc.	205-533-9108
AZ	Phoenix, Snyder Engrg.	602-279-2010
CA	Fullerton, Groh Assoc.	714-738-7105
CA	Mountain View, G. Woempner Co.	415-964-5454
CO	Boulder, R. F. Mayo Assoc.	303-499-2155
CT	North Haven, Coakley, Boyd & Abbett	203-481-2828
FL	Lighthouse Point, J. Krutek & Assoc.	305-941-6544
FL	Maitland, J. Krutek	305-628-4837
GA	Norcross, Hughes Assocs., Inc.	404-622-1587
IL	Glencoe, Howard Benjamin	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell & Kangas	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MN	St. Paul, Northport Engrg.	612-457-8000
MS	Corinth, Hughes Assocs., Inc.	601-287-2915
MO	St. Louis, Lowell & Kangas	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Fayetteville, H.G. Richter	315-637-6713
NC	Raleigh, Hughes Assocs., Inc.	919-782-2065
OH	Cleveland, Electronic Comps., Inc.	216-261-4103
OH	Dayton, Electronic Comps., Inc.	513-866-3340
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monteiro Assoc.	215-345-5855
TN	Morristown, Hughes Assocs., Inc.	615-587-2433
TX	Austin, Advance Tech. Sls.	512-440-7677
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford & Assocs.	206-866-2001

GENERAL DIGITAL CORP., 700 Burnside Ave., E. Hartford, CT 06108, Tel: 203-528-9041; Empl.: 70 ...**D•1067**

Local Sales Offices & Reps

MA	Wayland, Daner-Hayes, Inc.	617-894-7290

GENERAL DIGITAL INDUSTRIES INC., 7702 Governors Dr. W., Huntsville, AL 35805, Tel: 205-837-8305; Empl.: 29; *Sls. Mgr.:* Nelson Carney

GENERAL ELECTRIC CO., 333 W. Seymour Ave., Cincinnati, OH 45216, Tel: 513-948-5050, Telex: 810-461-2070; FSC No.: 05326

GENERAL ELECTRIC CO., Battery Business Dept., P.O. Box 992, Gainesville, FL 32602, Tel: 904-462-4480, TWX: 810-836-8500; *Sls. Mgr.:* K. Edwards

GENERAL ELEC. CO., Carboloy Systems Dept., Box 237, Detroit, MI 48232, Tel: 313-536-9100, TWX: 810-226-9617; Empl.: 1800; *Sls. Mgr.:* R. A. Alukonis

GENERAL ELEC. CO., Electromaterials Bus. Dep., Coshocton, OH 43812, Tel: 614-622-5310, Telex: 810-255-2921; Empl.: 1100; *Sls. Mgr.:* R.L. Morris; *Dist. Mgr.:* J. L. Schreiber

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GENERAL ELECTRIC CO., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117, Tel: 216-266-2451, Telex: 985569; *Sls. Mgr.:* P. A. Wrobleski

GENERAL ELECTRIC CO., Microwave Tube Operation, 1 River Road, Schenectady, NY 12345, Tel: 518-385-2211 (main NBR)

GENERAL ELECTRIC CO., OEM Marketing Dept., Nela Park, Clevland, OH 44112, Tel: 216-266-2121; *Sls. Mgr.:* W. D. Wells

GENERAL ELECTRIC CO., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021, Tel: 315-253-7321; Empl.: 4000; *Sls. Mgr.:* George H. Oliver; *Dist. Mgr.:* Richard Levitre

GENERAL ELECTRIC CO., RELAY OPERATION, See Genicom Corp.

GENERAL ELECTRIC CO., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602, Tel: 203-382-2000, Telex: 96-4209; Empl.: 2000; *Sls. Mgr.:* D. A. Pritchard; *Dist. Mgr.:* M. Peterson

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GENERAL FIBER OPTICS, INC., 98 Commerce Rd., Cedar Grove, NJ 07009, Tel: 201-239-3400; *Sls. Mgr.:* Herb Berkowitz

GENERAL HARDWARE MFG., 80 White St., New York, NY 10013, Tel: 212-431-6100, Telex: 126394 Aegis; *Sls. Mgr.:* Tom McGannon

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GENERAL INSTRUMENT CORP., Microelectronics Div., 600 W. John St., Hicksville, NY 11802, Tel: 516-733-3107, TWX: 510-221-1866; *Sls. Mgr.:* A. Lindgren; *Dist. Mgr.:* J. Johnson

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GENERAL MAGNETICS, 211 Grove St., Bloomfield, NJ 07003, Tel: 201-743-2700; FSC No.: 99165; Empl.: 60

GENERAL MFG., 724 Ruberta Ave., Glendale, CA 91201, Tel: 818-243-2069; FSC No.: 10454

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AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Phoenix, Odyssey One	602-246-8846
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Palo Alto, RF Assocs.	415-494-3331
CO	Englewood, Odyssey One	303-773-8176
FL	Apopka, Saber Assocs.	800-432-6288
FL	Bradenton, Saber Assocs.	800-432-6288
FL	Coral Springs, Saber Assocs.	800-432-6288
FL	Ft. Lauderdale, Saber Assocs.	800-432-6288
FL	Melbourne, Saber Assocs.	305-724-0920
GA	Atlanta, Saber Assocs.	800-327-0853
IL	Mt. Prospect, Cain Forlaw	312-253-3578
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NM	Albuquerque, Odyssey One	505-265-6645
NY	Huntington Sta., EF Tech. Sls.	516-549-1818
NY	Rochester, TCS (Technical Comp. Sls.)	716-342-2406
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OH	Lancaster, Cain Forlaw	614-654-4800
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TX	Dallas, Cain & Co.	214-247-3901
VA	McLean, Creative Mktg. Assocs., Ltd.	703-442-9100

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CA	Sunnyvale, Pacific Power Controls	408-745-0944
CA	Tustin, Schlines Reps.	714-544-9941
CT	Vernon, George Urban Assocs.	203-647-3991
FL	Coral Springs, Synergetic Reps., Inc.	305-753-6700
FL	Largo, Synergetic Reps., Inc.	813-586-2871
GA	Atlanta, Synergetic Reps., Inc.	404-446-6224
GA	Lawrenceville, Synergetic Reps., Inc.	404-457-5321
IN	Indianapolis, Fuller Engrg. & Sls.	317-253-3287
MD	Burtonsville, BEKR Inds., Inc.	301-421-1200
MA	Dover, George Urban Assocs.	617-329-4068
MO	Independence, Engrg. Svcs.	816-254-3600
MO	St. Louis, Engineering Svcs. Co.	314-997-1515
NY	E. Aurora, Bromor Co.	716-626-4593
NY	Port Washington, Aaron-J. R. Assocs.	516-883-0600
NC	Greensboro, Synergetic Reps., Inc.	919-288-1254
NC	Raleigh, Synergetic Reps., Inc.	919-876-3679
OH	Ashley, Mitchell Assocs.	614-747-2567
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
PA	Media, Klinetics	215-565-5388
PA	Pittsburgh, Marlow Assocs.	412-831-6113
RI	Vernon, George Urban Assocs.	203-647-3991
TN	Memphis, Data Power Corp.	901-794-2821
TX	Richardson, Hi Tech Mktg. Assocs.	214-669-4003
VT	Dover, George Urban Assocs.	617-329-4068
VA	Mechanicsville, BEKR Inds., Inc.	804-746-3003
VA	Richmond, BEKR Inds., Inc.	804-741-0296

Local Distributors

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CO	Lakewood, Challenge Tech.	303-232-6660
FL	Miami, Computer Supp.	305-620-6400
GA	Norcross, RTS Distrs.	404-449-0411
LA	Metairie, Computer Enviromental Equip.	504-838-8388
NJ	Westwood, Phoenix Computer Technlg.	201-666-5500
NM	Albuquerque, Battery Power Spec.	505-242-5662
NY	Port Washington, Connector Concepts Corp.	516-883-3800
NY	Tonawanda, Ronco	716-873-0760
TN	Memphis, Data Power Corp.	901-794-2821
TX	Bellaire, Bud Griffin & Assocs,	713-664-5462
UT	Orem, Digital Tech. Intl.	801-226-2987

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A•1870; D•1233

Local Sales Offices & Reps

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AL	Birmingham, SESCO	205-988-8304
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CA	Long Beach, Saber Entprs.	213-595-5646
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CA	San Diego, Saber Entrps.	619-271-1523
CO	Littleton, Radco	303-794-4279
CT	Cheshire, MECO, Inc.	203-271-0026
FL	Palm Bch. Grdns., SESCO, Inc.	305-832-0770
FL	St. Petersburg, SESCO	813-576-6991
GA	Altanta, SESCO	404-458-6423
IL	Des Plaines, Marsland Assocs.	312-694-2262
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
LA	Baton Rouge, SESCO	504-928-4951
MA	Reading, MECO, Inc.	617-944-6660
MI	Mt. Clemens, O'Hara Assocs.	313-791-7140
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Hillsdale, CB Associates	201-664-6230
NJ	Pennsauken, Scientific Reps	609-662-5222
NM	Albuquerque, Qualtech	505-243-5605
NY	Rochester, TAE-REP	716-586-8710
NY	Whitney Point, TAE-REP, Inc.	607-692-3705
NC	Cary, SESCO, INC.	919-467-7482
OH	Dayton, RIXAN Assocs.	513-278-4216
OH	Stow, Rixan Assocs.	216-686-2909
OK	Tulsa, SESCO	918-622-3868
TN	Knoxville, SESCO, Inc.	615-588-5455
TX	Austin, SESCO	512-892-2490
TX	Dallas, SESCO	214-231-9364
TX	Houston, SESCO	713-999-3510
TX	Plano, SESCO, Inc.	214-867-8880
VA	Fairfax, Scientific Assocs.	703-385-0600
WA	Seattle, Datacom Assocs.	206-285-2525
WI	New Berlin, Marsland Assocs.	414-786-6611

Components

AZ	Phoenix, Qualtech, Inc.	602-967-4655
CA	Saratoga, TESTCO	408-253-1900
CO	Golden, J. F. Hurlbut Co.	303-279-7796
MD	Gaithersburg, Beacon North, Inc.	301-869-3289
MD	Mt. Airy, Beacon North, Inc.	703-591-1300
MD	Randallstown, Beacon North, Inc.	703-591-1300
MI	Farmington, W. R. Hummon & Assoc.	313-474-0661
OH	Dayton, RIXAN Assocs.	513-278-4216
OH	Stow, Rixan Assocs.	216-686-2909
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1354
UT	Salt Lake City, J. F. Hurlbut Co.	801-531-7472
VA	Fairfax, Beacon North Inc.	703-591-1300
VA	Forest, Beacon North Inc.	804-239-8486

Local Distributors

CA	Saratoga, TESTCO	408-253-1900
OH	Dayton, RIXAN Assocs.	513-278-4216

GENERAL ROBOTICS CORP., 57 N. Main St., Hartford, WI 53027, Tel: 414-673-6800, Telex: 269686; *Sls. Mgr.:* Barbara Pick; *Dist. Mgr.:* Barbara Pick

GENERAL SCANNING, 500 Arsenal St., Watertown, MA 02272, Tel: 617-924-1010, Telex: 443-0105; Empl.: 250

GENERAL SEMICONDUCTOR IND., INC., Square D Company, 2001 W. 10 Pl., Tempe, AZ 85281, Tel: 602-968-3101, Telex: 910-950-1942; FSC No.: 24444;19500; Empl.: 425; *Sls. Mgr.:* Jim Williams; *Dist. Mgr.:* Howard Israel

GENERAL TECHNOLOGY CORP., 6816 Washington Avenue, NE, Albuquerque, NM 87109, Tel: 505-345-5591; Empl.: 50; *Sls. Mgr.:* Ralph H. Anderson

GENERAL TRANSISTOR CORP., 216 W. Florence Av., Inglewood, CA 90301, Tel: 213-673-8422, Telex: 653474; FSC No.: 1P738; Empl.: 39; *Sls. Mgr.:* Al Barrios

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Local Sales Offices & Reps

CA	Los Angeles	213-701-0353
CA	San Francisco	408-925-6648
CT	Meriden	203-238-6800
DC	Washington	301-770-4434
GA	Atlanta	404-256-1966
IL	Chicago	312-577-1100
MA	Boston	617-657-4800

Local Distributors

CA	Santa Ana, Norstan	714-540-4165
GA	Norcross, Schweber	404-449-9170
MD	Towson, Electronic Comp. Sls.	301-296-6282
NY	Rochester, Rochester Radio Supp.	716-454-7800
NC	Charlotte, Electronics Mktg. Corp.	704-394-6195
OH	Cleveland, Electronics Mktg. Corp.	216-442-3441
OH	Columbus, Electronics Mktg. Corp.	614-299-4161
OH	Dayton, Elctrns Mktg. Corp.	513-278-5745
OH	Highland Heights, Electronics Mktg. Corp.	216-442-3441

GENISCO MEMORY PRODS. CORP., 10874 Hope St., Cypress, CA 90630, Tel: 714-220-0720, TWX: 910-347-6773; FSC No.: 96682; Empl.: 120; *Sls. Mgr.:* Harry Watt

GENISCO TECHNOLOGY CORP., Eldema Div., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-537-4750, TWX: 910-346-6773; FSC No.: 03797; Empl.: 450; *Sls. Mgr.:* W. R. Esser

GENISCO TECHNLG. CORP., Filters Div., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-537-4750, TWX: 910-346-6773; FSC No.: 07294; Empl.: 450; *Sls. Mgr.:* B. Hanna

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GENRAD, INC., 300 Baker Ave., Concord, MA 01742, Tel: 617-369-4400

GENSTAR RENTAL ELCTRNS., 2445 Faber Pl., Palo Alto, CA 94303, Tel: 415-856-7600, Telex: 348368

GENTEX, Box 315, Carbondale, PA 18407, Tel: 603-434-0311, Telex: 831-883; FSC No.: 97427; *Sls. Mgr.:* Ture Heline

GENTRON CORP., 6667 N. Sydney Pl., Milwaukee, WI 53209, Tel: 414-351-1660, Telex: 26881; Empl.: 100; *Sls. Mgr.:* William Tennie

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
CA	Mission Viejo, Steven Engrg.	818-308-9200
CA	San Francisco, Steven Engrg.	415-588-9200
FL	Sunrise, Arnold Milrot & Assocs.	305-748-6446
IN	Greenwood, Valentine & Assoc.	317-888-2260
KS	Overland Park, WEB Elctrns.	913-381-2225

MA	Millis, Selmark Assocs.	617-376-2914
MN	Minneapolis, Furber Sls.	612-881-3620
MO	Florissant, WEB Elctrns.	314-921-5794
NH	Hopkinton, Selmark Assocs.	603-623-5774
NJ	Parlin, JMR Sales, Inc.	201-254-8484
NY	E. Setauket, JMR Sales, Inc.	516-689-8871
NY	Kingston, D.L. Eiss Assocs.	914-338-7588
NY	Rochester, D.L. Eiss Assocs.	716-328-3000
NC	Winston-Salem, Murcota	919-722-9445
OH	Centerville, Omega Sales, Inc.	513-434-5507
OH	University Heights, Omega Sales, Inc.	216-381-1404
OR	Portland, SPS Elctrns.	503-285-0214
PA	Philadelphia, Fite Eltech	215-248-3171
TX	Lewisville, Jim Hughes Co.	214-434-2566
TX	Stafford, Jim Hughes Co.	713-343-0673
WA	Seattle, SPS Elctrns.	206-323-4140
WI	Mequon, Stumm Sls.	414-241-8414

Local Distributors

CA	San Francisco, Steven Engrg.	415-588-9200
CA	Santa Ana, AMCOTEC	714-957-3003
NY	Ronkonkoma, Trace Elctrns.	516-645-6111
NC	Gastonia, JMT Elctrn. Supply Co.	704-867-4401
TX	Fort Worth, Allied Elctrns.	817-336-5401
WI	Milwaukee, Seaker Elctrns.	414-878-3727

GEOPHYSICAL SURVEY SYS., INC., 15 Flagstone Dr., Hudson, NH 03051, Tel: 603-889-4841, Telex: 953038; FSC No.: 02-0278634; Empl.: 35; *Sls. Mgr.:* J. V. Rosetta, Jr.

GEORATOR

GEORATOR CORP., Box 70, Manassas, VA 22110, Tel: 703-368-2101, Telex: 892-431; Empl.: 49; *Sls. Mgr.:* Charles E. Trefzger .... **D•1930-1932**

GERBER SYS. TECHNLGY., INC., 40 Gerber Rd. E., South Windsor, CT 06074, Tel: 203-644-2581, Telex: 6819200 GSTH UW, TWX: 710-447-5300 GST HFD; *Sls. Mgr.:* A. John Klein

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GEYER SYSTEMS, See GSI Corp.

GFC/HAMMOND ELCTRNS., INC., 1690 Walden Ave., Buffalo, NY 14225, Tel: 716-835-5742, Telex: 91-6452; *Sls. Mgr.:* Dave Oliver .... **D•1647**

Local Sales Offices & Reps

CA	Sunnyvale, Computer Modules Inc.	408-737-7727
CT	Guilford, Rosenbaum Elctrns.	203-453-5424
MN	Minneapolis, Loren Green Assoc.	612-571-6666
NY	Cooperstown, Lloyd Hart Assoc.	607-547-9333
NY	Rochester, Lloyd Hart Assoc.	716-244-3253
OR	Portland, Westcon Inc.	503-283-0132
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541

GGB INDUSTRIES, INC., Picoprobe Division, P.O. Box 125, Gillette, NJ 07933, Tel: 201-464-1749, Telex: 136692 GGB; *Sls. Mgr.:* Greg Boll

GIANNINI PETRO MARINE, 9474 Chesapeake Dr., San Diego, CA 92123, Tel: 619-569-1668, Telex: 181754; FSC No.: 24727; Empl.: 12

GIBSON/EGAN, 2666 E. Huntington Dr., Duarte, CA 91010, Tel: 818-358-0191; Empl.: 40

GIC SYSTEMS, 2324 A Ridgepoint Dr., Austin, TX 78754, Tel: 512-926-8840; *Sls. Mgr.:* Ed Barry; *Dist. Mgr.:* Bob Lynch

Refer to Gordos Corporation, Bloomfield, New Jersey for Representatives and Authorized Distributor information.

GIC THERMODYNAMICS, 2611 Parmenter, Royal Oak, MI 48073, Tel: 313-280-1648, Telex: 23-5714; Empl.: 7

GIDDINGS & LEWIS ELCTRNS., A Unit of AMCA Intl., 666 S. Military Rd., P.O. Box 1658, Fond du Lac, WI 54935, Tel: 414-921-7100, Telex: 26-2722, TWX: 910-275-1100; Empl.: 200; *Sls. Mgr.:* Tom Bullock

GILTRONIX, 3780 Fabian Way, Palo Alto, CA 94303, Tel: 415-493-1300, Telex: 345542; *Sls. Mgr.:* Erv Stein

GILWAY TECHNICAL LAMP, 165 New Boston Street, Woburn, MA 01801, Tel: 617-935-4442, Telex: 287617 GWAY UR; Empl.: 17; *Sls. Mgr.:* Clark Benjamin III; *Dist. Mgr.:* Anne Thibodeau .... **B•1053-1055**

GIMIX, INC., 1337 W. 37th Place, Chicago, IL 60609, Tel: 312-927-5510, TWX: 910-221-4055; Empl.: 14; *Sls. Mgr.:* Richard Don

GLAR-BAN DIV. OF MARK IV INDS., INC., 2937 Alt Blvd., Grand Island, NY 14072, Tel: 716-773-2871, Telex: 91578; Empl.: 85; *Sls. Mgr.:* Scott Simons

GLASGAL COMMUNICATIONS, INC., 207 Washington St., Northvale, NJ 07647, Tel: 201-768-8082, TWX: 710-991-8585; *Sls. Mgr.:* Ralph Glasgal; *Dist. Mgr.:* Al Harnisch

GLASSEAL PRODUCTS INC., HCC Industries, 16311 Ventura Blvd., Encino, CA 91436, Tel: 201-370-9100, TWX: 710-723-8314; Empl.: 150; *Sls. Mgr.:* Carlton C. Applegate

GLASSMAN
HIGH VOLTAGE INC.

GLASSMAN HIGH VOLTAGE INC., P.O. Box 551, Salem Indl. Pk., Whitehouse Sta., NJ 08889, Tel: 201-534-9007, TWX: 710-480-2839; Empl.: 60; *Sls. Mgr.:* John R. Belden .... **D•1234-1235, 1648-1651**

Local Sales Offices & Reps

AZ	Scottsdale, Power Specialists	602-996-4100
CA	Los Alamitos, Power Specialists	213-594-9418
CA	San Diego, Power Specialists	619-586-1160

GLATZER INDUSTRY CORP., 15 River St., New Rochelle, NY 10801, Tel: 914-576-2700; Empl.: 15

GLENAIR INC., 1211 Air Way, Glendale, CA 91201-2497, Tel: 818-247-6000, Telex: 67-3485, TWX: 910-497-2066; FSC No.: 06324; Empl.: 485; *Sls. Mgr.:* Ronald E. Platz

GLENMARC MFG., 330 Melvin Dr., Northbrook, IL 60062, Tel: 312-272-9030, Telex: 28-3499; Empl.: 13; *Sls. Mgr.:* David Greenwood

GLOBAL SPECIALTIES, Interplex Electronics, Inc., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509, Tel: 203-624-3103, TWX: 710-465-1227; Empl.: 125; *Sls. Mgr.:* Frank Gregorio; *Dist. Mgr.:* Nevin Garland/Claude Roux

Local Sales Offices & Reps

AZ	Phoenix, More Sls., Inc.	602-265-9201
CA	Cambell, Lco Tech. Sls.	408-378-9900
CA	Manhattan Beach, Ray Garneau Co.	213-376-5712
CA	San Francisco, Global Specialties Corp.	415-648-0611
CO	Denver, West High Tech.	303-477-8180
CT	Madison, Eastronix, Inc.	203-421-4514
FL	Lakeworth, Adams & Assocs.	305-588-7630
GA	Marietta, Adams & Assocs.	404-973-0853
IL	Park Ridge, Bob Burns & Assocs.	312-775-1233
IN	Indianapolis, STB & Assocs.	317-844-9227
MA	Bedford, Eastronix	617-275-5775
MI	Warren, Burcaw Co.	313-573-4605
MS	Hattiesburg, Mfg. Sls. & Mktg.	601-264-4755
MO	Kansas City, Forristal-Young Sls.	816-358-6771
NE	Omaha, Forristal Young Sls. Co., Inc.	402-333-0800
NJ	Englewood, Baum & Epstein	212-564-4105
NY	Grand Island, L. J. H. McTaggart Assocs.	716-773-9222
NY	New York, Baum and Epstein	212-564-4105
NC	Greensboro, Adams & Assocs.	919-272-6838
OH	Chesterfield, K. T. Depco	216-729-3588
OH	Westchester, K. T. Depco	513-381-0232
OK	Tulsa, ION Assocs.	918-664-0186
PA	Doylestown, Tech. Instr.	215-345-4110
PA	Pittsburgh, K. T. Depco	412-367-1011
TX	Grand Prairie, ION Assocs.	212-647-8225
WA	Tumwater, Global Spec. - San Fran. Office	415-648-0611

GLOBE BATTERY DIV., See Johnson Controls, Globe Battery Div.

GLOBE PLASTICS, 1342 S. Signal Dr., Pomona, CA 91766, Tel: 714-623-2747; FSC No.: 21071; Empl.: 27; *Sls. Mgr.:* J. R. Humphreys

GLOBE UNION, See Johnson Controls, Globe Battery Div.

GM NAMEPLATE, INC., 2040 15th Ave. West, Seattle, WA 98119, Tel: 206-284-2200, TWX: 910-444-2053; *Sls. Mgr.:* Ed Westfall

GMR CO., 8801 Sepulveda Blvd., Los Angeles, CA 90045, Tel: 213-216-9516, Telex: 499 2468; Empl.: 87; *Sls. Mgr.:* Harvey Mushman

GNB BATTERIES INC., Ind'l. Battery Div., 2010 Cabot Blvd. W., Langhorne, PA 19047, Tel: 215-752-0555, TWX: 510-667-2056

GNT AUTOMATIC, 1560 Trapelo Rd., Waltham, MA 02154, Tel: 617-890-3305; FSC No.: 617-890-7825; Empl.: 14; *Sls. Mgr.:* K. P. Olson

GOLDEN PACIFIC ELCTRNS., INC., 1020 N. Batavia St., Ste. Q, Orange, CA 92667, Tel: 714-538-9752/9753, TWX: 910-593-1620

GOLDWELL COMPS., 1815 W. 205th St. Ste. 201, Torrance, CA 90501, Tel: 213-533-1228, Telex: 182-392; *Sls. Mgr.:* S. Komori

GOOD-ALL ELECTRIC, INC., 3725 Canal Drive, Fort Collins, CO 80524, Tel: 303-484-3080, TWX: 910-930-9015; FSC No.: 22096; Empl.: 100; *Sls. Mgr.:* Dennis M. Pearson

GORDON, CLAUD S., CO., 5710 Kenosha St., Richmond, IL 60071, Tel: 815-678-2211, Telex: 72-2427; Empl.: 260

GORDON, L., PACKAGING, 1050 S. Paca St., Baltimore, MD 21230, Tel: 301-539-6537; Empl.: 150

GORDON PRODS., 67 Del Mar Dr., Brookfield, CT 06804, Tel: 203-775-4501; Empl.: 30; *Sls. Mgr.:* Leon Najman; *Dist. Mgr.:* Leon Najman

GORDOS
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GORDOS CORPORATION, Gordos International Corp., 250 Glenwood Ave., Bloomfield, NJ 07003, Tel: 201-743-6800, TWX: 710-994-4787; Empl.: 350; *Sls. Mgr.:* Ed Barry; *Dist. Mgr.:* Ed Barry .... **B•1375-1379, 1568-1570**

Local Sales Offices & Reps

CA	Costa Mesa, Jim Pancake	714-751-6760
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CO	Wheatridge, Waugaman Assocs.	303-423-1020
CT	Orange, R. F. Duffy Assocs.	203-795-3678
NJ	Red Bank, Jack Silance	201-530-3222
NY	Pittsford, Noeth-Howsinger Assocs.	716-586-9002
NC	Peachland, D. P. McDonald	704-272-8474
OR	Aloha, Micro Sls.	503-642-1818
WA	Bellevue, Micro Sls.	206-451-0568
WI	Milwaukee, Bill Swanson	414-543-2727

Local Distributors

AL	Birmingham, Regal Controls	205-967-5770
AL	Huntsville, Pioneer	205-837-9300
AL	Huntsville, RM	205-852-1550
AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Phoenix, Be Switched	602-275-4805
AZ	Phoenix, Newark	602-957-0085
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Time	602-967-2000
CA	Buena Park, Control Design	714-521-5040
CA	Chatsworth, IEC	213-998-2200
CA	Foster City, Newark	415-572-8300
CA	Garden Grove, Advanced Digital	714-897-0319
CA	Inglewood, Newark	213-671-7066
CA	Los Angeles, Elec. Switches	213-660-1310
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	San Carlos, Control Design	415-592-4808
CA	San Diego, Elctrn. Supp.	619-693-8222
CA	Santa Clara, Manco	408-496-6611
CA	Sunnyvale, Time	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Denver, Newark	303-757-3351
CO	Wheatridge, Bell Inds.	303-424-1985
CO	Wheatridge, Hannah Hill	303-424-0108
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7130
FL	Ft. Lauderdale, Newark	305-587-2372
FL	Ft. Lauderdale, Pioneer	305-771-7520
FL	Ft. Lauderdale, Power Comps.	305-565-1614
FL	Lakeland, A. A. Elec.	813-665-6941
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, Pioneer	305-834-9090
GA	Atlanta, Control Design	404-979-3500
GA	Norcross, A. A. Elec.	404-449-8670
GA	Norcross, Newark	404-448-1300
GA	Norcross, Pioneer	404-448-1711
IL	Addison, L Comp	312-628-1400
IL	Chicago, Newark	312-784-5100
IL	Elk Grove Village, Pioneer	312-437-9680
IL	Genoa, Control Design	815-784-6515
IL	Lombard, RM	312-364-6622
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Indianapolis, Control Design	317-788-4559
IN	Indianapolis, Pioneer	317-849-7300
IN	Indianapolis, RM	317-291-7110
IA	West Des Moines, Ramco	515-225-6933
KS	Wichita, L Comp	316-265-8501
LA	New Orleans, Currier P Roser	504-734-1147
MD	Columbia, Time	301-964-3090
MD	Gaithersburg, Pioneer	301-921-0660
MA	Westboro, Future Elctrns.	617-366-2400
MA	Woburn, Newark	617-935-8350
MA	Woburn, Time	617-935-8080
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Pioneer	313-525-1800
MI	Oak Park, Newark	313-967-0600
MN	Minneapolis, Control Design	612-721-1628
MN	Minneapolis, Newark	612-331-6350
MN	Minnetonka, Pioneer	612-935-5444
MO	Kansas City, L Comp	816-221-2400
MO	St. Louis, Control Design	314-426-3150
MO	St. Louis, L Comp	314-291-6200
NE	Omaha, L Comp	402-895-5517
NJ	East Rutherford, A. A. Elec.	201-777-5477
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Pennsauken, Resco	609-662-4000
NJ	Springfield, Newark	201-376-9500, 212-349-7087
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Elctrn. Dvcs.	505-884-2950
NY	Buffalo, Summit	716-887-2800
NY	Hauppauge, JACO	516-273-5500
NY	New York, Time	516-273-0100
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rochester, Summit	716-334-8110
NC	Charlotte, Pioneer/Carolina	704-527-8188
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Pineville, Control Design	704-588-4410
NC	Shelby, Dixie Indl. Supply	704-482-5641
OH	Cleveland, Pioneer	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4153
OH	Dayton, Pioneer	513-236-9900
OH	Kettering, Elctrns. Mktg. Corp.	513-439-4711
OH	Solon, REH Elctrns.	216-248-1636
OH	Valley View, Newark	216-447-1050
OK	Tulsa, Newark	918-832-7004
OR	Beaverton, Cascade Data Mktg.	503-641-9266
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Portland, Dunn Elctrns.	503-285-0214
PA	Horsham, Pioneer	215-674-4000
PA	King of Prussia, Time Elctrns.	215-337-0900
PA	Malvern, Control Design	215-296-0150
PA	Pittsburgh, Pioneer	412-782-2300
PA	Willow Grove, Resco Elctrns.	215-659-4575
SC	Greenville, Hammond	803-233-4121
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Control Design	214-358-1441
TX	Dallas, Pioneer	214-386-7300
TX	Dallas, RM Elctrns.	214-263-8361
TX	Garland, Newark	214-494-5911
TX	Houston, Newark	713-782-4800
TX	Houston, Pioneer	713-988-5555
TX	Richardson, JACO	214-235-9575
UT	Salt Lake City, Ballard Supp. Corp.	801-972-2435
UT	Salt Lake City, Bell Inds.	801-972-6969
VA	Chester, Virginia Control Equip. Co.	804-796-3001
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, IEC	206-455-2727
WA	Bellevue, Newark	206-641-9800
WA	Kirtland, Cascade Data Mktg.	206-747-6190
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, Control Design	414-784-1015
WI	New Berlin, RM Elctrns.	414-784-4420
PR	Carolina, Newark	809-762-4490
Can	Alberta, Future Elctrns.	403-259-6408
Can	Calgary, L. A. Varah	403-255-9550
Can	Downsview, Future Elctrns.	416-663-5563
Can	Hamilton, L. A. Varah	416-561-9311
Can	Montreal, Future Elctrns.	514-694-7710
Can	Ottawa, Future Elctrns.	613-820-8313
Can	Pointe Clare, Futrue Elctrns.	514-694-7710
Can	Vancouver, Future Elctrns.	604-438-5545
Can	Vancouver, L. A. Varah	604-873-3211
Can	Winnepeg, L. A. Varah	204-633-6190

GORDOS ARKANSAS, Gordos International Corp., 1000 N. Second St., Rogers, AR 72756, Tel: 501-636-5000, TWX: 910-720-7998; *Dist. Mgr.:* Ed Barry .... **B•1380-1383**

Local Sales Offices & Reps

CA	Costa Mesa, Jim Pancake	714-751-6760
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CO	Wheat Ridge, Waugaman Assocs.	303-423-1020
CT	Orange, R. F. Duffy Assocs.	203-795-3678
MA	Braintree, R. F. Duffy Assocs.	617-848-3550
NJ	Red Bank, Jack Silance	201-530-3222
NY	Pittsford, Noeth-Honsinger	716-586-9002
NC	Peachland, D.P. McDonald	704-272-8474
OR	Aloha, Micro Sls.	503-642-1818
WA	Bellevue, Micro Sls.	206-451-0568
WI	Milwaukee, Bill Swanson	414-543-2727

Refer to Gordos Corporation, Bloomfield, New Jersey for Authorized Distributor information.

W. L. GORE & ASSOCS., INC., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002, Tel: 602-526-1290, TWX: 910-972-0969; FSC No.: 60622; *Sls. Mgr.:* Burt Chase (Intl.)

W. L. GORE & ASSOCS., 555 Paper Mill Rd., Newark, DE 19714, Tel: 302-738-4880, TWX: 510-666-0825; Empl.: 2000; *Sls. Mgr.:* A. B. Chase

GORMAN MACHINE CORP., 7 Burke Dr., Brockton, MA 02401, Tel: 617-588-2900, TWX: 710-345-0679; Empl.: 25; *Sls. Mgr.:* Kenneth P. Gorman

GORMAN-REDLICH MFG. CO., 6 Curtis St., Athens, OH 45701, Tel: 614-593-3150; Empl.: 4; *Sls. Mgr.:* Jim Gorman

GOULD INC., Corporate Headquarters, 10 Gould Center, Rolling Meadows, IL 60008; Empl.: 20,650

GOULD-AMI, Sub. Gould Inc., 3800 Homestead Rd., Santa Clara, CA 95051, Tel: 408-554-2150, TWX: 910-338-0018;910-338-0024; *Dist. Mgr.:* Judi MacGregor

GOULD INC., Circuit Protection Div., 374 Merrimac St., Newburyport, MA 01950, Tel: 617-462-6662/3131, Telex: 94-7427, TWX: 710-347-0264; *Sls. Mgr.:* Malcolm Allison

GOULD COMPION, 1101 E. University, Urbana, IL 61081, Tel: 217-384-8500

GOULD INC., Computer Sys. Div., 6901 W. Sunrise Blvd., Ft. Lauderdale, FL 33313, Tel: 305-587-2900, TWX: 510-955-9843; FSC No.: 59-0913135; Empl.: 2376; *Sls. Mgr.:* Howard Kossak; *Dist. Mgr.:* Lionel Agar (Intl.)

GOULD
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GOULD INC., Design & Test Sys. Div., 4650 Old Ironsides Dr., Santa Clara, CA 95054-1279, Tel: 408-988-6800, TWX: 910-338-0509; *Sls. Mgr.:* Dan Cockcroft .... **D•1237**

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs.	205-883-8660
AZ	Scottsdale, Barnhill Assocs., Inc.	602-947-7841
CA	Redondo Beach, Ward/Davis Assocs., Inc.	213-643-6977
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	Santa Clara, Ward/Davis Assocs.	408-245-3700
CO	Englewood, Barnhill Assocs., Inc.	303-779-4494, 303-779-3600
CT	Wallingford, Pat Jenks Assocs.	203-265-9939
FL	Ft. Lauderdale, W. A. Brown Instrs.	305-776-4800
FL	Ft. Lauderdale, W.A. Brown Instrs.	305-949-1022, 305-776-4800
FL	Melbourne, W.A. Brown Instrs.	305-723-0835, 305-723-0766
FL	Orlando, W.A. Brown Instrs.	305-425-5505
GA	Norcross, W. A. Brown Instrs.	404-441-2980
IN	Indianapolis, Dytec Central	317-247-1316
KS	Lenexa, Dytec South	913-888-0215
LA	Mandeville, W. A. Brown Instrs.	504-626-9701
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MI	Farmington Hills, Carter, McCormic & Peirce, Inc.	313-477-7700
MN	Minneapolis, Sector Engrg. Sls.	612-593-1809
MO	Maryland Heights, Dytec South	314-569-2990
NE	Omaha, Dytec South, Inc.	402-345-6477
NM	Albuquerque, Barnhill Assocs., Inc.	505-299-7658
NY	De Witt, D.B. Assocs.	315-446-0220
NY	Great Neck, RTI	516-829-3770
NC	Durham, W. A. Brown Instrs.	919-479-5200
OH	Cleveland, Carter, McCormic & Peirce, Inc.	216-779-5100
OH	Englewood, Carter, McCormic & Peirce, Inc.	513-836-0951

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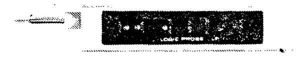

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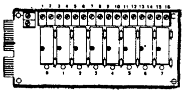

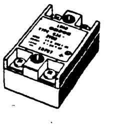

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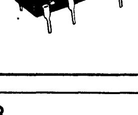

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IN	Indianapolis, Graham Elctrns.	317-634-8202
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GSE, 23640 Research Dr., Farmington Hills, MI 48024, Tel: 313-476-7875, Telex: 23-0738; Empl.: 105; *Sls. Mgr.:* Harold G. Munn

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GA	Norcross, Montgomery Mktg., Inc.	404-447-6124
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VA	Charlottesville, Electronic Sources	804-293-4041

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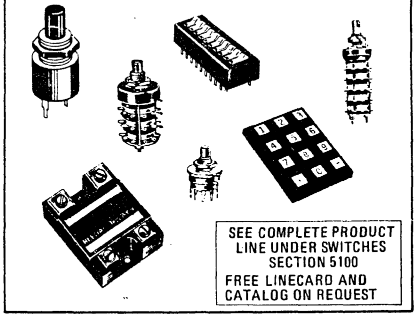

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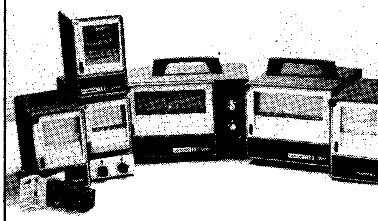

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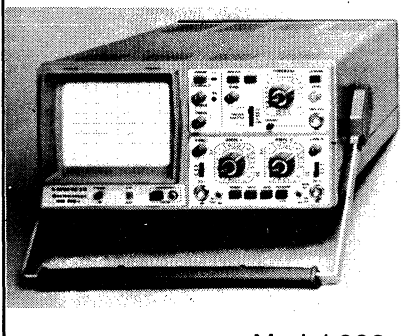

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TX	Ft. Worth, Allied Elec.	817-336-5401
TX	Houston, Electrotex	713-526-3456
TX	Houston, The Altair Co.	713-462-3029
TX	Midland, ESI Supp.	915-694-9657
TX	San Antonio, Sherman Elec.	512-224-1001
UT	Salt Lake City, Standard Elec. Supp.	801-486-3371
VT	Burlington, Greylock Elec.	802-658-5700
WA	Bellevue, Integrated Elec.	206-455-2727
WI	Mequon, Taylor Elec.	414-241-4321
WI	New Berlin, R. M. Wisconsin	414-784-4420

H&T COMPONENTS INC., H&T Components Ltd., 35 Carlough Road, Bohemia, NY 11716, Tel: 516-567-2282, Telex: 510-228-7886; *Sls. Mgr.:* Bert Freifeld; *Dist. Mgr.:* Mario Nardini .... **C•1226**

Local Sales Offices & Reps

AL	Huntsville, Advanced Comps. Mktg.	205-881-5493
AZ	Phoenix, Adtek, Inc.	602-931-9289
CA	Laguna Niguel, H & T Comps., Inc.	714-831-8705
CA	San Jose, Class One Corp.	408-297-8666
CO	Englewoood, Elctrn. Comp. Sys.	303-781-5901
CT	Milford, Todino Engrg. Sls.	203-874-6643
FL	Ft.Lauderdale, Freeman Assocs.	305-522-5606
IL	Chicago, Esco Assocs.	312-293-5310
KS	DeSoto, Midtec Assocs.	913-441-6565
LA	Hammond, Design Mktg.	504-296-3076
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Needham Heights, Todino Engrg. Sls.	617-444-7925
MI	Birmingham, Favco	313-644-0173
MN	Minneapolis, D. A. Case Assocs.	612-869-3700
MO	Florissant, Midtec Assocs.	314-837-5200
NY	Hackensack, Meg Elctrns.	201-489-7700
NY	Syracuse, Advanced Comp. Corp.	315-699-2671
NC	Raleigh, McGee Assocs.	919-781-9579
OH	Akron, Augnat Assocs.	216-273-1211
OR	Beaverton, Eclipse Mktg.	503-642-1661
TX	Hurst, Design Mktg.	817-268-2004
UT	Salt Lake City, Charles Fields & Assocs.	801-531-6177
VA	Richmond, Delta III Assocs.	804-771-9204
WA	Redmond, Eclipse Mktg.	206-885-6991

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Tempe, Pacer Elctrns.	602-829-0330
AZ	Tucson, Inland Elctrn. Supp.	602-294-2628
AZ	Tuscon, Southwest Sls.	602-628-1613
CA	Canuga Park, Tim-Co	818-992-5040
CA	Corona, Konex Corp.	800-821-8021
CA	Cypress, On-Line Elctrns.	714-826-8200
CA	Huntington Beach, California Connector & Cable	714-895-3990
CA	Mountain View, Bell Inds.	415-960-1440
CA	S. San Francisco, Peters deLaet	415-873-9595
CA	San Diego, D. Squared Sls.	619-560-6266
CA	San Jose, Cablecon	408-298-3011
CA	Santa Ana, C. R. Elctrns.	714-556-2040
CA	Van Nuys, Mil-Conn Dvcs., Inc.	818-782-2644
CO	Englewood, Colorado Computer Cable	303-789-1869
CT	Bridgeport, Accurate Elctrns.	203-366-0214
CT	Bridgeport, Millennium Elctrns.	203-372-2037
FL	Ft. Lauderdale, Simcona	305-485-4455
GA	Norcross, Whitehead Elctrns.	404-923-6667
IL	Lisle, Components, Inc.	312-852-7707
LA	Lafayette, Ralphs Indl. Elctrn. Supp.	318-234-4507
MD	Baltimore, Pyttronic Inds.	301-792-0780
MA	Hopkinton, Interface Elctrns.	617-435-6858
MA	Lowell, Colonial Wire & Cable	617-459-6400
MA	Wilmington, Aved Elctrns.	617-657-8310
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MN	Shore View, Northern Automatic	612-481-0022
NH	Manchester, Components North	603-624-4661
NY	Buffalo, Summit Distrs.	800-462-1880
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Broadline Elctrns.	516-231-4100
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Dayton, Televox, Inc.	513-294-4499
OR	Beaverton, Murphy Elctrns.	503-642-2001
PA	Montgomeryville, Pyttronic Inds.	215-242-6700
TN	Knoxville, Mac-1 Elctrns.	615-966-4143
TX	Dallas, Computer Comps.	214-239-0271
TX	Houston, Ralphs Indl. Elctrn. Supp.	713-748-4902
UT	Salt Lake City, Pen-Tec Entprs.	801-972-4817
WA	Redmond, Murphy Elctrns.	206-881-1234

HANDY & HARMAN, 850 Third Ave., New York, NY 10022, Tel: 212-752-3400; Empl.: 800; *Sls. Mgr.:* C. P. Zitzmann

HANDY & HARMAN ELCTRN. MATLS. CORP., 72 Elm St. N., Atteboro, MA 02760, Tel: 617-695-1401, Telex: 6711549; Empl.: 600

HANKSCRAFT MOTORS, Div. of Gerber Prods. Co., P.O. Box 120, Reedsburg, WI 53959, Tel: 608-524-4341; Empl.: 550

HANSCOM, H. F., CO., INC., 225 Chapman St., Providence, RI 02905, Tel: 401-941-1455, Telex: 952107; Empl.: 50; *Sls. Mgr.:* William E. Taplin

HAPCO, Box 1205, Boulder, CO 80302, Tel: 303-447-0441; Empl.: 8; *Sls. Mgr.:* Allen Lopez

HARBISON INDL. PRODS., Sub. of Polymer Corp., 7205 Hibbs La., Levittown, PA 19057, Tel: 215-943-9000; Empl.: 65

HARDIGG INDS., INC., North Main St., South Deerfield, MA 01373, Tel: 413-665-2163, Telex: 955431; FSC No.: 11214; *Dist. Mgr.:* Warren H. Bickford

HARDMAN INC., 600 Cortlandt St., Belleville, NJ 07109, Tel: 201-751-3000, TWX: 710-995-4940; Empl.: 105; *Sls. Mgr.:* Carl T. Sanford

HAROWE SERVO CONTROLS, Bowmar Inst. Corp., Westtown Rd. at West Chester Pike, W. Chester, PA 19380, Tel: 215-692-2700, Telex: 83-5486, TWX: 510-663-0335; FSC No.: 06989; Empl.: 329; *Sls. Mgr.:* Dennis B. Daisy/Chuck Burgess

HARREL, INC., 16 Fitch St., E. Norwalk, CT 06855, Tel: 203-866-2573; *Sls. Mgr.:* W. Becker .... **D•1122**

Local Sales Offices & Reps

CA	Sherman Oaks, Windsor Dynamics	213-990-4173
CA	Walnut Creek, Viking Instr.	415-946-1226
NY	Cazenovia, P. M. Decew, Inc.	315-655-8602
NC	Pineville, Beck Sls.	704-542-9329
OH	Medina, Odessa Instr. Co.	216-725-0575
PA	Elkins Park, Edwin F. Gregg	215-635-0450
TN	Knoxville, Robert Olsen Co.	615-688-4038

HARRIS CALORIFIC, Emerson Electric Co., 400 Clark St., Elyria, OH 44036, Tel: 216-961-5700; *Sls. Mgr.:* Phil Preuninger

HARRIS CIRCUITS MFG., 2706 Colley Ave., Norfolk, VA 23517, Tel: 804-467-1116; Empl.: 15

HARRIS CORP., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309, Tel: 305-974-1700, TWX: 510-956-3096; FSC No.: 29436; Empl.: 1000; *Sls. Mgr.:* Frank P. Carollo

HARRIS CORP., Dracon Div., 809 Calle Plano, Camarillo, CA 93010, Tel: 805-987-9511, Telex: 182327; Empl.: 400; *Sls. Mgr.:* Tom Erdmann; *Dist. Mgr.:* Keith Boutillier

Local Sales Offices & Reps

CA	Anaheim, Marlene Chase	714-921-1156
CA	Cypress, Keith Boutillier	714-892-1439
CA	Fremont, Dave Buechner	415-490-2816
CO	Denver, Richard Jones	303-337-7779
FL	Eustis, Jeff Hearsey	904-589-4412
IL	Rantoul, Howard Darnell	217-897-6666
MO	Lake Ozark, Gary Foster	314-365-5055
NJ	Oak Ridge, J. B. Behan	201-697-5222

HARRIS CORP., PRD Elctrns. Div., 6801 Jericho Tpke., Syosset, NY 11791, Tel: 516-364-0400, TWX: 510-222-4494; FSC No.: 77327; Empl.: 1,850; *Sls. Mgr.:* R. A. Lebowitz

HARRIS MICROWAVE SEMICONDUCTOR, 1530 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-262-2222, TWX: 910-338-2247

HARRIS SEMICONDUCTOR, Box 883, Melbourne, FL 32901, Tel: 305-724-7400, TWX: 510-959-6259; FSC No.: 34371; Empl.: 2300; *Sls. Mgr.:* Dan McCranie; *Dist. Mgr.:* Charles H. Beaty

HARSHAW FILTROL PARTNERSHIP, 1945 E. 97th St., Cleveland, OH 44106, Tel: 216-721-8300; *Sls. Mgr.:* Robert Anfang

HARTLEY PRODS., 620 Island Rd., Ramsey, NJ 07446, Tel: 201-327-4443; *Sls. Mgr.:* R. Schmetterer

HARTMAN SYSTEMS, Figgie Intl., 360 Wolf Hill Rd., Huntington Sta., NY 11746, Tel: 516-427-7500, TWX: 510-226-6982; FSC No.: 92220; Empl.: 310; *Sls. Mgr.:* Robert Griffith

HARTWELL CORP., 900 S. Richfield Rd., Placentia, CA 92670, Tel: 714-993-4200, Telex: 683-485, TWX: 910-596-1294; FSC No.: 83014; Empl.: 425

HARWIL, 1548 17th St., Santa Monica, CA 90404, Tel: 213-829-2310; Empl.: 8

HASCO COMPONENTS, INC., 247-40 Jericho Tpke., Bellrose Village, NY 11001, Tel: 516-328-9292, TWX: 710-582-5750; Empl.: 6; *Sls. Mgr.:* Tab Hauser .... **B•1390-1396, 1589-1591**

HAVERLY SYSTEMS, INC., 78 Broadway, Denville, NJ 07834, Tel: 201-627-1424, Telex: 710-987-8402; Empl.: 33; *Sls. Mgr.:* Wm. Parkins

HAYDON SWITCH & INSTR., 1500 Meriden Rd., P.O. Box 3329, Waterbury, CT 06705, Tel: 203-756-7441, Telex: 643852 - HSIINTLWBY; FSC No.: 02005; Empl.: 350; *Sls. Mgr.:* Scott Moulton

HAZELTINE CORP., 500 Commack Rd., Commack, NY 11725, Tel: 516-462-5100, Telex: 64-0525, TWX: 510-226-0239; Empl.: 2,500

H-A-Z LABORATORIES, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882, Tel: 201-689-0110; *Sls. Mgr.:* Henry Zajac

HBS EQUIPMENT DIV., 3000 Supply Ave., Los Angeles, CA 90040, Tel: 213-726-3033, TWX: 910-580-3179; Empl.: 40; *Sls. Mgr.:* K. Lowery

HDR POWER SYS., INC., 600 Oakland Park Ave., Columbus, OH 43214, Tel: 614-262-6832, Telex: 246524; Empl.: 41; *Sls. Mgr.:* Harlan W. Bates

HDS INC., 12310 Pinecrest Rd., Reston, VA 22091, Tel: 703-620-6200, Telex: 64585; Empl.: 65

HEADWAY RESCH., INC., 3713 Forest La., Garland, TX 75042, Tel: 214-272-5431, Telex: 73-0257; Empl.: 50; *Sls. Mgr.:* Mina Kelly

Local Sales Offices & Reps

CA	Santa Clara, California Tech. Serv.	408-496-1156, 408-496-1157
CA	Tarzana, California Tech. Serv.	818-343-3131
PA	Haverford, Blason Ent., Inc.	609-767-6733

HEATH CO., Benton Harbor, MI 49022, Tel: 616-982-3886, Telex: 72-9421

HEAT SYSTEMS-ULTRASONICS, INC., 1938 New Hwy., Farmingdale, NY 11735, Tel: 516-694-9555, Telex: 14-3101; *Sls. Mgr.:* Irwin Leibson

HECON CORP., 31 Park Rd., Tinton Falls, NJ 07724, Tel: 201-542-9200, Telex: 13-2457; Empl.: 200; *Sls. Mgr.:* P. Shine; *Dist. Mgr.:* R. Drum

HEI CORPORATION, 290 S. Main Place, Carol Stream, IL 60188, Tel: 312-665-5500; Empl.: 8

HEI, INC., 1495 Steiger Lake La., Victoria, MN 55386, Tel: 612-443-2500, TWX: 910-578-3961; Empl.: 175; *Sls. Mgr.:* R. D. Young .... **B•1211**

Local Sales Offices & Reps

AL	Huntsville, REP, Inc.	205-881-9270
AZ	Phoneix, Toward Engrg.	602-955-3193
CA	Brea, MASCO	714-529-0866
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Vista, MASCO	619-758-5562
CO	Denver, Ausco Sls.	303-750-3846
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBC Elctrns.	305-831-5380
GA	Tucker, REP, Inc.	404-938-4358
IL	Schaumburg, Micro-Tex	312-885-1131
KS	De Soto, Midtec Assocs.	913-441-6565
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
NH	Salem, Sls. Engrg.	603-893-5521
NJ	Pitman, Colrud Corp.	609-589-5866
NY	Kingston, D. L. Eiss Assocs.	914-338-7588
NY	Massapequa, Coughlin Assoc.	516-799-7743
NY	Rochester, D. L. Eiss Assocs.	716-328-3000
NC	Raleigh, REP, Inc.	919-851-3007
OH	Rocky River, Norm Case Assocs.	216-333-0400
TN	Jefferson City, REP, Inc.	615-475-9012
TX	Austin, Quad State Mktg.	512-282-2046
TX	Dallas, Quad State Mktg.	214-680-0411
VA	Reston, Colrud Corp. South	703-620-6612
WA	Bellevue, Comtec	206-453-1188
WI	Waukesha, Micro-Tex	414-542-5352
Can	Oakville, Ont., Haltronics, Ltd.	416-844-2121

HEINEMANN ELEC. CO., Brunswick Pike, Alt. Rte. #1, P.O.Box 6800, Lawrenceville, NJ 08648-0800, Tel: 609-882-4800, Telex: 843431; FSC No.: 74193; Empl.: 625; *Sls. Mgr.:* N. J. Alzamora .... **B•1236-1237**

Local Sales Offices & Reps

AL	Birmingham, Austin Brown Assocs. Inc.	205-822-6198
AL	Mobile, Austin Brown Assocs., Inc.	205-344-0728
AZ	Phoenix, O'Donnell Assocs. SW	602-944-9542
CA	Chatsworth, Porter Co.	818-700-0808
CA	San Diego, Porter Co.	619-275-0641
CA	San Jose, O'Donnell Assocs. No.	408-263-6500
FL	Deerfield Beach, Conley & Assoc.	305-421-7180
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Atlanta, Austin Brown Assocs. Inc.	404-457-6381
IL	Chicago, D. Dolin Sls.	312-498-6770
IN	Ft. Wayne, O.H. Bromberg & Assocs.	219-456-6010
KY	Louisville, O.H. Bromberg & Assocs.	502-245-8916
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Framingham, Sullivan Tech. Sls.	617-620-0195
MI	Southfield, L. H. Dickelman Co.	313-353-8210
MN	Minneapolis, Furber Sls. Co., Inc.	612-881-3620
MO	Creve Coeur, Hill & Co.	314-432-1136
NJ	Ridgewood, Ballou, Inc.	201-444-6990
NY	Rochester, Canavan-Scanlon	716-424-1830
NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Charlotte, J. Rudisill Assocs.	704-377-6901
OH	Cincinnati, O.H. Bromberg & Assocs.	513-771-9333
OH	Cleveland, Brown Elect. Prod.	216-331-2072
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Dayton, O. H. Bromberg & Assocs.	513-434-8788
PA	Allison Park, KW Electrn. Sls.	412-487-4300
PA	Washington Crossing, DVS Co.	215-493-4642
TN	Brentwood, Austin Brown Assocs. Inc.	615-373-2068
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415
WA	Mercer Island, Andersen Assocs.	206-232-0484
WI	Elm Grove, Key Entpr.	414-784-3390

Local Distributors

AL	Montgomery, Southern Controls	205-277-5030
CA	Burlingame, Campbell & George	415-697-2965
CA	Chatsworth, POCO Sls.	818-700-8727
CA	San Jose, Cazco Sls.	408-263-6503
CO	Denver, CSID Inc.	303-292-9594
CT	Hartford, L. E. Whelan Co.	203-246-5694
CT	New Haven, Green Shaw Co.	203-397-0710
FL	Oviedo, Dixie Sls.	305-365-5211
IL	Chicago, Nedco Elctrns.	312-286-5565
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Edwardville, C. Tennant & Sons	913-441-1801
MA	Boston, Apparatus Svc.	617-787-1300
MA	Newton, Green Shaw Co.	617-969-8900
MI	Southfield, Michigan Lectrols Corp.	313-353-1350
MN	Minneapolis, Northland Elec. Supp.	612-341-6100
NH	Hudson, C & H Elctrns.	603-882-1133
NY	Syracuse, Baldwin Hall	315-463-9251
NY	Whitestone, Power Electro Supp. Co.	212-767-1447
NC	Charlotte, Joyce Sls. Co.	704-377-1555
OH	Cincinnati, Cartessa Corp.	513-385-7700
OH	Dayton, Duellman Elec.	513-461-5010
OH	Dayton, Stotts Friedman Co.	513-298-5555
OH	Solon, REH Electrns.	216-248-1636
OH	Valley View, Newark Elctrns.	216-447-8860
OR	Portland, Taylor Elec.	503-233-5321
PA	Washington Crossing, Riverside Comps.	215-493-5228
PA	West Chester, West Chester Elec. & Electrn.	215-696-7500
TN	Chattanooga, Techni-Tronics	615-875-5449
TX	Dallas, Geeco Sls. Co.	214-341-2626
VA	Charlottesville, Va. Radio Supp. Co. Inc.	804-296-4184
VA	Richmond, General Elec. Supp.	804-358-4941

HEINEMANN ELECTRIC CO., P.O. Box 6800, Lawrenceville, NJ 08648-0800, Tel: 609-882-4800

HEITZ, KARL, INC., P.O. Box 427, Woodside, NY 11377, Tel: 718-565-0004; Empl.: 15

HELICAL PRODS. CO., INC., Box 1069, Santa Maria, CA 93456, Tel: 805-928-3851, TWX: 910-351-5856; FSC No.: 13201; Empl.: 55

HELIONETICS, INC., DECC Div., 17312 Eastman St., Irvine, CA 92714, Tel: 714-546-4731, 800-421-7915, TWX: 910-595-2829; *Sls. Mgr.:* R. S. Tullock

HELLESENS BATTERY ENGRG., INC., A/S Hellesens, 1636 Hyde Park Ave., Hyde Park, MA 02136, Tel: 617-361-7555, Telex: 294116 BOSTELEX; FSC No.: 617-361-1835; *Sls. Mgr.:* James Epstein

HELM INSTR. CO., INC., 1387 Dussel Drive, Maumee, OH 43537, Tel: 419-893-4356, Telex: 28-6078

HENES PRODS., 4301 E. Madison St., Phoenix, AZ 85034, Tel: 602-275-4126; Empl.: 25

HENSCHEL, General Signal Corp., 9 Hoyt Drive, P.O. Box 30, Newburyport, MA 01950, Tel: 617-462-2400, Telex: (RCA) 294074; FSC No.: 28199;Multiple; Empl.: 190

HERAEUS-VOLKERT INC., 222-34 96th Ave., Queens Village, NY 11429, Tel: 212-464-8400, Telex: 142338; Empl.: 250

HERBERT PRODS. INC., 180 Linden Ave., Westbury, NY 11590-0384, Tel: 516-334-6500, TWX: 510-222-5963; Empl.: 98; *Sls. Mgr.:* L. C. Peshkin

HERMETIC SEAL, 4232 Temple City Blvd., Rosemead, CA 91770, Tel: 818-283-0411, TWX: 910-587-3352; FSC No.: 04820; Empl.: 220

HERMETIC SWITCH, Box 1325, Hwy. 92, Chickasha, OK 73018, Tel: 405-224-4046, Telex: 796125 Hermetic CKSA; Empl.: 150; *Sls. Mgr.:* E. R. Andrus .... **B•1592**

Local Sales Offices & Reps

CA	Arcadia, V. Gott & Assocs.	818-445-9728
CA	San Diego, V. Gott & Assocs.	612-272-8452
GA	Atlanta, Electro Technlg. Prods.	404-458-4427
MD	Timonium, Heller Sls.	301-252-4780
MA	Canton, New England Elctrn. Sls.	617-828-4835
MN	Minneapolis, Peterson Sls. & Assocs.	612-944-0030
NY	Oceanside, Current Inds.	516-678-3895
NY	Rochester, Electronic Mktg. Assocs.	716-427-8115
OR	Beaverton, LD Elctrns.	503-649-8556
PA	Furlong, Avenir	215-348-8290
TX	Austin, R. F. Kimball Co.	800-442-4506
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns. .... (Boise, ID #)	208-343-2741

HERTNER DIV., 12690 Elmwood Ave., Cleveland, OH 44111, Tel: 216-252-4242, Telex: 98-5552; Empl.: 125; *Sls. Mgr.:* S. Steven

HERTZ FILTER, 3 Aerial Way, Syosset, NY 11791, Tel: 516-822-4770; Empl.: 22

HEURIKON CORPORATION, 3201 Latham Dr., Madison, WI 53713, Tel: 800-356-9602, 608-271-8700, Telex: 469532; Empl.: 80; *Sls. Mgr.:* Ed DeWitt .... **D•1091**

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Tempe, Mar Tech Assocs.	602-968-4944
CA	Concord, Qualtech	415-680-1800
CA	N. Hollywood, Qualtech	818-765-1419
CA	Orange, Qualtech	714-639-9820
CA	Palo Alto, Qualtech	415-494-9060
CA	San Diego, Mesa Engrg. & Sls.	619-278-8021
CA	Sunnyvale, Qualtech	408-732-4800
CO	Aurora, Par Assocs.	303-363-6636
CO	Denver, PAR Assocs.	303-371-4140
GA	Atlanta, Magaro & Assocs.	404-451-8862
IN	Indianapolis, CMP, Inc.	317-844-4175
KS	Kansas City, Panatek	913-362-3349
KS	Prairie Village, Panatek	913-362-3349
MD	Rockville, Spectro Assocs.	301-294-9770
MA	Brockton, Daner-Hayes, Inc.	617-538-0598
MA	Canton, Daner-Hayes, Inc.	617-828-1997
MA	Concord, Daner-Hayes, Inc.	617-828-1997
MA	Waltham, Daner-Hayes	617-894-7290
MA	Wayland, Daner-Hayes, Inc.	617-655-0888
MA	Weston, Daner-Hayes, Inc.	617-891-5548
MI	Detroit, CMP, Inc.	313-477-7700
MN	Minneapolis, Micro Resources Corp.	612-830-1454
NJ	Glen Gardner, Daner-Hayes, Inc.	201-537-4534
NJ	Scotch Plains, Daner-Hayes, Inc.	201-889-4515
NM	Albuquerque, Mar Tech Assocs.	505-821-2775
NY	Brewster, Daner-Hayes, Inc.	914-279-2168
NY	Rochester, Daner-Hayes, Inc.	716-288-0921
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Cincinnati, Applied Data Mgmt.	513-579-8108
OH	Cleveland, CMP, Inc.	216-779-5100
OH	Dayton, CMP, Inc.	513-836-0951
OK	Stillwater, Acudata, Inc.	405-743-1886
PA	Doylestown, Daner-Hayes, Inc.	215-345-6056
PA	Pittsburgh, CMP, Inc.	412-372-4415
TX	Dallas, Acudate, Inc.	214-424-3567
TX	Houston, Acudata, Inc.	713-580-2451
TX	Plano, Acudata	214-424-3567
TX	Austin, Acudata, Inc.	512-478-1018
UT	Centerville, PAR Assocs.	801-292-8145
UT	Salt Lake City, Par Assocs.	801-537-1900
VT	White River Junction, Daner-Hayes, Inc.	802-295-5260
WI	Madison, Heurikon Corp.	608-271-8700
Intl	Japan, Tokyo, NPS, Inc.	Telex-781/27832
Intl	UK, Thame, Oxon, Thame Sys. Lt.	011-44-84-421-5471
Intl	W. Germany, Munchen, Tekelec Airtronic	011-49-89-59-4621
Can	Nepean, Ont., Multilek, Inc.	800-267-1070
Can	Ottawa, Multilek, Inc.	613-226-2365

HEWLETT-PACKARD CO., P.O. Box 301, 815 Southwest 14th St., Loveland, CO 80537, Tel: 303-667-5000

HEWLETT-PACKARD CO., 1820 Embarcadero Rd., Palo Alto, CA 94303, Tel: Call Local Sls. Off.; Empl.: 68,000 .... **D•1653-1656**

Local Sales Offices & Reps

AL	Birmingham	205-881-6802
AL	Huntsville	205-830-2000
AZ	Phoenix	602-273-8000
AZ	Tucson	602-573-7400
CA	Brisbane	415-330-2500
CA	Fresno	209-252-9652
CA	Fullerton	714-999-6700
CA	Goleta	805-967-3405
CA	Lawndale	213-970-7500
CA	Los Angeles	213-643-7500
CA	Palo Alto	415-857-8000
CA	Sacramento	916-929-7222
CA	San Diego	714-279-3200
CA	San Ramon	415-838-5900
CA	Santa Ana	714-641-0977
CA	Santa Clara	408-988-7000
CA	Westlake Village	213-706-6800
CO	Englewood	303-649-5000
CT	Bridgeport	203-371-6454
CT	Wallingford	203-265-7801
FL	Ft. Lauderdale	305-973-2600
FL	Jacksonville	904-398-0663
FL	Orlando	305-859-2900
FL	Pensacola	904-476-8422
FL	Tampa	813-884-3282
GA	Atlanta	404-955-1500
HI	Honolulu	808-526-1555
IL	Bloomington	309-662-9411
IL	Chicago	312-930-0010
IL	Naperville	312-357-8800
IL	Rolling Meadows	312-255-9800
IN	Carmel	317-844-4100
IA	Cedar Rapids	319-390-4250
IA	West Des Moines	515-224-1435
KY	Louisville	502-426-0100
LA	Kenner	504-467-4100
MD	Baltimore	301-644-5800
MD	Rockville	301-948-6370
MA	Andover	617-682-1500
MA	Lexington	617-861-8960
MI	Grand Rapids	616-957-1970
MI	Novi	313-349-9200
MI	Troy	313-643-6474
MN	St. Paul	612-644-1100
MO	Bridgeton	314-344-5100
MO	Kansas City	816-941-0411
NE	Omaha	402-334-1813
NJ	Paramus	201-265-5000
NJ	Piscataway	201-981-1199
NM	Albuquerque	505-292-1330
NY	Albany	518-458-1550
NY	Clarence	716-759-8621
NY	Fairport	716-223-9950
NY	Liverpool	315-451-1820
NY	Manhattan	212-971-0800
NY	Syracuse	315-455-2486
NY	White Plains	914-684-6100
NY	Woodbury	516-921-0300
NC	Cary	919-467-6600
NC	Charlotte	704-527-8780
NC	Greensboro	919-852-1800
OH	Cincinnati	513-891-9870
OH	Cleveland	216-243-7300
OH	Miamiburg	513-859-8202
OH	Westerville	614-436-1041
OK	Oklahoma City	405-446-9499
OK	Tulsa	918-665-3300
OR	Wilsonville	503-682-8000
PA	Harrisburg	717-657-5900
PA	Pittsburgh	412-782-0400
PA	Valley Forge	215-666-9000
SC	Columbia	803-732-0400
SC	Greenville	803-297-4120
TN	Knoxville	615-966-4747
TN	Memphis	901-346-8370

TN	Nashville	615-255-1271
TX	Austin	512-835-6771
TX	El Paso	915-833-4400
TX	Fort Worth	817-232-9500
TX	Houston	713-776-6400
TX	Irvine	214-556-1950
TX	Richardson	214-231-6101
TX	San Antonio	512-494-9336
UT	Salt Lake City	801-974-1700
VA	Richmond	804-747-7750
WA	Bellevue	206-643-4000
WA	Spokane	509-922-7000
WV	Charleston	304-925-0492
WI	Brookfield	414-784-8800

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HEXACON ELEC., 161 W. Clay Ave., Roselle Park, NJ 07204, Tel: 201-245-6200, Telex: 13-8812; Empl.: 150; *Sls. Mgr.:* Robert L. Miller .... **C•1739**

Local Sales Offices & Reps

AL	Huntsville, BJR Mfrs. Reps.	205-881-3569
AZ	Tucson, Ross IV Assocs.	602-299-1425
CA	Newport Beach, Ross IV Assocs.	714-650-5542
CA	Sunnyvale, J. F. Pell Co.	408-730-5869
CO	Littleton, Production Equip. Sls.	303-795-5022
CT	E. Woodstock, H & M Assocs.	203-928-9442
FL	Merritt Island, J. A. Kennedy Co.	305-452-9821
IL	Elk Grove Village, Bradley Reps.	312-228-8450
IN	Indianapolis, Bradley Reps, Ind.	317-631-3106
MD	Phoenix, B&W Mktg.	301-592-8907
MN	Edina, Pec/Levi	612-944-8540
NJ	Jersey City, Dunn & Bryan	201-963-4478
NY	New Hartford, V. Clair	315-735-8122
OH	Solon, KDF Co.	216-248-8010
OR	Gladstone, Northcoast Mfrs. Agy. II	503-657-9427
PA	West Chester, B&W Mktg.	215-692-7155
TX	Dallas, P. J. Scanlon	214-231-4661
WA	Seattle, Northcoast Mfrs. Agy.	206-284-5024
EXP	NY, New York, W. D. Blood & Co.	212-344-0210

HEYCO

HEYCO MOLDED PRODUCTS, Box 160, Kenilworth, NJ 07033, Tel: 201-245-0033, 800-526-4182, Telex: 844771; FSC No.: 28520; Empl.: 135 .... **C•1227**

Local Distributors

Intl	Australia, Kilkenny, Werner Elctrn. Inds.	268-2766
Intl	Austria, Braunau/Inn, Albert Berner	07722-2211
Intl	Belgium, Bruxelles, N.V. Beluma S.A.	02-427-42-15
Intl	Denmark, Herlev, Harttung Fasteners A/S	02-84-11-00
Intl	England, Wimborne, Heyco Mfg.	0202-89-68-28
Intl	Finland, Tampere, United Shoe Mach.	28-180
Intl	France, Paris, M.F.O.M.	205-67-39
Intl	Germany, Giessen, Heyman Mfg.	0641-76250
Intl	Hong Kong, North Point, S & T Entprs.	5-784-0921
Intl	Israel, Tel Aviv, Helet Trading Ltd.	216-157
Intl	Italy, Milan, Elektrozubehor	02-74-90-541
Intl	Japan, Tokyo, Hakuto Co. Ltd.	03-341-2611
Intl	Korea, Seoul, Phoenix Corp.	261-5768
Intl	Mexico, Mexico City, Retenes y Refacciones Ind.	5-754-0503
Intl	Netherlands, Diemen, Onkenhout & Onkenhout B.V.	020-90-40-40
Intl	Norway, Oslo, United Shoe Mach.	02-21-86-50
Intl	S. America, Columbia - Cordoba, Ira Export	40-4648
Intl	Singapore, 1334, S & T Entprs.	745-9235
Intl	South Africa, Durban, Three-D Agencies	23-42-61
Intl	South Africa, Johannesburg, Three-D Agencies	825-5065
Intl	South Africa, Port Elizabeth, Three-D Agencies	52-1644
Intl	Sweden, Orebro, United Shoe Mach.	019-12-42-30
Intl	Switzerland, Hunzenschwil, Agro AG	064-472-61
Intl	Taiwan, Taipei, Shigma Inc.	771-3403
Can	Toronto, Ont., Cords Canada	416-787-1114

HGA ELCTRNS., 519 S. Fifth Ave., Mt. Vernon, NY 10550, Tel: 914-664-5393; Empl.: 2

HH CONTROLS CO., INC., 16 Frost St., Arlington, MA 02174, Tel: 617-646-2626; Empl.: 13

HHK IND., Telan Intl., Rte. 611, P. O. Box 690, Plumsteadville, PA 18949, Tel: 215-766-0990; *Sls. Mgr.:* Fred Yodis; *Dist. Mgr.:* Fred Yodis

HICKOK ELEC. INSTR., 10514 DuPont Ave., Cleveland, OH 44108, Tel: 216-541-8060, TWX: 810-421-8286; Empl.: 450; *Sls. Mgr.:* Norm Holliday; *Dist. Mgr.:* Jeff Snider

HICO HORIZONS INTL. CO., See Maxon Precision Motors

HI G, CO., INC., 580 Spring St., Windsor Locks, CT 06096, Tel: 203-623-2481

HI-G COMPANY, A Subsidiary of Nytronics Inc., 101 Locust St., Hartford, CT 06114, Tel: 203-522-8600, Telex: 643394, TWX: 710-425-1379; FSC No.: 02289; Empl.: 550; *Sls. Mgr.:* J. Parsons .... **B•1398-1407**

Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Westrep	408-988-8833
CO	Englewood, Omega	303-762-1921
FL	Melbourne, Beacon	305-724-8010
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Fort Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Woburn, Astrorep New England	617-938-6692
MI	Ann Arbor, Elliott Sls. Co.	313-662-4087
MN	St. Paul, Repco	612-642-2828
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NE	Lincoln, Lorenz Sls.	402-475-4660
NJ	Perth Amboy, Astrorep	201-826-8050
NY	Babylon, Astrorep	516-422-2500
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Ronkonkoma, Hallmark Elctrns.	516-737-0600
NC	Greensboro, L & D Inc.	919-292-3201
OH	Miamisburg, Elctrns. Comps., Inc.	513-866-3340
OK	Tulsa, Bonser-Philhower Sls.	918-744-9964
OR	Wilsonville, RTS	503-638-5670
TX	Richardson, Bonser - Philhower Sls.	214-234-8438
WA	Vashon, RTS	206-285-1363
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AL	Huntsville, Hallmark Elctrns.	205-837-8700
AZ	Phoenix, Hallmark Elctrns.	602-243-6601
AR	Little Rock, Electro Entprs.	501-664-9207
CA	Chatsworth, IEC/Jaco	818-998-2200
CA	San Diego, Hallmark Elctrns.	619-268-1201
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Ana, Norstan Elctrns.	714-250-4903
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Torrance, Cypress Elctrns.	714-761-3366
CA	Tustin, Hallmark Elctrns.	714-669-4700
CO	Englewood, Hallmark Elctrns.	303-790-1662
CT	Branford, A.C.I.	203-481-9335
CT	Wallingford, Hallmark Elctrns.	203-269-0100
FL	Clearwater, Hallmark Elctrns.	305-530-4543
FL	Ft. Lauderdale, Hallmark Elctrns.	305-971-9280
FL	Orlando, Hallmark Elctrns.	305-855-4020
GA	Norcross, Hallmark Elctrns.	404-447-8000
IL	Bensenville, Hallmark Elctrns.	312-860-3800
IL	Northbrook, Classic Comps.	312-272-9650
IN	Indianapolis, Classic Comps.	317-872-4777
KS	Lenexa, Hallmark Elctrns.	913-888-4747
KS	Wichita, Lee Prods.	316-264-2172
MD	Columbia, Hallmark Elctrns.	301-988-9800
MA	Waltham, QPL Elctrn. Distrs.	617-229-2424
MA	Woburn, A.C.I. Elctrns.	617-935-7230
MA	Woburn, Hallmark Elctrns.	617-935-9771
MN	Bloomington, Hallmark Elctrns.	612-834-3223
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Maryland Heights, Hallmark Elctrns.	314-291-5350
NJ	Cherry Hill, Hallmark Elctrns.	609-424-7300
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Fairfield, Hallmark Elctrns.	201-575-4415
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Farmingdale, Midway	516-293-6800
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Hauppauge, Sherburn Elctrns.	516-231-4300
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Ron Kon Koma, Hallmark Elctrns.	516-737-0600
NC	Raleigh, Hallmark Elctrns.	919-832-4465
OH	Solon, Hallmark Elctrns.	216-349-4632
OH	Wosterville, Hallmark Elctrns.	614-891-4555
OK	Oklahoma City, Electro Entprs.	405-478-1752
OK	Tulsa, Hallmark Elctrns.	918-665-3200
TX	Austin, Hallmark Elctrns.	512-837-2814
TX	Dallas, Hallmark Elctrns.	214-341-1147
TX	Houston, Hallmark Elctrns.	713-781-6100
UT	Salt Lake City, Bell Inds.	801-972-6969
WI	New Berlin, Classic Comps.	414-786-5300
WI	Oak Creek, Hallmark Elctrns.	414-761-3000
Can	Toronto, Designtronics	416-936-0196

HIGH ENERGY, Lower Valley Rd., Parkesburg, PA 19365, Tel: 215-593-2800, Telex: 759888, TWX: 510-0663-0332; Empl.: 100

HIGHLAND TECHNOLOGY, INC., 320 Judah Street, San Francisco, CA 94122, Tel: 415-753-5814

Advertisement

Electronic energy metering products for commercial and industrial applications. Product line includes packaged volt/amp/watt/kmh meters with local display, data logging, and integral RS232 or modem. Also available are remote-readable pulse count meters, PC-based headend computers, and data acquisition/trend/billing software.

Local Sales Offices & Reps

CA	Pleasanton, Pluta & Assocs., Inc.	415-829-9020

HIGH REL BURN-IN, Riverside Assoc. Inc., 2326 Kruse Dr., San Jose, CA 95131, Tel: 408-946-1300; Empl.: 18

HIGHTEMP RESINS, INC., 225 Greenwich Ave., Stamford, CT 06902, Tel: 203-357-7401; Empl.: 5

HIGH VOLTAGE ENGRG. CORP., S. Bedford St., Burlington, MA 01803, Tel: 617-272-1313, TWX: 710-332-0245; Empl.: 750

HILEVEL TECH., INC., 18902 Bardeen Way, Irvine, CA 92715, Tel: 714-752-5215, Telex: 655316; *Sls. Mgr.:* Norbert Laengrich

HILTON INDUSTRIES, INC., Div. of Core Industries, 1177 Cattlemen Road, Sarasota, FL 33582, Tel: 813-371-2600, TWX: 810-864-4363; Empl.: 125; *Sls. Mgr.:* F. Moloney

HILTRONICS CORP., 111 S. Liberty Dr., Stony Pt., NY 10980, Tel: 914-942-1222

Hipotronics

HIPOTRONICS, P.O. Drawer A, Brewster, NY 10509, Tel: 914-279-8091, Telex: 425476 (Ans. Back:Hipo UI), TWX: 710-574-2420 (Ans. Back:Hipo Brws NY); Empl.: 200; *Sls. Mgr.:* Steve Peschel ...... **A•2154-2156; D•1238-1240, 1658-1659, 1934-1935**

Local Sales Offices & Reps

AL	Birmingham, E. J. Ruth Assocs.	205-979-0880
AZ	Phoenix, Qualtech	602-998-1848
CA	Pasadena, RDX Corp.	213-681-3451
CA	San Diego, RDX Corp.	619-292-7744
CA	Sunnyvale, RDX Corp.	408-734-4500
CO	Denver, E. C. Rudy Co.	303-433-1066
CT	Meriden, Abbott Allison Co.	203-481-0405
FL	Ft. Lauderdale, Powercom Engrg. Corp.	305-463-6059
HI	Honolulu, B. F. Wittenberg	808-833-1602
IL	Hawthorne Woods, Ryan & Assocs.	312-438-2905
IN	Ossian, Science Sls.	219-622-7383
KS	St. Louis, Fitzgerald Sls. Co.	314-862-1660
MN	Edina, Ainslie Co.	612-920-2996
NJ	East Orange, Friedman Assocs.	201-964-6200
NM	Albuquerque, Hewitt & Assocs.	505-229-7746
NY	Cazenovia, Peter De Cew Agy.	315-655-8602
PA	Downingtown, Kenn Ebert-Hipotronics	215-269-5898
TX	Richardson, Hipotronics-Dusty Arnold	214-644-7607
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400
Can	Scarborough, Ont., A.B. Chance of Can.	416-759-1144

HIRAM JONES

HIRAM JONES ELCTRNS., 11607 Vanowen St., No. Hollywood, CA 91605, Tel: 213-875-0213; FSC No.: 04867; Empl.: 8 .... **C•1228-1231**

Local Distributors

TX	Houston, Lenert Co.	713-225-1465

Hirschmann

RICHARD HIRSCHMANN OF AMERICA, Industrial Row, Riverdale, NJ 07451, Tel: 201-835-5002, Telex: 133576; *Sls. Mgr.:* C. Patten .... **C•1232-1237**

HISONIC, INC., 249 N. Troost, P.O. Box 1130, Olathe, KS 66061-1130, Tel: 913-782-0012, Telex: 4-2562; FSC No.: 11402; Empl.: 130; *Sls. Mgr.:* W. S. Bonebright .... **A•1610, 2157**

Local Sales Offices & Reps

AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
AZ	Scottsdale, Arcom Sls., Inc.	602-947-5745
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-467-3888
FL	Madeira Beach, MacKay, Smith & Assocs.	813-393-7144
FL	Orlando, MacKay, Smith & Assocs.	305-277-1513
FL	St. Petersburg, MacKay, Smith & Assocs.	813-393-7144
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
KS	Shawnee Mission, Florence & Meyer	913-722-5210
MO	St. Louis, Florence & Meyer	913-722-5210
NC	Cary, MacKay, Smith & Assocs.	919-467-5400
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-851-5000
TX	Houston, AID Elctrns.	713-777-3882
TX	Irving, AID Elctrns.	214-259-4761

HITACHI AMERICA, 1800 Bering Dr., San Jose, CA 95112, Tel: 408-292-6404, Telex: 17-1581, TWX: 910-338-2103; *Sls. Mgr.:* Jack Ordway; *Dist. Mgr.:* Michael Barthman

HITACHI AMERICA, LTD., 59 Route 17 South, Allendale, NJ 07401, Tel: 201-825-8000, Telex: (WU) 642734; *Sls. Mgr.:* William J. Pearson

HITACHI DENSHI AMERICA LTD., Test & Meas. Div., 175 Crossways Pkwy. W., Woodbury, NY 11797, Tel: 516-921-7200, TWX: 510-221-1899; Empl.: 110

HI-TECH COMPONENTS, Mitsubishi International Corp., 520 Madison Ave., New York, NY 10022, Tel: 212-605-2607; Empl.: 10; *Sls. Mgr.:* Bill Adikes; *Dist. Mgr.:* Fred Weiner .... **A•2018-2019; B•1239**

Local Sales Offices & Reps

AL	Huntsville, Beacon Sls. Co.	205-881-5031
AZ	Tucson, WJM Sls. Co.	602-888-4847
CA	San Diego, De Pierre & Assocs.	619-578-2555
CA	San Jose, Q.C.I.	408-942-1070
CA	Tustin, S.C.S.C.S.C.	714-731-9206
CT	Southington, The Orion Grp.	203-621-8371
FL	Boca Raton, Beacon Sls. Co.	305-392-3500
GA	Atlanta, Beacon Sls. Co.	404-256-9640
IL	Rolling Meadows, Eagle Tech. Sls.	312-991-0700
MA	Wakefield, The Orion Grp.	617-245-5220
MI	Novi, Action Comp. Sls.	313-349-3940
MN	St. Paul, State of The Art Comps.	612-646-8178
NY	Great Neck, F & F Metro, Inc.	516-482-4080
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Raleigh, Beacon Sls. Co.	919-787-0330
OH	Medina, J. C. Hofstetter Co.	216-241-4880
TX	Richardson, O.M. Sls., Inc.	214-690-6746

HI-TECH, INC., 3600 16th St., Zion, IL 60099, Tel: 312-746-2447; Empl.: 35 .... **C•1642**

Local Sales Offices & Reps

AL	Birmingham, Wade Prods.	205-822-5546
AR	Fort Smith, Electro-Related Prods.	501-452-4030
CA	San Francisco, Serra Assocs.	415-964-4300
CA	Woodland Hills, Glenn M. Stevenson Co.	213-348-5506
CO	Denver, Palmer Assocs.	303-233-9423
CT	South Windsor, Maher Assocs.	203-644-2481
FL	Orlando, Alcott Prods. Co.	305-295-5457
KS	Derby, Jay-Len Assocs.	316-788-1594
MA	Lynn, Maher Assocs.	617-581-3244
MI	Sheridan, MacDougall and Assocs.	517-291-3334
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
NJ	River Edge, Maher Assocs.	201-261-2225
NY	Rochester, Talty Assocs.	716-323-1210
NC	Fairview, Maher Assocs.	704-628-2191
OH	Seven Hills, Nenaoal Entprs.	216-524-4293
OR	Beaverton, Gauss Inds.	503-629-9692
TN	Chattanooga, Wade Prods. Co.	615-266-2262

HITRAN

Division of AGEX

HITRAN CORP., Agex, Rte. 31, RD 5-65, Flemington, NJ 08822, Tel: 201-782-5525, Telex: 833701/AGEX/FLEM; FSC No.: 27672; Empl.: 120; *Sls. Mgr.:* Chris Hughes .... **A•2158; D•1660, 1936-1937**

Local Sales Offices & Reps

AL	Huntsville, Mac Kay, Smith & Assocs.	205-539-8000
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Palo Alto, RF Assocs.	415-494-3331
CO	Denver, Calvert Controls	303-428-4852
CT	Ridgefield, Manning & Assocs., Inc.	203-438-5027
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-467-3888
FL	Orlando, MacKay, Smith & Assocs.	305-423-4353
FL	St. Petersburg, MacKay, Smith & Assocs.	813-393-7144
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
ID	Boise, Calvert Controls	208-343-3964
NY	Moravia, Electrotech Sys.	315-497-1598
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-851-5000
OH	Dayton, Mohawk Intronics	513-434-8873
OR	Eugene, Calvert Controls	503-683-2018
OR	Portland, Calvert Controls	503-222-6473
PA	Fort Washington, Hostvedt-Pavoni, Inc.	215-643-5757
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
UT	Salt Lake City, Calvert Controls	801-531-8129
VA	Charlottesville, Marktron	804-973-5874
WA	Seattle, Calvert Controls	206-447-9375
WA	Spokane, Calvert Controls	509-244-3601
WA	Tri-Cities, Calvert Controls	509-545-4506

Local Distributors

FL	Orlando, Elctrn. Tech.	305-291-1047
PA	Plymouth Meeting, Data Envrts.	215-825-5950

HIVEC/ASTRODYNE, INC., 35 Executive Dr., Hudson, NH 03051, Tel: 603-880-8600; FSC No.: 28023; Empl.: 45; *Sls. Mgr.:* Warren Heinzelmann; *Dist. Mgr.:* Warren Heinzelmann

HM ELCTRNS., 6151 Fairmount Ave., San Diego, CA 92120, Tel: 619-280-6050, Telex: 697-122; Empl.: 55; *Sls. Mgr.:* John Kenyon

HMW ENTERPRISES, INC., 604 Salem Road, Etters, PA 17319, Tel: 717-938-4691, TWX: 510-650-3536; FSC No.: 06A150; Empl.: 40; *Sls. Mgr.:* Gerhard Schmutz

HOBART ENGRG., 4143 Cheshire Dr., Cypress, CA 90630, Tel: 714-827-2135; *Sls. Mgr.:* D. C. Hobart

HOBBS, Div. of Steward Warner, Ash at Yale Blvd., Springfield, IL 62705, Tel: 217-753-7600

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IN	Indianapolis, Specialty Mfrs.	317-241-1111
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WA	Bothell, Temco Northwest	206-488-1254

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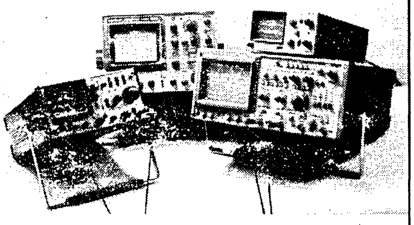

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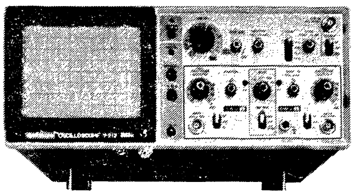

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CA	San Diego, Hadden Assocs., Inc.	619-565-9444
CA	San Jose, Class 1 Elctrns.	408-297-8666
CO	Aurora, Electrodyne	303-695-8903
FL	Boca Raton, Lawrence Assocs., Inc.	305-368-7373
FL	Clearwater, Lawrence Assocs., Inc.	813-584-8110
GA	Lawrenceville, B.T.F., Inc.	404-963-9495
IL	Cary, ECRO, Inc.	312-639-1162
IN	Indianapolis, Electronic Mktg. Conslts.	317-253-1668
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MA	Hopedale, H.E.S. Comps.	617-473-4324
MI	Novi, Lektronics	313-349-3304
PA	Philadelphia, Check Assocs.	215-487-3007
NJ	Manville, Dynorep, Inc.	201-685-0135
NM	Alburquerque, Fred Board & Assocs.	505-293-1399
NY	Morrisville, Promark Elctrns.	315-662-3310
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OH	Dayton, Del Steffen & Assocs., Inc.	513-293-3145
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TX	Dallas, Erickson Sls., Inc.	214-739-5833
TX	Houston, Erickson Sls., Inc.	713-266-1604
UT	Salt Lake City, Electrodyne	801-486-3801
VA	Herndon, Stinson Assocs.	703-620-0088
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CA	San Diego, Electronic Supp.	619-693-8222
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CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, El-Com Sls.	408-496-0800
CA	Santa Clara, Peters-De-Laet	415-980-9243
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CO	Englewood, Industrial Elctrns.	303-694-9444
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MD	White Marsh, Resco/Baltimore	301-529-0500
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MA	Burlington, Schaal Assocs.	617-272-7940
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OR	Lake Oswego, Bell Inds.	503-241-4115
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PA	Montgomeryville, Pytronic Inds., Inc.	215-643-2850
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Can	Vancouver, L.A. Varah, Ltd.	604-873-3211

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CA	Van Nuys, Wes-K Assocs.	213-989-3070
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
CT	Rocky Hill, R. H. Sturdy Co.	203-563-8455
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FL	Orlando, Delmac Sls.	305-898-4688
FL	Tamarac, Delmac Sls.	305-726-1330
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IN	Indianapolis, J & W Sales	317-842-3740
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NY	Poughkeepsie, Tri-Tech Elctrns.	914-473-3880
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OH	Dayton, Luebbe Sls.	513-294-0426
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TX	Houston, Southern States Mktg.	713-988-0991
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

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HUNTER STANLEY ELEC., 1813 Church St., Nashville, TN 37203, Tel: 615-321-0500; FSC No.: 21675; Empl.: 10; *Sls. Mgr.:* W. D. Stanley

HUNTER TOOLS, 6721 Baymeadow Dr., Glen Burnie, MD 21061, Tel: 301-760-2200; Empl.: 450

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MA	Burlington, Tri-Com Assocs., Inc.	617-272-8163
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MO	St. Louis, Rep-Tronics	314-576-9816
NJ	Medford, Champion Elctrns. Sls. Co.	609-983-0932
OK	Tulsa, Genzel Sls. & Assocs., Inc.	918-622-7744
PA	Greensberg, Pro-Mark	412-832-3800
TX	Fort Worth, Component Concepts, Inc.	817-292-5803

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CA	Costa Mesa, Orange County Comps., Inc.	714-979-3597
CA	Los Angeles, Cal State Elctrns.	213-933-8187
CA	Tustin, Cal-Tronic Sls., Inc.	714-730-0350
CA	Van Nuys, EW Elctrns.	818-782-9020
FL	Fort Lauderdale, NRC Elctrns., Inc.	305-772-4500
IN	Huntington, HEI	219-356-0756
MI	St. Clair Shores, Spemco	313-771-2700
NY	Valley Stream, L & S Elctrns., Inc.	516-561-2474
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TX	Houston, System Tech. Assocs.	713-440-8340
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WA	Kirkland, Elctrns. Tech. Sls. Assoc.	206-827-8086

HYBRID ELCTRNS., 142 Adams St., Newton, MA 02158, Tel: 617-527-2711; Empl.: 28; *Sls. Mgr.:* D. Kates

HYBRID SVCS. INC., 38 Main St., North Reading, MA 01864, Tel: 617-664-5500; Empl.: 45; *Sls. Mgr.:* Richard A. Vogel

HYBRID SYSTEMS CORP., 22 Linnell Circle, Billerica, MA 01821, Tel: 617-667-8700, TWX: 710-347-1575; Empl.: 250; *Sls. Mgr.:* H. Diamond

HYBRILONICS, INC., P.O. Box 217, Lasalle Sta., Niagara Falls, NY 14304, Tel: 716-731-9080, TWX: 910-333-0624; Empl.: 20

Local Sales Offices & Reps

AZ	Tempe, Wm. Brierton & Assocs.	602-839-9107
CA	Torrance, Basic Trade, Inc.	213-214-4677
CT	Avon, Martech	203-673-5132
GA	Norcross, Mountain Electro Prods.	404-448-5594
IL	Woodridge, Trend-Tronics	312-985-0626
KS	Overland Park, Lorenz Sls. Co.	913-649-5556
MA	Peabody, OEM Sls. of New England	617-535-2521
MN	Wayzata, White Sls. Co.	612-920-3558
NY	Buffalo, Antil-Thrasher Assocs.	716-652-0423
NY	Manhasset, Martech	516-627-1151
NY	Syracuse, Antil-Thrasher Assocs.	315-468-2370
NC	Raleigh, Mountain Electro Prods.	919-846-1514
OH	Cincinnati, Bill Teplitz Assocs.	513-481-1648
OH	Cleveland, Bill Teplitz Assocs.	216-439-3265
PA	Langhorne, Spiral Sls.	215-968-9250
TX	Arlington, Electronic Prods. Rep.	817-467-0377
VA	Front Royal, Eltron Sls.	703-635-7201
WI	Waukesha, Trend-Tronics	414-542-4919
Can	Markham, Ont., Avotronics, Ltd.	416-475-2024

HY-CAL ENGRG., 9650 Telstar Ave., El Monte, CA 91731, Tel: 213-444-4000, Telex: 67-5548; FSC No.: 12199; Empl.: 120

HyComp, Inc.

HYCOMP INC., 75 Union Ave., Box 377, Sudbury, MA 01776, Tel: 617-443-4631, TWX: 710-347-0385; FSC No.: 34707; Empl.: 60; *Sls. Mgr.:* James Chacharone .... **A•1670, 1872-1873**

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Mesa, SEDCO Sls.	602-835-6281
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Santa Ana, Calif. Elctrn. Mktg.	714-835-2701
CT	Collinsville, Dynamic Sls. of New Eng.	203-693-6567
FL	Clearwater, Cherith Sls.	813-797-3004
GA	Atlanta, Magaro & Assocs.	404-451-8862
IL	Palatine, T-Squared Assocs.	312-991-2144
IN	Ft. Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
KS	Kansas City, BC Elctrns.	913-342-1211
KS	Wichita, BC Elctrns.	316-942-9840
KY	Louisville, Scott Elctrns.	502-964-0640
MD	Lutherville, Walker-Houck Assocs.	301-296-6021
MA	Burlington, Dynamic Sls. of New Eng.	617-272-5676
MN	Minnetonka, S.A.I. Mktg. Corp.	612-935-0777
MO	Bridgeton, BC Elctrns.	314-291-1101
NY	Lynbrook, HLJ Comp-Tech	516-599-2999
NY	Rochester, Murcan Sls. Corp.	716-586-4450
NY	Syracuse, Murcan Sls. Corp.	315-437-0734
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Kettering, Scott Elctrns.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
PA	Norristown, Rivco January	215-631-1414
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Austin, Dyna Mktg.	512-454-3114
TX	Dallas, Dyna Mktg.	214-438-6528
TX	Houston, Dyna Mktg.	713-460-0314
VA	Moneta, Walker-Houck Assocs.	703-297-4496
WI	Racine, T-Squared Assocs.	414-633-9456

HYDRA-ELECTRIC CO., 3151 Kenwood St., Burbank, CA 91503, Tel: 213-843-6211

HYDROCAP CORP., 975 N.W. 95 St., Miami, FL 33150, Tel: 305-696-2504; Empl.: 5

HYDROSTATICS, INC., 2005 Industrial Dr., Bethlehem, PA 18017, Tel: 215-694-0121, 1-800-441-7301 Outside PA., TWX: 510-662-3306

HYLETRONICS, Newtown Rd., Littleton, MA 01460, Tel: 617-486-8911, TWX: 710-347-0656; FSC No.: 22534; Empl.: 82; *Sls. Mgr.:* Norman Hill

HYPERTRONICS CORP., 16 Brent Dr., Hudson, MA 01749, Tel: 617-568-0451, 800-225-9228, Telex: 95-1152; FSC No.: 50541; Empl.: 100; *Sls. Mgr.:* E. Dalrymple .... **C•1271**

Local Sales Offices & Reps

AL	Brownsboro, JHU Assoc.	205-536-7455
AZ	Scottsdale, Western Tech. Sls.	602-991-7306
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	N. Hollywood, Jewett Co.	213-789-8103
CO	Commerce City, Williams Assocs.	303-289-5647
CT	Bethany, Reps. Corp.	203-393-0024
DC	Washington, Tyler Griffin Co.	EN1-4821
FL	Orlando, Design Mktg.	305-291-8208
GA	Atlanta, Design Mktg.	404-457-5621
IL	Downers Grove, Momak Sls.	312-936-6400
IN	Indianapolis, CC Elctrns.	317-255-1508
KS	Merriam, Midwest Tech. Sls.	913-236-8557
MD	Baltimore, Tyler Griffin Co.	EN9-4821
MA	Wellesley, Reps. Corp.	617-237-6476
MI	Lake Orion, CC Elctrns.	313-338-7400
MN	St. Paul, Murnco, Inc.	612-484-8200

NJ	Wayne, G.T. Assocs.	201-694-6040
NM	Albuquerque, Williams Assocs.	505-255-0622
NY	Fayetteville, R. D. Sherman	315-637-9861
NC	Greensboro, JHU Assoc.	919-852-9097
OH	Centerville, Dolfuss-Root & Co.	513-433-6776
PA	Paoli, Tyler Griffin Co.	215-647-1550
TN	Talbot, JHU Assoc.	615-581-4141
TX	Freeport, Marathon Assoc.	409-233-7026
TX	Lewisville, Marathon Assoc.	214-436-8882
UT	Salt Lake City, Williams Assocs.	801-532-7701
WA	Bellevue, A.I.E. Inc.	206-455-4697

HYSOL, 15051 E. Don Julian, City of Industry, CA 91746, Tel: 818-968-6511, TWX: 910-584-1342; *Sls. Mgr.:* Hugh Dotson

HY-TEC INDUSTRIES, Div. of Topo Industries, Inc., P.O. Box 91, Shoreham, NY 11786, Tel: 516-744-5062; *Sls. Mgr.:* Tom Poole

hytek

HYTEK MICROSYSTEMS, 980 University Ave., Los Gatos, CA 95030, Tel: 408-395-2300, TWX: 910-597-5393; FSC No.: 57474; Empl.: 340; *Sls. Mgr.:* Greg Kizik; *Dist. Mgr.:* Richard Fryhoff .... **A•1522-1527, 1671**

Local Sales Offices & Reps

AL	Huntsville, Reynolds & Assocs.	305-259-7000
AZ	Tempe, Cantec Sls.	602-829-0191
CA	Del Mar, Chapman & Chapman	619-755-0412
CA	Irvine, Centaur Corp.	714-261-2123
CA	Los Gatos, Pro Assocs.	408-358-3861
CO	Englewood, Dynatech, Inc.	303-773-2830
CO	Englewood, Dynatech, Inc.	705-773-2830
FL	Melbourne, Reynolds & Assocs.	305-259-7000
FL	St. Petersburg, Reynolds & Assocs.	305-259-7000
MA	Tyngsboro, Comtech, Inc.	617-649-3030
MN	Minneapolis, Components Grp.	612-374-1250
MN	Minneapolis, Comps. Grp.	612-374-1250
MN	Roseville, Components Grp.	612-636-5060
NV	Carson City, Hytek Microsystems	702-883-0820
NM	Albuquerque, Power Entprs.	505-298-1918
NY	Rochester, L-Mar Assocs., Inc.	716-323-1000
NY	Wantagh, Tri-Tek	516-221-7600
NC	Raleigh, Reynolds & Assocs.	305-259-7000
TX	El Paso, Power Entprs.	915-533-9902
TX	Grapevine, Elctrns. Mktg. Assocs.	817-481-7502
TX	Grapevine, Electronics Mktg. Assocs.	817-488-6583
TX	Houston, Electronics Mktg. Assocs.	713-498-8120
Can	Burnaby, B.C., GNT	604-430-3302
Can	Toronto, Que., Cantec Reps.	613-725-3704

ICCI, 196 Broadway, Cambridge, MA 02139, Tel: 617-864-3270, Telex: 95-1106; *Sls. Mgr.:* Jeremiah Snow

ICI, 570 W. Lambert, Ste. C, Brea, CA 92621, Tel: 714-990-1707; Empl.: 10

I.C. INDS., Box 104, Altamonte Springs, FL 32701, Tel: 305-339-8298, Telex: 56-4303; *Sls. Mgr.:* William S. Hodges

INTERNATIONAL CONTROLS AND MEASUREMENTS CORP., P. O. Box 2578, Syracuse, NY 13220, Tel: 315-699-5262, TWX: 710-545-0235; FSC No.: 52516; Empl.: 45; *Sls. Mgr.:* Frederick W. Schulze; *Dist. Mgr.:* Robert Ford

ICON, 156 Sixth St., Cambridge, MA 02142, Tel: 617-868-5400, TWX: 710-321-1883; Empl.: 81; *Sls. Mgr.:* Irvin L. McKittrick

ICO-RALLY, 2575 E. Bayshore Rd., Palo Alto, CA 94303, Tel: 415-856-9900, Telex: 34-8335; FSC No.: 51705; Empl.: 45; *Dist. Mgr.:* Barbara Enad

ICS ELECTRONICS CORP., 2185 Old Oakland Rd., San Jose, CA 95131, Tel: 408-263-4844, TWX: 910-338-7810; *Sls. Mgr.:* Robert H. Prosin; *Dist. Mgr.:* Robert H. Prosin

ICS, INC., 520 Interstate Rd., Addison, IL 60101, Tel: 312-543-6200, TWX: 910-991-5945; Empl.: 50; *Sls. Mgr.:* Marion Servos; *Dist. Mgr.:* Susan Earnest

IDEAL INDUSTRIES, 4450 Becker Pl., Sycamore, IL 60178, Tel: 815-895-5181, TWX: 910-639-0613; Empl.: 700

IDEAL PRECISION METER, 214 Franklin St., Brooklyn, NY 11222, Tel: 212-383-6904, TWX: 710-584-2160; FSC No.: 11707;10304-41; Empl.: 150; *Sls. Mgr.:* T. Bell

IDE ASSOCIATES, INC., 35 Dunham Rd., Billerica, MA 01821, Tel: 617-663-6878; Empl.: 40; *Sls. Mgr.:* James Bender

iDEC

IDEC SYSTEMS & CONTROLS CORP., 1213 Elko Drive, Sunnyvale, CA 94089-2211, Tel: 408-747-0550, Telex: 34-0601, TWX: 910-339-9383; Empl.: 60; *Sls. Mgr.:* D.J. Synnott; *Dist. Mgr.:* James Young .... **B•1056, 1408-1412**

Local Sales Offices & Reps

AL	Decatur, El Tech, Inc.	205-353-7899
AZ	Phoenix, Neal-Miller Sls.	602-274-0898
AR	Jonesboro, Electro-Tech, Inc.	501-932-0366
CA	Fremont, Thebrege Sls. Reps.	415-651-8775
CA	Santa Fe Springs, J. H. Grace Co.	213-868-6771
CO	Lakewood, T.M.M.I.	303-232-1516
FL	Oldmar, Boggs & Assocs.	813-855-1812
FL	Sarasota, Boggs & Assocs.	813-351-3338
GA	Grayson, El Tech, Inc.	404-466-2997
IL	Hoffman Estates, Bu-Nell Engrg.	312-843-8600
IN	Indianapolis, Gurney Indl. Sls.	317-293-2333
KS	Overland Park, TMW	913-383-1818
MA	Norwood, Hyland Assocs.	617-762-0345
MI	Southfield, Component Assocs.	313-557-3232
MN	Minnetonka, S. J. Collins & Assocs.	612-933-7661
NJ	W. Long Branch, Eastern Indl. Sls.	201-544-0600
NM	Albuquerque, T.M.M.I.	505-298-6893
NY	Syracuse, WM Stamp Co.	315-463-4390
NC	Kernersville, Heritage Sls. Assocs.	919-996-4374
OH	Cincinnati, James Murray & Assocs.	513-574-8500
OH	Cleveland, Matthew Haley Co.	216-892-1820
OH	Toledo, Matthew Haley Co.	419-382-9588
OK	Tulsa, Associated Sls. Agy.	918-838-8930
OR	Portland, SPS Elctrns.	503-297-6919
PA	Ingomar, RW Moulton Assocs.	412-935-3333
PA	Philadelphia, Fite-El Tech	215-248-3171
SC	Taylors, Heritage Sls. Assocs.	803-292-1723
TN	Knoxville, Tubbs Agy.	615-577-0689
TX	Dallas, SW Mktg. Assocs.	214-341-8631
TX	Houston, SW Mktg. Assocs.	713-864-6281
UT	Salt Lake City, T.M.M.I.	801-487-7676
VA	Alexandria, T.D.I.	703-971-8982
VA	Richmond, Dunnington & Assocs.	804-282-8383
WA	Redmond, SPS Elctrns.	206-323-4140
WV	Bluefield, RW Moulton Assocs.	304-327-6421
WI	Appleton, Bu-Nell Engrg.	414-733-4242
WI	Waukesha, Bu-Nell Engrg.	414-784-0994

IDENTATRONICS, INC., 425 Lively Blvd., Elk Grove, IL 60007, Tel: 312-437-2654, 1-800-323-5403, Telex: 254708; *Sls. Mgr.:* Gregg Powell

VERTEX INDUSTRIES, INC., Indenticon Div., 23 Carol St., P. O. Box 1123, Clifton, NJ 07014, Tel: 201-472-2121, TWX: 710-989-7021 VER TOT CLIF; Empl.: 85; *Sls. Mgr.:* Ronald Byer

Local Sales Offices & Reps

AZ	Tempe, Burland Assocs.	602-894-5564
CA	Santa Ana, California Elec. Mktg.	714-835-2702
FL	Melbourne, Reynolds & Assocs.	305-259-7000
IL	Elk Grove Village, Quad Data	312-228-1722
KS	Shawnee Mission, Panatek Tech. Sls.	913-362-3349
MA	Wayland, Daner Hayes, Inc.	617-655-0888
MI	Farmington Hills, Carter, McCormic & Pierce	313-477-7700
MO	Rockville, Spectro Assocs.	301-294-9770
TX	Dallas, IBL Engrg. & Sls.	214-363-2921
WA	Seattle, SJI Corp.	206-763-8981

IEC CORPORATION, 3100 Longhorn Blvd., Austin, TX 78759, Tel: 512-836-0547, Telex: 757025; FSC No.: 16071; Empl.: 23; *Sls. Mgr.:* Florencio Canizales, Jr.

IEC ELCTRNS., 105 Norton St., Newark, NY 14513, Tel: 315-331-7742, TWX: 510-250-2515; Empl.: 650; *Sls. Mgr.:* Russ Stingel; *Dist. Mgr.:* Steve Hotchkiss

IEE, See Industrial Elctrn. Engrs., Inc.

IEI-ISKRA

IEI-ISKRA ELECTRONICS, INC., 222 Sherwood Ave., Farmingdale, NY 11735, Tel: 516-753-0400, Telex: 645127; *Sls. Mgr.:* Tom Juliano
..... **A•1080-1083, 1875, 2020, 2072-2073; B•1413**

Local Sales Offices & Reps

AZ	Tempe, Sunwest Mktg.	602-838-7586
CA	San Diego, C. K. Assocs.	619-279-0420
CA	San Jose, K-Lectron	408-942-9177
IL	Chicago, Berndt Assocs., Inc.	312-283-0713
IN	Indianapolis, Electronic Reps.	317-894-1414
KS	Shawnee Mission, K & M Sls.	913-262-1444
MD	Pikesville, Muncy Sls.	301-484-6376
NY	Macedon, M. M. Hare Co.	315-986-3742
NY	West Hempstead, Schmitt Indl. Mktg.	516-486-3510
PA	Philadelphia, Paragon Sls.	215-563-7060
SC	Easley, R A Sls.	803-859-1859
TX	El Paso, EPEC Elctrns., Inc.	915-593-8481
UT	South Jordan, MAC III	801-566-3781
WA	Bellevue, Communication Comp. Sls.	206-643-0500

Local Distributors

GA	Tucker, Shamrock Comps.	404-939-9198
NY	West Islip, Shamrock Comps.	516-669-2027
TX	El Paso, Shamrock Comps.	915-593-8554

IERC, 135 W. Magnolia Blvd., Burbank, CA 91502, Tel: 818-849-2481, 818-786-1182, TWX: 910-498-2206; *Sls. Mgr.:* Richard Schuckman .... **C•1643**

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	scottsdale, SMS & Assocs.	602-998-0831
CA	Burlingame, Jack Logan & Assocs.	415-348-8822
CA	Burlingame, Mollard Mktg., Inc.	415-961-0456
CA	Los Angeles, Ed Landa Co.	213-879-0770
CO	Denver, Elcom, Inc.	303-337-2300
FL	Boca Raton, Lawrence & Assocs.	305-368-7373
IL	Mt. Prospect, Magnuson & Assocs.	312-956-0700
IN	Indianapolis, Magnuson & Assocs.	317-247-5108
KS	Leawood, Thunderbird Tech. Sls. & Svcs., Inc.	913-642-7220
KS	Wichita, Thunderbird Tech. Sls. & Svcs., Inc.	316-684-3941
MA	Lexington, Hathaway Elctrns., Inc.	617-861-7010
MI	Ferndale, Shalco, Inc.	313-547-4771
MO	Maryland Heights, Thunderbird Tech. Sls. & Svcs., Inc.	314-567-6488
NJ	Wayne, G. T. Assocs., Inc.	201-694-6040
NY	Rochester, Ossman Comp. Sls. Corp.	716-424-4460
NY	Syracuse, Ossman Comp. Sls. Corp.	315-455-6611
NC	Winston-Salem, Murcota Corp.	919-722-9445
OH	Cleveland, Norm Case & Assocs.	216-333-0400
OR	Portland, Frank Jackson & Assocs.	503-292-2638
PA	Philadelphia, Kenneth B. Erdman Co.	215-224-1833
PA	Pittsburgh, Russell F. Clark Co., Inc.	412-242-9500
TX	Houston, Barry Sls., Inc.	713-784-5860
TX	Richardson (Dallas), Barry Sls., Inc.	214-234-0255
UT	Salt Lake City, Elcom, Inc.	801-532-7940
WA	Redmond, Frank Jackson Assocs.	206-881-7277
Can	Burlington, Ont., White Radio Ltd.	416-632-6894
Can	Montreal, Que., White Radio Ltd.	514-481-0158

Local Distributors

CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Chatsworth, Mil-Comm Distrs.	213-998-3111
CA	San Diego, Deco Elctrns.	619-693-1595
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Industrial Elctrns., Inc.	303-694-9444
CT	Norwalk, Park Distrs., Inc.	203-853-2011
FL	Clearwater, Lynch Gentry Assocs.	813-433-2697
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
IL	Mt.Prospect, Magnuson & Assocs.	312-956-0700
MD	Towson, Jones-Maryland Elctrns.	301-823-5721
MA	Billerica, A. W. Mayer Co., Inc.	617-667-6900
MA	Waltham, Sterling Elctrns.	617-894-6200
NH	Hudson, C & H Elctrns., Inc.	603-882-1133
NY	Bohemia, Car-Lac Elctrn. Indl. Sls.	516-567-4200
NY	Rochester, Modutex Corp.	716-424-1620
NY	West Hempstead, March Elctrns.	516-486-6511
OH	Englewood, Argent Inds., Inc.	513-836-8633
PA	McKeesport, Barno Radio	412-751-5966
RI	Providence, William Dandreta & Co.	401-861-2800
TX	Fort Worth, C & W Supp.	817-831-0395
TX	Houston, Lenert Co.	713-225-1465
UT	Provo, Omega Elctrns.	801-375-4664
UT	Salt Lake City, Kimball Elctrns., Inc.	801-328-2075
WA	Redmond, Elwood Inds.	206-881-7277

IET LABS, INC.

IET LABS, INC., 534 Main St., Westbury, NY 11590, Tel: 516-334-5959; FSC No.: 62015; *Sls. Mgr.:* Sam Sheena .... **D•1242-1245**

DDC®
ILC DATA DEVICE CORPORATION

ILC DATA DEVICE CORP., 105 Wilbur Pl., Bohemia, NY 11716, Tel: 516-567-5600, TWX: 510-228-7324; FSC No.: 19645; Empl.: 850; *Sls. Mgr.:* J. P. Sheahan; *Dist. Mgr.:* Mort Lux .... **D•1150-1151**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
AZ	Tuscon, Fred Board Assocs.	602-299-1508
CA	Santa Clara, ILC Data Dev.	408-244-0831
CA	Woodland Hills, ILC Data Dev.	818-992-1772
CO	Englewood, Western Sls., Inc.	303-798-0945
CT	Canton Center, Dynamic Sls. of New Eng.	203-693-6567
FL	Boca Raton, Perrott Assocs.	813-443-5214
FL	Clearwater Beach, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assocs.	305-298-7748
GA	Norcross, Montgomery Mktg., Inc.	404-447-6124
HI	Kihea, Aloha Assocs.	808-879-5296
IL	Chicago, John Alexander & Assocs.	312-233-7788
IL	Des Plaines, Elctrn. Mktg.	312-298-2330
IN	Carmel, Giesting & Assocs.	317-844-5222
IN	Fort Wayne, Giesting & Assocs.	219-486-1912
KS	Lenexa, Dytec/South	913-888-0215
MA	Burlington, Dynamic Sls. of New Eng.	617-272-5676
MI	Coloma, Giesting & Assocs.	616-468-4200
MI	Farmington Hills, Giesting & Assocs.	313-478-8106
MN	Minneapolis, Comprehensive Techn.	612-888-7011
MO	Maryland Hgts., Dytec/South	314-569-2990
NJ	Totowa, ILC Data Dev. Corp.	201-785-1734
NM	Albuquerque, Vermillion Co.	505-883-3668
NY	E. Rochester, Tri Tech Elctrns.	716-385-6500
NY	Endwell, Tri Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri Tech Elctrns.	315-446-2881
NY	Fishkill, Tri Tech Elctrns.	914-897-5611
NC	Cary, Montgomery Mktg., Inc.	919-467-6319
OH	Cincinnati, Giesting & Assocs.	513-385-1105
OH	Cleveland, Giesting & Assocs.	216-261-9705
OH	Dayton, Giesting & Assocs.	513-433-5832
OH	Dayton, Lionel Fedotin	513-275-9345
OK	Tulsa, Bonser-Philhower Sls.	918-744-9964
OR	Aloha, Venture Elctrns.	503-642-9090
PA	Glenside, Koebert Assocs.	215-887-2310
PA	New Kensington, Bobar Instr.	412-339-3565
PA	Pittsburgh, Giesting & Assocs.	412-963-0727
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Houston, Bonser-Philhower Sls.	713-531-4144
TX	Richardson, Bonser-Philhower Sls.	214-234-8438
VT	Burlington, Dynamic Sls. of New Eng.	802-863-6665
VA	Vienna, ILC Data Dev.	201-785-1734
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, JM Sls.	414-546-0040
WI	Waukesha, Electron Mktg.	414-547-1505
Can	Montreal, Repco Engrg.	514-694-1877

ILC TECHNOLOGY, INC., 399 Java Dr., Sunnyvale, CA 94089, Tel: 408-745-7900, TWX: 910-339-9389; *Sls. Mgr.:* Robert Turner

IC ILLINOIS CAPACITOR, INC.

ILLINOIS CAPACITOR, INC., 3757 W. Touhy Ave., Lincolnwood, IL 60645, Tel: 312-675-1760, Telex: 72-4361; Empl.: 44; *Sls. Mgr.:* C. Kurland .... **A•1084-1085**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech. Sls.	205-533-2100
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	El Cajon, KCE Corp.	619-588-1198
CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	Woodland Hills, Illinois Capacitor, Inc.	800-323-3652
CO	Denver, Elcom	303-337-2300
CT	Bristol, Technology Prods. Grp.	617-731-0858
FL	Miami Beach, Ben Goldner	305-932-2782
GA	Norcross, Electro-Mech. Sls.	404-447-6478
IN	Indianapolis, Fred Dorsey Assoc.	317-842-0060
KY	Louisville, Fred Dorsey Assoc.	502-426-3540
MA	Brookline, Technology Prods. Grp.	617-731-0858
MI	Warren, Dem Elctrns. Sls.	313-575-9444
MN	Golden Valley, Highland Elctrn. Sls. Co.	612-545-4028
MS	Jackson, IL Capacitor	312-675-1760
MO	Hazelwood, Jim Moore & Assocs.	314-731-2240
MO	Overland Park, Guernsey-Moore Assocs.	913-381-2225
NY	Commack, ERA	516-543-0510
NY	De Ruyter, Net Sales, Inc.	315-662-7996
NY	Fairport, Net Sls.	716-467-4538
NY	Webster, Net Sales, Inc.	716-671-0022
NC	Raleigh, Electro-Mech. Sls.	919-851-8165
OR	Beaverton, Caruso-Northcutt	503-646-4973
PA	Narberth, J. Bresson Assocs.	215-664-6460
TN	Jonesboro, Electro-Mech. Sls.	615-753-2964
TX	Austin, Mil-Rep	512-459-8602
TX	El Paso, EPEC, Inc.	915-593-8481
TX	Houston, Mil-Rep	713-444-2557
TX	Richardson, Mil-Rep Assocs.	214-664-6731
UT	Salt Lake City, Elcom	801-532-7940
WA	Bellevue, Caruso-Northcutt	206-454-9699
WI	Milwaukee, Erdman Sls. Co.	414-281-1330
Can	Downsview, Ont., Designtronics	416-747-1171

Local Distributors

CA	Anaheim, A to Z Elctrns.	714-634-3620
CA	Canoga Pk., Myco/Vickers Elctrn. Supp.	213-340-2025
CA	Irvine, Hi-Rel Distr. Sls.	714-768-6656
CA	Santa Ana, Projections Unltd.	714-641-1472
CA	Santa Clara, California Capacitor	408-980-8495
CO	Englewood, Industrial Elctrns.	303-694-9444
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns.	317-848-1323
IA	Cedar Rapids, Bergquist Co.	319-366-8733
LA	Harvey, AFG Electrn. Supp.	504-368-9696
MD	Columbia, General Radio Supp.	301-997-6337
MA	Wakefield, Lorcor	617-246-1903
MA	Woburn, Semtex	617-935-2150
MI	Grand Rapids, R M Elctrns.	616-531-9300
MN	Minneapolis, Bergquist Co.	612-835-2322
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Camden, General Radio Supp. Co.	609-964-8560
NJ	Roselle, Lectron Ind.	201-245-5859
NY	Buffalo, Genesee Radio & Parts Co.	716-873-9661
NY	Buffalo, Summit Distrbg.	716-887-2890
NY	E. Syracuse, Add Elctrns.	315-437-0300
NY	Freeport, Semtex Ind. Corp.	800-645-3960
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Dayton, Semtex Ind. Corp.	513-435-6600
OK	Tulsa, Altair Elctrns.	918-252-5781
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Austin, Altair Elctrns.	512-837-4490
TX	Channelview, Henry Elctrns.	713-452-4451
TX	Houston, Altair Elctrns.	713-462-3029
TX	Richardson, Altair Elctrns.	214-231-5166
WI	Milwaukee, Badger Capacitor Sls.	414-281-1330
EXP	Rexdale, ON, Electrn. Supp., Inc.	416-741-4000

ILLINOIS LOCK CO., The Eastern Co., 301 W. Hintz Rd., Wheeling, IL 60090, Tel: 312-537-1800; *Sls. Mgr.:* Kim Palmer .... **B•1593-1595**

Local Sales Offices & Reps

AZ	Tempe, Desert-West Technical Sls.	602-244-0735
CA	Los Angeles, Spectrum Assocs.	213-641-4255
CA	San Rafael, Wright Assoc.	415-457-9940
FL	New Port Richey, Lobo Mktg. Assocs.	813-848-8578
IN	Carmel, TMC	317-844-8462
IN	Fort Wayne, TMC	219-432-5553
KY	Louisville, TMC	502-499-7808
MN	Minneapolis, Jos. Co/Melius	612-861-3343
NJ	Haddonfield, Gray Assocs.	
VA	Front Royal, Eltron Sls.	

Local Distributors

CA	Gardena, California Switch & Signal	213-770-2330
CA	San Leandro, Electro-Components	415-352-5210

IMAGE GRAPHICS, INC., 107 Ardmore Street, Fairfield, CT 06430, Tel: 203-259-1394; FSC No.: 5M867; Empl.: 35; *Sls. Mgr.:* J. P. Whitley

IMAGE MAKERS OF PITTSFORD, 6 Wood Gate, Pittsford, NY 14534, Tel: 716-385-4567; *Sls. Mgr.:* Richard H. Roberts; *Dist. Mgr.:* Richard H. Roberts

IMAGE TECHNOLOGY METHODS CORP., 103 Moody St., Waltham, MA 02154, Tel: 617-894-1720

IMAGING TECHNOLOGY, INC., 600 W. Cummings Park, Woburn, MA 01801, Tel: 617-938-8444, Telex: 948263; Empl.: 70; *Sls. Mgr.:* Ronald A. Massa

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IMC MAGNETICS CORP., Exec. Off., 100 Jericho Quadrangle, Ste. 221, Jericho, NY 11753, Tel: 516-938-0800, TWX: 510-221-2126; *Sls. Mgr.:* E. Egan .... **B•1161; C•1644-1645, 1647**

IMC MAGNETICS CORP., Arizona Div., 1900 East Fifth St., Tempe, AZ 85281, Tel: 602-968-4441, Telex: 910-951-0001; *Sls. Mgr.:* Alex Lazutin

IMC MAGNETICS CORP., Eastern Div., 570 Main St., Westbury, NY 11590, Tel: 516-334-7070, TWX: 510-222-4469; *Sls. Mgr.:* A. Chillemi .... **B•1161; C•1644-1645**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Los Altos, Recht Assocs.	415-964-6321
CA	San Diego, El-Com, Inc.	619-578-0900
CO	Englewood, Thorson Rocky Mtn.	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, HAI Elctrns.	404-256-9640
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Chicago, Industrial Reps., Inc.	312-647-7755
MD	Mt. Airy, Beacon N.	800-336-3747
MA	Monson, Gerber Sls. Corp.	413-267-5051
MA	Newton Upper, Gerber Sls. Corp.	617-969-2620
MN	Minneapolis, Holmgren Assocs.	612-786-7641
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Haddonfield, Mesa Tech Assoc.	609-429-9531
NJ	Haddonfield, Mesa Tech. Assoc.	609-429-9531
NY	Fairport, Net Sales Co.	716-467-4538
NY	Great Neck, Trionics Assocs.	516-466-2300
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Greensboro, Beacon Elctrns.	919-275-9997
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Dayton, Electrical Sys. Co.	513-434-9822
OH	Dayton, Electrical Systems Co.	513-434-9822
OH	Westlake, Electrical Sys. Co.	216-835-8672
OR	Alhoa, Huntley Assocs.	503-649-5388
OR	Lake Oswego, Huntley Assocs.	503-636-7558
TX	Dallas, Kruvand Assocs.	214-691-4592
TX	Dallas, Kruvand Assocs.	801-973-7969
UT	Valley City, Thorson Rocky Mtn.	214-437-3355
VA	Fairfax, Beacon N.	703-591-1300
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assocs.	206-353-1833
PR	San Juan, Jorge Donato Assocs.	809-790-1300
Can	Markham, Ont., Lenbrook Elctrns.	416-477-7722
Can	Surrey, B.C., Lenbrook Elctrns.	604-585-9599

IMC/HANSEN, Box 23, Princeton, IN 47670, Tel: 812-385-3415, Telex: 27-8458 HANSON PEON; Empl.: 350; *Sls. Mgr.:* George A. Gilbert

IMC MAGNETICS CORP., New Hampshire Div., Rte. 16B, Rochester, NH 03867, Tel: 603-332-5300, TWX: 510-297-4466; *Sls. Mgr.:* William Beaulieu; *Dist. Mgr.:* Dave Flanagan .... **C•1647**

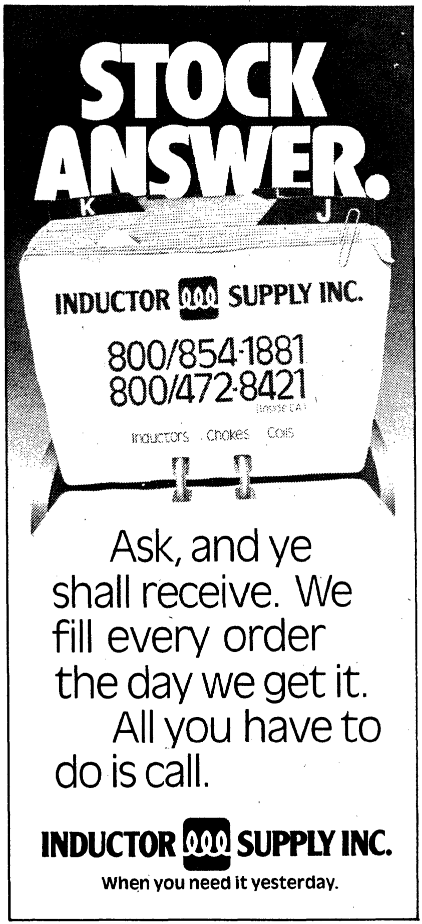
Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Los Altos, Recht Assocs.	415-964-6321
CA	San Diego, El-Com, Inc.	619-578-0900
CO	Englewood, Thorson Rocky Mtn.	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, HAI Elctrns.	404-256-9640
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Chicago, Industrial Reps., Inc.	312-647-7755
MD	Mt. Airy, Beacon N.	800-336-3747
MA	Monson, Gerber Sls. Corp.	413-267-5051
MA	Newton Upper, Gerber Sls. Corp.	617-969-2620
MN	Minneapolis, Holmgren Assocs.	612-786-7641

MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Haddonfield, Mesa Tech Assoc.	609-429-9531
NY	Great Neck, Trionics Assocs.	516-466-2300
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Dayton, Electrical Sys. Co.	513-434-9822
OH	Westlake, Electrical Sys. Co.	216-835-8672
OR	Alhoa, Huntley Assocs.	503-649-5388
TX	Dallas, Kruvand Assocs.	214-437-3355
UT	Valley City, Thorson Rocky Mtn.	801-973-7969
VA	Fairfax, Beacon N.	703-591-1300
WA	Everett, Huntley Assocs.	206-353-1833
PR	San Juan, Jorge Donato Assocs.	809-790-1300
Can	Markham, Ont., Lenbrook Elctrns.	416-477-7722
Can	Surrey, B. C., Lenbrook Elctrns.	604-585-9599

Local Distributors

AL	Huntsville, C.D.I.	205-883-7501
AK	Little Rock, C.D.I.	501-227-6278
AZ	Phoenix, Sterling Elctrns.	602-268-2121
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tuscon, Southwest Sls.	602-325-4087
CA	Cerritos, El-Com	213-404-2961
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Inglewood, Newark Elctrns.	213-671-7387
CA	Roseville, Graham Elctrns.	916-969-3100
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, El-Com	619-578-0900
CA	Santa Clara, El-Com	408-496-0880
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Thousand Oaks, Bell Inds.	805-499-6821
CO	Denver, Newark Denver Elctrnd.	303-757-3351
CO	Ravada, Denver Wintronics	303-431-7161
CO	Wheatridge, Bell Inds.	303-424-1985
CT	East Haven, J. V. Elctrns.	203-469-2321
CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
CT	Wallingford, Sterling Elctrns.	203-265-9535
FL	Ft. Lauderdale, C.D.I.	305-971-4950
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Largo, Graham Elctrns.	813-541-4434
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, C.D.I.	404-441-3320
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns., Inc.	317-848-1323
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Lafayette, Graham Elctrns.	317-423-5564
IA	Cedar Rapids, Bell Inds.	319-395-0730
KS	Wichita, RSC Elctrns., Inc.	316-267-5213
MD	Columbia, Lionex Corp.	301-964-0040
MD	Savage, Pyttronic Inds.	301-792-0780
MA	Hingham, Sager Elctrl. Sup. Co.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Somerville, Electro Sls.	617-666-0500
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Wilmington, Lionex Corp.	617-657-5170
MI	Adrian, Wedemeyer Elctrn. Supp. Co.	517-263-2925
MI	Ann Arbor, Graham Elctrns.	313-884-4725
MI	Ann Arbor, Wedemeyer Elctrn. Supp. Co.	313-665-8611
MI	Lansing, Wedemeyer Ecltrn. Supp. Co.	517-484-9009
MN	Minneapolis, Aero-Space Computer Supps., Inc.	612-884-4725
MO	St. Louis, Olive Elctrns., Inc.	314-426-4500
NJ	Bellmawr, Mid-Atlantic	609-931-5303
NJ	Fairfield, Lionex Corp.	201-227-7960
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, International Elctrns.	505-345-8127
NM	Albuquerque, Sterling Elctrns.	505-884-1900
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Endwell, A.S.I. Elctrns.	607-754-3823
NY	Hauppauge, Lionex Corp.	516-273-1660
NY	Mt. Vernon, Q.A.R. Indl. Sls.	914-699-2224
NY	Plainview, Progress Elctrns.	516-433-1700
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, C.D.I.	919-834-9465
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Columbus, Graham Elctrns.	614-895-1590
OH	Columbus, Wedemeyer Elctrn. Supp. Co.	614-436-2410
OH	Dayton, Bell Inds.	513-434-8231
OH	Dayton, Esco Elctrons.	513-293-1133
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Youngstown, Newark Elctrns.	216-793-6134
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Braddock, Leff Elctrns.	412-351-5000
PA	Horsham, Lionex Corp.	215-443-5150
PA	McKean, Advacom, Inc.	814-476-7774
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Reading, Barbey Elctrns.	215-376-6116
RI	Providence, William Dandreta Co.	401-861-2800
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Nashville, Electra Distrbg. Co.	615-329-3971
TN	Nashville, Graham Elctrns.	615-242-2682
TX	Austin, Sterling Elctrns.	512-836-1341
TX	Dallas, Heilind Elctrns.	214-351-2050
TX	Dallas, Sterling Elctrns.	213-243-1600, 800-225-9618
TX	El Paso, International Elctrns.	915-598-3406
TX	Houston, Sterling Elctrns.	713-623-6600
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Bell Inds.	206-747-1515
WI	New Berlin, Classic Comps.	414-786-5300
WI	Waukesha, Bell Inds.	414-547-8879
Can	Downsview, Ont., Westburne Indl. Entprs., Ltd.	416-635-2950
Can	Montreal, Que., Electronic Whls., Ltd.	514-769-8851/61
Can	Ottawa, Ont., Electronic Whls., Ltd.	613-746-4413
Can	Ottawa, Ont., Wackid Radio	613-728-1821
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710



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IMEC CORP., 2434 Southport Way, National City, CA 92050, Tel: 619-474-8991

IMPANDEX, INC., 203 Brookdale St., Maywood, NJ 07607, Tel: 201-845-4664, Telex: 134 656; Empl.: 11; *Sls. Mgr.:* Stanley I. Goldberg; *Dist. Mgr.:* Rober F. Carlson

I.M.S. EQUIPMENT, INC., P.O. Box 16909, Irvine, CA 92713, Tel: 714-857-6302, Telex: 678317; *Sls. Mgr.:* Frank Buday

Local Sales Offices & Reps

AL	Huntsville, Naylor Assocs.	205-830-1957
AZ	Phoenix, Tri Fab Sls.	602-265-3341
AZ	Tucson, W.J.M. Sales	602-888-4847
CA	Orange, E.T.A.	714-998-9241
CA	San Diego, Savage Assocs.	619-457-2644
CA	Santa Clara, M2 Mktg. Grp.	408-986-0676
CO	Sedalia, Jensen Reps.	303-688-4154
FL	Casselberry, Southern Elctrn. Mktg.	305-695-3334
IL	Chicago, Electro-Tech Mktg.	312-672-3151
MD	Silver Springs, Mid Atlantic Sls.	301-583-7749
MA	Framingham, Sullivan Tech. Sls.	617-620-0195
MN	Minnetonka, Frank Anthony Mktg.	612-934-0773
MO	Clayton, Mertens Co.	314-993-6600
MO	Silver Springs, Mid Atlantic Sls.	301-593-7749
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Rochester, Henry G. Richter	716-436-0300
NC	Research Triangle Park, Naylor Assocs.	919-286-7007
OH	Columbus, Micro-Tec	614-888-9761
OR	Portland, Power Sources, Unltd.	503-292-0820
PA	Pittsburgh, Micro-Tec	412-931-3380
SC	Greenville, Naylor Assocs.	803-297-9969
TX	Dallas, Milco Mktg.	214-783-2716
TX	Houston, Milco Mktg.	713-723-5003
WA	Lynnwood, Power Sources, Unltd.	206-743-6641
WI	Brookfield, Electro-Tech Mktg.	414-785-9554
Can	Pointe Claire, Que., A. R. Gray & Assocs.	514-694-6378

Local Distributors

AZ	Phoenix, Tri Tek, Inc.	602-995-9352
CA	Costa Mesa, Escot	714-557-3252
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	San Diego, Lauber Elctrns.	619-274-7242
CA	San Jose, Compumech	408-289-9171
CA	Santa Ana, C. R. Elctrns.	714-556-2040
CA	Santa Clara, Escot	408-988-4991
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Sierra West	408-747-1188
CO	Broomfield, Escot	303-465-2346
FL	Longwood, Cam RPC	305-834-2031
GA	Norcross, Cam RPC	404-441-1188
IL	Wheeling, Escot	312-459-5750
MD	Aberdeen, Harco Elctrns.	301-575-6885
MD	Beltsville, Treeko Sls.	301-937-8260
MD	Towson, Cam RPC	301-337-5545
MA	Newton, Greene-Shaw Co.	617-969-8900
MN	Bloomington, N.W.R. Elctrns.	612-854-7329
NJ	East Brunswick, Brothers Elec.	201-238-2200
NY	Henrietta, Cam RPC	716-334-5600
OH	Cleveland, Cam RPC	216-461-4700
OH	Dayton, Micro-Mil/Bell	513-434-8231
PA	Philadelphia, Cam RPC	215-739-4095
PA	Pittsburgh, Cam RPC	412-782-3770
TX	Dallas, Cam RPC	214-644-4325
VA	Annandale, Arcade Elctrns.	703-256-4610
WA	Kent, Pyramid Elctrns.	206-872-5800

IMTRONICS INDS., 11930 31st Ct., St. Petersburg, FL 33715, Tel: 813-577-9010, Telex: 566027 IMTRON CWTR UD; Empl.: 10; *Sls. Mgr.:* Steven B. Cohen

INCOM, INC., 205 Chapin St., P.O. Drawer G, Southbridge, MA 01550, Tel: 617-765-9151, TWX: 710-347-1604; *Sls. Mgr.:* David MacGrath

INCONIX CORP., 10 Tech Circle, Natick, MA 01760, Tel: 617-655-1170, TWX: 710-386-1997; Empl.: 60; *Sls. Mgr.:* Al Vitale

INDEPENDENT CABLE, INC., 43 Broad St., Hudson, MA 01749, Tel: 617-562-9913; Empl.: 120; *Sls. Mgr.:* Gary W. Nace

INDIANA GENERAL/DIV. EMM CORP., Magnet Prods., 405 Elm St., Valparaiso, IN 46383, Tel: 219-462-3131, Telex: 25-8489, TWX: 910-690-4891; Empl.: 1200; *Sls. Mgr.:* Royce D. Wright

INDOCOMP, INC., Newcor, 5409 Perry Dr., P.O. Box 157, Drayton Plains, MI 48020, Tel: 313-674-2294; Empl.: 26; *Sls. Mgr.:* Robert Watt

Distributor

INDUCTIVE PRODS., INC., 11733 Markon Dr., Garden Grove, CA 92641, Tel: 714-891-2572; Empl.: 10; *Sls. Mgr.:* Michael Rynkewicz **A•1230**

Distributor

INDUCTOR SUPPLY, 15204 Transistor Lane, Huntington Beach, CA 92649, Tel: 714-891-4524 .... p. 700

INDUSTRIAL COMPUTER DESIGNS, INC., 31264 La Baya Drive, Westlake Village, CA 91362, Tel: 818-889-3179; Empl.: 33; *Sls. Mgr.:* David J. Knight

INDUSTRIAL CONTROL CO., 3100 Pineda Ave., Rockledge, FL 32955, Tel: 305-259-7105; Empl.: 15; *Sls. Mgr.:* I. Nobilio .... **D•1988**

INDUSTRIAL DEVICES, INC., 7 Hudson St, Edgewater, NJ 07020, Tel: 201-224-4700, Telex: 12-7459; FSC No.: 91802; Empl.: 200; *Sls. Mgr.:* Michael Diceglie .... **B•1014, 1017, 1057-1077**

Local Sales Offices & Reps

AL	Huntsville, E.M.A., Inc.	205-837-7363
AZ	Scottsdale, Bill Earl Assocs., Inc.	602-994-3813
CA	Los Angeles, Universal Comps.	213-641-4255
CA	Mountain View, Westech Sls.	415-961-1422
CO	Aurora, Sage Sls.	303-750-3501
FL	Casselberry, Southern Elctrn. Mktg.	305-831-2822
GA	Atlanta, E.M.A., Inc.	404-448-1215
IL	Chicago, K. D. Engle	312-539-1820
IN	Indianapolis, Elctrn. Mktg. Conslts.	317-253-1668
KS	Shawnee Mission, Lowell-Kangas Assocs.	913-631-3515
MD	Towson, Ernie Stefkovic Assocs.	301-321-6008
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Oak Pk., W. Spenser	313-967-0808
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO	St. Louis, Lowell-Kangas Assocs.	314-821-4050
NJ	Cherry Hill, Ernie Stefkovic Assocs.	609-667-4066
NJ	Manville, Dyno Rep	201-685-0135
NY	Rochester, Apex Assocs.	716-254-6050
NC	Raleigh, E.M.A., Inc.	919-847-8800
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	800-362-2265
OR	Portland, Earl & Brown	503-245-2283
PA	Pittsburgh, Marlow Assocs.	412-367-8886
SC	Greenville, E.M.A., Inc.	803-233-4637
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-890-8810
TX	Richardson, R. F. Kimball Co.	214-231-3447
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, Earl & Brown	206-284-1121
EXP	NY, Jericho, E.T.I., Inc.	516-931-3434

Local Distributors

AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2885
CA	Gardena, Calif. Switch & Signal	213-770-2330
CA	Los Angeles, Elec. Switches	213-664-1141
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Empire Elctrn. Distr.	213-681-2711
CA	S. San Francisco, Steven Engrg.	415-588-9200
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Diego, Sigma Elctrns.	714-565-2000
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Monica, Master Distrs.	213-452-1229
CO	Arvada, Denver Wintronics	303-431-7161
CT	Norwalk, Park Distrs.	800-243-5006
CT	Stratford, Utronics, Inc.	203-378-4201
CT	Wallingford, Sager Electrical Supp.	203-265-4600
FL	Longwood, Inter Tec	800-432-1654
FL	Miami, Electro Standard Lab (ESL)	305-593-6060
FL	Tampa, Leader Elctrns.	813-870-3315
FL	W. Palm Beach, Nurmi Elctrn.	305-686-8553
GA	Atlanta, Wholesale Indl. Elec.	800-282-1857
IL	Villa Park, Melvin Elctrns.	312-279-5015
IL	Wood Dale, Electro-Kinetics	312-595-6700
IN	East Chicago, ACRO Elctrns.	312-375-1269
IN	Evansville, Hutch & Son	812-425-7201
IN	Fort Wayne, Graham Elctrs.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Bergquist Co.	319-366-8733
IA	Cedar Rapids, Iowa Radio Supp.	319-393-4510
KY	Bowling Green, Crescent Elctrns.	502-842-2444
LA	Lafayette, Ralph's	318-234-4507
LA	New Orleans, Wm. B. Allen Supp. Co.	800-462-9520
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	N. Wilbraham, Indl. Comps.	413-596-3854
MA	Norwood, Gerber Elctrns.	617-329-2400
MA	Worcester, RM Elctrns.	617-756-8311
MI	Flint, Shand Elctrns.	313-743-8940
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	Minneapolis, Elctrn. Center	612-371-5200
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, Olive Indl. Elect	816-842-8556
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
MO	St. Louis, Van Sickle Radio-Elec.	314-621-5000
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NV	Las Vegas, Kiesub Elctrns.	702-733-3888
NJ	Fair Lawn, Relay Spec.	201-797-3313
NJ	Hanover, State Elctrns. Parts	201-887-2550
NJ	Springfield, Route Elctrns.	201-379-7710
NY	Albany, E. E. Taylor Co.	518-438-7811
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NY	Hempstead, Elctrn. Equip.	800-645-1605
NY	Mt. Vernon, Q.A.R. Indl. Elctrn. Sls.	914-699-2224
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Raleigh, Southeastern Radio Supp.	919-828-2311
OH	Cincinatti, Hughes-Peters	513-351-2000
OH	Cincinnati, United Radio	513-761-4030
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Columbus, Hughes Peters	614-294-5351
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Toledo, Warren Radio	419-248-3364
OK	Oklahoma City, Trice Whls. Elctrns.	405-524-4411
OK	Tulsa, Oil Capitol Elctrns.	918-622-8520
OR	Eugene, United Radio Supp.	503-342-3381
OR	Portland, United Radio Supp.	503-233-7151
PA	Erie, Rem/Mace Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Randolph & Rice	615-255-5601
TX	Fort Worth, Swieco	817-335-6521
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
TX	San Antonio, Sherman Elctrns. Supp.	512-224-1004

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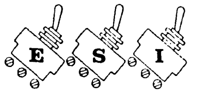

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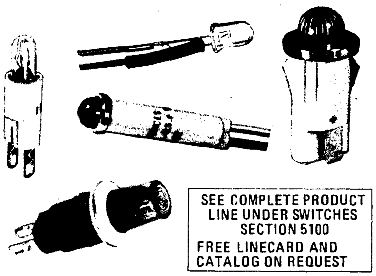

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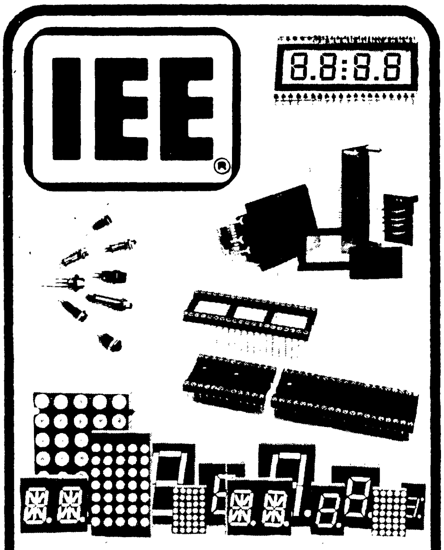

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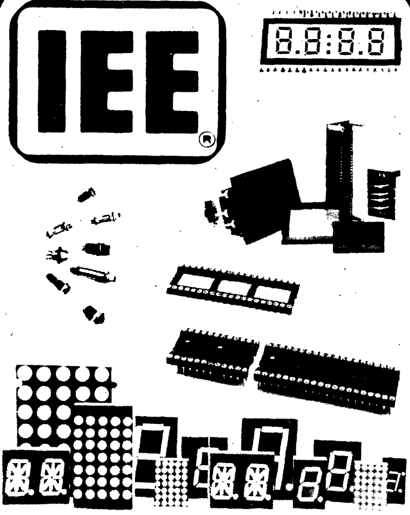

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UT Salt Lake City, Standard Supp. 801-486-3371
VA Arlington, Arlington Elctrn. Whlsrs. 703-524-6256
VA Glenn Allen, Hermitage Distrs. 804-798-3830
WI Milwaukee, Marsh Elctrns. 414-475-6000

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INDUSTRIAL ELCTRN. ENGRS., INC., 7740 Lemona Ave., Van Nuys, CA 91405, Tel: 818-787-0311, TWX: 910-495-1707; Empl.: 400; *Sls. Mgr.:* Darryl Bloom/J. Hart/I. Minarik; *Dist. Mgr.:* J. Hart .... **B•1078-1079, 1726**

Local Sales Offices & Reps

.... 716-479-9700
Cantrell Whls.
Circuit Specialist Co.
Elctrn. Equip. Co., Inc.
Ital Elctrn. Sls., Inc.
Philadelphia Elctrns., Inc.
AL Huntsville, TMA Technlg. Mktg. Assocs. 205-883-7893
AZ Phoenix, Gramer & Co. 602-995-9455, 602-942-1415
CA Brea, Masco Elctrns., Inc. 714-529-0866
CA Campbell, LCO Tech. Sls. 408-378-9900
CA Los Angeles, Masco Elctrns., Inc. 714-529-0866
CA Vista, Masco Elctrns., Inc. 619-758-5562
CO Lakewood, Cristee-Meade Co. 303-232-0287
CA San Jose, Class One Elctrns. 408-297-8666
CT North Haven, Kitchen & Kutchin, Inc. .. 203-239-0212
FL Melbourne, TMA Tech. Mktg. Assocs. 305-676-3776
FL Orlando, TMA Tech. Mktg. Assocs. 305-857-3760
FL Pompano Beach, TMA Tech. Mktg. Assocs. 305-942-0774
GA Atlanta, TMA Tech. Mktg. Assocs. 404-257-0374
ID Boise, Huntley Assocs. 208-343-3753
IL Highland Park, Bransky Sls. 312-433-2375
IN Carmel, TMC Tech. Mktg. Corp. 317-844-8462
IN Ft. Wayne, TMC Techng. Mktg. Corp. .. 219-432-5553
KS De Soto, Midtec 913-441-6565
KY Louisville, TMC Tech. Mktg. Corp. 502-499-7808
MD Hunt Valley, Marktron, Inc. 301-628-1111
MD Rockville, Marktron, Inc. 301-251-8990
MA Burlington, Kitchen & Kutchin, Inc. 617-229-2660
MI Southfield, L. H. Dickelman Co. 313-353-8210
NJ Englewood, ABS 201-871-0020,212-594-4090
MN Burnsville, 2M Sales, Inc. 612-890-7774
MO Florissant, Midtec 314-837-5200
NC Raleigh, DHR Mktg, Inc. 919-876-5450
OH Cleveland, Geotronix, Inc. 216-526-2535
OH Trotwood, Geotronix, Inc. 513-252-6700
OR Aloha, Huntley Assocs. 503-649-5388
PA Norristown, RJI 215-631-1414
SC Greenville, DHR Mktg., Inc. 803-235-3594
TX Dallas, MGR Elctrns., Inc. 214-238-5246, 713-759-0187
UT Sandy, Cristee-Meade/GTM Assocs. 801-483-4103
VA Charlottesville, Marktron, Inc. 804-973-5874
WA Everett, Huntley Assocs. 206-353-1833
WI Cedarburg, Bransky Sls. 414-377-6837

Local Distributors

AL Huntsville, C.D.I. 205-883-7501
AZ Phoenix, Tri-Tek, Inc. 602-995-9352
AZ Tempe, Circuit Specialist Co. 602-966-0764
AR Little Rock, C.D.I. 501-227-6278
CA Cerritos, El-Com, Inc. 213-404-2961
CA Gardena, California Switch & Signal Co. 213-538-9830
CA Industry, Ital Elctrn. Sls., Inc. 818-968-8515, 714-990-0922
CA Lakeside, Mouser Elctrn. Corp. 619-449-2229
CA San Diego, El-Com, Inc. 619-578-0900
CA San Diego, Richey/Western Elctrns. .. 619-565-4444
CA San Jose, Richey/Western Elctrns. ... 408-946-6611
CA Santa Clara, Waltronic Sls. 408-727-1200
CA Sun Valley, Richey/Western Elctrns. .. 818-768-3800
CO Denver, Integrated Elctrns. 303-292-6121
CT East Haven, J. V. Elctrns. 203-469-2321
FL Alamonte Springs, Pioneer/Orlando ...305-834-9090, 800-432-6094
FL Ft. Lauderdale, C.D.I. 305-971-4950
FL Miami, Elctrn. Equip. Co., Inc. 305-871-3500
GA Norcross, C.D.I. 404-441-3320
IL Chicago, Bell Inds. 312-982-9210
IL Chicago, Newark Elctrns. 312-638-4411
IL Elgin, Allied Elctrns. 312-697-8200
IL Elmhurst, Semiconductor Specialists, Inc. 312-279-1005
IL Northbrook, Classic Comps. 312-272-9650
IN Carmel, Altex Elctrns., Inc. 317-848-1323, 800-692-6039
KS Wichita, R.S.C. 316-267-5213
MD Beltsville, Treeko Sls. 301-937-8260
MD Gaithersburg, Pioneer/Washington ... 301-948-0710
MA Billerica, A. W. Mayer Co., Inc. 617-667-6900
MA Danvers, Criterion Elctrns. 617-777-4725
MA Needham, Cronin Elctrns., Inc. 617-449-5000
MI Grand Rapids, S-F Elctrn. Supp. Inc. .. 616-459-0216
MI Southfield, Michigan Lectrols Corp. ... 313-353-1350
MN Minneapolis, Stark Elctrns. 612-332-1325
MO Kansas City, Semiconductor Specialists, Inc. 816-452-3900
MO St. Louis, Olive Indl. Elctrns. 314-426-4500
NM Albuquerque, Betatron Elctrns. 505-344-2381
NM Albuquerque, Intl. Elctrns. 505-345-8127
NY Farmingdale, Pride Elctrns. 516-293-4020
NY Farmingdale, S.A.I. 516-293-2710
NY Mamaroneck, Logicomp Elctrns. 914-698-9332
NY Rochester, Masline Elctrns. 716-647-9700
NY Rochester, Modutex Corp. 716-647-9700
NC Greensboro, Hammond Elec. 919-275-6391
NC Raleigh, So. Eastern. Elctrns. 919-828-2311
NC Winston-Salem, Kirkman Elctrns. 919-722-9131
OH Cleveland, Alpha Distr. Corp. 216-526-3716
OH Dayton, The Stotts-Friedman Co. 513-298-5555
OK Oklahoma City, Electro Entrs., Inc. 405-427-6591
PA Philadelphia, Herbach & Rademan, Inc. 215-426-1700
PA Philadelphia, Philadelphia Elctrns., Inc. 215-568-7400
SC Taylors, Cantrell Whls. 803-268-1194
TX Austin, Southwest Elctrns. 512-837-8971
TX Austin, The Altair Co. 512-837-4490
TX Fort Worth, Allied Elctrns. 817-336-5401
TX Houston, Solid State Elctrns. 713-772-8483
TX Houston, The Altair Co. 713-462-3029
TX Irving, Solid State Elctrns. 214-438-5700
TX Richardson, Southwest Elctrns. 214-234-3050
TX Richardson, The Altair Co. 214-231-5166
TX Stafford, Southwest Elctrns. 713-491-4900
WA Kent, Shannon Ltd. 206-763-0545
WI Mequon, Taylor Elec. Co. 414-241-4321
WI Milwaukee, Marsh Elctrns. 414-475-6000

IEH

INDUSTRIAL ELCTRN. HARDWARE CORP., 109 Prince St., New York, NY 10012, Tel: 212-677-1881, TWX: 710-581-4338; FSC No.: 97913; Empl.: 430; *Sls. Mgr.:* Louis Roberts; *Dist. Mgr.:* Louis Roberts .... **C•1272**

Local Sales Offices & Reps

AL Huntsville, Beacon Elctrns. 205-881-5031
AZ Phoenix, Knight Co. 602-582-8506
CA Los Angeles, Knight Co 213-670-2833
CA San Diego, Knight Co. 619-743-5136
CA Sunnyvale, M2 Mktg. Grp. 408-986-0676
FL Maitland, Ellis Assocs. 305-645-1101
GA Atlanta, Beacon Elctrns. 404-256-9640
KS Wichita, Thunderbird Tech. Sls. 316-684-3941
MD Ellicot City, Techn. Sls. 301-461-2400
MA Lowell, Todino Engrg. 617-444-7925
MN St. Paul, Countryman 612-645-9151
NJ Fort Lee, FJK Assocs., Inc. 201-592-1002
NJ Haddonfield, Brown Assocs. 609-429-1005
NY Buffalo, Franklin Sls. 716-248-8251
NY Pittsford, Franklin Sls. 716-248-8251
NY Ronkonkoma, PMR 516-467-8200
NC Raleigh, Beacon Elctrns. 919-787-0330
OH Beachwood, Elctrn. Salesmasters, Inc. 216-831-9555
OR Beaverton, Eclipse Mktg. 206-885-6991
TX Dallas, Pro-Mark 214-644-0497
WA Redmond, Eclipse Mktg. 206-885-6991

Local Distributors

AL Huntsville, Powell Elctrns. 205-539-2731
CA San Jose, Powell Elctrns. 408-943-9020
CA Sunnyvale, Time Elctrns. 408-734-9888
FL Ft. Lauderdale, Time Elctrns. 305-974-4800
MA Westborough, Powell Elctrns. 617-366-6100
MA Woburn, Time Elctrns. 617-935-8080
NY Hauppauge, Time Elctrns. 516-273-0100
PA Philadelphia, Powell Elctrns. 215-365-1900
TX Dallas, Time Elctrns. 214-385-0566
TX Los Colinas, Powell Elctrns. 214-258-6841

INDUSTRIAL FABRICATING CO., 820 Woodend Ave., Stratford, CT 06497, Tel: 203-375-5853; Empl.: 30; *Sls. Mgr.:* Ray Peterson

INDUSTRIAL INDEXING SYS., INC., 626 Fishers Run, Victor, NY 14564, Tel: 716-924-9181; Empl.: 30; *Sls. Mgr.:* Raymond F. Coller

Local Sales Offices & Reps

CA	San Carlos, Cymatix	415-592-8076
IN	Fort Wayne, Aktron Corp.	219-747-3650
MA	Bedford, AID Engrg. Sls.	203-663-2225
MI	Grand Rapids, Ackerman Elec. Supp.	616-459-8327
MI	Walled Lake, Static Controls	313-363-4500
NY	East Rochester, A & D Dvcs.	716-385-2778
NY	Sidney, A & D Dvcs.	603-563-8488
OH	Medina, Cygnus Corp.	216-725-1663
PA	Media, Homersmith, Inc.	215-543-2434
WI	Milwaukee, KMA Sls. Co.	414-259-1771

INDUSTRIAL MIDWEC CAPACITORS, 4902 Tollview Dr., Rolling Meadows, IL 60008, Tel: 312-577-0120, TWX: 910-687-3375; Empl.: 800; *Sls. Mgr.:* Andy Kaluski

Powertron

INDUSTRIAL TEST EQUIP., 21 Yennicock Ave., Port Washington, NY 11050, Tel: 516-883-1700; FSC No.: 99074; *Sls. Mgr.:* Robert Loiacono .... **D•1247, 1938-1941**

INERTIAL MOTORS, 280 N. Broad St., Doylestown, PA 18901, Tel: 215-345-1010, Telex: 83-1633; Empl.: 49; *Sls. Mgr.:* Lori Clarkin

INFICON LEYBOLD-HERAEUS, INC., 6500 Fly Rd, E. Syracuse, NY 13057, Tel: 315-437-0377, TWX: 710-541-0594; Empl.: 165; *Sls. Mgr.:* D. A. DiRenzo

INFINETICS INC., Friskem Div., 201 Vandever Ave., Wilmington, DE 19802, Tel: 302-658-2471, TWX: 510-632-2332; *Sls. Mgr.:* M. Schwartz

INFOCAP, INC., 31119 Via Colinas #502, Westlake Village, CA 91362, Tel: 818-991-1410; *Sls. Mgr.:* David Knight

INFODEX

INFODEX, INC., 395 W. Main St., Waterbury, CT 06702, Tel: 203-757-9291, Telex: 178702 IFDX; FSC No.: 09087; Empl.: 45; *Sls. Mgr.:* E. H. Ulm .. **B•1080-1081; D•1410**

Local Sales Offices & Reps

CA	Pasadena, A-F Sales Engrg.	818-681-5631
MA	Boston, Nortech Engrg. Sls.	617-359-6063
MA	Concord, Nortech Engrg. Sls.	617-259-0032

INFOLINK CORP., 1925 Hoiste Rd., Northbrook, IL 60062, Tel: 312-291-2900; Empl.: 200; *Sls. Mgr.:* Joseph F. Guzman; *Dist. Mgr.:* Joseph F. Guzman

INFO-LITE CORP., See Dio-Rey and Crosspoint

INFO-PROS INC., 2102 Business Center Dr., Irvine, CA 92715, Tel: 714-851-8975

INFORMATION CONTROL, Dept. EM7 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234; Empl.: 55; *Sls. Mgr.:* Carol J. Smith

INFORMATION CONTROL CORP., Abacus Div. Dept. EM7, 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234; Empl.: 50

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INFORMATION TERMINALS, See Verbatim Corp.

otto THE SWITCHING COMPANY

INFORMATION TRANSFER INDL., Box 357, Holcomb, NY 14469, Tel: 716-657-7074; FSC No.: 55137; Empl.: 70; *Sls. Mgr.:* J. E. Wiseman .... **D•1152-1154, 1248-1249**

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Luscombe Engrg.	714-295-4300
CO	Littleton, Pond Assocs., Inc.	303-798-2904
CT	Marion, Polytek Assocs.	203-621-4542
IL	Schaumburg, Kenneth W. Meyers Co.	312-882-4808
IN	Indianapolis, Kenneth W. Meyers Co.	317-783-1030
IA	Cedar Rapids, Kenneth W. Meyers Co.	319-363-8987
MD	Clarksville, Riffe Assocs.	301-953-2811
MA	Ashland, Polytek Assocs.	617-881-4741
MN	Minneapolis, Kenneth W. Meyers Co.	612-920-7080
NJ	Oxford, Malin Assocs.	201-689-7398
NY	Albany, R. F. Lamb Co.	518-869-3355
NY	Buffalo, R. F. Lamb Co.	716-874-4500
NY	Rochester, R. F. Lamb Co.	716-323-1250
NY	Syracuse, R. F. Lamb Co.	315-454-2469
OR	Portland, Tasco	503-245-8168
PA	Melrose Park, Robert Meyers Assocs.	215-224-1663
TX	Houston, Sci. Sls. Co.	713-460-9170
TX	Richardson, Sci. Sls. Co.	214-231-6541
WA	Bellevue, Tasco	206-453-1414
WI	Brookfield, Kenneth W. Meyers Co.	414-784-3790
EXP	Brampton, Ontario, Misner Mktg. Ltd.	416-456-3777

INFOSPHERE, INC., 4730 S.W. Macadam Ave., Portland, OR 97201, Tel: 503-226-3515, Telex: 360312; *Sls. Mgr.:* Wm. David Sharon; *Dist. Mgr.:* Wm. David Sharon

INFRARED INDS., INC., P.O. Box 14200, Orlando, FL 32857, Tel: 305-282-7700, Telex: 568908; Empl.: 80; *Sls. Mgr.:* Thomas Chisholm

INJECTORALL ELCTRNS., 98-100 Glen St., Glen Cove, NY 11542, Tel: 516-671-6010 .... **C•1101**

Local Sales Offices & Reps

AL	Birmingham, John F. Russell Co.	205-822-2196
CA	Burlingame, Carelli-Ema	415-342-4514
CA	Long Beach, Ross Sls.	213-424-9818
FL	Miami Beach, Everett Wollman Sls.	305-932-1790
MA	Northboro, W. B. Pray Co.	617-393-3434
MI	Livonia, Harvey Sales Co.	313-476-1974
NY	Brooklyn, Moet Maltz & Co.	212-252-1139
WA	Edmonds, McLaughlin Mktg. Inc.	206-743-1161

Local Distributors

AL	Huntsville, Mock	205-539-2401
AZ	Tucson, Electronic City	602-622-1173
CA	Los Angeles, ITC	213-388-0621
CA	San Jose, Quement	408-998-5900
CA	San Rafael, Elctrns. Plus	415-457-0466
CA	Sunnyvale, Halted Specialties	408-732-1573
FL	Pensacola, Pensacola Elctrns.	904-478-3771
GA	Atlanta, Delta	404-458-4690
IL	Chicago, Tron Elctrns.	312-640-8822
IN	East Chicago, Acro	219-397-8681
KY	Louisville, P.I. Burkes	502-589-3960
MA	Needham, Y.D.I.	617-449-1005
MI	Bay City, KDC	517-892-1594
MI	Port Huron, Main	313-985-5103
NJ	Vineland, Laraco	609-691-2900
NY	Elmsford, Ancar	914-592-7100
NY	Levittown, Edlies Elctrns.	516-735-3330
NY	New York City, Taft	212-575-5194
NY	Richmond Hill, Anchor	212-846-2420
OR	Beaverton, Norvac	503-644-1025
PA	Norristown, Philadelphia Elctrns.	215-275-5550
TX	Fort Worth, Sweico	817-335-6521
WA	Seattle, Elctrn. Supermart	206-575-1093
WA	Seattle, Radar	206-282-2511

INLAND MOTOR DIV. KOLLMORGEN, INDL. DRIVES GRP., See Kollmorgen Corp.

INLAND MOTOR DIVISION, Kollmorgen Corp., 4020 E. Inland Rd., Sierra Vista, AZ 85635, Tel: 602-459-1150, Telex: 62858, TWX: 910-973-9869; *Sls. Mgr.:* Mike Malcoun

INLAND MOTOR
KOLLMORGEN CORPORATION

INLAND MOTOR, Kollmorgen Corp., 501 First St., Radford, VA 24141, Tel: 703-639-9045, TWX: 710-875-3740; FSC No.: 11384; Empl.: 450

Local Sales Offices & Reps

PA	Media, Homersmith, Inc.	215-543-2434
FL	Melbourne, Technology Mktg. Assocs.	305-676-3776
FL	Orlando, Technology Mktg. Assocs.	305-857-3760
FL	Pampano Beach, Technology Mktg. Assocs.	305-942-0774
FL	Winter Park, Magna Engrg. Sls.	305-671-8716
OH	Medina, Cygnus	216-725-1663
PA	Doylestown, Magna Engrg. Sls.	215-345-5111

Specialty/Instrument/Industrial Drive Group

AL	Huntsville, Technology Mktg. Assocs.	205-883-7893
AZ	Phoenix, Thor Engrg. Mfrs. Reps.	602-437-1463
AZ	Sierra Vista, Inland Motor	602-459-1150
CA	Alhambra, Thorson Co. of Southern CA	818-281-2280
CA	Goleta, Thorson Co. of Southern CA	805-964-8751
CA	Mountain View, Thorson Co. of Southern CA	415-964-9300
CA	San Diego, Thorson Co. of San Diego	619-292-8525
CA	Signal Hill, Thorson Co. of Southern CA	213-595-0361
CO	Englewood, Thorson Rocky Mt., Inc.	303-779-0666
CT	Wolcott, Vanguard Elctrns. Corp.	203-879-9310
GA	Atlanta, Technology Mktg. Assocs.	404-257-0374
IL	Collinsville, Magna Engrg. Sls.	618-345-5583
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, J & W Sls.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Wichita, Magna Engrg. Sls.	316-744-0851
MD	Baltimore, Rep-Tron, Inc.	301-799-7490
MA	Needham Heights, Vanguard Elctrns. Corp.	617-449-5578
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MI	Redford, R. P. Urban & Assocs.	313-535-2355
MN	St. Paul, John J. Exon Co.	612-636-5533
NJ	Wayne, SHL Assocs., Inc.	201-790-1714
NY	E. Rochester, A & D Dvcs.	716-385-2778
OR	Beaverton, Thorson Co. Northwest	503-644-5900
TX	Dallas, Magna Engrg. Sls.	214-349-6171
UT	W. Valley City, Thorson Rocky Mt., Inc.	801-973-7969
WA	Bellevue, Thorson Co. Northwest	206-455-9180
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

INMAC, 2465 Augustine Dr., Santa Clara, CA 95054, Tel: 408-727-1970, TWX: 910-338-2091; Empl.: 500

INMARK CORP., 147 West Cedar St., Norwalk, CT 06854, Tel: 203-866-8474, Telex: 99-6419; *Sls. Mgr.:* Lars Giers

INMOS CORP., P.O. Box 16000, Colorado Springs, CO 80935, Tel: 303-630-4000 Ext. 4454, TWX: 910-920-4904; Empl.: 1500; *Sls. Mgr.:* Peter Fowler; *Dist. Mgr.:* Jim O'Sullivan

INNOTRONICS, Brooks Rd., Lincoln, MA 01773, Tel: 617-678-8720; *Dist. Mgr.:* Stephen Scheuer

INNOVATEK MICROSYSTEMS, INC., Smithfield Rd., R1 Box 104, Millerton, NY 12546-9720, Tel: 914-373-9003, Telex: 750120; Empl.: 8; *Sls. Mgr.:* Paul F. Fitts

INNOVATIVE DATA TECHNOLOGY, 5340 Eastgate Mall, San Diego, CA 92121, Tel: 619-587-0555, TWX: 910-335-1610 IDT SDG; Empl.: 80; *Sls. Mgr.:* Robert G. Christy

INNOVATIVE ELECTRONICS, INC., 4714 N.W. 165th St., Miami, FL 33014, Tel: 305-624-1644, Telex: 80-7121; Empl.: 28; *Sls. Mgr.:* Tom Wullen; *Dist. Mgr.:* Tom Wullen

INRECO, See Ransco Industries

INRESCO, INC., 654 Ocean Road, Pt. Pleasant NJ 08742, Tel: 201-892-5881, Telex: WUD TWX: 844228; Empl.: 16; *Sls. Mgr.:* G. L. Martin

INSERVCO, INC., Box 106, La Grange, OH 44050

INSTRON CORP., 100 Royall St., Canton, MA 02021, Tel: 617-828-2500, Telex: 924434; Empl.: 1000; *Sls. Mgr.:* S. J. Vinciguerra; *Dist. Mgr.:* Lawrence Frost

INSTRULAB, P.O. B. 98, Dayton, OH 45404, Tel: 513-223-2241; Empl.: 22; *Sls. Mgr.:* Philip C. Alderton

INSTRU-LEC, 44 Old State Rd, #18, New Milford, CT 06776, Tel: 203-355-3717; FSC No.: 13782; Empl.: 4

INSTRUMENTATION & CONTROL SYS., 520 Interstate Rd, Addison, IL 60101, Tel: 312-543-6200, TWX: 910-991-5945; Empl.: 50; *Sls. Mgr.:* Ken Horning .... **B•1318-1319; D•1933**

Local Sales Offices & Reps

Industrial Control Component Reps.

CA	Arcadia, HMC, Inc.	818-447-0958
FL	Miami, Hummel Indl. Sls.	305-651-0196
IL	Elmhurst, Hill-Gray Assocs.	312-832-4101
NY	Rochester, J. G. Welch Assocs., Inc.	716-244-1100
IN	Indianapolis, Fred A. Dorsey & Assocs.	317-842-0060
KS	Shawnee Mission, Microtronics	913-262-1444
MI	Brooklyn, ECI	517-592-3236
MN	Minneapolis, R. W. Marshall Co.	612-929-0457
CO	Denver, West Incorporated	303-477-8180
NH	Durham, C. H. Burnham Assocs.	603-868-2282
NY	Plainview, R. Smith Assocs.	516-681-3155
NY	Tonwanda, Ronco Power Sys.	716-873-0760
VA	Warrenton, Mid-Atlantic Power Specialists	703-442-8249

Power Conditioning Reps.

AL	Birmingham, C. S. Phillips Co.	205-870-0640
CA	San Ramon, Synergy	415-838-8300
CO	Englewood, Data Specialties	303-761-5763
FL	Newport Richey, R. C. Todd	813-849-6067
GA	Atlanta, Fincannon Assocs.	404-451-7841
IL	Chicago, Ropek-Cahill & Vogt	312-631-0070
LA	Lake Charles, Devitt Pancoast Controls Co., Inc.	318-439-1255
LA	Baton Rouge, Devitt Pancoast Controls Co., Inc.	318-439-1255
NJ	Franklin Lakes, Lambert Assocs.	201-891-7154
NM	Albuquerque, E.E.R.	505-265-7148
LA	Metairie, Devitt Pancoast Controls Co., Inc.	504-835-1713
NY	Rochester, RG Engrg.	716-424-7492
TX	Houston, Gettys-Eads-Adair	713-781-3005

Local Distributors

CA	Canoga Park, C & A Elctrns.	818-340-6022
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Hayward, Allied Elctrns.	415-487-5250
CA	San Jose, Allied Elctrns.	408-995-0470
CO	Denver, Colorado Bus.	303-759-4589
MA	Wilmington, Allied Elctrns.	617-942-0150
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0500
FL	Miami, Hummel Indl. Sls.	305-651-0196
GA	Atlanta, Automatic Controls Co.	404-266-0130
IL	Berwyn, B-B & W, Inc.	312-749-1710
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Rosemont, Advent Elctrns.	312-297-6200
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Indianapolis, Advent Elctrns.	317-872-4910
MD	Marlow Hgts., Allied Elctrns.	301-423-0161
MI	Farmington Hills, Advent Elctrns.	313-447-1650
MN	St. Paul, Powermation	612-645-0781
NY	Bay Shore, Soundview Instrs.	516-666-1000
NY	Mineola, Allied Elctrns.	516-248-2360
OH	Chagrin Falls, Neptune	216-247-7030
OH	Warren, REM Elctrn. Supp. Co., Inc.	216-373-1300
TX	Brownsville, Garden Indl. Grp.	512-546-1612
TX	Ft. Worth, Allied Elctrns.	817-336-5401, 214-265-9341
TX	Ft. Worth, Allied Export Svcs.	817-336-5401
TX	Garland, Powertronics	214-272-4640
WA	Seattle, Allied Elctrns.	206-767-2827
WI	Fond du Lac, Fedco Elctrns.	414-922-6490
WI	Waukesha, Powermation	414-542-2868

INSTRUMENTATION MEAS. LAB., Div. of Lockheed Electronics Co., Inc., 1501 Rt. 22, Plainfield, NJ 07061, Tel: 201-757-3730; *Sls. Mgr.:* P. Murray Grinnell

INSTRUMENTATION PRODS., 3M Co., 300 S. Lewis Rd., Camarillo, CA 93010, Tel: 805-482-1911, TWX: 910-336-1676; Empl.: 500

INSTRUMENTATION SERVICES, INC., 957 Winnetka Ave. N., Minneapolis, MN 55427, Tel: 612-544-8916, Telex: 29-0101; Empl.: 30; *Sls. Mgr.:* G. Ryan

INSTRUMENT ENCLOSURES, 9767 Glenoaks Blvd., Sun Valley, CA 91352, Tel: 818-768-4622, Telex: 66-2442; FSC No.: 62012; Empl.: 28; *Sls. Mgr.:* William B. Taylor

Distributor

THE INSTRUMENT MART, 295 Community Dr., Great Neck, NY 11021, Tel: 516-487-7430 ... **D•1246, 1364, 1389**

INSTRUMENT RESEARCH CO., Box 40207, Santa Barbara, CA 93103, Tel: 805-962-8336; Empl.: 6

INSTRUMENT RESISTOR CO., See INRESCO/Instr. Resistor

INSTRUMENTS, INC., 7263 Engineer Rd., San Diego, CA 92111, Tel: 619-571-1111, Telex: 695073, TWX: 910-335-1607; FSC No.: 34563; Empl.: 28; *Sls. Mgr.:* Ken Kalbfell

INSTRUMENTS AND CONTROLS DIV., Technology Inc., P.O. Box 3036, Overlook Branch, Dayton, OH 45431, Tel: 513-426-2405, TWX: 810-450-2620; FSC No.: 23978; Empl.: 100; *Sls. Mgr.:* Robert J. Papajcik

INSTRUMENTS FOR INDUSTRY, INC., 151 Toledo St., Farmingdale, NY 11735, Tel: 516-694-1414, TWX: 510-222-0876; Empl.: 25; *Sls. Mgr.:* Ron Richards ...**D•1010**

Local Sales Offices & Reps

AZ	Mesa, DJM Elctrns.	602-820-4030
CA	Mountain View, DJM Elctrns.	415-966-1680
CA	Newhall, DJM Elctrns.	805-254-2677
CA	Westlake Village	805-495-1006
CO	Englewood, R. A. Mayes Co.	303-761-9447
CA	San Diego, DJM Elctrns.	619-283-2955
MD	Laurel, CSDS, Inc.	301-490-3800
MN	Minneapolis, Deerland Distrs.	612-331-6433
MO	Kansas City, EIR Co.	816-452-7030
MO	Leasburg, EIR Co.	314-895-4100
NJ	N. Plainfield, Brady Co.	201-753-7988
NM	Albuquerque, R. A. Mayes Co. Southwest	505-292-2330
OH	Cincinnati, Bill Teplitz Assocs.	513-481-1648
OH	Cleveland, Bill Teplitz Assocs.	216-439-3265
TX	Austin, Scientific Dvcs.	512-442-6215
TX	Houston, Scientific Dvcs.	713-864-1711
TX	Richardson, Scientific Dvcs.	214-231-8106
WI	Milwaukee, Deerland Distrs.	414-784-1414

INSTRUMENT SPECIALTIES CO., P.O. Box A, Delaware Water Gap, PA 18327, Tel: 717-424-8510, TWX: 510-671-4526; Empl.: 300; *Sls. Mgr.:* James P. May .... **C•1724-1725**

Local Sales Offices & Reps

AZ	Phoenix, O'Donnell Assocs.	602-944-9542
CA	San Jose, O'Donnell Assocs.	408-263-6500
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Englewood, D. M. Harthun Assocs., Inc.	303-792-5050
MI	Brooklyn, Engineer Comps., Inc.	517-592-3236
MN	Eagan, J. Jorgenson & Assocs., Inc.	612-452-9541
OR	Hillsboro, Temco Northwest	503-648-8171
TX	Dallas, J. M. Spell	214-620-0040
WA	Kirkland, Temco Northwest	206-821-5434

INTECH, Instruments Div., 282 Brokaw Rd., Santa Clara, CA 95050, Tel: 408-727-0500, TWX: 910-338-0254; Empl.: 120; *Sls. Mgr.:* Howard Randall; *Dist. Mgr.:* Howard Randall

INTECH, Microcircuits Div., 2270 Martin Ave., Santa Clara, CA 95050, Tel: 408-988-4930, TWX: 910-338-2213; FSC No.: 33967; Empl.: 150; *Sls. Mgr.:* D. Arnold .... **A•1672**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech	205-533-2100
AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	San Diego, MESA Engrg. Sls.	619-278-8021
CO	Broomfield, Wescom Mktg.	303-465-2234
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Largo, Electrocraft, Inc.	813-530-4749
FL	Winter Park, Electrocraft, Inc.	305-628-4705
GA	Norcross, Electro-Mech	404-447-6478
IL	Roselle, John Kennaugh Assocs.	312-980-7570
MD	Mt. Airey, Beacon North, Inc.	703-534-7200
MD	Randallstown, Beacon North, Inc.	301-655-2265
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Birmingham, Favco Inc.	313-644-0173
MN	Minneapolis, Arjay Sls.	612-854-4972
NY	Huntington, Compar	516-423-5660
NJ	Marlton, BGR Assocs.	609-983-1020
NY	Rochester, Tae-Rep	716-586-8710
NY	Whitney Point, Tae-Rep, Inc.	607-692-3705
NC	Raleigh, Electro-Mech	919-851-8165
OH	Rocky River, Norm Case	216-333-0400
OK	Tulsa, Cunningham Comps.	918-492-0390
PA	Glenshaw, Nurm Case	
TN	Jonesboro, Electro-Mech	615-753-2964
TN	Largo, Electro-Mech	813-530-4749
TX	Austin, Cunningham Comps.	512-450-0637
TX	Dallas, Cunningham Comps.	214-669-9706
TX	Houston, Cunningham Comps.	713-461-4197
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North, Inc.	804-239-8486
Can	Calgary, Alb., Weber Elctrns.	403-264-5963
Can	Markham, Ont., Weber Elctrns.	416-475-8500
Can	Ottawa, Ont., Weber Elctrns.	613-728-2746

Local Distributors

TX	Houston, Quality Comps.	713-772-7100

INTEGRA, INC., 2368 Walsh Ave., Santa Clara, CA 95051, Tel: 408-727-9601, TWX: 910-338-0585; FSC No.: 51162; Empl.: 14; *Sls. Mgr.:* David Bradley

INTEGRAL DATA SYS., INC., Rte. 13 S, Milford, NH 03055, Tel: 603-673-9100, Telex: 95-3032; *Dist. Mgr.:* M. Dude

INTEGRATED CIRCUIT ENGRG. CORP. (ICE), 15022 N. 75th St., Scottsdale, AZ 85260, Tel: 602-998-9780, Telex: 165-755; Empl.: 45; *Sls. Mgr.:* Daniel J. Shelton

INTEGRATED CIRCUITS, INC., 10301 Willows Road, Redmond, WA 98052, Tel: 206-882-3100, TWX: 910-443-2302; FSC No.: 50821; Empl.: 228; *Sls. Mgr.:* B. W. Brugman .... **A•1673; D•1661-1665**

Local Sales Offices & Reps

CA	El Toro, Martronix	714-855-6397
CA	Mountain View, Weseloh-Swanson Assocs.	415-961-0565
CO	Parker, Tech. Mktg. Assocs.	303-841-3435
FL	Melbourne, EMS, Inc.	305-724-1027
IL	Schaumburg, Gassner & Clark Co.	312-882-8608
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MD	Owings Mills, Neal Deoul Assocs.	301-363-4311
MA	Wakefield, Howard C. Jappe Co.	617-245-9359
MN	Minneapolis, Electromark	612-881-3306
MO	St. Louis, Beams Co.	314-569-1060
NJ	Flanders, K & R Engrg. Sls.	201-584-5235
NY	N. Syracuse, Advanced Comps. Corp.	315-699-2671
OH	Cleveland, Arthur H. Baier Co.	216-461-6161
PA	Newtown, Yax Assocs.	215-860-2540
TX	Irving, Kite Elctrn. Sls.	214-438-9336
Can	Scarborough, Ont., Bestec Elctrns., Ltd.	416-293-1391

INTEGRATED COMPUTER SYSTEMS, 6305 Arizona Pl., P.O. Box 45405, Los Angeles, CA 90045, Tel: 213-417-8888, Telex: 4995168 ICS LA; Empl.: 80; *Sls. Mgr.:* Ruth Dordick

INTEGRATED DEVICE TECHNLG., INC., 3236 Scott Blvd., Santa Clara, CA 95054-3090, Tel: 408-727-6116, TWX: 910-338-2070; FSC No.: 61772; Empl.: 450; *Sls. Mgr.:* Lanny Flessas; *Dist. Mgr.:* Sue Vasquez

INTEGRATED DIGITAL PRODUCTS, 4208 E. La Palma Ave., Anaheim, CA 92807, Tel: 714-793-5300; Empl.: 12; *Sls. Mgr.:* Patrick Goodrich

INTEGRATED MICROWAVE, 11526 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-457-0277, TWX: 910-335-2037; FSC No.: 60656; *Sls. Mgr.:* Art Brand

INTELLIGENT TECHNOLOGY, Logica PLC, 151 University Avenue, Palo Alto, CA 94301, Tel: 415-328-2411, TWX: 756175; Empl.: 30; *Sls. Mgr.:* Dennis Reardon

INTEL MEMORY SYSTEMS, 1302 N. Mathilda, Sunnyvale, CA 94086, Tel: 408-734-8102, TWX: 910-339-9361; FSC No.: 34649; Empl.: 600; *Sls. Mgr.:* G. Andersen, Mktg. Mgr.

INTERACTION SYSTEMS INC., 24 Munroe St., Newtonville, MA 02160, Tel: 617-964-5300, TWX: 753582; *Sls. Mgr.:* Jonathan J. Bloom

INTERACTIVE COMPUTER PRODUCTS, INC., 23591 El Toro Rd., Ste. 180, El Toro, CA 92630, Tel: 714-770-5332, Telex: 469459; *Sls. Mgr.:* Jim Bearden

INTERACTIVE MICRO SYS., INC., 644 Davisville Rd., Willow Grove, PA 19090

INTERCONICS, BMC Industries, Inc., 245 E. 6th St., 3rd Flr., St. Paul, MN 55101, Tel: 612-228-6512, Telex: 297080; *Sls. Mgr.:* Lee Jamison

INTERCONICS, BUSSING SYS. OPER., a unit of BMC Industries, Inc., 2525 E. Vista Industria, Compton, CA 90220, Tel: 213-639-2535, Telex: 316727; FSC No.: 55783; Empl.: 90; *Sls. Mgr.:* Robert J. Ferm

INTERCONNECT DEVICES, INC., 5101 Richland Ave., Kansas City, KS 66106, Tel: 913-342-5544, Telex: 437-262 IDI KSCK

INTERCONNECTION TECHNOLOGY, INC., 5542 Buckingham Drive, Huntington Beach, CA 92649, Tel: 714-891-5305, TWX: 910-596-1879; *Sls. Mgr.:* Jerry Hammel .... **C•1711**

Local Sales Offices & Reps

AZ	Scottsdale, Semi-sys. Arizona, Inc.	602-991-1151
CA	San Diego, Joe Cetinske Sls. Co.	619-487-3335
FL	Melbourne, Al-Tech Assocs.	305-768-2184
IL	Rush & West Assocs.	314-394-7271
MD	Pasadena, Tytronics Tech. Sls.	301-471-0440
MA	Lexington, Jodan Technlg., Inc.	617-862-2354
NJ	Wayne, G. T. Assocs.	201-694-6040
NY	Fairport, Net Sls. Co.	716-467-4538
OH	Mansfield, Ralph Meckling Assocs.	419-756-4433
TX	Dallas, Allied Comps., Inc.	214-238-0408
WA	Edmonds, WA, Cunningham Sales, Inc.	206-771-4848

INTERDESIGN, INC., 1500 Green Hills Rd., Scotts Valley, CA 95066, Tel: 408-438-2900, TWX: 910-339-9374; Empl.: 230

INTERDYNE CO., 157 Topaz St., Milpitas, CA 95035, Tel: 408-943-9133; FSC No.: 31598; Empl.: 30

INTERELECTRONICS CORP., Interelectronics Park, 550 U.S. Rte. 303, Congers, NY 10920, Tel: 914-EL8-8000; Empl.: 82; *Sls. Mgr.:* M. H. Pintell; *Dist. Mgr.:* G. Sherwood .... **D•1667**

INTERFACE, 7401 Butherus Dr., Scottsdale, AZ 85260, Tel: 602-948-5555, Telex: 668-394; FSC No.: 32311

INTERFACE ELECTRONICS INC., 21134 Bridge St., Southfield, MI 48034, Tel: 313-352-8820, Telex: 234004; Empl.: 21; *Sls. Mgr.:* Ketan Bakshi

INTERFACE ENGRG., 386 Lindelof Ave., Stoughton, MA 02072, Tel: 617-344-7383, Telex: 940-848; FSC No.: 14352; Empl.: 25; *Sls. Mgr.:* Thomas Scanlon .... **D•1156-1157**

Local Sales Offices & Reps

NY	Great Neck, Industron Assoc.	516-487-2620
VA	Arlington, Gans & Pugh	703-527-3262

INTERFACE PRODUCTS, INC., 2185 S. Grand Ave., Santa Ana, CA 92705, Tel: 714-549-4977, TWX: 910-595-2569; FSC No.: 55300; Empl.: 50; *Sls. Mgr.:* William Lang

INTERFACE TECH. DYNATECH, 150 East Arrow Highway, San Dimas, CA 91773, Tel: 714-592-2971

INTERFACE TECHNOLOGY, 10500 Kahlmeyer Dr., St. Louis, MO 63132, Tel: 314-426-6880, TWX: 910-765-0916; Empl.: 50

INTERGALACTIC CORP., Box 7025, Salt Lake City, UT 84107, Tel: 801-262-0094

INTERLOK, 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-348-5625, TWX: 910-374-2353; FSC No.: 55951; Empl.: 30; *Sls. Mgr.:* Ray Vorce

INTER-MARKET, 1946 Lehigh Ave., Glenview, IL 60025, Tel: 312-729-5330, TWX: 910-651-1997; FSC No.: 34165; Empl.: 10; *Sls. Mgr.:* Phil Gardanier ..... **B•1082, 1597**

Local Sales Offices & Reps

MA	Braintree, Nova Assocs.	617-848-9330
MN	St. Paul, Kenco Tronics	612-645-7717
PA	Rydal, Espy Sls.	215-576-0780
TX	Irving, Kite Elctrn. Sls.	214-438-9336
WA	Redmond, Elctrn. Mktg.	206-882-0962
Can	Montreal, Que., Braydon Electro	514-332-5650

Local Distributors

CA	Chatsworth, Mil-Comm Distr.	818-998-3111
CO	Denver, Integrated Elctrns.	303-292-6121
ID	Spirit Lake, A-1 Elctrns.	800-635-1545
IL	Chicago, Newark Elctrns.	312-638-4411
MI	Grand Rapids, SF Elctrns.	616-459-0216
MN	St. Paul, K.D.I., Inc.	612-645-5090
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Fairlawn, Relay Specialties	201-797-3313
OH	Dayton, Stotts-Friedman	513-298-5555
PA	Willow Grove, Resco Elec.	215-659-4575
WI	Oshkosh, Electronic Inds.	414-235-8930
Can	Montreal, Que., Braydon Electro	514-332-5650

INTERMATIC, Intermatic Plaza, Spring Grove, IL 60081, Tel: 815-675-2321, Telex: 25-265; Empl.: 1000

INTER METRO INDUSTRIES CORP., North Washington St., Wilkes-Barre, PA 18705, Tel: 717-825-2741, Telex: 831-833; *Sls. Mgr.:* Richard Cross

INTERNATIONAL COMPS. CORP., 105 Maxess Rd., Melville, NY 11747, Tel: 516-293-1500, TWX: 510-224-6409; Empl.: 100; *Sls. Mgr.:* Irwin Okin; *Dist. Mgr.:* Irwin Okin .... **A•1086, 1876, 2074; C•1273; D•1025**

Local Sales Offices & Reps

AL	Huntsville, EMA	205-830-4030
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CA	Redwood City, Hickey Inds.	415-368-3849
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FL	Plantation, EMA	305-581-3251
FL	St. Petersburg, EMA	813-894-1171
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IN	Indianapolis, E. T. Kaul Assocs.	317-888-6187
IA	Cedar Rapids, IOWA Tech. Sls.	319-393-8644
MD	Baltimore, Espy Sls. Co.	301-444-6982
MA	Framingham, GM Assocs.	617-872-4871
MA	Stroughton, GM Assocs.	617-344-0116
MN	Minneapolis, PSI	612-944-8545
NJ	East Brunswick, Winch Sls. Assocs. ...	201-828-4615
NY	Jericho, Metro Tech. Sls.	516-935-3330
NY	Syracuse, Nycom	315-437-8343
NC	Pineville, EMA	704-541-2628
NC	Winston-Salem, EMA	919-784-7304
OH	Gahanna, Kemp Assocs.	614-476-5052
PA	Camp Hill, Espy Sls. Co.	717-763-9577
PA	Rydal, Espy Sls. Co.	215-576-0780
TN	Donnelson, EMA	615-883-1414
TX	Austin, Mech-tron Mktg.	512-459-0802
TX	Houston, Mech-tron Mktg.	713-462-1432
TX	Richardson, Mech-Tron Mktg.	214-437-4833
UT	Salt Lake City, Meridian Mktg.	801-968-4177
PR	Hato Rey, Casanova Indl. Sls. Corp. ...	809-753-8674

Local Distributors

AZ	Phoenix, ACC	602-269-5655
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CA	Redwood City, Hi-Cor	415-365-5087
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CT	East Haven, JV Elctrns.	203-469-2321
FL	Ft. Lauderdale, National Resistor Co.	305-772-4500
MN	Eden Prarie, Cassidy Elctrns.	612-944-0100
MN	Minneapolis, Cassidy Elctrns.	612-835-7746
PA	Philadelphia, Jan Indl. Elec.	215-WA 2-1321
PA	Philadelphia, Mur'Tronics	215-632-4330
TX	Ft. Worth, C & W Supp. Co.	817-831-0395

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INTERNATIONAL DATA SCIENCES, 7 Wellington Rd., Lincoln, RI 02865, Tel: 401-333-6200, TWX: 710-384-1911; Empl.: 125

INTERNATIONAL DEVICES INC., 3200 Pendleton, Santa Ana, CA 92704, Tel: 714-557-9394, 800-854-7651, Telex: 681387; FSC No.: 53763; *Sls. Mgr.:* Alan J. Vanek; *Dist. Mgr.:* Alan J. Vanek

INTERNATIONAL DIODE, 229 Cleveland Ave., Harrison, NJ 07029, Tel: 201-482-6518; Empl.: 9; *Sls. Mgr.:* Lee Toong

INTERNATIONAL ELECTRO MAGNETICS, INC., 350 N. Eric Dr., Palatine, IL 60067, Tel: 312-358-4622; Empl.: 15; *Sls. Mgr.:* T. Pretto .... **D•1026**

Local Sales Offices & Reps

NY	New York, United Research Labs.	212-751-4660

Local Distributors

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CA	Pleasant Hill, ALC	415-777-5525
NY	Morris, Boynton Studio	607-263-5695
NY	New York, United Research Labs.	212-751-4660

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INTERNATIONAL HIGH VOLTAGE ELCTRNS., INC., 98 Mill Plain Rd., Danbury, CT 06811, Tel: 203-792-7820; *Sls. Mgr.:* A. Pellegrino .... **D•1668-1669**

Local Sales Offices & Reps

CT	Waterbury, HLM Assocs.	203-753-9894
NJ	Parsippany, HLM Assocs.	201-263-1535
NY	Northport, HLM Assocs.	516-757-1606

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AL	Huntsville, Brandel-Stephens	205-883-0445
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Burlingame, Engineering Reps. Co.	415-348-5042
CA	Burlingame, Engrg. Rep.	415-348-5042
CA	San Diego, Alturdyne Reps. Co.	619-565-6366
CO	Denver, Nelson	303-295-1017
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Elk Grove Village, Memeco Sls. & Svc. Corp.	312-228-9555
KS	Shawnee Mission, Tech. Sls. Assoc.	913-888-3330
MD	Gaithersburg, Pioneer Instrmn. Div.	301-921-0660
MD	Perry Hall, Electra-Tech	301-256-2723
MD	Sparks, E.I.L. Instrs., Inc.	301-771-4800
MA	Burlington, E.I.L. Instrs., Inc.	617-272-9450
MA	Hingham, Northeast Reps.	617-749-8700
MN	Eden Prairie, Yukon Sls. Assocs.	612-941-8155
MO	Ferguson, Tech. Sls. Assocs.	314-725-5361
NJ	Berkley Heights, NBS Assocs.	201-464-8500
NY	Rochester, H. C. Johnson Agys.	716-586-0777
NC	Charlotte, D.G.W.	704-334-7090
NC	Winston Salem, D.G.W.	919-768-7166
OH	Westlake, Advanced Tech. Assocs.	216-835-5050
OK	Tulsa, Telstar Instr.	918-628-1011
OR	Portland, Garland Affolter Engrg.	503-223-7349
PA	Glenshaw, H. C. Johnson Agys.	412-487-1246
PA	Malvern, Stitzer Assocs.	215-644-5500
PA	Pittsburgh, E.I.L. Instrs., Inc.	412-731-5230
TX	Houston, Wilson-Markham Assocs.	713-445-5780
VA	Dumfries, Electra-Tech	703-670-6962

Local Distributors

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CA	Los Angeles, E.I.L. Instrs., Inc.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	Palo Alto, Metermaster	415-968-0313
CA	San Diego, Metermaster	619-560-4841
CA	Santa Clara, Dynametron	408-727-6531
CA	Santa Clara, E.I.L. Instrs., Inc.	408-727-0396
CO	Denver, E.I.L. Instrs., Inc.	303-534-4160
CO	Denver, Metermaster Instr. Corp.	303-722-5766
CT	Middletown, E.I.L. Instrs., Inc.	203-346-6646
FL	Palm Bay, E.I.L. Instrs., Inc.	305-735-8300
GA	Norcross, Metermaster	404-446-0166
IL	Bridgeview, E.I.L. Instrs., Inc.	312-430-2292
IL	Elk Grove Village, Metermaster	312-593-8650
IN	Indianapolis, E.I.L. Instrs., Inc.	317-545-1373
KY	Louisville, E.I.L. Instrs., Inc.	502-454-3420
LA	New Orleans, Industrial Instr. Works	504-733-8355
MI	Ferndale, Ram Meter Inc.	313-398-6767
MN	Minneapolis, Process Meas. Co.	612-544-4035
NJ	Pensauken, E.I.L. Instrs., Inc.	609-488-0474
NY	Brooklyn, Metermod Instr. Corp.	718-726-4850
NY	Clarence, Trott Elctrns., Inc.	716-634-8500
NY	Hauppauge, E.I.L. Instrs., Inc.	516-231-6333
NY	Rochester, E.I.L. Instrs., Inc.	716-427-8000
OH	Cleveland, Metermaster	216-651-4100
OH	Cleveland, Pioneer/Instrmn. Div.	216-587-3600
OH	Dayton, E.I.L. Instrs., Inc.	513-435-2134
OR	Beaverton, Eicher-Richards	503-641-3300
PA	Philadelphia, Sunshine Scientific	215-673-5600
PA	Pittsburgh, CAM/RPC Instrmn.	412-782-3770
TX	Dallas, E.I.L. Instrs., Inc.	214-931-1236
TX	Garland, Metermaster	214-271-5671
TX	Houston, E.I.L. Instrs., Inc.	713-271-3100
TX	Houston, Meters & Instr. Corp.	713-644-1631
VA	Alexandria, E.I.L. Instrs., Inc.	703-354-4330
VA	Virginia Beach, E.I.L. Instrs., Inc.	804-499-3746
WA	Seattle, E.I.L. Instrs., Inc.	206-762-0800
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INTERNATIONAL MICROELECTRONIC PRODS., 2830 North First Street, San Jose, CA 95134, Tel: 408-262-9100, Telex: 499-1041, TWX: 910-338-2274; FSC No.: 408-262-3981 (Manual); Empl.: 380; *Sls. Mgr.:* Robert Kromer .... **A•1674-1676**

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AL	Huntsville, The Novus Grp.	205-881-2207
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CA	Los Alamitos, Santana Sls.	213-431-3533
CA	San Diego, SR Elctrns.	619-560-8330
CA	San Jose, IMP West. Area Sls. Off.	408-262-9100
CA	San Jose, Quadrep	408-946-4000
CT	Orange, Access Sys. Corp.	203-795-0201
FL	Orlando, Perrott Assocs., Inc.	305-298-7748
GA	Norcross, The Novus Grp.	404-939-1135
IL	Schaumburg, Gassner & Clark	312-882-8608
IN	Indianapolis, CC Elctrns.	317-225-1508
MD	Towson, DG Reps.	301-583-1360
MN	St. Paul, Northport Engrg., Inc.	612-457-8000
NH	Nashua, Access Sys. Corp.	603-888-8160
NY	Melville, IMP East. Area Sls. Off.	516-752-1166
NC	Greensboro, United Sls.	919-674-9849
OH	Cincinnati, Applied Data Mgmt.	513-579-8108
TX	Plano, Texas Sls. Co.	214-867-0644
WA	Redmond, Quadra, Sls. Corp.	206-883-3550

INTERNATIONAL MICROSYSTEMS, 11554 C Ave., Auburn, CA 95603, Tel: 800-325-6028; Empl.: 12; *Sls. Mgr.:* Stan Burmich

INTERNATIONAL MICROTRONICS CORP., 4016 E. Tennessee St., Tucson, AZ 85714, Tel: 602-748-7900, TWX: 910-952-1170; Empl.: 30; *Sls. Mgr.:* Tommy Follis; *Dist. Mgr.:* Tommy Follis

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AZ	Tempe, Spectrum Assoc. SW	602-966-1788
CA	Palo Alto, Tri-Rep	415-965-1822
CT	Branford, LJM Assocs.	203-488-4244
IL	Chicago, Esco Assocs.	312-763-0800
MN	Minneapolis, R-J Inc.	612-866-3661
PA	Southampton, Campbell Assocs.	215-322-6630
TX	El Paso, Nokomis Consumer Prods.	915-778-2801
TX	Euless, Andy Byles Intl.	817-267-4099

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CA	Arcadia, Van Gott & Assocs. Inc.	818-445-9728
FL	Jupiter, Southern Elctrn. Sls., Inc.	305-744-0028
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TX	El Paso, Nokomis of El Paso, Inc.	925-778-2801

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INTEROPTICS, Purdy Group, 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-7727

INTERPRETATION SYS., INC., A DBA Systems Company, 420 S. Fairview Ave., Goleta, CA 93117, Tel: 805-967-2383, Telex: 658336; *Sls. Mgr.:* Stan Schlosser

INTERSIL, 10710 N. Tantau Ave., Cupertino, CA 95014, Tel: 408-996-5000, TWX: 910-338-0583; FSC No.: 32293; Empl.: 4102; *Dist. Mgr.:* Bruce Mattern

INTERSTATE ELECTRONICS CORP., Box 3117, 1001 E. Ball Rd., Anaheim, CA 92803, Tel: 714-635-7210, Telex: 655443, TWX: 910-591-1197; FSC No.: 6625, 5985; Empl.: 1500; *Sls. Mgr.:* Darryl Watanabe; *Dist. Mgr.:* R. Sorenson

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AZ	Scottsdale, Semper Fi Sls., Inc.	602-991-4606
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GA	Dunwoody, J. R. Assocs.	404-399-1831
IL	Westchester, W. G. Brouilette & Assocs.	312-345-6500
IN	Noblesville, W. G. Brouillette & Assocs.	317-877-4508
MA	Newton, Normell Assocs.	617-969-5478
MN	Minneapolis, Intl. Sls. Co.	612-831-8423
NJ	Colonia, H. B. Heft Assocs.	201-381-5193
NJ	Colonia, Heft & Ficarra Assocs.	201-381-5193
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TX	Carrollton, Paulsen Elctrn. Sls.	214-386-4785
TX	Richardson, Lelko-Paulsen Sls.	214-475-8052
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VA	Manassas, Eastern Comps. Sls.	800-223-3850
WA	Seattle, Harry Levinson Co.	206-382-1300
PR	Ponce, Burke Assocs., Inc.	809-840-2444

Local Distributors

CA	Santa Clara, ISC	408-496-0411
FL	Ft. Lauderdale, NRC Elctrns., Inc.	305-772-4500
FL	Indialantic, T. C. Pridmore Co.	305-727-2491
NJ	East Brunswick, Brothers Elctrns., Inc.	201-238-2200
NY	Port Chester, MKM Elctrn. Comps., Inc.	914-382-3940
PA	Exton, VSH Elctrns.	215-363-2250
TX	Allen, Prime Distrbg. Co.	214-231-0170
WA	Seattle, Kam Elctrns. Div.	206-382-1300

INTEX MICRO SYSTEMS CORP., 725 S. Adams Rd., Suite L-8, Birmingham, MI 48011, Tel: 313-540-7601, Telex: 230254 WUPUBTLX; *Sls. Mgr.:* R. Thielman

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INTRONICS, INC., 57 Chapel St., Newton, MA 02158, Tel: 617-964-4000, Telex: 200095, TWX: 710-335-6835; Empl.: 130; *Sls. Mgr.:* J. Swartz .... **D•1676-1677**

Local Sales Offices & Reps

AL	Huntsville, Over & Over, Inc.	205-837-7105
AZ	Tempe, Delta Elctrns.	602-224-1601
CA	Los Alamitos, Power Specialists	213-594-9418
FL	Melbourne, Reynolds & Assocs.	305-259-7000
GA	Norcross, Over & Over, Inc.	404-449-6205
IL	Palatine, Kingston Comps.	312-359-7990
IN	Fort Wayne, Domino Unltd.	219-747-5621
IA	Cedar Rapids, Technical Elctrns.	319-362-4116
KS	De Soto, Midtec Assocs.	913-441-6565
MI	Grand Rapids, KRW Sls.	616-363-2925
MN	Minneapolis, Dan'l. Engrg.	612-854-7550
MO	Florissant, Midtec Assocs.	314-837-5200
NY	Canandaigua, Bensman/Upstate Assocs.	716-396-2498
NY	Hicksville, J-Square Mktg.	516-935-3200
NC	Raleigh, Over & Over, Inc.	919-872-2262
OH	Dayton, Del Steffen & Assocs.	513-293-3145
PA	Montgomeryville, Eastern Sci. Mktg.	215-368-4570
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Bountiful, Anderson Assocs.	801-292-8991
WA	Seattle, Data Com. Assoc.	206-285-2525
Can	Mississauga, Ont., Giden-Morton Assocs.	416-671-8111

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IQ SYSTEMS, Applied Circuit Tech., 2931 La Jolla St., Anaheim, CA 92806, Tel: 714-630-6834; *Sls. Mgr.:* Jim Stedt

IR SCIENTIFIC, Box 110, Carlisle, MA 01741, Tel: 617-369-7118; Empl.: 10; *Sls. Mgr.:* S. J. Sommer

ISC MAGNETICS DIV., See Aeroflex Labs., Inc., Magnetic Prods. Div.

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Local Sales Offices & Reps

IL	Chicago, Rendell Sls.	312-528-9025
IN	Noblesville, Newton & Assoc.	317-845-8157
MD	Pikesville, Muncy Sls.	301-484-6376
MA	Topsfield, RFC Assocs.	617-887-8545
MN	Edina, Components Rep. Grp.	612-944-1160

ISOCHEM PRODUCTS CO., A Sub. of Rohm and Haas Adv. Matls., 99 Cook St., Lincoln, RI 02865, Tel: 401-723-2100, Telex: 845-247, TWX: 710-670-5335; Empl.: 26; *Sls. Mgr.:* W. Lott

ISOLATION PRODUCTS, INC., 157 San Lazaro Ave., Sunnyvale, CA 94086, Tel: 408-730-4672; Empl.: 5

ISOREG CORP., 410 Great Rd., P.O. Box 486, Littleton, MA 01460, Tel: 617-486-9483, TWX: 710-347-6974 ISOREG LTTN; Empl.: 75; *Sls. Mgr.:* Paul Foss; *Dist. Mgr.:* Paul Foss

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ISOTEMP RESEARCH, INC, Box 3389, Charlottesville, VA 22901, Tel: 804-295-3101; FSC No.: 031785; Empl.: 30 .... **A•1374-1375**

Local Sales Offices & Reps

AZ	Scottsdale, Faser Technical Sls.	602-948-4404
CA	Fremont, Wm. Parks & Assocs.	415-796-0875
CA	Irvine, EBA Microwave	714-857-6079
CA	San Diego, Qualtronics	619-695-0118
IL	Woodridge, Trend-Tronics	312-985-0626
IN	Fort Wayne, Given Corp.	219-432-5585
NC	Raleigh, Godwin Assocs.	919-847-3006

ISOTRONICS, Industrial Park, New Bedford, MA 02745, Tel: 617-998-2000, TWX: 710-344-1961; *Sls. Mgr.:* Dennis T. Hanley

I² INTERFACE, INC., 21101 Osborne St., Canoga Park, CA 91304, Tel: 818-341-7014, TWX: 662 949 CNPK; Empl.: 40; *Sls. Mgr.:* Gilbert Gautereaux

ITC SYSTEMS, INC., 3739 Meru Lane, Santa Barbara, CA 93105, Tel: 805-682-8122, Telex: 295-298 INTERTEL SNC; *Sls. Mgr.:* W. Schülz

ITEK MEASUREMENT SYS., Div. Litton Inds., 27 Christina St., Newton, MA 02161, Tel: 617-969-7300, TWX: 710-335-6783; Empl.: 100 .... **B•1797**

Local Sales Offices & Reps

CA	Los Angeles, Measurement Sys. Div.	213-641-0476
FL	Orlando, K. S. Chaney	305-293-5656
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MN	Minneapolis, Marsland Assocs.	612-545-4481
NJ	Metuchen, Measurement Sys. Div.	201-548-1500
NM	Las Cruces, BFA Corp.	505-524-9693

Local Distributors

FL	Orlando, Kenneth S. Chaney	305-423-9465
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
MN	Minneapolis, Marsland Assocs.	612-545-4481
NM	Las Cruces, BFA Corp.	505-524-9693
Intl	England, Tadley, Hampshire, Hightech Comps., Ltd.	07356-3922
Intl	France, Paris, Sedeme	580.72.000
Intl	Germany, Munich, Weltronic GmbH	089-49 20 66
Intl	Holland, Rotterdam, Anru	010-137395
Intl	India, Bombay, Echbee Corp.	253489
Intl	Israel, Tel-Aviv, Airtronic Engrg., Ltd.	45 48 71
Intl	Italy, La Spezia, Motordiesel Elec. Instr. & Comp.	36.232
Intl	Japan, Tokyo, Nippon Engrg. Sys.	494-4045
Intl	Norway, Oslo, Ole A. Nordby A/S	02 55 07 50
Intl	Sweden, Waxholm, Saven AB	764-315 80
Intl	Switz., Zurich, Litton Prec. Prods. Intl.	01/48 35 44

ITHACO, INC., Meas. & Control Instrs. Div., 735 W. Clinton St., P.O. Box 6437, Ithaca, NY 14851-6437, Tel: 607-272-7640, TWX: 510-255-9307; Empl.: 120; *Sls. Mgr.:* E. W. Seymour

ITOH ELECTRONICS, INC. (C.), 5301 Beethoven St., Los Angeles, CA 90066, Tel: 212-682-0420, Telex: 12-5059; Empl.: 100; *Sls. Mgr.:* F.I. Makstein, VP Mktg.

ITT CANNON, 666 E. Dyer Road, Santa Ana, CA 92705-5684, Tel: 714-557-4700, Telex: 75-3917, TWX: 910-997-0523; FSC No.: 71468;Multiple; Empl.: 2500; *Sls. Mgr.:* Joel Urban; *Dist. Mgr.:* Richard Torson .... **C•1274-1288**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co.	205-833-0445
AZ	Phoenix, ITT Cannon	602-275-4792
CA	Campbell (San Jose), ITT Cannon	408-559-1777
CA	Fountain Valley, ITT Cannon	714-964-7400
CA	San Diego, ITT Cannon	619-560-0917
CA	Santa Ana, ITT Cannon	714-557-4700
CO	Franktown, ITT Cannon	505-293-0457
CO	Littleton, ITT Cannon	303-973-8766
CT	New Fairfied, ITT Cannon	203-746-7160
FL	Deerfield Beach, Brandel-Stephens & Co.	305-427-8558
FL	Orlando, Brandel-Stephens & Co.	305-425-3202
IL	Des Plaines, ITT Cannon	312-297-3150
IN	Fort Wayne, ITT Cannon	219-484-6447
IA	Swisher, ITT Cannon	319-369-9107
KS	Wichita, ITT Cannon	316-681-2029
MD	Baltimore, ITT Cannon	301-882-4760
MD	Baltimore, ITT Cannon	301-254-3707
MA	Wakefield, ITT Cannon	617-246-2510
MI	Sterling Heights, ITT Cannon	313-643-4620
MN	Minneapolis, ITT Cannon	612-854-1973
MO	Bridgeton, ITT Cannon	314-739-6040
NM	Albuquerque, ITT Cannon	505-293-0457
NH	Henniker, ITT Cannon	603-428-3883
NY	Holbrook, ITT Cannon	215-646-2801
NY	Poughkeepsie, ITT Cannon	914-473-3314
NY	Rochester, L-Mar Assocs.	716-323-1000
NC	Greensboro, Brandel-Stephens & Co.	919-274-6952
OH	Kettering, ITT Cannon	513-434-8181
OH	Uniontown, ITT Cannon	216-494-6749
OR	Beaverton, ITT Cannon	503-626-4394
PA	Blue Bell, ITT Cannon	215-646-2801
PA	Trevose, P.S.A., Inc.	215-245-0513
TX	Dallas, ITT Cannon	214-661-0302
TX	Houston, ITT Cannon	713-777-1177
WA	Bellevue, ITT Cannon	206-454-3903
WI	Waukesha, ITT Cannon	414-544-1018

Local Distributors

AZ	Tempe, Arrow Elctrns., Inc.	602-986-4800
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Chatsworth, Arrow Elctrns., Inc.	818-701-7500
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Hayward, Arrow Elctrns., Inc.	415-487-4600
CA	Orange, Richey/Western Elec., Inc.	714-634-2811
CA	Sacramento, Arrow Elctrns., Inc.	916-925-7456
CA	San Diego, Arrow Elctrns., Inc.	619-565-4800
CA	San Diego, Richey/Western	619-271-4511
CA	San Diego, Time Elctrns.	619-586-1331
CA	Santa Clara, Richey/Western Elec., Inc.	408-727-7411
CA	Sun Valley, Richey Elctrns.	213-875-2862
CA	Sunnyvale, Arrow Elctrns., Inc.	408-745-6600
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CA	Tustin, Arrow Elctrns., Inc.	714-838-5422
CO	Denver, Arrow Elctrns.	303-758-4585
CO	Englewood, Time Elctrns. of CO	303-850-7701
CT	Cheshire, Time Elctrns., Inc.	203-271-3200
CT	Hamden, A.S.I. Connector Corp.	203-288-0044
CT	Wallingford, Arrow Elctrns., Inc.	203-265-7741
FL	Deerfield Beach, Arrow Elctrns., Inc.	305-429-8200
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Orlando, Time Elctrns.	305-841-6565
FL	Palm Bay, Arrow Elctrns., Inc.	305-725-1480
GA	Atlanta, Electro Air	404-351-3545
GA	Norcross, Arrow Elctrns., Inc.	404-449-8252
GA	Norcross, Time Elctrns.	404-448-4448
IL	Elmhurst, P.E.I./Genesis	312-530-2272
IL	Schaumburg, Arrow Elctrns., Inc.	312-397-3440
IN	Indianapolis, Arrow Elctrns., Inc.	317-243-9353
IN	Indianapolis, P.E.I./Genesis	317-637-5571
IN	South Bend, P.E.I./Genesis	219-287-2911
MD	Baltimore, A.S.I. Elecrrns. Co.	301-265-5100
MD	Columbia, Arrow Elctrns., Inc.	301-995-0003
MD	Columbia, Time Elctrns.	310-964-3090
MD	Timonium, P.E.I./Genesis	301-561-5235
MA	Woburn, Arrow Elctrns., Inc.	617-933-8130
MA	Woburn, Time Elctrns.	617-935-8080
MI	Ann Arbor, Arrow Elctrns., Inc.	313-971-8220
MI	Bloomington, Time Elctrns., Inc.	612-944-9192
MN	Edina, Arrow Elctrns., Inc.	612-830-1800
MO	St. Louis, Arrow Elctrns., Inc.	314-567-6888
MO	St. Louis, Time Elctrns.	314-391-6444
NH	Manchester, Arrow Elctrns., Inc.	603-668-6968
NH	Manchester, Arrow Elctrns., Inc.	603-688-6968
NJ	Fairfield, Arrow Elctrns., Inc.	210-575-5300
NJ	Marlton, Arrow Elctrns., Inc.	609-596-8000
NM	Albuquerque, Arrow Elctrns., Inc.	505-243-4566
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Hauppauge, Arrow Elctrns., Inc.	516-231-1000
NY	Hauppauge, Time Elctrn. Sls.	516-273-0100
NY	Liverpool, Arrow Elctrns., Inc.	315-652-1000
NY	Plainview, Progress Elctrns. Co., Inc.	516-433-1700
NY	Rochester, Arrow Elctrns., Inc.	716-427-0300
NC	Raleigh, Arrow Elctrns., Inc.	919-876-3132
NC	Winston-Salem, Arrow Elctrns., Inc.	919-725-8711
OH	Centerville, Arrow Elctrns., Inc.	513-435-5563
OH	Cleveland, P.E.I./Genesis	216-662-0737
OH	Dayton, P.E.I./Genesis	513-258-0040
OH	Solon, Arrow Elctrns., Inc.	216-248-3990
OK	Tulsa, Arrow Elctrns., Inc.	918-665-7700
OK	Tulsa, P.E.I./Genesis	918-622-8520
OR	Beaverton, Almac Elctrns.	503-629-8090
OR	Portland, Time Elctrns.	503-684-3780
OR	Tigard, Arrow Elctrns., Inc.	503-684-1690
PA	Monroeville, Arrow Elctrns., Inc.	412-856-7000
PA	Philadelphia, P.E.I./Genesis	215-568-7400
PA	Warminster, Henwarr	215-675-4104
TX	Austin, Arrow Elctrns., Inc.	512-835-4180
TX	Austin, Harrison Equip. Co., Inc.	512-458-3555

TX	Carrollton, Arrow Elctrns., Inc.	214-380-6464
TX	Dallas, Harrison Equip. Co., Inc.	214-239-2750
TX	Dallas, Time Elctns.	214-385-0566
TX	Houston, Arrow Elctrns., Inc.	713-530-4700
TX	Stafford, Harrison Equip.	713-879-2600
UT	Salt Lake City, Arrow Elctrns., Inc.	801-972-0404
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Arrow Elctrns., Inc.	206-643-4800
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Spokane, Almac Elctrns.	509-924-9500
WI	Oak Creek, Arrow Elctrns., Inc.	414-764-6600

ITT CANNON ELECTRIC, 666 East Dyer Rd., Santa Ana, CA 92702, Tel: 714-557-4700

ITT Components
A unit of ITT Corporation
Electromechanical Group

ITT COMPONENTS ELECTROMECHANICAL GRP., 1201 E. McFadden Ave., Santa Ana, CA 92705, Tel: 714-836-0351, Telex: 681-389, TWX: 910-595-1744; FSC No.: 61725; Empl.: 40; *Sls. Mgr.:* T. Beaumont; *Dist. Mgr.:* B. Holter .... **B•1414-1417, 1419, 1422, 1471**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co.	205-883-0445
AZ	Scottsdale, Semi-Systems	602-991-1151
CA	Laguna Hills, English Damco	714-837-3801
CA	Los Angeles, English Damco	213-598-6146
CA	Mountain View, Caltron Comps. Corp.	415-964-3244
CA	San Diego, English Damco	619-942-8282
CO	Denver, I. W. Strong & Assocs.	303-292-6900
CT	Guilford, Data Mark, Inc.	203-453-0575
FL	Deerfield Beach, Brandel-Stephens & Co.	305-427-8558
FL	Orlando, Brandel-Stephens & Co.	305-425-3202
GA	Atlanta, Brandel-Stephens & Co.	404-261-7579
IL	Rolling Meadows, Heartland Tech. Sls.	312-577-9222
IN	Fort Wayne, M/S Sls.	219-484-1904
IN	Indianapolis, M/S Sls.	317-257-8916
KS	Leawood, Thunderbird Tech. Sls.	913-642-7220
KS	Wichita, Thunderbird Tech. Sls.	316-684-3941
MD	Millersville, Trimark	301-987-9103
MA	Southboro, KSA of New England	617-485-9432
MI	Brighton, SAI Mktg.	313-227-1786
MN	Minneapolis, SAI Mktg.	612-935-0777
MN	Minnetonka, SAI Mktg. Corp.	612-935-0777
MO	Maryland Heights, Thunderbird Tech. Sls.	314-567-6488
NM	Albuquerque, Syntech	505-266-7951
NY	Manhasset, Win Cor Elctrns.	516-627-9474
NY	Rochester, D. L. Eiss Assocs.	716-328-3000
NC	Greensboro, Brandel-Stephens & Co.	919-274-6952
OH	Beachwood, Thompson & Assocs.	216-831-6277
OH	Dayton, Thompson & Assocs.	513-435-7733
OK	Tulsa, Norcom	918-832-7747
OR	Portland, Jas. J. Backer Co.	503-297-8744
PA	Prospect Park, Elf Sls.	215-534-3340
TN	San Antonio, Norcom	512-680-4513
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-778-0392
UT	Salt Lake City, I. W. Strong & Assocs.	810-942-6998
VA	Lynchburg, Trimark	804-528-0681
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Milwaukee, Heartland Tech. Mktg.	414-931-0606

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632 Santa Monica Blvd.
Santa Monica,
California 90401

(213) 393-9666

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Local Distributors

AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Tempe, Richey Western Elctrns.	602-894-9251
AZ	Tempe, TIME Elctrns.	602-967-2000
CA	Anaheim, TIME Elctrns.	714-937-0911
CA	Chatsworth, Integrated Elctrns.	818-998-2200
CA	Chatsworth, Q.C. Comps.	818-700-2622
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	Los Angeles, Time Elctrns.	213-477-1251
CA	Orange, Richey Western Elctrns.	714-634-2811
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Richey Western Elctrns.	619-271-4511
CA	San Diego, Time Elctrns.	619-586-1331
CA	San Jose, Integrated Elctrns.	408-263-1100
CA	Santa Ana, ITT Multi Comps.	714-835-9019
CA	Santa Clara, Richey Western Elctrns.	408-727-7411
CA	Santa Clara, RM Elctrns.	408-496-0411
CA	Santa Monica, Distr. Specialists	213-393-9666
CA	Sunnyvale, TIME Elctrns.	408-734-9888
CA	Torrance, TIME Elctrns.	213-320-0880
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, NEP Elctrns.	303-799-9898
CO	Englewood, TIME Elctrns.	303-850-7701
CT	East Haven, J.V. Elctrns.	203-469-2321
CT	New Haven, Greene Shaw Co.	203-397-0710
FL	Davie, ARCO Distrs.	305-473-2550
FL	Fort Lauderdale, NRC	305-772-4500
FL	Fort Lauderdale, TIME Elctrns.	305-974-4800
FL	Orlando, Time Elctrns.	305-841-6565
FL	Tampa, Reptron	810-876-0671
GA	Atlanta, Prehler Elctrns.	404-447-5540
GA	Norcross, Time Elctrns.	404-448-4448
IL	Arlington Heights, Reptron Elctrns.	312-593-7070
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Chicago, Prehler Elctrns.	312-384-6100
IL	Hoffman Estates, Integrated Elctrns.	312-843-2040
IL	Lombard, RM Elctrns.	312-932-5150
IN	Indianapolis, RM Elctrns.	317-291-7110
MD	Baltimore, Resco	301-529-0500
MD	Beltsville, RESCO-Washington	301-937-9100
MD	Beltsville, TREEKO Sls.	301-792-0112
MD	Columbia, TIME Elctrns.	301-964-3090
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Wilmington, R. C. Comps.	617-273-1860
MA	Woburn, TIME Elctrns.	617-935-8080
MI	Farmington Hills, Prehler Elctrns.	313-473-7200
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Bloomington, Time Elctrns.	612-944-9192
MN	Minneapolis, Industrial Comps.	612-831-2666
MO	St. Louis, TIME Elctrns.	314-391-6444
NV	Las Vegas, Kiesub Elctrns.	702-733-3888
NJ	Whippany, Tonar Inds.	201-586-9000
NM	Albuquerque, Betatron Elctrns.	505-344-2381
NM	Albuquerque, International Elctrns.	505-345-8127
NY	Hauppauge, TIME Elctrns.	516-273-0100
NC	Raleigh, Prehler Elctrns.	919-876-9111
OH	Columbus, Reptron	614-436-6675
OH	Middleburg Hts., Prehler Elctrns.	216-243-5510
OK	Tulsa, Quality Comps.	918-664-8812
OR	Portland, Time Elctrns.	503-684-3780
PA	Broomall, TIME Elctrns.	215-337-0900
PA	Essington, Tri-Com	215-521-3080
PA	Horsham, RM Elctrns.	215-674-1181
TX	Addison, Quality Comps.	214-733-4300
TX	Austin, Quality Comps.	512-835-0220
TX	Dallas, RM Elctrns.	214-263-8361
TX	Dallas, Time Elctrns.	214-385-0566
TX	El Paso, ERA Elctrns.	915-592-4126
TX	El Paso, International Elctrns.	915-598-3406
TX	Sugarland, Quality Comps.	713-491-2255
UT	North Salt Lake, Integrated Elctrns.	801-298-1869
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Seattle, Richey Western Elctrns.	206-575-1910
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	New Berlin, RM Elctrns.	414-784-4420

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ITT COMPONENTS PASSIVE GRP., 1201 E. McFadden Ave., Santa Ana, CA 92705, Tel: 714-836-0351, Telex: 68-1389, TWX: 910-595-1744; FSC No.: 61725; Empl.: 35; *Sls. Mgr.:* Nigel Stevens; *Dist. Mgr.:* Bret Holter .... **A•1096-1101, 1377; B•1418-1423**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co.	205-833-0445
AZ	Scottsdale, Semi-Systems Arizona	602-991-1151
CA	Laguna Hills, English Damco	714-837-3801
CA	Mountain View, Caltron Comp. Corp.	415-964-3244
CO	Denver, T. W. Strong & Assoc.	303-292-6900
CT	Guilford, Data Mark	203-453-0575
GA	Atlanta, Brandel-Stephens & Co.	404-261-7579
IL	Rolling Meadows, Heartland Tech. Mktg., Inc.	312-577-9222
IN	Fort Wayne, M/S Sls. & Assoc.	219-483-4520
IN	Indianapolis, SAI Mktg.	317-241-9276
KS	Leawood, Thunderbird Tech. Sls.	913-642-7220
MD	Millerville, Tri-Mark	301-761-6000
MA	Southboro, KSA of New England	617-485-9432
MI	Brighton, SAI Mktg.	313-227-1786
MN	Minneapolis, SAT Mktg.	612-935-0777
MO	Maryland Hts., Thunderbird Tech. Sls.	314-567-6488
NM	Albuquerque, Syntech	505-266-7951
NY	Manhasset, Win-Cor Elctrn. Sls.	516-627-9474
NY	Rochester, D. L. Eiss Assoc.	716-328-3000
NY	Syracuse, D. L. Eiss Assoc.	315-457-0492
NC	Greensboro, Brandel-Stephens & Co.	919-274-6952
OH	Beachwood, Thompson Assoc.	216-831-6277
OH	Dayton, Thompson Assoc.	513-435-7733
OR	Portland, Jas J. Backer Co.	503-297-3777
OR	Salem, Jas J. Backer Co.	503-362-0717
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
VA	Lynchburg, Tri-Mark	804-528-0681
WA	Seattle, Jas J. Backer Co.	206-285-1300

Local Distributors

AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Phoenix, Kachina Elctrn. Distrs.	602-269-6201
AZ	Tempe, Richey Western Elctrns.	602-894-9251
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Chatsworth, Shelley Elctrns.	619-453-7133
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	San Diego, Richey Western Elctrns.	619-271-4511
CA	San Diego, Shelly Elctrns.	619-453-7133
CA	San Jose, Integrated	408-263-1100
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	Santa Clara, Richey Western Elctrns.	408-727-7411
CA	Sun Valley, G. C. Comps.	213-768-6111
CA	Sunnyvale, Capsco Sls.	408-734-3020
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CA	Van Nuys, Nesco	213-781-0505
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Time Elctrns.	303-850-7701
CT	East Haven, J.V. Elctrns.	203-469-2321
CT	New Haven, Greene Shaw Co.	203-397-0710
FL	Dania, Arco Distrs.	305-462-3370
FL	Fort Lauderdale, NRC	305-772-4500
FL	Fort Lauderdale, Time Elctrns.	305-974-4800
GA	Atlanta, Prehler Elctrns.	404-447-5540
GA	Atlanta, Time Elctrns.	404-351-3545
IL	Arlington Hgts., Reptron Elctrns.	312-593-7070
IL	Chicago, Integrated	312-625-8400
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Chicago, Prehler	312-384-6100

IL	Lombard, RM Elctrns.	312-932-5150
IN	Indianapolis, RM Elctrns.	317-247-9701
MD	Baltimore, Resco-Baltimore	301-823-0700
MD	Beltsville, Resco, Washington	301-937-9100
MD	Columbia, Time Elctrns.	301-964-3090
MA	Burlington, TLC	617-273-0140
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Wilmington, R.C. Comps.	617-273-1860
MA	Woburn, Time Elctrns.	617-935-8080
MI	Farmington Hills, Prehler elctrns.	313-473-7200
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Bloomington, Time Elctrns.	612-944-9192
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Edina, Cassidy Elctrns.	612-835-7747
MN	Minneapolis, Industrial Comps.	612-831-2666
MO	St. Louis, Time Elctrns.	314-391-6444
NV	Las Vegas, Klesub Elctrns.	702-733-3888
NJ	Whippany, TONAR Inds.	201-884-1400
NM	Albuquerque, Betatron Elctrns.	505-344-2381
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Fairport, Pioneer Elctrns.	716-381-7070
NY	Hauppauge, Time Elctrns.	516-273-0100
OH	Columbus, Reptron	614-436-6675
OH	Middleburg Hieghts, Prehler Elctrns.	216-243-5510
OK	Tulsa, The Altair Co.	918-252-5781
OR	Portland, Time Elctrns.	503-684-3780
PA	Broomall, Time Elctrns.	215-359-1200
PA	Essington, Tri-Com	215-521-3080
PA	Horsham, RM Elctrns.	215-674-1181
TX	Addison, Quality Comps.	214-387-4949
TX	Austin, Quality Comps.	512-835-0220
TX	Dallas, Captronics	214-340-3592
TX	Dallas, RM Elctrns.	214-263-8361
TX	El Paso, International Elctrns.	915-598-3406
TX	Ft. Worth, TTI, Inc.	817-831-0441
TX	Houston, The Altair Co.	713-462-3029
TX	Richardson, The Altair Co.	214-231-5166
UT	Salt Lake City, Integrated Elctrns.	801-298-1869
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Seattle, Richey Western Elctrns.	206-575-1910
WI	Maguon, Taylor Elec. Co.	414-241-4321
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	New Berlin, RM Elctrns.	414-784-4420

ITT ELECTRON TUBE, ITT Corp., Box 100, Easton, PA 18042, Tel: 215-252-7331, Telex: 847494; FSC No.: 20948; Empl.: 550

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IN	Indianapolis, Blind Elctrns. Sls. Co.	317-241-3742
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MA	Sharon, A Appell Assoc.	617-784-3439
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MN	Minneapolis, Hei-lite Sls.	612-861-6051
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OH	Mentor, Perry Lohse & Co., Inc.	216-255-1992
MO	North Kansas City, Nevco, Inc.	816-421-1751
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OH	Dayton, Lessis Assocs.	513-294-1551
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
OR	Beaverton, Eclipse Mktg. Grp. Ltd.	503-642-1661
OR	Portland, Eclipse Mktg. Grp.	503-644-2550
PA	Philadelphia, David S. Linz	215-379-0734
SC	Greenville, H. C. Norman	803-244-6254
TX	Dallas, Techno Assocs.	214-357-9212
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
Can	Whitby, ITT Canon Elec. Canada	416-668-8881

ITT POWER SYSTEMS CORP., Box 688, Galion, OH 44833-0688, Tel: 419-468-8100, Telex: 24-1401, TWX: 810-248-2907; Empl.: 800; *Dist. Mgr.:* W. E. Fox

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CA	Los Angeles, Landa/Minyard	213-879-0770
CA	Mountain View, Caltron Comps.	415-964-3244
CA	San Diego, Landa/Minyard	619-942-1086
CO	Boulder, Component Prod. Sls.	303-530-2800
CT	Farmington, R. Perron & Co.	203-673-4825
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Chicago, IRI	312-647-7755
KS	Wichita, PMR	316-684-4141
MA	Newton, R. Perron & Co.	617-449-6162
MI	Lathrup Village, R. C. Nordstrom Co.	313-559-7373
MN	Edina, Monroe Hanna	612-925-5700
MO	Maryland Heights, PMR	314-569-1220
NH	Bedford, Ray Perron & Co.	603-472-3030
NH	Dover, Ray Perron & Co.	603-742-2321
NM	Albuquerque, Thorson Desert States	505-265-5655
NY	Albany, Regan-Compar, Inc.	518-489-4777
NC	Greensboro, Brandel-Stephens	919-274-6952
OH	Columbus, K. W. Elctrns.	614-888-0483
OH	Dayton, K. W. Elctrns.	513-890-2150
PA	Philadelphia, P.S.A., Inc.	215-245-0513
TX	Arlington, W. Pat Fralia Co.	817-267-3577
TX	Houston, W. Pat Fralia Co.	713-772-1572
UT	Salt Lake City, Comp. Prods.	801-262-0000
WA	Seattle, Jas. J. Backer Co.	206-285-1300

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AL	Huntsville, Hallmark	205-837-8700
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CA	Gardena, Cal-Switch	213-770-2330
CA	Los Angeles, Richey Western	213-820-3777
CA	San Diego, El-Com, Inc.	619-272-4511
CA	Sunnyvale, Time Elctrns. Nor/Cal	408-734-9888
CO	Denver, Integrated Elctrns.	303-292-6121
FL	Miami, Hallmark	305-971-9280
FL	Orlando, Hallmark	305-855-4020
IL	Bensenville, Hallmark	312-860-3800
IL	Wheeling, Hawk Elctrns.	312-459-4030
KS	Kansas City, Hallmark	913-888-4747
KS	Wichita, R.S.C. Elctrns.	316-267-5213
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MD	Columbia, Hallmark	301-988-9800
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MA	Hingham, Sager Elec.	617-749-6700
MI	Kentwood, R.M. Elctrns.	616-531-9300
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MN	Minneapolis, Berquist Co.	612-835-2322
MO	Maryland Heights, Hallmark	314-291-5350
NY	Buffalo, Summit Distr.	716-884-3450
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NY	Rochester, Modutex, Inc.	716-647-9700
NC	Raleigh, Hallmark	919-872-0712
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OH	Twinsburg, Schuster/Cleveland	216-425-8134
OH	Westerville, Hallmark	614-891-4555
OK	Tulsa, Hallmark	918-665-3200
PA	Philadelphia, Hallmark	215-355-7300
PA	Philadelphia, Phila. Elctrns.	215-568-7400
TX	Austin, Hallmark	512-258-8848
TX	Dallas, Hall-Mark	214-343-5000
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TX	Stafford, SW Elctrns.	713-491-4900
WI	Milwaukee, Hallmark	414-761-3000

ITT SEMICONDUCTORS, 500 Broadway, Lawrence, MA 01841, Tel: 617-688-1881, Telex: 947413, TWX: 710-342-1357; *Sls. Mgr.:* Ed Burgess; *Dist. Mgr.:* John Flannery

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ITW, Cortron Div., 400 W. Grand, Elmhurst, IL 60126, Tel: 312-279-9110

ITW SWITCHES, Illinois Tool Works, 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, Telex: 4330130, TWX: 910-221-0275; Empl.: 500; *Sls. Mgr.:* A. Steiner; *Dist. Mgr.:* A. Steiner

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IVERON PACIFIC, 1150 Morena Boulevard, San Diego, CA 92110-3899, Tel: 619-275-1500; Empl.: 16; *Sls. Mgr.:* Lee Kerl

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IL	Buffalo Grove, Jim Laganowski & Assocs.	312-520-0130
NY	Buffalo, Rudell-Merrifield Assoc.	716-634-4300
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
PA	Willow Grove, Indl. Mktg. Specialists	215-659-0444

Local Distributors

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CA	San Carlos, Logan Elctrns.	415-594-0700
CA	San Diego, Electric Power & Controls	619-483-1126
CA	San Jose, Consolidated Parts	408-263-9521
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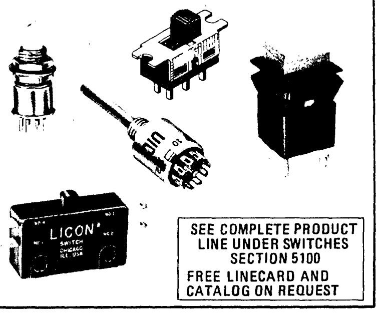

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CA	Sunnyvale, ICHIREP	408-249-2585
CT	Old Saybrook, MJT Assocs.	203-38-5890
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IL	Rolling Meadows, Commodore 1	312-394-5441
MN	Minneapolis, Kodo Assocs.	612-881-1255
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NY	Rochester, Harmony Labs.	716-458-3376
NC	Pineville, TESTREPS	704-588-4624
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OK	Tulsa, Spectra Sls. Corp.	918-663-7188
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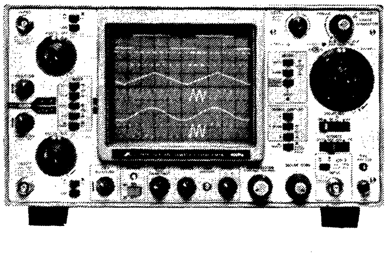

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OK	Tulsa, Tri-State Instrs.	918-836-0286
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PA	Philadelphia, Sunshine Instrs.	215-673-5600
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IXYS CORP., 142 Charcot Ave., San Jose, CA 95131, Tel: 408-262-8800, Telex: 384928 SNJ SU; FSC No.: 408-435-1033; *Sls. Mgr.:* Yoram Hirsch

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JAE, 1901A E. Carnegie Ave., Santa Ana, CA 92705, Tel: 714-250-8770, TWX: 681-438 ZEMCO SNA; Empl.: 20; *Sls. Mgr.:* James R. Clark ..... **B•1604-1607**

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AR	Dallas, Kruvand Assocs.	214-437-3355
CA	Cupertino, Codella	408-257-2561
CA	San Diego, Qualtronics	619-695-0118
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FL	Orlando, MacKay, Smith & Assocs.	305-423-4353
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
IL	Addison, Engineered Sls.	312-832-8425
IN	Ft. Wayne, Aktron Corp.	219-747-3650
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NJ	Cherry Hill, Quality Comps.	609-428-6266
NY	Albertson, C.F. Ward	516-742-5561
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
OH	Columbus, Tom Mulligan Company	614-457-2242
TX	Dallas, Kruvand Assocs.	214-437-3355
WA	Seattle, Norwest	206-827-9562

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NJ	Marlton, Naudain Assocs.	609-983-5808
OH	Dayton, F. L. Ohmer & Assocs.	513-434-1454
TX	Richardson, AGM Sls.	214-644-1475

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JAYCOR, P.O. Box 85154, San Diego, CA 92138, Tel: 619-453-6580, TWX: 910-322-1064; Empl.: 300; *Sls. Mgr.:* Steven Lutjens

JAY-EL PRODS., Sub. Ducommun Inc., 1859 W. 169th St., Gardena, CA 90247, Tel: 213-323-7130, TWX: 910-346-7633; FSC No.: 08719;Multiple; Empl.: 310

JB ELCTRN. TRANSFORMERS, 2300 W. Armitage Ave., Chicago, IL 60647, Tel: 312-342-0080, TWX: 910-221-1283; FSC No.: 11700; Empl.: 150; *Sls. Mgr.:* J. M. Blacklidge

JBM ELECTRONICS, INC., 531 Front St, Manchester, NH 03102, Tel: 603-623-0222, Telex: 953134, TWX: 710-220-8978; FSC No.: 62694; Empl.: Approx. 100; *Sls. Mgr.:* Mr. Steve Glorioso; *Dist. Mgr.:* Mr. Steve Glorioso .... **A•1528-1529**

J-B-T INSTRS., Box 1818, New Haven, CT 06508, Tel: 203-776-1111; Empl.: 25; *Sls. Mgr.:* Virginia Devitt .... **D•1358**

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GA	Augusta, Speciality Distributing	404-873-2521
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MD	Sparks, E.I.L. Instrs.	301-771-4800
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NY	Long Island City, Metermod	718-726-4850
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NY	Maspeth, Harry Alter	718-366-0123
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Bluffton, Bluffton Prods.	419-358-7891
OH	Cleveland, Weschler Elec.	216-238-2550
OH	Dayton, Scott-Friedman	513-298-5555
OK	Oklahoma City, Trice Wholesale	405-524-4411
PA	Reading, Barbey Elctrns.	215-376-7451
RI	Providence, William Dandreta	401-861-2800
TN	Nashville, Electra Distributing	615-329-3971
TX	Ft. Worth, Swieco	817-335-6521
TX	Garland, Metermaster	214-271-5671
TX	Houston, Harrison Equip.	713-879-2600
TX	Houston, Quality Instrs.	713-524-0528
WA	Seattle, Eicher-Richards	206-523-7888
WV	St. Albans, Preiser Scientific	304-727-2902

J-B-T SWITCHES, CUTLER-HAMMER PRODS., EATON CORP., Box 1904, New Haven, CT 06509, Tel: 203-772-2220; FSC No.: 55459; Empl.: 160; *Sls. Mgr.:* C. A. Peffer

Refer to Eaton Corp./Cutler-Hammer Prods., Areospace/Commercial Controls Div. for. distributor information.

JDK CONTROLS, INC., 2630 Lavery Ct, Suite F, Newbury Park, CA 91320-1593, Tel: 805-499-7779; *Sls. Mgr.:* Reece Kendall .... **A•2021**

JEFFERS ELCTRNS., Grand Plaza, 945 Grand Ave., Nogales, AZ 85621, Tel: 602-287-5851, TWX: 910-973-9794; FSC No.: 59474; Empl.: 400; *Sls. Mgr.:* Ken Shobert; *Dist. Mgr.:* Steve Morris

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, O'Donnell Assoc.	602-944-9542
CA	Garden Grove, Elsco	714-891-4621
CA	Santa Clara, I Squared	408-988-3400
CO	Boulder, R.G. Entprs.	303-447-9211
CT	Middletown, Gerber Sls.	203-347-3000
FL	Tampa, APM Assoc.	813-886-2457
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Arlington Hgts., C.L. Greenslade Sls.	312-593-3450
IN	Ft. Wayne, J.F. Kilfoil	219-436-7233
KS	Overland Park, Advanced Techn. Sls.	913-642-6675
LA	Covington, Cartwright & Bean	504-892-1780
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Lathrup Village, R. C. Nordstrom	313-559-7373
MN	Edina, Grayden & Flemmer	612-941-1120
NM	Albuquerque, Power Entprs.	505-298-1918
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Great Neck, MOS Assoc.	516-487-3966
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Cincinnati, J.F. Kilfoil Co.	513-791-6150
OR	Beaverton, Eclipse Mktg.	503-642-1661
PA	Ardmore, Wm. K. Metz	215-896-7300
TX	Lewisville, Jim Hughes	214-221-1536
WA	Puerto Rico, Hato Rey, M. Anderson Co.	809-751-2026
WA	Redmond, Eclipse Mrktg.	206-885-6991

JEFFERSON ELEC., MagneTek, Inc., 1400 Center Circle Drive, Downers Grove, IL 60515-1021, Tel: 312-691-2400, Telex: 72-8408; Empl.: 1200; *Sls. Mgr.:* Tom Hull; *Dist. Mgr.:* Frank Michalik

Local Sales Offices & Reps

AZ	Phoenix, Ross-Bloom & Assoc.	602-955-5024
CA	Los Angeles, J. G. Pomeroy	213-263-9381
CA	San Francisco, Black & Egbert Assocs.	415-282-0840
CO	Denver, Electra-Tech Sls.	303-778-1900
FL	Tampa, Clement-Kinzel, Inc.	813-839-4470
GA	Atlanta, Berry-Elsberry Co.	404-355-9296
IL	Hillside, Archibald & Hamel	312-449-0202
IL	Wood Dale, Power Prods. Co.	312-595-1142
MD	Annapolis, Peter Straaten	301-261-2831
MA	Framingham, Gerald Rosen Co.	617-879-5505
MA	Stoughton, North Coast Sls.	617-344-1007
MI	Livonia, Electric Sls. Co.	313-464-1800
MN	Minneapolis, G. L. Brusacorm	612-872-8222
MS	Jackson, Welch & Doby	601-932-5534
MO	Kansas City, Mid-States Elec. Sls.	913-621-6161
MO	St. Louis, Schaeffer Sls.	314-647-1000
NE	Omaha, Boyle & Williamson	402-553-1666
NJ	Edison, Bizzarro Elec. Sls.	201-757-7010
NJ	Gloucester City, ESA Mfgrs. Rep.	609-456-7110
OH	Westlake, Associated Elec. Comps.	216-835-9960
NY	New Hartford, F. W. Laver & Son	315-724-2304
NC	Charlotte, W. H. Lassister Sls.	704-523-2736
OH	Cincinnati, Bryan, Haley & Cunningham	513-561-0500
PA	Pittsburgh, Robert Colley Assocs.	412-331-3121
TX	Dallas, The Rich Co.	214-742-1758
TX	Houston, Gulf Elec. Mktg.	713-868-2517
WA	Seattle, Bangs Assocs.	206-762-0262
WI	Butler, J. F. Nolan & Assocs.	414-781-1140

JENNINGS, 970 McLaughlin Ave., San Jose, CA 95122, Tel: 408-292-4025, Telex: 34-6311, TWX: 910-338-0159; FSC No.: 73905; Empl.: 370; *Sls. Mgr.:* E. V. Valehrach .... **A•1102-1103; B•1424-1425, 1610; D•1251**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens	205-883-0445
AZ	Phoenix, Crown Systems	602-274-3180
CA	Granada Hills, C & W Comps.	213-368-4032
CA	Santa Clara, Silicon Valley Sls.	408-371-8814
CO	Denver, Lindberg Co.	303-758-9033
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
MD	Silver Spring, Marktron	301-460-6100
MD	Timonium, Marktron	301-252-7111
MA	Haverhill, L. K. Harman, Inc.	617-373-1313
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NJ	Englewood, Cooper Assocs.	201-871-4985
NM	Albuquerque, Lindberg Co.	505-881-1006
NC	Greensboro, Brandel-Stephens	919-274-6952
OH	Westlake, Harry W. Applegate Co.	216-331-2960
PA	Huntingdon Valley, Omega Elctrns.	215-947-4135
PA	Pittsburgh, Covert & Newman & Co.	412-531-2022
TX	Houston, Barry Sales	713-784-5860
TX	Richardson, Barry Sales	214-234-0255
UT	Salt Lake City, Lindberg Co.	801-969-2400
VA	Charlottesville, Marktron	804-973-5874
WI	Milwaukee, Berndt Assocs.	414-545-8400

Local Distributors

CA	Oceanside, Surcom Assocs.	619-722-6162
IL	Franklin Park, Richardson Elctrns., Ltd.	312-456-0600

JENSEN TOOLS, INC., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040, Tel: 602-968-6241, TWX: 910-950-0115; Empl.: 100; *Sls. Mgr.:* Tom Fenzel

JEROME INDUSTRIES CORP., B 730 Division St., Elizabeth, NJ 07201, Tel: 201-353-5700, Telex: 132001-JEROME, ELIZ; Empl.: 150; *Sls. Mgr.:* Anthony Di Girolamo .... **D•1678-1679**

Local Sales Offices & Reps

MN	St. Paul, Countrymen Assocs.	612-645-9151

JEROME INDUSTRIES CORP., Transformer Div., 730 Division St., Elizabeth, NJ 07201, Tel: 201-353-5700, Telex: 132001-JEROME, ELIZ; *Sls. Mgr.:* Anthony Di Girolamo

JERSEY SPECIALTY CO., See JSC Wire & Cable

JERSEYSWITCH, INC., 129A Gaither Dr., Mt. Laurel, NJ 08054, Tel: 609-778-8190

JETTRON PRODS., P.O. Box 337, E. Hanover, NJ 07936, Tel: 201-887-0571; FSC No.: 04435; Empl.: 30; *Sls. Mgr.:* J. M. Schill .... **C•1408-1410**

Local Sales Offices & Reps

CA	El Cajon, A-Tronics	619-444-1501
CA	Woodland Hills, A-Tronics	818-703-7212
NY	New York, Eltron Export Co.	212-944-7635

Local Distributors

Intl	England, Slough, Berks, LPPI	44-753-77788
Intl	France, Le Chesnay, LPPI	33 3 955 2104
Intl	Italy, Cinisello Balsamo (Mila, LPPI	2-6127821
Intl	Netherland, Krimpen a.d. Yssel, LPPI	31-1807-1 8555
Intl	Sweden, Stockholm, LPPI	46-8-132030
Intl	Switzerland, Zurich, Litton Precision Prods. Intl. (LPPI)	1 312 35 44

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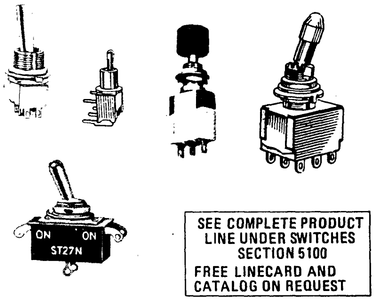


JEWELL ELECTRICAL INSTRS., Grenier Field, Manchester, NH 03108, Tel: 603-669-6400, Telex: 943435 JEWELL MAN; Empl.: 400; *Sls. Mgr.:* W. P. Bolia .... **D•1359**

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak & Frazier	205-536-1506
AZ	Phoenix, The Knight Co.	602-582-8506
AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Fremont, William Parks Assocs.	415-796-0875
CA	Los Angeles, Knight Co.	213-670-2833
CA	San Diego, Knight Co.	619-571-7903
CT	Middletown, Gerber Sls.	203-347-3000
GA	Norcross, Currie, Peak & Frazier, Inc.	404-449-7662
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
IA	Cedar Rapids, Gassner & Clark Co.	319-393-5763
MA	Monson, Gerber Sls.	413-267-5051
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Troy, C. B. Jensen	313-643-0506
MN	Edina, M. Foster Co.	612-941-9790
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NM	Albuquerque, C. T. Carlberg	505-888-3883
NY	Buffalo, Rudell-Merrifield Assocs.	716-634-4300
NY	Melville, Comtronics Assocs.	516-249-0505
NC	Greensboro, Currie, Peak & Frazier, Inc.	919-373-0380
NC	Raleigh, Currie, Peak & Frazier, Inc.	919-787-0808
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
OH	Dayton, Marlow Assocs., Inc.	513-275-4147
OK	Oklahoma City, J. Y. Schoonmaker	405-685-4477
OR	Portland, Frank Jackson	503-292-2638
TX	Austin, J. Y. Schoonmaker	512-480-9257
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
WA	Redmond, F. Jackson	206-881-7277
WI	Milwaukee, Berndt Assocs.	414-545-8400

Local Distributors

AL	Birmingham, Brownell Electro, Inc.	205-322-3374
AL	Mobile, Brownell Electro, Inc.	205-479-5404
AZ	Phoenix, Metermaster, Inc.	602-437-1425
AR	Little Rock, Brownell Electro, Inc.	501-562-2061
CA	Lamirada, Stevens Instr. Co.	714-994-5111
CA	Los Angeles, E.I.L. Instrs., Inc.	213-685-7020
CA	Los Angeles, Metermaster, Inc.	213-685-4340
CA	Palo Alto, Metermaster, Inc.	415-968-0313
CA	San Diego, Metermaster, Inc.	619-560-4844
CA	Santa Clara, Dynametron, Inc.	408-727-6531
CA	Santa Clara, E.I.L. Instrs., Inc.	408-727-0396
CA	Santa Clara, Fisher-Brownell	408-988-6041
CO	Denver, E.I.L. Instrs., Inc.	303-534-4160
CO	Denver, Metermaster Instr., Inc.	303-722-5766
CT	Middletown, E.I.L. Instrs., Inc.	203-346-6646
FL	Miami, Brownell Electro, Inc.	305-592-2636
FL	Orlando, Brownell Electro, Inc.	305-843-6770
FL	Palm Bay, E.I.L. Instrs., Inc.	305-725-8300
GA	Atlanta, Brownell Electro, Inc.	404-762-5181
IL	Bridgeview, E.I.L. Instrs., Inc.	312-430-2292
IL	Countryside, Pacific Indicator Co.	312-352-3500
IL	Itasca, Metermaster, Inc.	312-250-0606
IN	Evansville, Electro-Lab Svcs., Inc.	812-423-5211
IN	Indianapolis, E.I.L. Instrs., Inc.	317-545-1373
KY	Louisville, E.I.L. Instrs., Inc.	502-454-3420
LA	Kenner, Breard-Gardner	504-466-3401
MD	Baltimore, Sunshine Sci. Instr., Inc.	301-661-5900
MD	Gaithersburg, Pioneer/Instrmn.	301-921-0660
MD	Sparks, E.I.L. Instrs., Inc.	301-771-4800
MA	Burlington, E.I.L. Instrs., Inc.	617-272-9450
MA	Waltham, Calibron Corp.	617-894-6440
MA	Woburn, Brownell Electro, Inc.	617-935-7820
MI	Ferndale, Ram Meter, Inc.	313-398-6767
MN	Minneapolis, Instrumentation Svcs., Inc.	612-544-8916
MN	Minneapolis, Process Measurement Co.	612-544-4035
MO	St. Louis, Industrial Svc. Labs	314-535-5760
NJ	Belleville, Miscorp	201-751-1190
NJ	Edison, Brownell Electro, Inc.	201-287-2030
NJ	Pennsauken, E.I.L. Instrs., Inc.	609-488-0474
NM	Albuquerque, Walker Elctrn. Supp. Co.	505-883-2992
NY	Clarence, Trott Elctrns., Inc.	716-634-8500
NY	Hauppauge, E.I.L. Instrs., Inc.	516-231-6333
NY	New York, Brownell Electro, Inc.	212-924-6000
NY	Rochester, E.I.L. Instrs., Inc.	716-427-8000
NC	Charlotte, Brownell Electro, Inc.	704-597-1270
NC	Charlotte, Trott Electronics, Inc.	704-376-2237
NC	Raleigh, Brownell Electro, Inc.	919-876-6524
OH	Cleveland, Pioneer Instrmn.	216-587-3600
OH	Cleveland, Weschler Elec. Co.	216-237-2550
OH	Dayton, E.I.L. Instrs., Inc.	513-435-2134
OH	Dayton, Pioneer Std. Elctrn.	513-236-9900
OK	Tulsa, Combined Technlg. Co.	918-665-3002
OK	Tulsa, Genesis Elctrns. Corp.	918-622-8520
OR	Portland, Branom Instr. Co.	503-283-2555
PA	Philadelphia, Sunshine Sci. Instr.	215-673-5600
PA	Pittsburgh, C.A.M. Inst.	412-963-1885
PA	Pittsburgh, E.I.L. Instrs., Inc.	412-731-5230
SC	Columbia, Brownell Electro, Inc.	803-772-6111
TN	Knoxville, Brownell Electro, Inc.	615-966-3441
TN	Memphis, Brownell Electro, Inc.	901-795-8483
TN	Nashville, Brownell Electro, Inc.	615-885-1302
TX	Dallas, Dallas Meter-Tek Supp.	214-349-6044
TX	Dallas, E.I.L. Instrs., Inc.	214-931-1236
TX	Dallas, Ultra Instr. Lab, Inc.	214-357-0297
TX	El Paso, McNicol Elctrns.	915-566-2936
TX	Garland, Metermaster, Inc.	214-271-5671
TX	Houston, E.I.L. Instrs., Inc.	713-271-3100
TX	Houston, Quality Instr. Lab	713-524-0528
VA	Richmond, Meter Metrics	804-275-1431
WA	Richland, Branom Instr. Co.	509-943-6664
WA	Seattle, Branom Instr. Co.	206-762-6050
WA	Seattle, E.I.L. Instrs., Inc.	206-762-0880
VA	Alexandria, E.I.L. Instrs., Inc.	703-354-4330
VA	Virginia Beach, E.I.L. Instrs., Inc.	804-499-3746
WI	Milwaukee, E-M Instrs., Inc.	414-272-7799

JFD ELCTRNS., See Murata Erie No. Amer., Inc.

JF MICROSYSTEMS, 3641 Frontier Road, Pasco, WA 99301, Tel: 509-297-4294, 800-JF-CARDS; Empl.: 2; *Sls. Mgr.:* Jim Follansbee

JFW INDS., INC., 2719 E. Troy Ave., Indianapolis, IN 46203, Tel: 317-783-9875; Empl.: 30; *Sls. Mgr.:* Joetta Walker; *Dist. Mgr.:* Joetta Walker

JKL COMPS., 13343 Paxton St., Pacoima, CA 91331, Tel: 818-896-0019, Telex: 910-496-1504; FSC No.: 55335; Empl.: 18; *Sls. Mgr.:* Bob Brandt

JMJ TECHNICAL PRODS., 50 Wheeler Point Rd., Newark, NJ 07105, Tel: 201-589-4257; Empl.: 8; *Sls. Mgr.:* Kevin Kolenut .... **C•1613**

JMK

JMK, INC., 15 Caldwell Dr., Amherst, NH 03060, Tel: 603-886-4100, Telex: 955329; Empl.: 200; *Sls. Mgr.:* J. Kennedy .... **A•1611**

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-881-0413
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CA	Woodland Hills, Cummings & Assocs.	213-340-6035
CO	Denver, Arkco Sls.	303-758-1151
FL	Lantana, Burke Assocs.	305-585-3238
FL	Largo, Burke Assocs.	813-584-5699
FL	Orlando, Burke Assocs.	305-298-4783
IL	Downers Grove, Momak Sls.	312-963-6400
IN	Indianapolis, Gorny Sls.	317-271-7504
MD	Riderwood, W.S. Warrington & Assocs.	301-823-8759
MA	Framingham, STS	617-620-0195
MI	Novi, Lektronics	313-349-3304
MN	St. Paul, Arkco Sls.	612-777-7454
NJ	Haddonfield, Gray Assocs.	609-429-5300
NJ	Ridgewood, Ballou Assocs.	201-444-6990
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, Elcom Sls.	315-685-8245
NC	Charlotte, JWL Assocs.	704-523-3001
OK	Tulsa, Barry Sls.	918-749-7775
OR	Hillsboro, Temco NW	503-648-8171
OR	Portland, Cummings & Assocs.	503-761-4411
TX	Austin, Barry Sls.	512-837-3616
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
WA	Bothell, Temco NW	206-821-5434
WA	Edmonds, Cummings & Assocs.	206-775-1421
WI	Muskego, Momak Sls.	414-363-7744

Local Distributors

CA	Woodland Hills, C & A Elctrns.	213-340-6022
MN	St. Paul, Voyager Elctrns.	612-571-7766
NH	Hudson, C & H Elctrns.	603-882-1133
Can	Toronto, Ont., RAE Elctrns.	416-736-1744

JM TRANSFORMER CO., INC., 112 Florida St., Farmingdale, NY 11735, Tel: 516-293-0475; Empl.: 13; *Sls. Mgr.:* J. Millman .... **A•2160-2163**

JOBMASTER CORP., 9008 Liberty Rd., Randallstown, MD 21133, Tel: 301-655-1400; Empl.: 16; *Sls. Mgr.:* Wendy Goldman .... **A•1303**

JOHANSON DIELECTRICS

JOHANSON DIELECTRICS, 2220 Screenland Dr., Burbank, CA 91505, Tel: 818-848-4465, TWX: 910-498-2735; Empl.: 154 .... **A•1104**

Local Sales Offices & Reps

AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
CA	Glendale, Mission Mktg.	818-247-9110
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890
FL	Boca Raton, Lawrence Assocs	305-368-7373
IL	Northfield, Johanson Dielectrics	312-446-8425
IL	Park Ridge, Metcom Assocs.	312-696-1490
IN	Kokomo, Schillinger Assocs.	317-452-4057
KS	Shawnee Mission, Florence & Meyer	913-722-5210
MA	Wethersfield, Compac Sls.	203-563-4784
MN	Minneapolis, Bill Deming & Assocs.	612-888-5000
NY	Bablyon, Astro Rep.	516-422-2500
NY	Syracuse, Pitroncis	315-455-7346
NC	Greensboro, L & D Inc.	919-292-3201
OH	Breckville, WRR Assocs.	216-526-2023
PA	Trevose, PSA Co.	215-245-0513
TX	Arlington, W. Pat Fralia Co.	817-640-9101
WA	Seattle, Northmar Inc.	206-524-5170
Can	Hamilton, Ont., Cartwright/Southhall	416-528-0294

Local Distributors

CA	Los Alamitos, SEMI DICE	213-594-4631
CA	Santa Clara, SEMI DICE	408-980-9777
NJ	Fairfield, CHPS Inc.	201-882-0997

JOHANSON MFG. CORP., 400 Rockaway Valley Rd., Boonton, NJ 07005, Tel: 201-334-2676, TWX: 710-987-8367; FSC No.: 91293; Empl.: 200 .... **A•1105**

Local Sales Offices & Reps

AZ	Phoenix, Compass Mktg. & Sls.	602-996-0635
CA	Los Angeles, Knight Co.	213-670-2833
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assoc., Mt. States	303-426-0890
FL	Orlando, Perrott Assocs.	305-298-7748
IL	Northfield, Johanson Mfg.	312-446-4021
IN	Kokana, Schillinger Assocs.	317-452-4057
IA	Cedar Rapids, ARD Sales Co.	319-393-6392
MA	Seekonk, J. Murphy Assocs.	617-761-7153
MN	Bloomington, Bill Deming & Assoc.	612-888-5000
NJ	Boonton, Johanson Mfg. Corp.	201-334-2676
NY	Mount Vernon, Friedman-Smith Elctrn. Sls.	914-664-4866
NY	Pittsford, NHA, Inc.	716-586-9002
NC	Winston-Salem, Murcota Corp.	919-722-9445
OH	Cleveland, Baehr, Greenleaf & Assoc.	216-221-9030
PA	Trevose, P.S.A.	215-245-0513
TX	Bedford, W. Pat Fralia Co.	817-267-3577
WA	Seattle, Northmar	206-524-5170

Local Distributors

AZ	Tempe, Bell Inds.	602-267-7774
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	Gardena, Bell Inds.	213-515-1800
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, Integrated Electronics	408-263-1100
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Van Nuys, CW Swift & Assocs.	818-989-1133
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Wheatridge, Bell Inds.	303-424-1985
FL	Orlando, Pelcor Co.	305-299-1541
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-784-5100
MD	Baltimore, Radio Elec. Svc.	301-823-0070
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MA	Medford, Blake Assocs.	617-391-7890
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Mt. Vernon, ASAP Elctrns.	914-699-2727
NY	Syracuse, Newark Elctrns.	315-437-6611
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TX	Ft. Worth, PATCO Supplies	817-429-8596
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Bell Inds.	206-747-1515

JOHNSON, E. F., CO., 299 Johnson Ave., Waseca, MN 56093, Tel: 507-835-6222, Telex: 290470, TWX: 910-565-2161; Empl.: 1400; *Sls. Mgr.:* G. Mena

JOHNSON CONTROLS, Battery Div., 5757 N. Green Bay Ave., Milwaukee, WI 53201, Tel: 414-228-2581, Telex: 026-650; Empl.: 20,000

JOLO INDS., 13921 Nautilus Dr., Garden Grove, CA 92643, Tel: 714-554-6840, TWX: 910-595-1138; Empl.: 20; *Sls. Mgr.:* J.S. Giampiccolo, Jr.

JONARD INDUSTRIES CORP., 134 Marbledale Rd., Tuckahoe, NY 10707, Tel: 914-793-0700, Telex: 996570, TWX: 710-562-0107; Empl.: 65; *Sls. Mgr.:* R. Fersen

JONATHAN MFG., 1101 So. Acacia Ave., Fullerton, CA 92631, Tel: 714-526-4651, Telex: 910 592-1241; Empl.: 375

JONES, HIRAM, ELCTRNS. INC., See Hiram Jones Elctrns. Inc.

JORDAN ELEC., See Vishey Resistance Sys. Grp.

JORI RESOURCES, 2128 Knoll Dr., Ventura, CA 93003, Tel: 805-642-2266; Empl.: 4

JOSLYN ELCTRN. SYS., P.O. Box 817, Goleta, CA 93116, Tel: 805-968-3551, TWX: 910-334-3464; FSC No.: 23663; Empl.: 210; *Sls. Mgr.:* A. deSouza

JRW INDS., INC., 2312 N Second St., Harrisburg, PA 17110, Tel: 717-236-1418; Empl.: 4; *Sls. Mgr.:* James Thorbahn

JSC WIRE & CABLE
QUALITY WIRE AT THE RIGHT PRICE

JSC WIRE & CABLE, Box 248, Burgess Pl., Wayne, NJ 07470, Tel: 201-694-6200; Empl.: 40; *Sls. Mgr.:* R. Dulude .... **C•1841**

Local Sales Offices & Reps

CA	Van Nuys, Art Szerlip Sls. Co.	818-782-1765
CO	Colorado Springs, Norris & Warren Assocs.	303-576-8697
CO	Denver, Norris & Warren Assocs.	303-579-1676
DE	Newark, Carmine Assocs.	302-731-0697
FL	Crystal River, Foster Sls.	904-795-7831
IL	Chicago, Ken Levy Assocs.	312-763-5000
IA	Burlington, J. S. Ridge Entprs.	319-754-8745
KY	Louisville, Mid Central Sls. Co.	502-239-5614
MA	Lynn, Keene Sls. Co.	617-595-2300
MI	Livonia, Harvey Sls.	313-591-1975
NJ	Teaneck, Steve Fisher Sls.	201-837-1200
NY	Rochester, Warren Kaufman	716-266-2728
NC	Charlotte, D. Austin Co.	704-334-0174
OH	Columbus, Benchmark	614-861-2070
OR	Portland, R. M. Minthorne	503-246-4556
TX	Dallas, Crockett Sls. Co.	214-350-3377
MN	Minneapolis, John E. M. Anderson	612-823-6459
EXP	NY, New York, Roburn Agencies	212-989-5939

J. TRONICS, Apollo Magnetics, 2720 W. Beverly Rd., Los Angeles, CA 90057, Tel: 213-381-2500, TWX: 910-321-4348; *Sls. Mgr.:* Michael Ronzon

JUDCO MFG. INC., P.O. Box 487-E84, 24030 Frampton Ave., Harbor City, CA 90710, Tel: 213-534-0959 .... **B•1611**

Judd Wire
DIVISION OF
HIGH VOLTAGE
ENGINEERING

JUDD WIRE, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, Tel: 413-863-4357, TWX: 510-290-2147; FSC No.: 3357; Empl.: 148; *Sls. Mgr.:* Jack Allen .... **C•1842-1843**

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs.	205-533-9108
CA	Los Altos, Ewing Foley	415-941-4525
CO	Denver, Duffy Assocs.	303-595-4244
FL	Coral Springs, HAI Elctrns.	305-752-7520
GA	Atlanta, Hughes Assocs.	404-252-7486
IL	Arlington Heights, Rozner Sls. Co.	312-577-0067
MA	Marlborough, O.K. Engrg.	617-481-6400
MI	Southfield, C. H. Schmidt Co.	313-353-6000
MN	Brooklyn Center, Willman Assocs.	612-566-5010
MS	Corinth, Hughes Assocs.	601-287-2915
NJ	Haddonfield, Mesa Tech. Assocs.	609-429-9531
NY	Attica, B. H. Tollefson Assocs.	716-591-1219
NY	Auburn, B. H. Tollefson Assocs.	315-253-4109
NY	Rochester, B. H. Tollefson Assocs.	716-271-4141
NC	Research Triangle Park, Naylor Assocs.	919-836-0478
OH	Worthington, Simcox Assocs.	614-885-8995
OR	Portland, Jas. J. Backer Co.	503-297-8744
SC	Greenville, Naylor Assocs.	803-297-9969
TN	Morristown, Hughes Assocs.	615-587-2433
TX	Dallas, Stevens Sls. Co.	214-350-2476
UT	Salt Lake City, Electrodyne	801-486-3801
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

AL	Madison, Sea Wire & Cable	205-772-9616
AZ	Tempe, Pacer Elctrns.	602-267-0299
CA	Anaheim, Innovative Sys.	714-632-8800
CA	Concord, Control Master	415-939-3600
CA	Irvine, Republic Elctrns.	714-855-2222
CA	Mountain View, Sonic Wire	415-965-4646
CA	San Leandro, Anixter	415-352-3100
CA	Torrance, Blake Wire & Cable	213-515-0561
CA	Valencia, Wirenetics Co.	805-257-2400
CT	East Hartford, E. J. Stephens Co.	203-568-1927
CT	Manchester, I.M.S.	203-649-4415
FL	Altamonte Springs, Royce Elctrns.	305-869-4700
FL	Ft. Lauderdale, Pacer Elctrns.	305-462-0902
FL	Ft. Lauderdale, Simcona Elctrn.	305-485-4455
GA	Clarkston, Lance Engrg.	404-292-4404
MA	Burlington, QPL Elctrn. Dist.	617-229-2424
MA	Woburn, Pacer Elctrns.	617-935-8330
MN	Bloomington, K. L. Tannehill	612-881-6700
NH	Amherst, North Country Wire & Cable	603-889-0063
NH	Manchester, Yankee Elctrn.	603-625-9746
NJ	Dover, Electro Spec.	201-361-5079
NJ	Fairfield, Olympic Wire & Cable	201-227-7996
NJ	Red Bank, Freedom Elctrns.	201-747-4666
NY	Fairport, Pacer Elctrns.	716-377-0462
NY	Farmingdale, Weico Elctrns.	516-293-0050
NY	Rochester, Simcona Elctrn.	716-328-3230
NY	Ronkonkoma, Zenith Wire	516-585-1444
OH	Dayton, Astro Inds.	513-429-5900
PA	Harleysville, Omega Wire & Cable	215-256-6577
PA	Montgomeryville, Pyttronic Ind.	215-242-6700
TX	Dallas, Interstate Wire	214-553-1311
WA	Seattle, Anixter	206-251-5287
WI	New Berlin, Indl. Elec. Wire & Cable	414-782-2323

JUDD WIRE, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, Tel: 619-744-7720, TWX: 910-322-1149; FSC No.: 3357 .... **C•1842-1843**

Refer to Judd Wire, Turners Falls, MA for sales office and distributor information.

JRL JULIE RESEARCH

JULIE RESCH. LABS., 211 West 61st St., New York, NY 10023, Tel: 212-245-2727, TWX: 710-581-5138; Empl.: 45; *Sls. Mgr.:* Pamela Spencer ..... **A•1878; D•1252-1256**

Local Sales Offices & Reps

Resistors

CA	Northridge, Craig Assocs.	213-993-4060

JUMBO PROCESS CONTROL, INC., 410 Garibaldi Ave., Lodi, NJ 07644, Tel: 201-779-7744, Telex: 642-406; *Sls. Mgr.:* W. F. Feiler

JUNCTION DEVICES, INC., 2488-A Townsgate Rd., Westlake Village, CA 91361-2594, Tel: 818-889-4030, 805-497-4421, TWX: 910-336-1293; FSC No.: 60858; Empl.: 70; *Sls. Mgr.:* N. Pena

JUPITER SYSTEMS, 1100 Marina Village Parkway, Alameda, CA 94501, Tel: 415-523-9000; *Sls. Mgr.:* Richard MacElhiney

KAHGAN ELCTRNS. CORP., 605 Peninsula Blvd., Hempstead, NY 11550, Tel: 516-538-2300, TWX: 510-222-4347; Empl.: 39; *Sls. Mgr.:* Fred Strauss; *Dist. Mgr.:* Carl Clemente

Local Sales Offices & Reps

AL	Huntsville, BCI, Inc.	205-539-4411
CA	Los Angeles, Corcoran Assocs.	213-823-4589
CA	Santa Clara, Maxim Elctrn. Sls.	408-946-6001
CO	Aurora, High Tech Assocs.	303-695-1990
FL	Casselberry, Southern Elctrn. Mktg. (A/K/A Semi)	305-831-2822
IL	Palatine, Technology Sls.	312-991-6600
KS	Overland Park, J. F. Guernsey Co.	913-381-2225
MA	Lexington, Del-Con Sls.	617-938-1929
MI	Southfield, Gehrke, Fred & Assocs.	313-559-5363
MN	Minneapolis, Smiley-Scott Assocs.	612-888-5551
NY	N. Syracuse, R. F. Roux Co.	315-458-6576
OH	Cincinnati, Gilbert, Bob & Assocs.	513-574-1932
PA	King of Prussia, Emerald Elctrns.	215-265-1360
SC	Easley, RA Sls.	803-859-1859
TX	Dallas, Marcom	214-351-4532
TX	El Paso, Aztec Microelectronics	915-581-6130
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WA	Vancouver, Ray Over Sls.	206-695-6179
WI	Wauseka, Techn. Sls.	414-787-5015

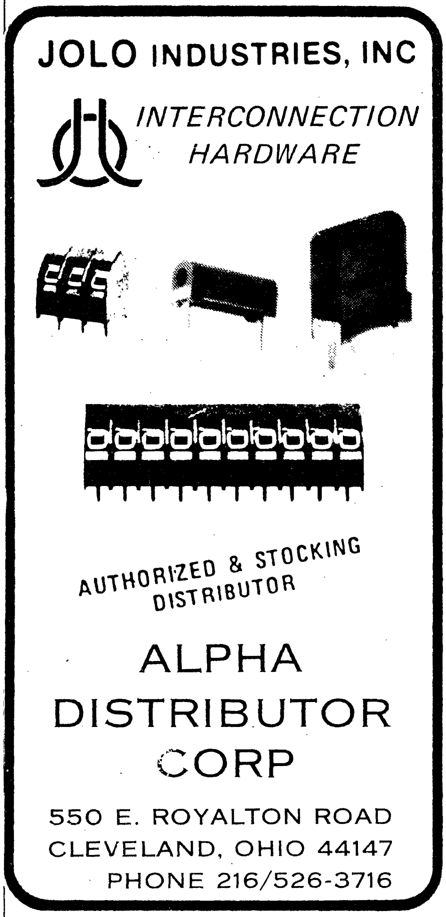
KAHLE ENGRG., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087, Tel: 201-867-6500, Telex: 42-7757, TWX: 710-992-8835; Empl.: 50; *Sls. Mgr.:* Carl A. Napor

KAISER ELCTRNS., Kaiser Aerospace & Elctrns., 2701 Orchard Pkwy., San Jose, CA 95134, Tel: 408-946-3000, TWX: 910-338-0196; Empl.: 1200

KAISER ELECTROPRECISION, Kaiser Aerospace & Elctrns., 1700 S. Redhill Ave., Irvine, CA 92714, Tel: 714-250-1015, Telex: 678467; FSC No.: 86831; Empl.: 387; *Sls. Mgr.:* Gerald W. Allen

KSI Kaiser Systems, Inc.

KAISER SYSTEMS, INC., 126 Sohier Road, Beverly, MA 01915, Tel: 617-922-9300, Telex: 887159; FSC No.: 3698; Empl.: 100 .... **D•1680-1683**


JOLO INDUSTRIES, INC
INTERCONNECTION
HARDWARE
AUTHORIZED & STOCKING
DISTRIBUTOR
ALPHA
DISTRIBUTOR
CORP
550 E. ROYALTON ROAD
CLEVELAND, OHIO 44147
PHONE 216/526-3716

teclab®

KALAMAZOO TECHNICAL FURNITURE, P.O. Box 1165, Kalamazoo, MI 49005, Tel: 616-385-2255; Empl.: 42; *Sls. Mgr.:* B. Smith .... **C•1068**

KALART VICTOR CORP., Hultenius St., Plainville, CT 06062, Tel: 203-747-1663; *Sls. Mgr.:* J. J. Costag

KALGLO ELCTRNS. CO., INC., 6584 Ruch Rd., E. Allen Twp., Bethlehem, PA 18017, Tel: 215-837-0700; FSC No.: 64521; *Sls. Mgr.:* Joe H. Ungerer

KALMUS & ASSOCS., INC., 2424 S. 25th Ave., Box 525, Broadview, IL 60153, Tel: 312-343-7004, TWX: 910-226-0713. Empl.: 346; *Sls. Mgr.:* William R. Blinn

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
CA	Pasadena, Black & White, Inc.	818-792-2133
CA	San Diego, Varigon Assocs.	619-576-0100
CA	San Jose, Class One Elctrns. Corp.	408-297-8666
CO	Boulder, Comp. Product Sls.	303-530-2800
FL	Plantation, Gallagher & Assocs.	305-473-2101
GA	Atlanta, L & D, Inc.	404-395-7079
IL	Arlington Heights, M. J. Petersen & Assocs.	312-577-8200
IL	Chicago, W. F. Hamilton Co.	312-867-5030
IN	Ft. Wayne, F. J. Campisano Co.	219-747-2633
IN	Indianapolis, F. J. Campisano Co.	317-253-7651
MA	Braintree, Nova Assocs.	617-848-9330
MI	Jackson, Jim Jordan Assocs.	517-750-2677
MN	Minneapolis, Northstar Comps.	612-553-1888
MS	Meridian, Alpha Mktg.	601-483-9306
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	Mountainside, Henry G. Richter Co.	201-233-4615
NY	Fayetteville, Henry G. Richter Co.	315-637-6713
NC	Greensboro, L & D, Inc.	919-292-3201
OH	Cincinnati, F. J. Campisano Co.	513-574-7111
OH	Cleveland, F. J. Campisano Co.	216-749-5550
PA	Corapolis, F. J. Campisano Co.	412-264-5151
TN	Austin, C. R. Colvin Assocs.	512-474-8698
TN	Houston, C. R. Colvin Assocs.	713-961-1262
TX	Richardson, McCoy Assocs. Co.	214-238-1017

K&L MICROWAVE, INC., 408 Coles Circle, Salisbury, MD 21801, Tel: 301-749-2424, TWX: 710-864-9683; FSC No.: 50140; Empl.: 320; *Sls. Mgr.:* Paul J. Leo

K & L QUARTZTEK, K & L Microwave, 20 S. 48th Ave., Phoenix, AZ 85043, Tel: 602-272-7944, TWX: 910-951-1305; FSC No.: 59492; *Sls. Mgr.:* Mark H. Story

K & M ELCTRNS., 123 Interstate Dr., W. Springfield, MA 01089, Tel: 413-781-1350, TWX: 710-350-6463; FSC No.: 6M312; Empl.: 500; *Sls. Mgr.:* Allan Mallanik ... **A•1879**

Local Sales Offices & Reps

CT	Marlborough, Precision Sls., Inc.	203-295-0580
OH	Akron, Augnat Assocs.	216-273-1211

Local Distributors

MA	West Springfield, Moldcon	413-736-0371

KANTZ ELCTRN. IND., 1804 Wall Church Rd., Wall Township, NJ 07719, Tel: 201-974-0090; Empl.: 12; *Sls. Mgr.:* L. Herold

KAPPA
NETWORKS INC

KAPPA NETWORKS, INC., 1443 Pinewood St., Rahway, NJ 07065, Tel: 201-541-1600, Telex: 130081 Kappa Rhwy; FSC No.: 20933; Empl.: 237; *Sls. Mgr.:* D. Pearl .... **A•1530-1545**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls. Engrg. Co.	205-533-2100
CA	Alhambra, Kappa Networks	213-283-2048
CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CA	Santa Clara, Emerging Tech. Sls.	408-727-1771
CO	Englewood, White Sls. Co.	303-694-9555
CT	Cheshire, Selmark Assocs.	203-573-9088
FL	Altamonte Springs, 'C' Assocs., Inc.	305-831-1717
GA	Norcross, Electro-Mech Sls. Engrg. Co.	404-447-6478
IA	Grandview, R.R. Burton & Assocs.	816-763-5385
MD	Columbia, Eastern Tech. Corp.	301-995-0202
MA	Millis, Selmark Assocs.	617-376-2914
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Grandview, R.R. Burton & Assocs.	816-763-5385
NH	Hopkinton, Selmark Assocs.	603-746-3299
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Electro-Mech Sls. Engrg. Co.	919-851-8165
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TN	Jonesboro, Electro-Mech Sls. Engrg. Co.	615-753-2964
TX	Dallas, Technlg. Sls.	214-380-0200
TX	Houston, Technlg. Sls.	713-266-2473
EXP	Carteret NJ, Kappa Networks	800-223-0603

Local Distributors

CA	Sherman Oaks, Delay Line Distrs. Co.	800-624-2617

KAPPA SCIENTIFIC CORP., Box 30585, Santa Barbara, CA 93105, Tel: 805-687-9648; Empl.: 4

KARKAR ELECTRONICS, INC., 245 Eleventh St., San Francisco, CA 94103, Tel: 415-552-1247, TWX: 910-372-7754 or 650-157-2515 MCI; FSC No.: 017857; *Sls. Mgr.:* A. Slikkerveer

KARL HOPT CO, See Hopt, Karl, Co.

KATES SCI. INSTRS., 142 Adam St., Newton, MA 02158, Tel: 614-527-2711; Empl.: 28; *Sls. Mgr.:* D. Kates

KATO ENGINEERING, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

KAUFMAN DATA COMMS., INC., Orange Nassau Elctrns. Co., 145 E. Dana St., Mountain View, CA 94041, Tel: 415-962-8811, TWX: 910-379-5021

KAVLICO
CORPORATION

KAVLICO CORP., 20869 Plummer St., Chatsworth, CA 91311-5096, Tel: 818-882-2400, FAX 818-998-2050, Telex: 65-1481; Empl.: 250; *Dist. Mgr.:* Rudi Kettler .... **B•1798**

Local Sales Offices & Reps

AL	Adamsville, SouthRep	205-674-3056
CA	Dana Point, Avia-Tech	714-661-1914
CO	Lakewood, Loritz Controls	303-232-7803
IL	Lansing, Van Meter Instr.	312-474-3580
KS	Desoto, Midtec Assocs.	913-441-6565
MA	Lexington, Jodan Tech.	617-863-8898, 617-862-2354
MI	Taylor, Source Elctrns.	313-295-7790
MN	Minneapolis, Industra Co.	612-835-5535
NM	Albuquerque, Indl. Prods. Corp. (IPC)	505-256-3561
NJ	Haledon, E. A. Oliva Co.	914-457-9209
OH	Middleburgh Hgts., J. L. Finnicum	216-234-2323
PA	King of Prussia, FLW of PA	215-337-4343
SC	Greenville, E. C. Capell & Assocs.	803-297-6550
TX	Ft. Worth, UTM Engineering	817-429-2456
TX	Houston, Collinsystems Pro-Quip	713-464-9428

KAYE INSTRUMENTS, 15 De Angelo Dr., Bedford, MA 01730, Tel: 617-275-0300, Telex: 6817183; Empl.: 170

KAY ELEMETRICS CORP., 12 Maple Ave., Pine Brook, NJ 07058-9797, Tel: 201-227-2000, TWX: 710-734-4347; FSC No.: 80138; Empl.: 70; *Sls. Mgr.:* Stephen P. Crump .... **A•1713**

KAY-TOWNES ANTENNA, P.O. Box 593, Rome, GA 30161, Tel: 404-291-9871, TWX: 810-764-4809; Empl.: 85; *Sls. Mgr.:* Charles S. Ford; *Dist. Mgr.:* James A. Sheffiled

KB ELCTRNS., 73 Wortman Ave., Brooklyn, NY 11207, Tel: 718-257-3300, TWX: 710 584 2308; Empl.: 125; *Sls. Mgr.:* A Bueller

KBI, A Div. of Cabot Corp., PO Box 1462, Reading, PA 19603, Tel: 215-371-3600, Telex: 902251, TWX: 510-651-0106; Empl.: 600; *Sls. Mgr.:* Robert J. Longenecker

KCK AMERICA INC., 1245 Forest Ave., Ste. 10, Des Plaines, IL 60018, Tel: 312-297-5435, Telex: 726481; *Sls. Mgr.:* Carl Bronder; *Dist. Mgr.:* Carl Bronder

KD COMPONENTS, INC., 3016 S. Orange Ave., Santa Ana, CA 92707, Tel: 714-545-7108, TWX: 910-595-2678; Empl.: 25

KDI ELECTRONICS, INC., Engelmann & Pyrofilm Divisions, 60 S. Jefferson Rd., Whippany, NJ 07981, Tel: 201-887-8100, TWX: 710-986-8220; FSC No.: 64537; Empl.: 300; *Sls. Mgr.:* Carl Schraufnagl; *Dist. Mgr.:* Carl Schraufnagl .... **A•1881**

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assocs.	602-955-3193
CA	Los Angeles, Elsco	714-891-4621
CA	Mountain View, Gene Woempner	415-964-5454
CA	Mountain View, Gene Woempner Co., Inc.	415-964-5454
CA	Mountain View, J.L. Tech. Sls.	415-969-5552
CO	Englewood, High Plains Mktg.	303-792-2020
FL	PalmBay, Spartech Assocs., Inc.	305-727-8045
GA	Norcross, Spartech Assocs., Inc.	404-446-7300
IL	Northfield, Imex Ltd.	312-446-8934
IL	Park Ridge, Probe Elctrns.	312-698-2044
MD	Owings Mills, Neal Deoul Assocs.	301-363-4311
MA	Ashland, John O'Donnell	617-881-1380
MA	N. Andover, Torrey Assocs.	617-687-0099
MN	New Brighton, TWC Sls.	612-636-1770
MO	Grandview, Harris - Hanson	816-763-6200
MO	St. Louis, Harris - Hanson	314-432-3611
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NY	Huntington, CDB Entrps., Inc.	516-692-5200
NY	Syracuse, T-Squared Elctrns.	315-463-8592
OH	Dayton, Frederick L. Ohmer & Assocs.	513-434-1454
PA	Doylestown, Lou Adezio	215-249-9729
TX	Garland, Carey, McMahill & Zerbe Co., Inc.	214-681-1414
WA	Vancouver, Ray Over Sls.	206-695-4697

Local Distributors

CA	Chatsworth, MIL-COMM Distrs.	213-998-3111
CA	Mountain View, Target Elctrns.	415-961-1170
NJ	Englewood, Tech. Elctrn. Distrs.	201-894-0800
NY	Farmingdale, Command Elctrns.	516-293-1212
TX	Houston, Lenert Co.	713-225-1465

KEARNEY MAGNETICS, 150 Charcot Ave., San Jose, CA 95131, Tel: 408-262-4136, Telex: 910-338-2108; Empl.: 150; *Sls. Mgr.:* Carolyn Morton; *Dist. Mgr.:* Aki Fusimoto

KEC ELCTRNS., INC., 20817 Western Ave., Torrance, CA 90501, Tel: 213-320-3902, TWX: 910-349-6962; FSC No.: 213-618-1197; Empl.: 8; *Sls. Mgr.:* Frank Chase .... **D•1685-1687**

Local Sales Offices & Reps

AZ	Tempe, Quatra	602-894-2802
CA	Cupertino, Costar	408-446-9339
CA	Los Alamitos, Power Specialists	213-594-9418
CO	Fort Collins, Vic Myers Assocs.	303-223-8907
FL	Cocoa Beach, Teqspec	305-748-9292
FL	Hobe Sound, Teqspec	305-746-4987
FL	Palm Harbor, Teqspec	813-785-2276
GA	Atlanta, Teqspec	404-455-7222
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MA	Danvers, C. H. Burnham Assocs.	617-774-0111
MI	Jenison, R. C. Nordstrom & Co.	616-457-5762
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	Minnetonka, Chris-Tek	612-934-1334
NH	Durham, C. H. Burnham Assocs.	603-868-2282
NJ	Springlake, Neville & Vespo	201-974-1520
NM	Albuquerque, Quatra Assoc. Inc.	505-821-1355
NY	Binghamton, TAE-Rep.	607-772-6952
NY	Rochester, TAE-Rep.	716-586-8710
NY	Thompson Ridge, Neville & Vespo	914-457-9209
NC	Winston Salem, Teqspec	919-723-8102
OH	Chesterland, KT/DEPCO	216-729-3588
PA	Erdenheim, Omni Sls.	215-233-4600
PA	Pittsburg, KT/Depco	412-487-8777
RI	Johnston, C. H. Burnham Assocs.	401-231-7475
TN	Morristown, Teqspec	615-587-0980
VA	Fairfax, Nine Assocs.	703-273-1803
WA	Bellevue, Elctrn. Mktg. Grp.	206-746-5915

KEENE LAMINATES, Keene Corp., 199 Amaral St., E. Providence, RI 02914, Tel: 800-556-7683, Telex: 927524; Empl.: 75

KEDMAN CO., Box 25667, Salt Lake City, UT 84125, Tel: 801-973-9112, TWX: 910-925-4116; Empl.: 100

KEENE RAY PROOF, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878, Tel: 203-838-4555, Telex: 96-5812; *Sls. Mgr.:* Robert C. Barbour; *Dist. Mgr.:* Ken Makowski

KEITHLEY INSTRS., 28775 Aurora Rd., Cleveland, OH 44139, Tel: 216-248-0400, Telex: 98-5469; Empl.: 461; *Sls. Mgr.:* Ron Ruiz; *Dist. Mgr.:* T. A. Hayden

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KEL-AM, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, Tel: 314-392-7174, Telex: 42-301; FSC No.: 57856; Empl.: 67; *Sls. Mgr.:* Mark Hayes .... **C•1412-1423**

Local Sales Offices & Reps

AZ	Scottsdale, BH&B Sls.	602-994-4455
CA	El Toro, Kel-Am Pacific	714-859-2093
CA	San Jose, Pilgrim Elctrns.	408-249-7500
CO	Boulder, Component Prod. Sls.	303-530-2800
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Sarasota, Phoenix Comps.	813-371-1163
GA	Atlanta, Electro Sls.	404-394-1122
IN	Fort Wayne, CC Elctrns.	317-255-1508
IA	Davenport, Electro Tech.	319-386-1134
MD	Baltimore, Faion Lott, Inc.	301-744-4611
MA	Lexington, &	617-862-8230
MA	Wakefield, Kentronics	617-246-0245
MI	Ypsilanti, Tamco, Inc.	313-572-1950
MN	Minneapolis, Electro-Tech	612-927-5878
MO	N. Kansas City, Weisler & Assocs.	314-394-4543
MO	St. Louis, Weisler & Assocs.	314-394-4543
NJ	Clark, R. E. Breuer Co.	201-388-5045
NM	Albuquerque, Nelco Elctrns.	505-293-1399
NY	Port Washington, R. E. Breuer Co.	516-883-7810
NY	Rochester, Tech. Comps.	716-342-2406
OR	Portland, SPS Engrg.	503-297-6919
PA	McKean, &	814-476-1376
PA	Willow Grove, Meldena Sls.	215-657-7760
NC	Matthews, RG Sls.	704-847-0049
TN	Chattonooga, Electro Sls.	615-267-4260
TX	Grapevine, Elctrn. Mktg. Assoc.	817-481-7502
TX	Houston, Elctrn. Mktg. Assoc.	713-498-8120
WA	Redmond, SPS Elctrns.	206-392-5264

Local Distributors

AZ	Tempe, Anjon	602-894-1332
AZ	Tucson, Southwest Sls.	602-628-1613
CA	Belmont, LO-DAN Elctrns.	415-592-4600
CA	Corona, Konex Corp.	714-371-1200
CA	Costa Mesa, Ascot	714-557-3252
CA	Glendale, Remco	714-558-3202
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Diego, Mann	619-578-1550
CA	San Diego, R. David Miner, Inc.	619-566-9891
CA	San Fernando, REMCO	213-365-1176
CA	Santa Ana, Mann S.W.	714-558-3202
CA	Santa Clara, Ascot	408-988-4991
CA	Santa Clara, Mann Elctrns.	408-988-6061
CO	Broomfield, Ascot	303-465-2346
CO	Denver, CSID Intergrated Elctrns.	303-893-9594
FL	Ft. Lauderdale, Intertec Comps.	305-975-8644
FL	Largo, Lo Dan Elctrns.	813-586-2851
FL	Longwood, Intertec Comps.	305-834-7777
IL	Arlington Hgts., Lo Dan Elctrns.	312-398-5311
IL	Hoffman Estates, Intercomp	312-843-2040
IL	Wheeling, Ascot	312-459-5750
KS	Shawnee, Besco Elctrns.	913-631-3882
KS	Wichita, Radio, Inc.	316-264-2798
MA	Canton, Elctrn. Packaging Comps.	617-821-2111
MA	Lowell, Bay State Wire & Cable	617-454-2444
MI	Southfield, LSI Mktg.	313-356-7002
MN	Farmington, Tel-Tek, Inc.	612-460-6299
MN	Farmington Hills, Advent Elctrns.	313-477-1650
MN	Minneapolis, Glenmark	612-941-4825
MO	Independence, H.F. Signalling	816-833-4448
NE	Lincoln, Scott Elctrns.	402-466-8221
NE	North Platte, Scott Elctrns.	308-532-9260
NE	Omaha, Scott Elctrns.	402-734-6750
NH	Hampstead, Astrum Elctrns.	603-329-5656
NH	Manchester, Components North	603-624-4661
NJ	Roselle, Lectron Inds.	201-245-5858
NM	Albuquerque, Connecting Comps.	505-345-8921
NM	Albuquerque, Elctrn. Devices	505-293-1935
NY	Ithaca, OHM Elctrns.	602-273-8406
NY	Port Washington, Connector Concepts	516-883-3800
NY	Rochester, E.I.C. Elctrns.	716-544-4392
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Zepher Elctrns.	503-643-1980
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronics	215-643-2850
TX	Addison, Connec/Tek	214-239-7552
WA	Seattle, Zepher Elctrns.	206-241-1980

KELTEC FLORIDA, P.O. Box 2917, Ft. Walton Bch., FL 32549, Tel: 904-651-9749, TWX: 510-730-7654; FSC No.: 09062; Empl.: 400 .... **D•1688**

Local Sales Offices & Reps

AZ	Phoenix, J. Smith Assoc.	602-267-0981
CA	Los Altos, Stout Inds.	415-949-0440
CA	Los Angeles, Cain Technology	213-477-9054
CA	Orange, Cain Technology	714-997-7311
CO	Colorado Springs, J. Smith Assoc.	303-597-5343
FL	Melbourne, V.P.I.	305-727-3305
FL	Tampa, V.P.I.	813-832-2041
IN	Ossian, Science Sls.	219-622-7383
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Goddard, Palatine Engrg. & Sls.	316-788-5521
KS	Mission, Palatine Sls.	913-831-0555
MD	Ellicott City, VPI	301-461-2525
MA	Needham Hgts., O'Sullivan & Murphy	617-449-4141/4142/4144
MO	Hazelwood, Palatine Sls.	314-839-0800
NJ	Danville, Metro-MICS	201-625-5959
NM	Albuquerque, J. Smith Assoc.	505-265-3406
NY	Melville, Metro MICS	516-271-6677
OH	Brunswick, Science Sls.	216-273-4429
PA	Montgomerysville, VPI	215-474-3200
TX	Richardson, Lear Assocs.	214-231-5388

KELTLON CORP., Viking Modules Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 75; *Sls. Mgr.:* T. Chadurjian

KELTRON CORP., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 270; *Sls. Mgr.:* Scott J. Shrier; *Dist. Mgr.:* Scott J. Shrier

KELTRON CORP., Walden Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 225; *Sls. Mgr.:* T. Chadurjian

KELVIN, 5919 Noble Ave., Van Nuys, CA 91411, Tel: 818-782-6662, Telex: 65-1417; FSC No.: 19587; Empl.: 250; *Sls. Mgr.:* R. A. Featherston .... **A•1882-1883**

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg.	205-883-9630
AZ	Tempe, Sunwest Mktg.	602-838-7586
CA	Mountain View, G. C. Woempner Co.	415-964-5454
CA	San Diego, Wes-K Assoc.	619-578-2040
CA	Van Nuys, Wes-K Assocs.	213-989-3070
CO	Boulder, R-G Entprs.	303-447-9211
CT	Milford, Todino Engrg. Sls.	203-874-6643
FL	Lighthouse Point, R. C. Simon & Co.	305-941-2757
IL	Deerfield, Walt Krueger	312-945-3720
MD	Reisterstown, Massey Assocs.	301-833-2039
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Birmingham, Forand Sls.	313-644-0087
MN	Minneapolis, Parker Shoap	612-934-5812
NJ	Medford, Jack McCoy Inc.	609-953-0770
NY	Fayetteville, Foster & Wager	315-637-5427
NY	Great Neck, Trionic	516-466-2300
NY	Webster, Foster & Wager	716-265-2072
OH	New Lebanon, J. N. Bailey & Assocs.	513-687-1325
OR	Beaverton, General Elctrns.	503-641-5288
TX	Austin, C. R. Colvin Assocs.	512-474-8698
TX	Dallas, Stasco	214-239-4517
TX	Houston, C. R. Colvin Assocs.	713-961-1262
WA	Renton, General Elctrns.	206-228-9505

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KEMET, UNION CARBIDE CORPORATION, ELCTRNS. DIV., Components Dept., Box 5928, Greenville, SC 29606, Tel: 803-963-6348, Telex: 57-0496, TWX: 810-287-2536; FSC No.: 31433;multiple; *Sls. Mgr.:* C. E. Volpe; *Dist. Mgr.:* J. A. Bruorton ..... **A•1106-1107**

Local Sales Offices & Reps

AL	Huntsville, Union Carbide	205-830-1090
AZ	Tempe, Union Carbide	602-831-2151
CA	Culver City, Union Carbide	213-568-8384
CA	Newport Beach, Union Carbide	714-640-9320
CA	San Diego, Union Carbide	619-560-0768
CA	Santa Clara, Union Carbide Elctrns. Div.	408-986-0424
CO	Englewood, Union Carbide	303-773-0494
FL	Ft. Lauderdale, Union Carbide	305-731-2187

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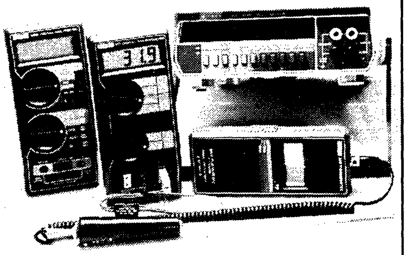

Offices
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(215) 673-6500 in PA, NJ, DE
8019 Belair Road/Baltimore, MD 21236
(301) 661-5900 in MD, VA

Local Direct Dial Phones
(203) 563-9232 in Hartford, CT
(203) 773-3441 in New Haven, CT
(302) 652-8585 in Wilmington, DE
(301) 621-5077 in Wash., DC Area
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GA	Norcross, Union Carbide Elctrns. Div.	404-441-7701
IL	Schaumburg, Union Carbide	312-843-1030
IN	Carmel, Union Carbide	317-844-7756
IA	Ceder Rapids, Seltec Sls.	319-393-1114
KS	Shawnee Mission, Union Carbide Elctrns. Div.	913-362-8004
MD	Columbia, Union Carbide	301-992-5600
MA	Stoneham, Union Carbide	617-279-0400
MI	Livonia, Union Carbide	313-591-0555
MN	Edina, Union Carbide	612-929-4642
NY	Liverpool, Union Carbide	315-451-0720
NY	Tarrytown, Union Carbide	914-332-4000
NC	Raleigh, Union Carbide	919-872-2877
OH	Westerville, Union Carbide	614-890-8688
OK	Tulsa, Union Carbide	918-664-8592
PA	Exton, Union Carbide	215-363-8310
SC	Greenville, Union Carbide	803-242-5789
TX	Austin, Union Carbide	512-458-3181
TX	Houston, Union Carbide Elctrns. Div.	713-890-0106
TX	Irving, Union Carbide	214-556-0009
WA	Kirkland, Union Carbide	206-828-4853
WA	Vancouver, Union Carbide Elctrns. Div.	206-695-1500
PR	Guaynabo, ISLA CARIBE Electro Sls.	809-720-4430/5
Can	Edmonton, Alb., Deskin Sls. Corp.	403-466-2106
Can	Markham, Ont., Deskin Sls. Corp.	416-475-1412
Can	Montreal, Que., Deskin Sls. Corp.	514-331-2860
Can	Ottawa, Ont., Deskin Sls. Corp.	613-729-1099
Can	Richmond, B.C., Deskin Sls. Corp.	604-273-4963

Local Distributors

AL	Huntsville, Hall-Mark Elctrns. Corp.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AL	Huntsville, Schweber Elctrns.	205-882-2200
AZ	Phoenix, Hall-Mark Elctrns. Corp.	602-437-1200
AZ	Phoenix, Schweber	602-997-4874
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
CA	Alhambra, Fisher-Brownell	818-289-0255
CA	Anaheim, Time	714-937-0911
CA	Canoga Park, Hall-Mark	818-716-7300
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Avnet	818-700-2600
CA	Chatsworth, Hamilton Electro Sls.	818-700-6500
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Chatsworth, Time	818-998-7200
CA	Citrus Heights, Hall-Mark	916-772-8600
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton/Avnet Elctrns.	714-641-4112
CA	Culver City, Hamilton Electro Sls.	213-558-2662
CA	Culver City, Hamilton Electro Sls. (Corp. Off.)	213-558-2662
CA	Culver City, Hamilton/Avnet	214-558-2883
CA	El Segundo, Hall-Mark	213-643-9101
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Integrated	714-660-1055
CA	Irvine, Schweber Elctrns.	714-863-0256
CA	Ontario, Hamilton/Avnet	714-989-8801
CA	Roseville, Bell Inds.	916-969-3100
CA	Sacramento, Hamilton/Avnet Elctrns.	916-648-3227
CA	Sacramento, Integrated	916-424-5297
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Hall-Mark Elctrns. Corp.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7500
CA	San Diego, Schweber	619-450-0454
CA	San Diego, Time	619-586-1331
CA	San Jose, Hall-Mark	408-946-0900
CA	San Jose, Integrated	408-263-1100
CA	San Jose, Schweber Elctrns.	408-748-4700
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Sunnyvale, Bell Inds. (Corp. Off.)	408-734-8570
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Sunnyvale, Time	408-734-9888
CA	Thousand Oaks, Bell Inds.	805-499-6821
CA	Torrance, Time	213-320-0880
CA	Tustin, Hall-Mark	714-669-4700
CO	Denver, Integrated	303-292-6121
CO	Englewood, Hall-Mark Elctrns. Corp.	303-694-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-740-1000
CO	Englewood, Schweber	303-799-0258
CO	Englewood, Time	303-799-8851
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Cheshire, Time	203-271-3200
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-1100
CT	Danbury, Schweber Elctrns.	203-748-7080
CT	Wallingford, Hall-Mark	203-269-0100
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Clearwater, Hall-Mark	815-530-4543
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Time	305-974-4800
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Largo, Bell/Graham	813-541-4434
FL	Orlando, Hall-Mark Elctrns. Corp.	305-855-4020
FL	Orlando, Time	305-841-6565
FL	Pompano Beach, Hall-Mark	305-971-9280
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Norcross, Bell/Graham	404-662-0923
GA	Norcross, Hall-Mark Elctrns. Corp.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7500
GA	Norcross, Schweber Elctrns.	404-449-9170
GA	Norcross, Time	404-448-4448
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IL	Elk Grove, Pioneer/Chicago Elctrns.	312-437-9680
IL	Elk Grove Village, Bell Inds.	312-640-1910
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IL	Hoffman Estates, Integrated	312-843-2040
IL	Wooddale, Hall-Mark	312-860-3800
IN	Carmel, Hamilton/Avnet Elctrns.	317-844-9333
IN	Fort Wayne, Bell/Graham	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer/Indianapolis	317-849-7300
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IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
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KS	Overland Pk., Schweber Elctrns.	913-492-2921
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MD	Columbia, Hall-Mark Elctrns. Corp.	301-988-9800
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3526
MD	Columbia, Time	301-964-3090
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Billercia, Hall-Mark	617-935-9777
MA	Burlington, J. V. Elctrns. of Boston	617-273-4300
MA	Lexington, Pioneer/Harvey Elctrns.	617-861-9200
MA	Woburn, Hamilton/Avnet Elctrns.	617-935-9700
MA	Woburn, Time	617-935-8080
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MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan Elctrns.	313-525-1800
MI	Livonia, Schweber Elctrns.	313-525-8100
MN	Bloomington, Hall-Mark Elctrns. Corp.	612-854-3223
MN	Bloomington, Time	612-944-9192
MN	Edina, Schweber Elctrns.	612-941-5280
MN	Minneapolis, Merit Elctrns. Corp.	612-546-5383
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	Minnetonka, Pioneer/Twin Cities Elctrns.	612-935-5444
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Earth City, Schweber Elctrns.	314-739-0526
MO	Maryland Hgts., Hall-Mark Elctrns. Corp.	314-291-5350
MO	St. Louis, Time	314-391-6444
NH	Manchester, Hamilton/Avnet	603-624-9400
NH	Manchester, Schweber	603-625-2250
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NJ	Fairfield, Hall-Mark Elctrns. Corp.	201-575-4415
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Mt. Laurel, Hall-Mark Electrns.	609-235-1900
NJ	Perth Amboy, Arm Bar Inds.	201-442-0990
NJ	Pine Brook, Pioneer/Harvey Elctrns.	201-227-1262
NM	Albuquerque, Alliance Elctrns.	505-292-3360
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Central Islip, Semi Cap	516-582-4400
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2642
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Hauppauge, Time	516-273-0100
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Rochester, Summit Distrs.	716-334-8110
NY	Ronkonkoma, Hall-Mark	516-737-0600
NY	Westbury, Schweber Elctrns.	516-334-7474
NY	Westbury, Schweber Elctrns. (Corp. Off.)	516-334-7474
NC	Greensboro, Golden	919-373-0038
NC	Raleigh, Hall-Mark Elctrns. Corp.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns	919-878-0819
NC	Raleigh, Schweber Elctrns.	919-876-0000
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Cincinnati, Bell/Graham	513-772-1661
OH	Cincinnati, Hall-Mark	513-563-5980
OH	Cleveland, Pioneer/Cleveland Elctrns.	216-587-3600
OH	Columbus, Bell/Graham	614-895-1590
OH	Dayton, Bell Inds.	513-434-8231
OH	Dayton, Hamilton/Avnet Elctrns.	513-433-0610
OH	Dayton, Pioneer/Dayton Elctrns.	513-236-9900
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Solon, Hall-Mark Elctrns. Corp.	216-349-4632
OH	Warrensville, Hamilton/Avnet	216-831-3500
OH	Westerville, Hall-Mark Elctrns. Corp.	614-891-4555
OH	Westerville, Hamilton/Avnet	614-436-5851
OK	Tulsa, Hall-Mark Elctrns. Corp.	918-665-3200
OK	Tulsa, Schweber Elctrns.	918-622-8000
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-7850
OR	Portland, Time	503-684-3780
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	King of Prussia, Time	215-337-0900
PA	Pittsburgh, Hamilton/Avnet	412-281-4150
PA	Pittsburgh, Pioneer/Pittsburgh Elctrns.	412-782-2300
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
TN	Nashville, Bell/Graham	615-242-2682
TX	Austin, Hall-Mark Elctrns. Corp.	512-258-8848
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Carrollton, Time	214-241-7441
TX	Dallas, Hall-Mark	214-341-1147
TX	Dallas, Hall-Mark Elctrns. Corp. (Corp. Off.)	214-343-5000
TX	Dallas, Pioneer/Dallas Elctrns.	214-386-7300
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Houston, Hall-Mark Elctrns. Corp.	713-781-6100
TX	Houston, Hamilton/Avnet Elctrns.	713-975-3516
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
TX	Richardson, Fisher-Brownell	214-235-3177
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
UT	Salt Lake City, Integrated	801-298-1869
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, Hamilton/Avnet Elctrns.	206-453-5845
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Redmond, Time	206-882-1600
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	New Berlin, Hall-Mark Elctrns. Corp.	414-797-7844
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Waukesha, Bell Inds.	414-547-8879
Can	Calgary, Hamilton/Avnet	403-230-3586
Can	Montreal, Hamilton/Avnet	514-331-6443
Can	Ottowa, Hamilton/Avnet	613-226-1700
Can	Toronto, Hamilton/Avnet	416-677-7432

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Local Sales Offices & Reps

NJ	Hasbrouck Heights, Comp-Tech Sls.	201-288-7400
NY	Long Island, Comp-Tech Sls.	516-593-2628

KENSOL WIRE MARKING, Kensol Olsenmark Inc., 40 Melville Park Road, Melville, NY 11747, Tel: 516-694-7773, Telex: 510-224-6418; *Sls. Mgr.:* Tony Fiorey

KEN-TRON MFG., INC., 1204 Industrial Dr., Owensboro, KY 42301, Tel: 502-684-0431, Telex: 20-4305; Empl.: 100; *Sls. Mgr.:* J. Douglas

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Local Sales Offices & Reps

AL	Huntsville, J. L. Highsmith Co.	205-536-6666
AZ	Phoenix, J. F. Hurlbut Co.	602-952-2079
CA	Los Angeles, Windsor Dynamics	818-990-4173
CA	San Diego, Windsor Dynamics	619-452-1891
CA	San Francisco, N-S Assocs.	415-851-2703
CO	Denver, J. F. Hurlbut Co.	303-279-7796
CT	Farmington, R. Perron Co.	203-673-4825
FL	Boca Raton, J. L. Highsmith Co.	305-368-9194
FL	Orlando, J. L. Highsmith Co.	305-422-5794
GA	Tucker, J. L. Highsmith Co.	404-493-1055
IL	Chicago, Century Elctrns.	312-777-9700
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee, ATECH	913-268-9644
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Needham, R. Perron Co.	617-449-6162
MI	Detroit, Carter McCormic & Peirce	313-477-7700
MN	Minneapolis, E.C. Elctrn. Sls.	612-831-0229
MO	St. Louis, ATECH	314-576-2884
NH	Dover, R. Perron & Co.	603-742-2321
NJ	Woodcliff Lake, Eastern Instrmn.	201-664-0907
NM	Albuquerque, Techn. Mktg. Assoc.	505-345-8921
NY	Rochester, NACO Elctrns. Corp.	716-223-4490
NY	Syracuse, NACO Elctrns. Corp.	315-699-2651
NY	Utica, NACO Elctrns. Corp.	315-732-1801
NC	Charlotte, J. L. Highsmith Co.	704-527-2382
OH	Cleveland, Carter McCormic & Peirce	216-779-5100
OH	Dayton, Carter McCormic & Peirce	513-836-0951
OR	Portland, H. Levinson	503-245-1902
PA	Bensalem, Eastern Instrmn.	215-245-6660
PA	Pittsburgh, Carter McCormic & Peirce	412-372-4415
TX	Austin, Airep Elctrns.	512-327-0778
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
UT	Salt Lake City, J. F. Hurlbut Co.	801-531-7472
VA	Richmond, J. L. Highsmith Co.	804-745-5555
WA	Seattle, H. Levinson Co.	206-382-1300
WI	Milwaukee, Century Elctrns. Sls.	414-645-3680

KEPRO CIRCUIT SYS., 630 Axminister Dr., Fenton, MO 63026; Tel: 314-343-1630; Empl.: 15; *Sls. Mgr.:* Jeff R. Keil; *Dist. Mgr.:* Jeff R. Keil

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Local Distributors

MO	St. Louis, ISL	314-535-5760
AL	Birmingham, Industrial Elctrl. Supp.	205-956-8504
AL	Dothan, All-Phase Elec. Supp. Co.	205-793-2313
AZ	Phoenix, Graybar Elec. Co., Inc	602-269-2131
AZ	Phoenix, Keystone Electro Sls.	602-995-3005
AZ	Phoenix, Metermaster	602-437-1425
AZ	Tucson, Trident Instr. Svcs.	602-790-0343
AR	Little Rock, Drives and Elec.	501-568-8800
CA	Burbank, All-Phase Elec. Supp. Co.	213-843-4111
CA	Dublin, Standard Meter Lab, Inc.	415-828-4837
CA	Fresno, Allied Elec. Motor Svc.	209-486-4222
CA	Irvine, Metercraft	714-261-7135
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Los Angeles, Graybar Elec. Co., Inc	213-265-7000
CA	Los Angeles, Metermaster	213-685-4340
CA	Oakland, Western Electro-Mechanical	415-452-1936
CA	Palo Alto, Metermaster	415-968-0313
CA	Riverside, California Whls.	213-268-0550
CA	San Diego, Metermaster	619-560-4841
CA	Santa Clara, E.I.L. Instrs.	408-727-0396
CA	Santa Monica, Master Distrs.	213-452-1229
CA	South San Francisco, Graybar Elec. Supp., Inc.	415-871-7000
CO	Denver, E.I.L. Insco	303-534-4160
CO	Denver, Graybar Elec. Co., Inc.	303-458-7770
CT	Middletown, E.I.L. Instrs.	203-346-6646
CT	Southington, Electro Mech. Drives, Inc.	203-621-7335
FL	Cantonment, C.B. Metcalf	904-968-5500
FL	Ft. Lauderdale, Electronic Dvcs. & Controls	305-974-2500
FL	Ft. Lauderdale, McDonald Distr. of Fla.	305-563-1255
FL	Ft. Lauderdale, Power & Pumps	305-566-3261
FL	Jacksonville, Graybar Elec. Co., Inc.	904-356-7611
FL	Jacksonville, Power & Pumps	904-356-5881
FL	Orlando, Power & Pumps	305-843-7400
FL	Palm Bay, E.I.L. Instrs.	305-725-8300
FL	Perrine, Graybar Elec. Co., Inc.	305-232-1530
FL	Tampa, Chemco Elec. Supp.	813-621-8611
FL	Tampa, Graybar Elec. Co., Inc.	813-253-8881
GA	Albany, Weatherbee Elec. Supp. Co.	912-883-2034
GA	Atlanta, Graybar Elec. Co., Inc.	404-892-6950
GA	Columbus, Weatherbee Inds. Elec. Supp.	404-568-0157
GA	Norcross, AA Elec.	404-449-8670
GA	Norcross, Metermaster	404-446-0166
HI	Honolulu, Process Valve & Control	808-848-0337
ID	Pocatello, Consolidated Elec. Distrs.	208-232-2585
IL	Aurora, Englewood Elec. Supp.	312-897-9296
IL	Berkeley, Tara Prods.	312-449-6436
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Chicago, Englewood Elec. Supp.	312-376-8750
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Crystal Lake, Englewood Elec. Supp.	815-459-6500
IL	Decatur, Englewood Elec. Supp.	217-875-7300
IL	Des Plaines, Englewood Elec. Supp.	312-299-3300
IL	Downers Grove, Neuco, Inc.	312-960-3800
IL	Hoffman Estates, Englewood Elec. Supp.	312-882-2424
IL	Itasca, Metermaster	312-251-0606
IL	Joliet, Englewood Elec. Supp.	815-725-3900
IL	Kankakee, Blitz Elec. Supp. Co.	815-933-5536
IL	LaSalle, Complete Indl. Entprs.	815-244-1485
IL	Markham, Englewood Elec. Supp.	312-596-3440
IL	Melrose Park, Graybar Elec. Co., Inc.	312-287-7700
IL	Oak Brook, Englewood Elec. Supp.	312-626-3232
IL	Peoria, Tecco, Inc.	309-692-2312
IL	Peru, Englewood Elec. Supp.	815-223-2650
IL	Rockford, Englewood Elec. Supp.	815-226-8750
IL	Wood Dale, Electro-Kinetics	312-595-6700
IN	Columbus, Kirby Risk Supp. Co.	812-372-8431
IN	East Chicago, Englewood Elec. Supp.	219-398-6800
IN	Evansville, Hutch & Sons, Inc.	812-425-7201
IN	Indianapolis, Bryat Controls	317-784-0261
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
IN	Indianapolis, Englewood Elec. Supp.	317-638-6421
IN	Indianapolis, Neff Elctrn. Technlgs.	317-872-3116
IN	South Bend, Englewood Elec. Supp.	219-233-8233
KY	Edgewood, AC/DC	606-341-0330
KY	Louisville, E.I.L. Instrs.	502-454-3420
LA	Baton Rouge, Nunn-IC Elec. Supp. Co.	504-927-6470
LA	Harvey, Nunn-IC Elec. Supp. Co.	504-341-4281
LA	New Orleans, Industrial Instr. Works	504-733-8355
LA	West Monroe, Brooks Elctrns.	318-323-0344
LA	West Monroe, Weaks Supp. Co.	318-323-8831
MD	Baltimore, Dorman Elec. Supp. Co., Inc.	301-727-0710
MD	Gaithersburg, Pioneer Gaithersburg	301-921-0660
MD	Glen Burnie, EJ Varholy Sons, Inc.	301-760-3344
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Billerica, Metermaster	617-523-2580
MA	Boston, Graybar Elec. Co., Inc.	617-482-9320
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	W. Springfield, Control Engrg.	413-781-1330
MI	Adrian, Englewood Elec. Supp.	517-265-5148
MI	Battle Creek, Englewood Elec. Supp.	616-968-3336
MI	Cadillac, Ackerman Elctrl. Supp.	616-775-9734
MI	Clio, Control Dvcs.	313-686-2410
MI	Coldwater, Englewood Elec. Supp.	517-278-7395
MI	Grand Rapids, Ackerman Elctrl. Supp.	616-459-8327
MI	Jackson, Englewood Elec. Supp.	517-782-7121
MI	Negaunee, Northwest Elec. Supp.	906-228-9050
MI	Sterling Heights, Esco Svcs.	313-254-3367
MN	Bloomington, NWR	612-854-7329
MN	Hibbing, NWR	218-262-5228
MN	Minneapolis, DOT Elctrns.	612-861-3343
MN	Minneapolis, Graybar Elec. Co., Inc.	612-721-3545
MO	Fenton, Hi-Tech Elec., Inc.	314-343-6060
MO	Joplin, Covert Elec. Machinery, Inc.	417-623-4827
MO	Kansas City, Graybar Elec. Co., Inc.	816-221-1644
MO	Kansas City, ISL	818-333-6569
MO	St. Louis, Graybar Elec. Co., Inc.	314-531-4700
NJ	Green Brook, Apparatus Elctrl. Supp.	201-752-8400
NJ	Paterson, Feldman Bros.	201-742-7329
NJ	Pennsauken, E. I. L. Instrs.	609-488-0474
NY	Albany, Niagara Elec. Sls. Co.	518-869-0130
NY	Bohemia, In-Control	516-567-6800
NY	Buffalo, Niagara Elec. Sls. Co.	716-886-4000
NY	East Syracuse, Niagara Elec. Sls. Co.	315-437-1656
NY	Elmira, Brady Supp.	607-733-6591
NY	Floral Park, Elemco Indl. Svc. Corp.	718-343-8166
NY	Hauppauge, E.I.L. Instrs.	516-231-6333
NY	Long Island City, Graybar Elec. Co., Inc.	212-392-2000
NY	Maspeth, Babco, Inc.	212-446-5120
NY	Rochester, E.I.C.	716-544-4392
NY	Rochester, E.I.L. Instrs.	716-427-8000
NY	Rochester, Niagara Elec. Sls. Co.	716-271-1223
NY	Rockaway Park, Metropolitan Sls.	212-634-3100
NY	Walworth, Elemco Indl. Svc. Corp.	315-986-4268
NC	Ashville, Electrical Supp. Co. of NC	704-255-8899
NC	Charlotte, Carolina Elec. Supp. Co.	704-333-7526
NC	Charlotte, Count, Inc.	704-392-7496
NC	Gastonia, J.M.T. Elctrns.	704-867-4401
OH	Akron, Saks Elec.	216-253-2141
OH	Chagrin Falls, RPM Sls.	216-247-3295
OH	Cincinnati, Graybar Elec. Co., Inc.	513-621-0600
OH	Cleveland, Metermaster	216-651-4100
OH	Cleveland, Pioneer Std.	216-587-3600
OH	Dayton, E.I.L. Instrs.	513-435-2134
OH	Dayton, Pioneer Dayton	513-236-9900
OH	Dayton, Pioneer Std.	513-236-9900
OH	Defiance, Northwest Elec. Controls	216-253-2141
OH	Media, Reeves Assocs., Inc.	215-566-6709
OH	Sandusky, Sandusky Elec., Inc.	419-625-4915
OH	Solon, Midland Elec.	216-248-3800
OK	Tulsa, Tri-State Instr. Labs, Inc.	918-836-0286
OR	Portland, Westcon, Inc.	503-283-0132
PA	Easton, Strokes Elec. Supp. Co., Inc.	215-258-7206
PA	Exton, Valley Assocs.	215-363-8979
PA	Havertown, Quarracino Distrs.	215-449-7500
PA	Philadelphia, Graybar Elec. Co., Inc.	215-336-2211
PA	Pittsburgh, C.A.M. Instrmn.	412-782-3770
PA	Pittsburgh, E.I.L. Instrs.	412-731-5230
PA	Pittsburgh, Graybar Elec. Co., Inc.	412-323-0600
PA	Upper Darby, Electro-Pak Co.	215-789-3150
SC	Columbia, Control Specialist	803-254-8087
TN	Chattanooga, Engineering Grp., Inc.	615-757-7781
TN	Jackson, L & H Elec. Supp.	901-423-0136
TN	Memphis, Graybar Elec. Co., Inc.	901-274-7150
TN	Nashville, A A Elec.	615-832-6632
TX	Beaumont, Nunn Elec. Supp. Co.	409-842-5600
TX	Corpus Christie, Nunn Elec. Supp. Co.	512-884-0311
TX	Dallas, E.I.L. Instrs.	214-931-1236
TX	Dallas, Graybar Elec. Co., Inc.	214-744-1421
TX	Freeport, Nunn-Reichardt Elec. Supp.	713-233-0221
TX	Garland, Metermaster	214-271-5671
TX	Houston, E.I.L. Instrs.	713-271-3100
TX	Houston, Force Elctrns.	713-561-8644
TX	Houston, Nunn Elec. Supp. Co.	713-676-0100
TX	Houston, Quality Instrs.	713-524-0528
TX	Irving, Force Elctrns.	214-438-5700
UT	Drem, Amfac Elec. Supp. Co.	801-224-5555
UT	Fillmore, Stuart Elec. Supp.	801-743-5861
UT	Salt Lake City, Stuart Elec. Supp.	801-466-8603
VA	Alexandria, E.I.L. Instrs.	703-569-2611
VA	Harrisonburg, Electrical Whlsrs.	703-434-1751
VA	Richmond, Graybar Elec. Co., Inc.	804-359-1381
VA	Richmond, GE Supp.	804-358-4941
VA	Virginia Beach, E.I.L. Instrs.	804-499-3746
WA	Kent, C. B. Parsons	206-762-7373
WA	Seattle, E.I.L. Instrs.	206-762-0880
WA	Seattle, Graybar Elec. Co., Inc.	206-292-4848
WI	Fond du Lac, Englewood Elec. Supp.	414-922-4240
WI	Green Bay, Englewood Elec. Supp.	414-336-8002
WI	Manitowoc, Englewood Elec. Supp.	414-684-6653
WI	New Berlin, G. S. Hydraulic Sls., Inc.	414-786-0100
WI	Oconomowoc, Atlas Instrs.	414-367-8759
WI	Schofield, Englewood Elec. Supp.	715-359-0454

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Local Sales Offices & Reps

CA	Anaheim	714-871-0280
NJ	Newark	201-589-0246

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KEYAN INDS., INC., P.O. Box 1228, Middleboro, MA 02346, Tel: 617-947-7719; Empl.: 11; *Sls. Mgr.:* Bob Oldro; *Dist. Mgr.:* Dan Curran

KEYEX, J. B. Man Corp., 838 S. Main St, Hampstead, MD 21074, Tel: 301-239-6777; *Sls. Mgr.:* Karl M. Yatovitz; *Dist. Mgr.:* Karl M. Yatovitz

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KEYSTONE CARBON, Thermistor Div., St Marys, PA 15857, Tel: 814-781-1591, Telex: 91-4517; FSC No.: 75-263; Empl.: 1200; *Sls. Mgr.:* John A. Brock; *Dist. Mgr.:* John A. Brock .... **B•1752-1755**

Local Sales Offices & Reps

NC	NCRaleigh, DHR Mktg.	919-781-1961
CA	Redwood City, Hickey Inds. Sls.	415-368-3849
CA	San Diego, El Dorado Sls.	619-565-9112
CA	Santa Ana, El Dorado Sls.	714-954-0285
CO	Colorado Springs, Omega Ltd.	303-598-6845
CO	Englewood, Omega Ltd.	303-762-8061
CT	Wethersfield, L.J. Labant	203-529-0048
GA	Marietta, J.J. Arnold	404-427-1062
IL	West Dundee, W. S. Heffron	312-426-6472
IN	Fort Wayne, R.O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R.O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R.O. Whitesell & Assocs.	317-457-9127
KS	Shawnee, Benson Engrg.	913-491-4446
KY	Louisville, R.O. Whitesell & Assocs.	502-426-7696
MI	Southfield, J.L. Montgomery Assocs.	313-358-2616
MN	Minneapolis, Dave Marrone	612-920-9042
NY	Fayetteville, Foster & Wager	315-637-5427
NY	Webster, Foster & Wager	716-265-2072
OH	Cincinnati, R.O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R.O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R.O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R.O. Whitesell & Assocs.	513-298-9546
PA	Pittsburgh, R.O. Whitesell & Assocs.	412-963-6161
PA	Plymouth Meeting, R.O. Whitesell & Assocs.	215-825-2046
SC	Greenville, DHR Mktg.	803-235-3594
TN	Greenville, R.O. Whitesell & Assocs.	615-639-6154
TX	Dallas, Benson Engrg.	214-352-7541
TX	Houston, Benson Engrg.	713-672-2194
WA	Seattle, Northmar, Inc.	206-524-5170
WI	New Berlin, T. L. Labant	414-425-7157
EXP	NY, Freeport, Minthorne Int'l.	516-546-4700

Local Distributors

AZ	Scottsdale, Allied Elctrns.	602-990-9549
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Inglewood, Newark Elctrns.	213-671-7066
CA	Santa Clara, Allied Elctrns.	408-727-1690
CO	Wheatridge, Allied Elctrns.	303-425-7144
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0500
GA	Atlanta, Allied Elctrns.	404-237-3366
IL	Elgin, Allied Elctrns.	312-697-8200
MA	Wilmington, Allied Elctrns.	617-942-0150
MI	Westland, Allied Elctrns.	313-595-6565
MN	Minneapolis, Allied Elctrns.	612-559-9545
MO	Maryland Hgts., Newark Elctrns.	314-739-0133
MO	St. Louis, Allied Elctrns.	314-878-1229
NJ	Springfield, Newark Elctrns.	212-349-7087
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Cary, Allied Elctrns.	919-467-0720
OH	Willoughby, Allied Elctrns.	216-951-0908
OK	Tulsa, Allied Elctrns.	918-663-7630
PA	Bala Cynwyd, Allied Elctrns.	215-667-6940
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Elctrns.	713-445-7123
VA	Alexandria, Allied Elctrns.	703-836-5002
WA	Seattle, Allied Elctrns.	206-767-5772
WI	Brookfield, Newark Elctrns.	414-781-2450
WI	Milwaukee, Allied Elctrns.	414-463-2662

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Local Sales Offices & Reps

IL	Wilmette, Joel Wasserman Assoc.	312-256-3566
MA	Needham Heights, The Newscott Co., Inc.	617-444-1923
MI	Ferndale, Hilltronics, Inc.	313-398-5556
MN	Minneapolis, Donald Luger & Assocs.	612-553-1122
NC	Raleigh, DHR Mktg.	919-781-1961
OR	Beaverton, William J. Purdy Co.	503-641-9373
PA	Broomall, L. D. Lowery, Inc.	215-356-5300
TX	Dallas, SW Mktg. Assocs.	214-341-8631

KEYTEK DIV., 6424 Warren Dr., Norcross, GA 30093, Tel: 404-449-6040, Telex: 810-766-4529; Empl.: 50; *Sls. Mgr.:* Ron Inneckin

KEYTEK INSTR. CORP., 12 Cambridge St, Burlington, MA 01803, Tel: 617-272-5170, Telex: 951389 KEYTEK BURL; *Sls. Mgr.:* Michael J. Hopkins

KEY TRONIC, P.O. Box 14687, Spokane, WA 99214, Tel: 509-928-8000, TWX: 510-773-1885; FSC No.: 52833; Empl.: 1350

KGS ELECTRONICS, INC., GAR Entprs., 2029 N. Lincoln Ave., Pasadena, CA 91103, Tel: 818-798-0786; Empl.: 50 .... **D•1715, 1942-1943**

Local Sales Offices & Reps

TX	Hurst, McGarrah & Assocs.	817-268-3557
EXP	NJ, Rahway, REA Intl.	201-382-7100

Local Distributors

TN	Memphis, Memphis Grp.	901-362-8600
TX	Dallas, Foxtronics	214-358-4425

WALTER KIDDE, Div. of Kidde, Inc., Fire Sys. Operations, P.O. Box 1147, Wake Forest, NC 27587, Tel: 919-556-6811, Telex: 802569 WALTKIDDE; Empl.: 250; *Sls. Mgr.:* Frank Lindsey

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Local Sales Offices & Reps

AL	Huntsville, Morard & Co.(MOCO)	205-881-5968
AZ	Phoenix, Cherry Assocs. (Scopes)	602-242-1922
AZ	Scottsdale, Power Specialist (Power Supp.)	602-996-4100
CA	Carson, Amasco South	213-516-8561
CA	Sunnyvale, Amasco North	408-733-8690
CO	Aurora, R & R Instrmn.	303-340-8728
CT	Madison, Eastronix, Inc.	203-421-4514
FL	Melbourne, EMS, Inc.	305-724-1027
HI	Honolulu, Hawaiian Ind. Instr.	808-533-4232
IL	Elmhurst, Sector Engrg. Sls.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
KS	Olathe, Rush & West Assocs. (Power Supp.)	913-764-2700
KS	Overland Park, Ramsey Assocs. (Scopes)	913-649-6996
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MD	Wheaton, Brimberg Sls. (Power Supp.)	301-946-2670
MA	Bedford, Eastronix	617-275-5775
MI	Warren, Dietrich & Assocs.	313-751-4990
MN	Minneapolis, Sector Engrg. Sls.	612-593-1809
MO	Ballwin, Rush & West Assocs. (Power Supp.)	314-394-7271
MO	Maryland Hgts., Ramsey Assocs. (Scopes)	314-878-5042
NJ	Teaneck, Scientific Dvcs. East	201-837-1004
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Rochester, EIC Elctrns.	716-544-4392
OH	Cleveland, Dietrich & Assocs.	216-781-1855

OH	Dayton, Dietrich & Assocs.	513-223-6042
OR	Portland, Westcon	503-283-0132
PA	Pittsburgh, Dietrich & Assocs.	412-892-2992
PA	Springhouse, Scientific Dvcs. East	215-643-3335
TX	Austin, Scientific Dvcs. SW	512-442-6215
TX	Houston, Scientific Dvcs. SW	713-864-1711
TX	Richardson, Scientific Dvcs. SW	214-231-8106
VT	Shelburne, Eastronix	802-985-3743
WI	Milwaukee, Sector Engrg. Sls.	414-352-8280
PR	San Juan, David S. Ternent	809-762-2688
Can	St. Laurent, Que., Interfax Sys., Inc.	514-336-0392

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Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark	602-968-9037
CA	Campbell, Kottmeier Assocs.	408-371-8700
CA	Tarzana, High Voltage Sls.	818-881-9194
CO	Denver, Quorum 3: Sls. Grp., Inc.	303-696-8480
CT	Brookfield, Kanan Assocs.	203-775-0494
FL	St. Petersburg, K-Square	813-381-1893
GA	Atlanta, Electro Tech	404-262-1522
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Cedar Rapids, H. R. Brown Sls. Co.	319-366-0635
KS	Olathe, M. E. Bettis Co.	913-764-0621
KS	Wichita, M. E. Bettis Co.	316-265-8250
MD	Columbia, Tyler Griffin Co.	301-995-1215
MA	Needham Heights, Kanan Assocs.	617-449-7400
MN	Minneapolis, DeBeck-Hays	612-835-4649
MO	St. Louis, Abrams & Assocs.	314-569-0447
NJ	Colts Neck, Trionic Assocs.	201-431-0415
NM	Albuquerque, Cleveland Entprs., Inc.	505-265-7893
NY	Cazenovia, S. T. Woolard Co., Inc.	315-655-8145
NY	Great Neck, Trionic Assocs.	516-466-2300
NY	Rochester, Lamb Comp., Inc.	716-323-1250
NC	Winston-Salem, DGW, Inc.	919-768-7166
OH	Euclid, Electronic Comp., Inc.	216-261-7057
OH	Miamisburgh, Electronic Comps., Inc.	513-866-3340
OR	Tigard, Components West, Inc.	503-684-1671
PA	Paoli, Tyler Griffin Co.	215-647-1550
SC	Greenville, DWG, Inc.	803-288-0019
TX	Dallas, Edward F. Aymond Co.	214-826-7620
UT	Sandy, Quorum 3: Sls. Grp., Inc.	801-943-9227
WA	Liberty Lake, Components West, Inc.	206-885-5880
WA	Redmond, Components West, Inc.	206-885-5880
Can	Kamata, Ont., Vitel Elctrns.-Ottawa	613-592-0090
Can	Mississauga, Ont., Vitel Elctrns.-Toronto	416-676-9720
Can	St. Lawrence, Que., Vitel Elctrns.-Montreal	514-331-7393
Can	Vancouver, B.C., Macom Agencies Ltd.	604-271-2661

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KINETIC SYS., 11 Maryknoll Dr., Lockport, IL 60441, Tel: 815-838-0005, TWX: 910-638-2831; Empl.: 160; *Sls. Mgr.:* Pat Kirby

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KING WIRE & CABLE CORP., 179-45 110 Ave., Jamaica, NY 11433, Tel: 212-657-4422, 800-221-0144, Telex: 96-8858; FSC No.: 06145; *Sls. Mgr.:* Ira M. Lash; *Dist. Mgr.:* Ira M. Lash

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KMC SYSTEMS, INC., 140 Greenwood Ave. (Bldg. 3), Midland Pk., NJ 07432, Tel: 201-447-0007, Telex: 642-374; Empl.: 120; *Sls. Mgr.:* E. Verder

Local Sales Offices & Reps

NJ	Marlton, Control Equip., Inc.	215-676-1460
TX	Irving, DACO	216-986-1506
UT	Bountiful, Lectrol, Inc.	801-292-7674
Can	Downsview, Ont., Displayco, Ltd	416-663-6405

KNOL ENTERPRISES, 3468 Sacramento Dr., San Luis Obispo, CA 93401, Tel: 805-544-4881; Empl.: 6; *Sls. Mgr.:* Dave Bone

KNOWLES ELCTRNS., INC., 3100 N. Mannheim Rd., Franklin Park, IL 60131, Tel: 312-455-3600, Telex: 72-8397; *Sls. Mgr.:* Reginald G. Garratt, VP-Mktg.

KOA

KOA SPEER ELCTRNS., Bolivar Dr., P.O. Box 547, Bradford, PA 16701, Tel: 814-362-5536, Telex: 91-4404, TWX: 510-695-5921; FSC No.: 09021; Empl.: 3000; *Sls. Mgr.:* L. G. Holzwarth; *Dist. Mgr.:* L. Rice .... **A•1108, 1884-1886**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, O'Donnell Assocs.	602-944-9542
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Westrep	408-988-8833
CO	Boulder, R. G. Entprs.	303-447-9211
CT	Middletown, Gerber Sls.	203-347-3000
FL	Altamonte Springs, APM Assocs.	305-869-6831
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Tampa, APM Assocs.	813-886-2457
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Arlington Hgts., C. L. Greenslade Sls.	312-593-3450
IN	Fort Wayne, John F. Kilfoil	219-436-7233
KS	Overland Park, Advanced Techn. Sls.	913-642-6675
LA	Covington, Cartwright & Bean	504-892-1780
MA	Monson, Gerber Sls.	413-267-5051
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Edina, Grayden & Flemmer	612-941-1120
MS	Jackson, Cartwright & Bean	601-981-1170
MO	St. Louis, Advanced Techn. Sls.	314-878-2921
NM	Albuquerque, Power Entprs.	505-298-1918
NY	East Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	Great Neck, MOS Assocs.	516-487-3966
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-876-4130
OH	Cincinnati, John F. Kilfoil	513-791-6150
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Lewisville, Jim Hughes	214-221-1536
TX	Stafford, Jim Hughes	713-343-0673
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
PR	Hato Rey, M. Anderson	809-751-2026
Can	Ontario, Cantronics Ltd.	416-665-8020

Local Distributors

AZ	Phoenix, Kachina	602-269-6201
AZ	Phoenix, Sterling Elctrns.	602-258-4531
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Chatsworth, QC Comps.	818-700-2622
CA	Chatsworth, T.T.I.	818-709-1010
CA	Fountain Valley, Comps. Ctr.	714-979-0433
CA	Irvine, KELEX	714-957-3247
CA	Irvine, Ryno Elctrns.	714-557-5021
CA	San Diego, Ryno Elctrns.	619-453-8430
CA	San Jose, Eric Elctrns.	408-262-1111
CA	Santa Clara, Components Ctr.	408-988-3751
CO	Boulder, R. G. Entprs.	303-447-9211
CO	Denver, Ragon Elec. Parts	303-744-3601
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Orlando, TTI	305-859-1000
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-684-0320
GA	Atlanta, Prehler Elctrns.	404-447-5540
GA	Roswell, Quality Comps.	404-993-8146
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Elk Grove Village, Ragon Elctrns.	319-373-0525
IL	Northbrook, Classic Comp. Supp.	312-272-9650
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
LA	Baton Rouge, Indl. Elctrn. Supp.	504-357-4249
LA	Shreveport, Indl. Elctrn. Supp.	318-222-9459
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MD	White Marsh, Radio Elec. Svc. Co.	301-529-0500
MA	Billerica, Baldwin Comp. Ctr.	617-667-6710
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Westford, Electronic Specialties	617-486-8495
MA	Woburn, T.T.I	617-938-8800
MI	Ann Arbor, Wedemeyer	313-665-8611
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Farmington Hills, Prehler Elctrns.	313-476-7084
MI	Livonia, Reptron	313-525-2700
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Independence, Ragon Elctrns.	816-254-3410
NE	Lincoln, Scott Elctrns.	402-466-8221
NH	Nashua, Brevan Elctrns.	603-889-7230
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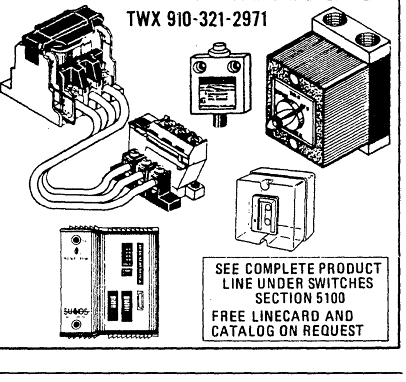

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NY	Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
NY	Hauppauge, Jaco	516-273-5500
NY	Hauppauge, Sherburn Elctrns.	516-231-4300
NY	Rochester, Summit Distrs.	716-334-8110
NY	Ronkonkoma, Baldwin Comp. Ctr.	516-588-5700
NY	Ronkonkoma, Prime Comps.	516-737-1730
NC	Greensboro, Golden Elctrns.	919-373-0038
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Cleveland, Roberts Elect. Corp.	216-238-1711
OH	Dayton, Stotts-Friedman Elctrns.	513-298-5555
OH	Worthington, Reptron/Ohio	614-436-6675
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Murphy Elctrns.	503-642-2001
PA	Allentown, Lehigh Elctrn. Comp.	215-433-3045
PA	Drexel Hill, Kass Elctrns. Dist.	215-449-2300
PA	Erie, Rem Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
RI	Providence, Wm. Dandreta Co.	401-861-2800
TN	Knoxville, Bondurant Bros. Co.	615-573-9151
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Bluff City Elctrns.	615-242-8000
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Ft. Worth, T.T.I. Inc.	817-429-1440
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
TX	Richardson, CCI	214-644-3444
WA	Kent, Shannon Ltd.	206-763-0545
WA	Redmond, Murphy Elctrns.	206-881-1234
WI	Hartland, G W Elctrns.	414-367-6003
WI	New Berlin, Classic Comp.	414-786-5300
Can	Mississauga, Ont., Prelco	416-678-0401
Can	Montreal, Que., Prelco	514-389-8051

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Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Torrance, Cutlas Elctrns.	213-324-7360
CO	Commerce City, Williams Assocs.	303-289-5647
FL	Winter Haven, Lee Assocs.	813-294-5815
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-924-3568
IA	Cedar Rapids, Marsland Assocs.	319-296-8030
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-878-2404
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Binghamton, Tae-Rep	607-722-9265
NY	Rochester, Tae-Rep	716-586-8710
UT	Salt Lake City, Williams Assocs.	801-532-7701
WA	Portland, Westcon	503-283-0132
WI	New Berlin, Marsland Assocs.	414-786-6611

KOGYOSHA, 179 Riveredge Rd., Tenafly, NJ 07670, Tel: 201-569-8769; Empl.: 3; *Sls. Mgr.:* Mark Nakanishi; *Dist. Mgr.:* Mark Nakanishi

KOLE IND., 3553 N.W. 50th St., Miami, FL 33102-0152, Tel: 305-633-2556, 800-327-6085; Empl.: 45; *Sls. Mgr.:* B. J. Neelands

KOLIN INDS., Box 300, Pound Ridge, NY 10576, Tel: 914-764-5775, Telex: 137453; Empl.: 30; *Sls. Mgr.:* J. Kolinsky

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Local Sales Offices & Reps

AL	Huntsville, Techn. Mktg. Assoc.	205-883-7893
AZ	Phoenix, Thor Engr.	602-437-1463
CA	Alhambra, Thorson	818-281-2280
CA	Goleta, Thorson	805-964-8751
CA	Mountain View, Thorson	415-964-9300
CA	Signal Hill, Thorson	213-595-0361
CT	Meriden, Whitehead Assocs., Inc.	203-634-1280
CT	Tolland, Whitehead Assocs., Inc.	
FL	Melbourne, Technlg. Mktg. Assocs.	305-676-3776
FL	Orlando, Techn. Mktg. Assoc.	305-857-3760
FL	Pompano Beach, Techn. Mktg. Assoc.	305-942-0774
GA	Atlanta, Technlg. Mktg. Assocs.	404-257-0374
IL	Schaumburg, Industrial Drives	312-893-8886
MA	Wakefield, Whitehead Assocs., Inc.	617-246-5155
MI	Farmington Hills, Electro-Matics Prods., Inc.	313-478-1182
MN	St. Paul, John J. Exon Co.	612-636-5533
MO	Raytown, Cadon Techn. Sls.	816-356-7685
MO	St. Louis, Cadon Techn. Sls.	314-645-8670
NJ	Wayne, S. Howard Lagerveld & Assocs.	201-790-1714
NY	Rochester, A & D Devices	716-385-2778
NY	Sydney, A & D Dvcs.	607-563-8488
NC	Matthews, Industrial Drives Div.	704-821-9875
OH	Chagrin Falls, Jerry Kilroy Corp.	216-543-3370
OH	Kettering, Kilroy Corp.	513-294-1235
OR	Beaverton, Thorson NW	503-644-5900
PA	Downingtown, Homersmith, Inc.	215-269-3637
PA	Media, Homer Smith Engr. Prods. Rep.	215-543-2434
TX	Austin, P.J. Scanlon Co.	512-255-2664
TX	Dallas, P. J. Scanlon Co., Inc.	214-231-4661
VA	Salem, Homersmith, Inc.	703-774-7411
WA	Bellevue, Thorson	206-455-9180
WI	Wauwatosa, Industrial Drives	414-475-5985

KOLLSMAN INSTR., 220 Daniel Webster Hwy., Merrimack, NH 03054, Tel: 603-889-2500, Telex: 94-3537, TWX: 710-366-6883; Empl.: 2200

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KONTRON ELCTRNS., 1230 Charleston Rd., Mountain View, CA 94039-7230, Tel: 415-965-7020, TWX: 910-378-5207; Empl.: 200; *Sls. Mgr.:* Dick Ridas

KOOLTRONIC, Hamilton Ave., Hopewell, NJ 08525, Tel: 609-466-3400, Telex: 84-3345; Empl.: 150; *Sls. Mgr.:* Gerald H. Freedman

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KRECKMAN, HERB, CO., Cresco, PA 18326, Tel: 717-595-2212; Empl.: 4

KR ELECTRONICS, INC., 91 Avenel St., Avenel, NJ 07001, Tel: 201-636-1900; Empl.: 15 .... **A•1613**

KRL ELCTRNS., 160 Bouchard St., Manchester, NH 03103, Tel: 603-668-3210, 800-257-3300, TWX: 710-220-1662; Empl.: 65; *Sls. Mgr.:* Bert A. Spiller

KROHN CERAMICS, INC, See Centerflex Techn.

KROHN-HITE CORP., Avon Indl. Pk., Bodwell St., Avon, MA 02322, Tel: 617-580-1660, TWX: 710-345-0831; Empl.: 100; *Sls. Mgr.:* Craig S. Dunbar .... **D•1258-1259**

Local Sales Offices & Reps

AL	Huntsville, Gentry Assocs.	205-837-0692
AZ	Phoenix, Odyssey 1	602-246-8846
AR	Eldorado, Kemp Engrg.	501-826-5869
CA	Inglewood, L & M Engrg. Assocs.	213-674-6850
CA	San Jose, MCH Assocs.	408-246-7330
CO	Englewood, Odyssey 1	303-773-8176
CT	New Haven, McBar Assocs.	203-865-4376
FL	Ft. Lauderdale, Gentry Assocs.	305-791-8405
FL	Orlando, Gentry Assocs.	305-859-7450
FL	Tampa, Gentry Assocs.	813-886-0720
GA	Atlanta, Gentry Assocs.	404-998-2828
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Gretna, Gentry Assocs.	504-367-3975
MD	Baltimore, Sci-Rep	703-385-0600
MA	Waltham, McBar	617-890-0233
MI	Detroit, EQS Sys.	313-961-3042
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	St. Louis, Ramsey Assocs.	314-878-5042
NJ	Englewood, Sci. Devices E.	201-871-3916
NM	Albuquerque, Odyssey 1	505-265-6645
NY	Syracuse, Labtronics	315-455-7314
OH	Chesterland, EQS Sys.	216-729-2222
OH	Columbus, EQS Sys.	614-228-3453
OK	Tulsa, Kemp Engrg.	918-663-4501
OR	Portland, McLaren	503-297-2248
PA	Pittsburgh, EQS Sys.	216-729-2222
PA	Spring House, Scientific Devices East	215-643-3335
SC	Columbia, Gentry Assocs.	803-772-6786
TN	Knoxville, Gentry Assocs.	615-584-0281
TX	Dallas, Kemp Engrg.	214-931-7100
TX	Houston, Kemp Engrg.	713-466-1465
VA	Fairfax, Sci-Rep	703-385-0600
WA	Bellevue, McLaren	206-454-3400
WI	Milwaukee, Berndt Assocs.	414-545-8400

KRYSTINEL CORP., 126 Pennsylvania Ave., Paterson, NJ 07503, Tel: 201-345-8900, TWX: 710-988-5931; Empl.: 200; *Sls. Mgr.:* Joseph Barreca .... **A•1304-1306**

Local Sales Offices & Reps

AZ	Phoenix, Charles T. Fink & Assoc.	602-992-9884

Local Distributors

CA	Los Alamitos, Permag Pacific Corp.	213-594-6515
CA	Sunnyvale, Permag Sierra Corp.	408-738-1080
CO	Aurora, Permag Corp.	303-693-6612
GA	Norcross, Permag Dixie Corp.	404-448-5661
IL	Elk Grove Vl., Permag Cen. Corp.	312-956-1140
MA	Billerica, Permag NE Corp.	617-273-2890
MN	Eden Prairie, Permag Minn. Corp.	612-934-4635
NY	Hicksville, Permag Corp.	516-822-3311
OH	Toledo, Permag Magnetics Corp.	419-385-4621
OR	Portland, Permag Corp, Sierra Div.	503-252-9610
TX	Richardson, Permag S.W. Corp.	214-699-1121

KSI, See Kaiser Systems, Inc.

KSW ELCTRNS. CORP., See Frequency Sources, KSW Semicond. Div.

K-SYSTEMS, INC., 3902 Lilac, Las Cruces, NM 88005, Tel: 505-526-3209, Telex: 910-380-3378; Empl.: 2; *Sls. Mgr.:* Alice Furphy

H. KUHNKE, INC., 26 W. Highland Ave., Atlantic Highlands, NJ 07716, Tel: 201-291-3334, 800-221-0714, Telex: 854041; Empl.: 12; *Sls. Mgr.:* John Chapski

KS kulite

KULITE SEMICONDUCTOR PRODS., INC., 1039 Hoyt Ave., Ridgefield, NJ 07657, Tel: 201-945-3000, Telex: 13-5458; Empl.: 300 .... **B•1799**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.	205-533-5896
AZ	Scottsdale, Dave Menegey Assocs.	602-994-9519
CA	Hollywood, B. J. Wolfe Entprs.	213-877-5518
CA	Walnut Creek, Dale-Dahl Assocs.	415-933-9595
CO	Boulder, Measurement Cnslts.	303-449-7506
DC	Baltimore, Reptron, Inc.	301-799-7490
FL	Osprey, Dick Ridgewell Co.	813-484-2020
IN	Indianapolis, EIA, Inc.	317-257-7231
MD	Baltimore, Reptron	301-799-7490
MA	Wayland, Daner-Hayes	617-655-0888
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Trask Engrg.	612-537-2434
MO	St. Louis, Ozark Elctrn. Mktg.	314-423-7200
NH	Wilton, Daner-Hayes, Inc.	800-225-8760
NJ	Glen Gardner, Daner-Hayes, Inc.	800-225-8760
NM	Albuquerque, Amonette Entprs.	505-344-4143
NY	Brewster, Daner-Hayes, Inc.	800-225-8760
NY	Rochester, Daner-Hayes, Inc.	800-225-8760
OH	Dayton, WKM Assocs	513-434-7500
OH	Pittsburgh, WKM Assocs.	412-892-2953
OK	Edmond, Data Aids Assocs.	405-478-5000/01
PA	Doylestown, Daner-Hayes, Inc.	800-225-8760
PA	Pittsburgh, WKM Assocs.	412-892-2953
TX	Austin, Data Aids	512-327-8600/01
TX	Dallas, Data Aids	214-620-1551
UT	Salt Lake City, Measurement Cnslts.	801-364-3174
VT	White River Junction, Daner-Hayes, Inc.	800-225-8760
WA	Seattle, Brett Assocs.	206-431-8090

Kulka Smith

KULKA SMITH, INC., 1913 Atlantic Ave., Manasquan, NJ 08736, Tel: 201-223-9400, TWX: 244536; Empl.: 500; *Sls. Mgr.:* John Chirico .... **C•1424-1429**

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn Co.	602-257-9015
CA	Los Angeles, E E Strassner	818-242-8823
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Denver, Lindberg Co.	303-758-9033
CT	North Haven, Coakley, Boyd & Abbett	800-225-8402
FL	Orlando, Hollingsworth & Still, Inc.	305-859-9423
GA	Norcross, Hollingsworth & Still, Inc.	404-447-1700
IL	Lombard, RMP/McBride Corp.	312-932-9090
IL	Northbrook, Dolin Sls.	312-498-6770
IN	Indianapolis, Electronic Reps., Inc.	317-894-7414
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	Minneapolis, Electronic Comp. Sls.	612-933-2594
MO	St. Louis, Lowell-Kangas & Assocs.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Clifton, R.O.I. Sls. Co.	201-340-1515
NY	Syracuse, Allen, Leonard D., Inc.	315-437-8387
NC	Kenersville, Hollingsworth & Still, Inc.	800-241-5712
OH	Richfield, Bear Mktg.	216-659-3131
OR	Portland, Dale J Weber Co.	503-234-7671
PA	Trevose, P.S.A., Inc.	215-245-0513
TX	Dallas, Schoonmaker, J. Y. Co.	214-349-1650
WI	Milwaukee, D. Dolin Sls.	414-482-1111
Can	Rexdale, Ont., Frank Eakin Sls.	416-245-3600

Local Distributors

AZ	Tempe, Fisher/Brownell	602-967-1464
CA	Alhambra, Fisher/Brownell	818-289-0255
CA	Buena Park, Control Design	213-802-1371
CA	Buena Park, RPS Elctrns.	714-521-5040
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Carlos, Control Design	415-592-4808
CA	San Diego, Fisher/Brownell	619-560-8545
CA	Santa Clara, El-Com Comps.	408-496-0880
CA	Santa Clara, Fisher/Brownell	408-988-6041
CO	Arvada, Denver Wintronics	303-431-7161
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Midan	203-265-2077
FL	Altamonte Springs, Control Design Supp.	305-788-3220
FL	Clearwater, Electronic Precepts	813-530-9781
FL	Ft. Lauderdale, Peerless Radio/Fla.	305-973-4141
FL	Miami, Electronic Equip. Co.	305-871-3500
GA	Stone Mountain, Control Design Supp., Inc.	404-979-3500
IL	Addison, Lectro Comps.	312-543-1680
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Genoa, Control Design Supp., Inc.	815-784-6515
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Indianapolis, Control Design	317-788-4559
IN	Indianapolis, Graham Elctrn. Supp.	317-634-8202
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
IA	Cedar Rapids, Vrbik-Berquist	319-366-8733
IA	Marion, Control Design	313-373-2923
KS	Wichita, RSC Elctrns.	316-267-5213
KY	Louisville, Peerless Elctrn. Equip.	502-637-7677
LA	New Orleans, Radio Parts	504-581-5959
LA	New Orleans, W. B. Allen Supp.	504-525-8222
MD	Baltimore, Resco/Baltimore	301-529-0500
MA	Newton, Greene Shaw Co.	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MI	Battle Creek, Great Lakes Elctrns.	616-731-4156
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
MN	Minneapolis, Control Design	612-721-6555
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Kansas City, Walter Radio Supp. Co.	816-531-7015
MO	Maryland Hgts., L-Comp., Inc.	314-291-6200
MO	St. Louis, Control Design Supp.	314-426-3150
NE	Lincoln, Scott Elctrns. Supp.	402-466-8221
NJ	Prospect Park, Kappe Electrical Distrs.	201-790-1999
NM	Albuquerque, Walker Elctrl.	505-883-2992
NY	Bohemia, Key Comps., Inc.	516-567-7500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Elmsford, Ancar Elctrns.	914-592-7100
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Mt. Vernon, Qar Indl. Elctrns.	914-699-2224
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rochester, Summit Distrs.	716-334-8110
NY	Rockville Center, Midway Indl.	516-293-6800
NC	Charlotte, Control Design Supp.	704-588-4410
NC	Raleigh, Southeastern Radio Supp.	919-828-2311
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Cleveland, W. M. Pattison Supp.	216-441-3000
OH	Columbus, Electronics Mktg.	614-299-4161
OH	Dayton, John A. Becker Co.	513-226-1341
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Warren, Rem Elctrns.	800-262-9050
OK	Oklahoma City, Electro Entprs.	405-427-6591
OR	Portland, Radar Elec.	503-232-3404
PA	Altoona, Allegheny Elctrns.	814-946-0871
PA	Harrisburg, Pyttronics	215-643-2850
PA	Malverne, Control Design	215-296-0150
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	Pittsburgh, CAM/RPC Co.	412-782-3770
PA	Reading, Barbey Elctrns.	215-376-1451
TN	Knoxville, Industrial Elctrns.	615-573-7135
TX	Dallas, Force Elctrns.	214-438-5700
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Ft. Worth, Industrial Elctrns.	817-731-7321
TX	Houston, Altair Corp.	214-231-5176
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Richardson, Altair Corp.	214-231-5166
UT	Salt Lake City, Ra-Elco	801-487-7749
VA	Charlottesville, Virginia Radio Supp.	804-296-4184
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Radar Elec.	206-282-2515
WI	New Berlin, Control Design	414-784-1015
WI	New Berlin, RM Wisconsin	414-784-4420
Can	Pte. Claire, Que., Future Elctrns.	514-694-7710

KURZ INSTRUMENTS, INC., P.O. Box 849, Carmel Valley, CA 93924, Tel: 800-424-7356, Telex: 172275; FSC No.: 94-24-11681; Empl.: 45; *Sls. Mgr.:* Phil Hickerson .... **B•1800**

Local Sales Offices & Reps

FL	Jacksonville, Hile Controls Of Florida	904-268-4880
GA	Woodstock, Hile Controls Of Georgia	404-928-6844
IL	South Holland, Carrier-Oehler Co.	312-339-8200
KS	Mission, Vertec Assocs.	913-677-3200
KY	Ft. Mitchell, Giangarlo Sci. Co.	606-341-9570
LA	Baton Rouge, Desselle-Maggard Corp.	504-293-3290
MA	Newton, ETA Assocs.	617-527-4544
MI	Kalamazoo, Giangarlo Sci. Co.	616-345-9182
MN	Cedar, Bican Co.	612-434-7733
MO	Manchester, Vertec Assocs.	314-394-6242
NJ	Clifton, I.R.I.	201-471-2614
NM	Albuquerque, A-Tek Co.	505-265-8325
NY	Hamilton, Giangarlo Sci. Co.	315-824-1883
NC	Matthews, W. K. Hile Co.	704-847-9125
OR	Portland, Extech, LTD.	503-292-9219
PA	Pittsburgh, Giancarlo Sci., Co.	412-584-0208
TX	Houston, Stringer Assocs.	713-469-9209
TN	Knoxville, Hile Controls of Tennessee	615-584-0208
UT	Salt Lake City, MC2	801-364-3174
VA	Chester, Hile Controls Of Virginia	804-796-3001
WA	Enumclaw, Extech, LTD.	206-825-2308
WI	Milwaukee, Jensen Reynolds Corp.	414-351-1100
Can	Toronto, Safety Supply Canada	416-364-3234

KURZ-KASCH, Knob Div., 711 Hunter Dr., Wilmington, OH 45177, Tel: 513-382-0966; Empl.: 250; *Sls. Mgr.:* J. McGeady, M. Krystofik

KYOCERA INTL., INC., Elctrn. Comps. Grp., 11425 Sorrento Valley Rd., San Diego, CA 92138, Tel: 619-454-1800, TWX: 910-322-1130; *Sls. Mgr.:* Clif Nehlsen; *Dist. Mgr.:* Bill McKelvy

LAAKMANN ELECTRO-OPTICS, INC., 33052 Calle Aviador, San Juan Capistrano, CA 92675, Tel: 714-493-6624, Telex: 681335; *Sls. Mgr.:* John Wheeler

LAB-LINE INSTRS., 15th & Bloomingdale, Melrose Park, IL 60160, Tel: 312-450-2600, Telex: 270-312; Empl.: 225

LABORATORY PRODUCTS, INC., 57 Cornwall St., P. O. Box 1750, Jamaica Plain, MA 02130, Tel: 617-522-7800; FSC No.: 04-2593524; Empl.: 9; *Sls. Mgr.:* R. J. Toronto

LAFRANCE CORP., Entprs & Exec Aves, Philadelphia, PA 19153, Tel: 215-365-8000, Telex: 83-1732; *Sls. Mgr.:* James Craig

LAFRANCE CORP., PACTEC DIV., See PacTec Div., LaFrance Corp.

LA MARCHE MFG., 106 Bradrock Dr., Des Plaines, IL 60018, Tel: 312-299-1188, Telex: 28-2526; FSC No.: ;15736; Empl.: 225

LAMBDA ELECTRONICS, Veeco Instr., Inc., 515 Broad Hollow Rd., Melville, NY 11747, Tel: 516-694-4200, TWX: 510-224-6484; Empl.: 1200; *Sls. Mgr.:* R. Koslow

LAMBDA SEMICONDUCTORS, Veeco Instr., 121 International Dr., Corpus Christi, TX 78410, Tel: 512-289-0403, 800-255-9606, TWX: 910-876-1404; Empl.: 200; *Sls. Mgr.:* Derek Roberts

LAMP TECHNOLOGY, INC., 141A Central Ave., Farmingdale, NY 11735, Tel: 516-454-6464, Telex: 645543; Empl.: 10; *Sls. Mgr.:* Edith Reuter

LAMPTRONIX CO., LTD., 85 N. Williams St., Crystal Lake, IL 60014, Tel: 815-455-0400, Telex: 280191; FSC No.: 61342; *Sls. Mgr.:* Nancy E. Towe

Local Sales Offices & Reps

FL	Orlando, Over & Over Florida, Inc.	305-857-4057
IL	Addison, Engineered Sls.	312-832-8425
IN	Noblesville, W.G. Brouillette & Assocs.	317-345-6500
KS	Wichita, D & O Engrg.	316-686-2802
NJ	Haddonfield, Gray Assocs.	609-429-5300
TN	Antioch, Over & Over, Inc.	615-834-0140
WA	Lynwood, Blum & Assocs.	206-775-6656

LAMTECH ELECTRONICS, 620 Easy Street, Garland, TX 75042, Tel: 214-272-3504; Empl.: 100; *Sls. Mgr.:* Phillip Rasor; *Dist. Mgr.:* Phillip Rasor .... **C•1845**

Local Sales Offices & Reps

TX	Dallas, Zonk & Assocs.	214-238-7651
TX	Houston, Zonk & Assocs.	713-895-9131

LANCE INDS., P.O. Box 4156, Sylmar, CA 91342-0156, Tel: 818-367-1811, Telex: 66-2443; *Sls. Mgr.:* Jerry Updyke; *Dist. Mgr.:* Joe Barris

LANCE WIRE & CABLE, INC., 1010 Sherman Ave., Hamden, CT 06514, Tel: 203-288-5571; Empl.: 50; *Sls. Mgr.:* Bill Kahler

LANCORE TECHNOLOGIES, INC., 31324 Via Colinas, Westlake Village, CA 91362, Tel: 818-991-5100, Telex: 532044

LANDIS & GYR, INC., 4 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-4400, Telex: 137345; FSC No.: 914-592-1179; Empl.: 65; *Sls. Mgr.:* Joe Depaola; *Dist. Mgr.:* R. W. Strohm

L & L SPECIAL FURNACE, 166 Kent Rd., Aston, PA 19014, Tel: 215-459-9216, Telex: 753264; Empl.: 20; *Sls. Mgr.:* Greg Lewicki; *Dist. Mgr.:* Stephen Lewicki

L & R MFG. CO., 577 Elm St., Kearny, NJ 07032, Tel: 201-991-5330, Telex: 642078 Ellanar Krny.; Empl.: 220; *Sls. Mgr.:* Bruce Bernardo

LANGLEY, P.O. Box 2911, San Diego, CA 92112, Tel: 619-264-3181; FSC No.: 83549; Empl.: 140; *Sls. Mgr.:* A. Kremm

LANSING

LANSING RESEARCH CORP., 705 Willow Ave., Ithaca, NY 14850, Tel: 607-272-3265, 800-847-3535; *Sls. Mgr.:* Fred B. Widding .... **C•1069**

LA POINTE INDUSTRIES, INC., Electronics Products Div., 155 W. Main St., Rockville, CT 06066, Tel: 203-872-8581, TWX: 710-435-1663; FSC No.: 70117; Empl.: 650

LARK ELECTRONICS, INC., Box 390, New York, NY 10040, Tel: 212-569-0430; FSC No.: 52682

LARK ENGINEERING CO., 26401 Calle Rolando, San Juan Capistrano, CA 92675, Tel: 714-493-9501, TWX: 910-596-1411; FSC No.: 33175; Empl.: 40

LARSON INSTR., Greenbush Rd., Orangeburg, NY 10962, Tel: 914-359-3800; Empl.: 18; *Sls. Mgr.:* A. D. Stephens

LASER APPLICATIONS, 91 Carver Ave., Westwood, NJ 07675, Tel: 201-664-7636; Empl.: 5

LASER CONCEPTS, Omega Organization Intl., P.O. Box 687, Mercer Island, WA 98040, Tel: 206-232-6256; *Sls. Mgr.:* Sheila Chatelaine

LASER DIODE LABS, 1130 Somerset St., New Brunswick, NJ 08901, Tel: 201-249-7000, TWX: 710-998-0597; *Sls. Mgr.:* Steve Klunk

LASER INC., Laser Lane, Box 537, Sturbridge, MA 01566, Tel: 617-347-7314, Telex: 95-1806; Empl.: 110; *Sls. Mgr.:* William H. Shiner

LASER PRECISION CORP., 1231 Hart St., Utica, NY 13502, Tel: 315-797-4449, Telex: 646803; Empl.: 110; *Sls. Mgr.:* Don Sypek

LASERSONICS POWER SUPPLY OPERATION, 177 N. Wolfe Rd., Sunnyvale, CA 94086, Tel: 408-732-9880 .... **D•1719**

LASER TECHN., 10624 Ventura Blvd., N. Hollywood, CA 91604, Tel: 818-763-7091; Empl.: 18; *Sls. Mgr.:* H. B. McLaughlin

LATTIN RADIO LABS., 1431 Sweeney, P.O. Box 44, Owensboro, KY 42302, Tel: 502-683-2868; Empl.: 3; *Sls. Mgr.:* Wm J. Lattin

LAWRENCE-CROW ELCTRNS. INC., 2100 Stemmons, Dallas, TX 75207, Tel: 214-749-5440, Telex: 730213; *Sls. Mgr.:* Jesse Hall; *Dist. Mgr.:* Michael T. McAndrews

L-COM INC., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, Tel: 617-682-6936, Telex: 882157; Empl.: 14; *Sls. Mgr.:* Mark W. Tomkins; *Dist. Mgr.:* Mark W. Tomkins .... **C•1846-1847**

Local Sales Offices & Reps

CA	Anaheim, Galaxie Sls. Intl.	714-937-5622
CT	Middletown, Gerber Sls.	203-347-3000
FL	Apopka, G. F. Bohman Assoc., Inc.	305-886-1882
IL	Chicago, Ed Joyner & Co.	512-320-1200
KS	Kansas City, BC Elctrns. Sls.	913-342-1211
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MO	Bridgeton, BC Elctrns. Sls.	314-291-1101
NJ	Marlton, Naudain Assoc.	609-983-5300
NY	Great Neck, F & F Metro, Inc.	516-482-4080
NY	Rochester, Lamb Comps., Inc.	716-323-1250
NY	Syracuse, Lamb Comps., Inc.	315-455-2469
TX	Houston, Repmasters-Houston	713-692-8204
TX	Sherman, Repmasters-Dallas	214-247-6236

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
GA	Atlanta, A.P. Sales	800-624-5496
IL	Chicago, Classic Comp. Supp.	800-842-5149
MA	Canton, Impact Sls.	617-821-1500
MA	Newton Upper Falls, In-Stock Prods.	617-964-6200
MI	Brighton, A.P. Sls.	313-229-6550
NY	Victor, Add Elctrns.	716-924-4760
OH	Dayton, Televox	513-294-4499
TN	Knoxville, Mac-One	615-690-6221

LDJ INCORPORATED, 2200 Stephenson Hwy., P.O. Box 219, Troy, MI 48099-0219, Tel: 313-528-2202, TWX: 810-232-1509 LDJ TRMI; Empl.: 63; *Sls. Mgr.:* Jim Ling .... **D•1260**

LEACH®
CONTROL PRODUCTS DIVISION

LEACH CORP., Control Prods. Div., 6900 Orangethorpe Ave., Buena Pk., CA 90620, Tel: 714-739-0770, TWX: 910-596-2867; Empl.: 220; *Sls. Mgr.:* Ron Zimmerman; *Dist. Mgr.:* Ron Zimmerman .... **A•1378-1379, 1678-1679; B•1428-1429**

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co., Inc.	205-883-0445
AZ	Tempe, ELEC-COM Assocs.	602-967-8644
CA	Granada Hills, C & W Comps. Sls.	213-368-4032
CA	San Mateo, Halbar Assocs.	415-349-4700
FL	Orlando, Donato & Assocs.	305-352-0727
GA	Atlanta, Brandel-Stephens & Co., Inc.	404-261-7579
IN	Carmel, Giesting & Assocs.	317-844-5222
KS	Wichita, BAKA Corp.	316-682-8411
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Woburn, Comp. Techn.	617-933-5390
MI	Farmington Hills, Giesting & Assocs.	313-478-8106
MN	Minneapolis, Comprehensive Tech. Sls.	612-888-7011
NJ	Englewood Cliffs, Leach Corp.	201-567-6795
NY	Fayetteville, R. D. Sherman	315-637-9861
NC	Greensboro, Brandel-Stephens & Co., Inc.	919-275-9059
OH	Cincinnati, Giesting & Assocs.	513-521-8800
PA	Trevose, PSA, Inc.	215-245-0513
TX	Dallas, Caton Sls.	214-661-5792
VA	Charlottesville, Marktron	804-973-5874
VA	Charlottesville, Marktron	301-251-8990
WA	Bellevue, Leach Corp.	206-746-7263
Can	Kirkland, Que., Robin Aerospace Prods., Ltd.	514-694-1315

Local Distributors

AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Sunnyvale, Time/Nor-Cal.	408-734-9888
CA	Torrance, Time Elctrns. West	213-320-0880
FL	Ft. Lauderdale, Time Elctrns. - FL	305-974-4800
GA	Atlanta, Electro Air Corp.	404-351-3545
MD	Columbia, Time Elctrns.	301-964-3090
MA	Woburn, Time/New Eng.	617-935-8080
MO	St. Louis, Time Midwest	314-391-6444
NY	Hauppauge, Time Elctrn. Sls.	516-273-0100
PA	Broomall, Time/Mid-Atlantic	215-359-1200
TX	Dallas, Electro Air Corp.	214-385-0566
WA	Bellevue, Electro-Air/NW	206-641-3640
WA	Redmond, Pan Pacific Elctrns.	206-881-7252

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LEACH CORP., Relay Div., 5915 Avalon Blvd., Los Angeles, CA 90003, Tel: 213-232-8221, TWX: 910-321-2303; FSC No.: 35344; Empl.: 630; *Sls. Mgr.:* S. Whitcomb; *Dist. Mgr.:* D. Robinson .... **B•1430-1435**

Local Sales Offices & Reps

AZ	Tempe, Elec-Com Assocs.	602-967-8644
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Denver, Quorum 3	303-696-8480
FL	Orlando, Donato & Assocs.	305-352-0727
FL	Palm Harbor, Donato & Assocs., Inc.	813-785-3327
GA	Atlanta, Craft Assocs.	404-256-0420
IN	Fort Wayne, Denton Mktg.	219-627-5525
KS	Wichita, BAKA Corp.	316-682-8411
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Woburn, Comp. Techn.	617-933-5390
MN	Minneapolis, Comprehensive Tech. Sls.	612-888-7011
MO	Ferguson, Leach Corp.	314-524-2880
NJ	Englewood Cliffs, Leach Corp.	201-567-6795
NY	Fayetteville, R. D. Sherman	315-637-9861
OH	Dayton, Leach Corp.	513-434-8151
PA	Trevose, PSA, Inc.	215-245-0513
TX	Dallas, Caton Sls.	214-243-4716
UT	Sandy, Quorum 3: Sls. Grp., Inc.	801-943-9227
VA	Charlottesville, Marktron	804-973-5874
WA	Bellevue, Leach Corp.	206-746-7263
Can	Kirkland, Que., Robin Aerospace Prods.	514-694-1315
Can	Mississauga, Ont., Robin Aerospace Prods.	416-673-1666

Local Distributors

AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	San Diego, Time Elctrns.	619-586-1331
CA	Sunnyvale, Time/Nor-Cal	408-734-9888
CA	Torrance, Time Elctrns. West	213-320-0880
CO	Englewood, Time Elctrns.	303-850-7701
CT	Cheshire, Time Elctrns.	203-271-3200
FL	Ft. Lauderdale, Time Elctrns.-Fla.	305-974-4800
FL	Orlando, Time Elctrns.	305-841-6565
GA	Atlanta, Electro Air Corp.	404-351-3545
MD	Columbia, Time Elctrns.	301-964-3090
MA	Woburn, Time/New Eng.	617-935-8080
MN	Bloomington, Time Elctrns.	612-944-9192
MO	St. Louis, Time/Midwest	314-391-6444
NY	Hauppauge, Time Elctrn. Sls.	516-273-0100
OR	Portland, Time Elctrns.	503-664-3780
PA	King of Prussia, Time/Mid-Atlantic	215-337-0900
TX	Dallas, Time Elctrns.	214-385-0566
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Redmond, Pan Pacific	206-881-7252

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LEA DYNATECH, INC., 12516 Lakeland Rd., Santa Fe Springs, CA 90670-9990, Tel: 213-944-0916, TWX: 910-586-1381; FSC No.: 57499; Empl.: 35

Local Sales Offices & Reps

AL	Huntsville, FM Assocs. Ltd.	205-882-0689
AZ	Phoenix, Indl. Prods. Corp.	602-954-7300
CA	Burbank, Biztek Co., Inc.	213-766-4890
CA	Mountain View, Leddy Assocs.	415-969-6313
CO	Boulder, Abco, Inc.	303-444-1173
CT	Hamden, Applied Meas.	203-288-5288
DC	Washington, Instrucom	202-223-1759
FL	Jupiter, FM Assocs. Ltd.	305-746-2996
GA	Atlanta, FM Assocs. Ltd.	404-451-2293
HI	Honolulu, Nustate Aircon	808-839-1212
IN	Fort Wayne, Century Dynamics, Inc.	219-486-2681
KS	Lenexa, C & C Sls.	913-888-6200
LA	Baton Rouge, Fogarty Engrg. Co.	504-928-3372
ME	Waterville, Kentrol	207-873-7741
MI	Birmingham, Thibodeau Engrg.	313-642-6620
MN	St. Paul, Knox Assocs.	612-488-5402
MO	Bridgeton, Electro Mech. Assocs.	314-291-7661
NM	Albuquerque, Industrial Prods. Corp.	505-256-3561
NY	Lynbrook, Puleo Elctrns., Inc.	516-599-4875
NC	Ramseur, FM Assocs., Ltd.	919-824-2196
OH	Wickliffe, Walter J. Brauer & Assocs.	216-943-0601
PA	Warminster, Multi-Meas., Inc.	25-675-3082
TX	Houston, Texas Tech. Prods. Co.	713-526-0656
TX	Midland, Total Flow Meas.	915-694-1567
VT	Bennington, Applied Meas., Inc.	802-422-2222
WA	Seattle, R. W. Campbell, Inc.	206-622-3403
WY	Casper, ABCO, Inc.	307-577-1851

LEAR SIEGLER, INC., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406, Tel: 213-452-5444, TWX: 910-343-6463; Empl.: 30,860

LEAR SIEGLER, INC., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, Tel: 714-774-1010, TWX: 910-591-1157; Empl.: 256; *Sls. Mgr.:* J. Horgan .... **C•1430**

Local Sales Offices & Reps

CA	San Diego, Qualtronics	619-695-0118
GA	Atlanta, Grady Duckett	404-451-3529
IL	Chicago, Mauer Co.	312-677-4771
IN	Indianapolis, Elctrn. Sls. & Engrg.	317-849-4260
MA	Haverhill, L.K. Harmon	617-373-1313
MI	Detroit, Hummon Assocs.	313-474-0661
MN	Minneapolis, Paul Ericson & Assocs., Inc.	612-884-1969
NJ	Bellmawr, Mid Atlantic Corp.	609-931-5303
NY	Syracuse, C. W. Floring & Assocs.	315-478-2149
NY	Williston Park, ABC Elec.	516-747-6610
OH	Cleveland, Geotronix	216-526-2535
TX	Austin, Alphatech, Inc.	512-458-9179

Local Distributors

CA	Placentia, Local Sls., Inc.	714-993-1800
IL	Evanston, Mauer Co.	312-677-4771
Intl	Eng., Eastleigh Hants, BICC Vero Elctrns.	TWX 851-47-551
Intl	Japan, Tokyo, Hakuto Co.	TWX 78-12-2912
Can	Kingston, Ont., Elctrn. Pkg. Sys.	613-549-5152

LEASAMETRIC, INC., 1164 Triton Dr., Foster City, CA 94404, Tel: 415-574-4441; *Sls. Mgr.:* David Sobo

LEBOW CO., 5960 Mandarin Ave., Goleta, CA 93117, Tel: 805-964-7117; *Sls. Mgr.:* Sharon J. Neiman

LEBOW PRODUCTS, Eaton Corp., 1728 Maplelawn Rd., Troy, MI 48084, Tel: 313-643-0220, TWX: 810-232-4818; Empl.: 110; *Sls. Mgr.:* Michael J. Parker

LECROY RESCH. SYS. CORP., 700 S. Main St., Spring Vly., NY 10977, Tel: 914-425-2000, TWX: 710-577-2832; Empl.: 300; *Sls. Mgr.:* Henry Bickel

LECROY RESCH. SYS. CORP. (CAL.), 1806 Embarcadero Rd., Palo Alto, CA 94303, Tel: 415-856-1800, TWX: 910-373-1791; *Sls. Mgr.:* Andy Keyser

LECTROHM DIV. OF CAPCO, INC., Box 1028, Grand Junction, CO 81502, Tel: 303-243-8480, TWX: 910-929-6989; Empl.: 110

LECTRO MAGNETICS, INC., 6056 W. Jefferson Blvd., Los Angeles, CA 90016, Tel: 800-325-9814, 213-870-9383; FSC No.: 29098; Empl.: 60; *Sls. Mgr.:* Bill DeSalle

LECTROTECH, INC., 5810 N. Western Ave., Chicago, IL 60659, Tel: 312-769-6262; Empl.: 42

LEDCO DIV., 240 Plato Blvd., St. Paul, MN 55107, Tel: 612-222-2791, TWX: 910-563-3679; FSC No.: 55292; Empl.: 300; *Sls. Mgr.:* Laurie Wilbrecht

LEDEX INC., P.O. Box 427, Vandalia, OH 45377, Tel: 513-898-3621, Telex: 28-8228, TWX: 810-450-2526; FSC No.: 81840; Empl.: 500; *Sls. Mgr.:* T. C. Ristoff .... **B•1462, 1468-1470, 1612-1614**

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AL	Huntsville, A. B. Andrews & Co.	205-539-6817
AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	San Diego, Interstate Mktg. Assoc.	619-292-8117
CA	Saratoga, Testco Co.	408-253-1900
CA	Woodland Hills, Interstate Mktg. Assocs.	818-883-7606
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Bloomfield, SIR Assoc.	203-243-9343
FL	Largo, Techn. Mktg. Assocs.	813-536-3796
FL	Melbourne, Techn. Mktg. Assocs.	305-676-3776
FL	Orlando, Techn. Mktg. Assocs.	305-857-3760
FL	Pompano Beach, Techn. Mktg. Assocs.	305-942-0774
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Greenwood, Valentine & Assoc.	317-888-2260
IN	South Bend, Valentine & Assoc.	219-288-7070
KS	Leawood, Thunderbird Tech. Sls. & Svcs.	913-642-7220
KS	Wichita, Thunderbird Tech. Sls. & Svcs.	316-684-3941
MA	Bedford, SIR Assocs.	617-275-5550
MN	Bloomington, Merrill Franklin Co.	612-854-9446
MO	Maryland Heights, Thunderbird Tech. Sls. & Svcs.	314-567-6488
NY	Clark Mills, KLM-Garner Co.	315-853-6126
NY	N. Syracuse, KLM-Garner Co.	315-458-6214
NY	Oceanside, Bittan Assocs.	516-678-6222
NY	Pittsford, KLM-Garner Co.	716-381-8350
NC	Research Triangle Park, A. B. Andrews & Co.	919-544-1762
OH	Cleveland, Del Steffen & Assoc.	216-461-8333
OH	Dayton, Del Steffen & Assoc.	513-293-3145
OH	Lexington, Del Steffen & Assoc.	419-884-2313
OK	Tulsa, ION Assocs., Inc.	918-664-0186
PA	Carnegie, Del Steffen & Assocs., Inc.	412-276-7366
PA	King of Prussia, Freedman-Malta Assoc.	215-337-9211
PA	Pittsburgh, Del Steffen & Assoc.	412-276-7366
TX	Austin, ION Assocs., Inc.	512-331-7251
TX	Grand Prairie, ION Assocs., Inc.	214-647-8225
TX	Houston, ION Assocs., Inc.	713-977-4354
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Vinton, A. B. Andrews & Co.	703-890-1128
WA	Bellevue, Testco	206-454-7422
WI	Thiensville, Control Sls.	414-242-4580

LEDTRONICS, INC., 4009 Pacific Coast Hwy., Torrance, CA 90505, Tel: 213-534-1505, Telex: 4945454; FSC No.: 8Z410; Empl.: 10; *Sls. Mgr.:* Pervaiz Lodhie .... **B•1083**

Local Sales Offices & Reps

CA	Santa Clara, Cummings & Assocs.	408-247-8656
CA	Woodland Hills, Cummings & Assocs.	818-340-6035
CO	Aurora, Butler Tech. Sls.	303-842-3787
IN	Indianapolis, Shank Elctrn. Mktg. Assocs.	317-842-6204
NE	Lincoln, Creative Concepts	402-474-2033
WI	Brookfield, Electro Tech. Mktg. Assocs.	414-785-9554

LEECRAFT MFG., 21-02 44th Rd., Long Island City, NY 11101, Tel: 718-392-8800, TWX: 710-582-2897; Empl.: 250; *Sls. Mgr.:* Jeff Heller; *Dist. Mgr.:* Harvey Shankman .... **B•1085-1087**

Local Sales Offices & Reps

AL	Huntsville, Ultra Sls.	205-539-7911
AZ	Phoenix, Dodds & Co., Inc.	602-482-9330
CA	Freemont, Hartfield, Kennan, Freytag	415-863-2200
CA	Los Angeles, Hartfield-Kennan-Freytag	213-225-1318
CA	Union City, Hartfield, Kennan, Freytag	415-471-2493
CT	Ansonia, Zaslow Sls. Co.	203-735-9851
CT	Bloomfield, Zaslow Sls.	203-242-7781
DE	Washington, Dus Co.	215-493-4642
FL	Maitland, D.J. Ellis & Assocs., Inc.	305-645-1101
GA	Decatur, Tenn Tech, Inc.	205-350-0630
IL	Naperville, Electra Sls. Assocs.	312-369-8240
IN	Fort Wayne, Needler Sls. Co., Inc.	219-447-2123
IN	Indianapolis, Needler Sls. Co.	317-255-8056
IA	Cedar Rapids, PMR Corp.	319-362-9177
KS	Overland Park, PMR Corp.	913-381-0004
KS	Wichita, PMR	316-684-4141
KY	Nicholasville, Summers & Mathews	606-885-4943
MA	Westboro, Zaslow Sls.	617-393-8150
MI	Livonia, Electronic Salesmasters	313-591-2433
MN	Minneapolis, Boerger & Assocs.	612-560-3425
MO	St. Louis, PMR Corp.	314-569-1220
NH	Londonderry, Zaslow Sls.	603-432-8907
NY	New York, T.J. Marine	718-392-8800
NC	Charlotte, Robert W. Chapman Co.	704-525-2421
OH	Beachwood, Elctrn. Sls. Masters	216-831-9555
OR	Forest Grove, Doran Sls. Assocs.	503-357-3333
PA	Philadelphia, Naudain Assocs.	609-235-1801
PA	Pittsburgh, Covert & Newman	412-531-2002
RI	Providence, Zaslow Sls.	401-351-0070
TN	Hixson, Shiles & Assocs.	615-877-7725
TX	Bedford, Fralia & Assocs.	817-354-1144
TX	Houston, Fralia & Assocs.	713-772-1572
WA	Redmond, Doran Sls. Assocs.	206-885-1885
WI	Milwaukee, R.F. Kitchern Co., Inc.	414-327-7300
EXP	NY, Long Island City, Leecraft Intl. Corp.	718-392-8800
Can	Scarborough, Leecraft Inds., Ltd.	416-439-6320

Local Distributors

AZ	Phoenix, Aero-Space Southwest, Inc.	602-861-1785
CA	Alhambra, Fisher Brownell	213-289-0255
CA	El Monte, Kimball & Stark	213-444-2594
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	Sacramento, Sacramento Elec.	916-441-4821
CA	San Diego, Richey Western Elctrns.	714-271-4511
CA	Santa Ana, Sunray Lighting, Inc.	714-556-3630
CA	Santa Clara, Fisher Brownell	408-988-6041
CO	Arvada, Denver Wintronics	303-431-7161
CT	Shelton, Century Elec. Supp.	203-736-2684
FL	Miami, Electronic Equip.	305-871-3500
GA	Atlanta, Specialty Dist.	404-873-2521
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Niles, Industribution	312-966-5630
IL	Northbrook, Classic Comps.	312-272-9650
IN	Fort Wayne, Graham Elect.	219-423-3422
KS	Wichita, RSC Electronics	316-267-5213
KY	Louisville, P. I. Burks	502-589-3960
LA	New Orleans, Southern Radio	504-524-2343
MI	Ann Arbor, Wedemeyer Elect. Supp.	313-665-8611
MI	Grand Rapids, SF Elctrns.	616-459-0216
MI	Livonia, LWC Distrs.	313-464-7700
MI	Livonia, RS Elctrns.	313-525-1155
MN	Minneapolis, Aero-Space Computer Supps.	612-884-4725
MN	Minneapolis, Newark Elect.	612-331-6350
MO	Kansas City, Electronics Supp.	816-931-0250
MO	Maryland Hgts., LCOMP	314-291-6200
NH	Hudson, C & H Elect.	603-882-1133
NJ	E. Hanover, State Elctrn. Parts	201-887-2550
NJ	Kenilworth, Federated Purchasers	201-272-0505
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Buffalo, Genesee Radio	716-873-9661
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Elmsford, Ancar Elctrns.	914-592-7100
NY	Endwell, ASI Electronics	607-754-3823
NY	Farmingdale, Midway Ind. Elctrns.	516-293-6800
NY	Hempstead, Electronic Equip.	516-538-5510
NY	New York, City Elec.	212-564-5454
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Akron, Sun Radio	216-434-2171
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, United Radio	513-761-4030
OH	Cincinnatti, Stotts-Friedman	513-574-7701
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Solon, Repco Elctrns.	216-248-8900
OH	Warren, REM Elect.	216-373-1300
PA	McKeesport, Barno Radio	412-462-7574
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Philadelphia, PEI/Genesis	215-568-7400
PA	Reading, Barbey Elctrns.	215-376-7451
RI	Providence, Wm. Dandreta	401-861-2800
TN	Kingsport, Radio Elec. Supp.	615-247-8111
TN	Nashville, Electra Distributing	615-329-3971
TX	McKinney, Prime Distributing	214-231-0170
TX	Richardson, Fisher Brownell	214-235-3177
WA	Seattle, Pacific Elctrns.	206-575-1050
WI	Milwaukee, Indl. Elctrns.	414-276-1212

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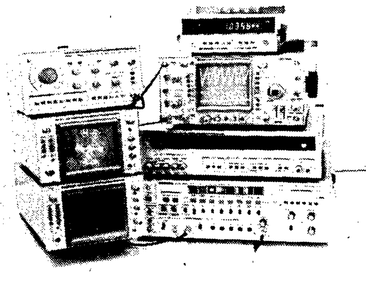

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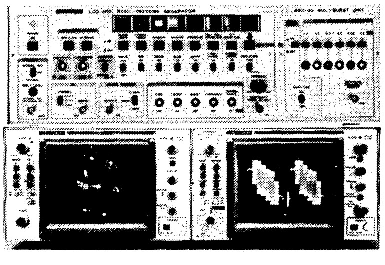

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LEEDS & NORTHRUP INSTRS., A Unit of General Signal Corp., Sumneytown Pike, North Wales, PA 19454, Tel: 215-643-2000; Empl.: 4800; *Sls. Mgr.:* R. L. Snyder

Local Sales Offices & Reps

AL	Birmingham, Leeds & Northrup	205-823-2610
AL	Mobile, Leeds & Northrup	205-342-8929
AK	Anchorage, Artic Techology, Inc.	907-276-7110
CA	Orange, Leeds & Northrup	714-937-1647
CA	San Francisco, Leeds & Northrup	415-349-6656
CO	Denver, Leeds & Northrup	303-759-2701
CT	Avon, Leeds & Northrup	203-678-0270
FL	Lakeland, Leeds & Northrup	813-646-5014
GA	Atlanta, Leeds & Northrup	404-938-8946
HI	Honolulu, Applied Tech. Svcs.	808-261-4000
IL	Chicago, Leeds & Northrup	312-430-1130
IL	South Holland, Leeds & Northrup	312-596-8480
IN	Indianapolis, Leeds & Northrup	317-259-7161
IA	Bettandorf, Leeds & Northrup	319-355-6481
KY	Louisville, Leeds & Northrup	502-897-0631
LA	Baton Rouge, Leeds & Northrup	504-292-6606
ME	Portland, Leen Co.	207-774-6266
MD	Columbia, Leeds & Northrup	301-995-0494
MA	Boston, Leeds & Northrup	617-326-8816
MA	Dedham, Leeds & Northrup	617-326-8816
MI	Farmington Hills, Leeds & Northrup	313-851-7171
MI	Grand Rapids, Leeds & Northrup	313-455-7070
MN	Minneapolis, Leeds & Northrup	612-933-7372
MO	St. Louis, Leeds & Northrup	314-965-9200
NJ	Union, Leeds & Northrup	201-686-5200
NM	Albuquerque, Trembly Assocs.	504-266-8616
NY	Amherst, Leeds & Northrup	716-834-5547
NY	Lathan, Leeds & Northrup	518-785-1354
NC	Winston-Salem, Leeds & Northrup	919-765-6580
OH	Beachwood, Leeds & Northrup	216-292-0020
OH	Cincinnati, Leeds & Northrup	513-791-2274
OH	Columbus, Leeds & Northrup	614-891-1615
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PA	Horsham, Leeds & Northrup	215-441-5600
PA	Pittsburgh, Leeds & Northrup	412-561-7808
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TN	Knoxville, Leeds & Northrup	615-693-1838
TX	Dallas, Leeds & Northrup	214-234-3363
TX	Houston, Leeds & Northrup	713-590-1777
TX	Richardson, Leeds & Northrup	214-234-3363
TX	Stafford, Leeds & Northrup	713-491-6000
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VA	Richmond, Leeds & Northrup	804-276-9720
WA	Seattle, Leeds & Northrup	206-451-9028
WV	Charleston, Cavalier Controls, Inc.	304-342-0385
WI	Milwaukee, Leeds & Northrup	414-786-7788
Can	Calgary, Leeds & Northrup	403-290-0951
Can	Montreal, Leeds & Northrup	514-861-2815
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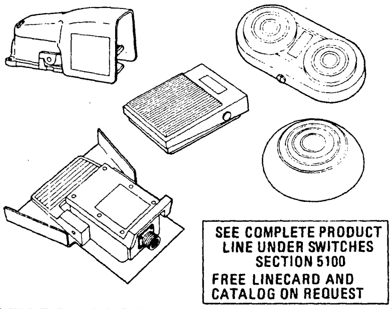

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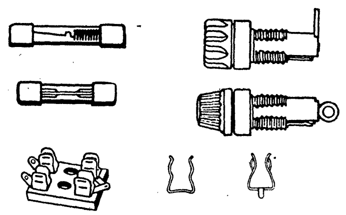

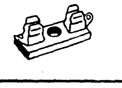

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MAGNETOELASTIC DEVICES, 326 Springside Ave., Box 625, Pittsfield, MA 01201, Tel: 413-445-5608

MAGNETRAN CORP., 5701 Savoy Lane, Houston, TX 77036, Tel: 713-785-4202; Empl.: 15

MAGNET SALES & MFG. CO. INC., 11250 Playa Court, Culver City, CA 90230-6127, Tel: 213-391-7213, 800-421-6692; FSC No.: 95-2916141; Empl.: 25; *Sls. Mgr.:* Anil Nanji; *Dist. Mgr.:* Anil Nanji .... **A•1307**

MAGNOS, Old School House Rd., Harvard, MA 01451, Tel: 617-456-8880; Empl.: 5

MAGNUM ELEC., 6385 Dixie Hwy., Erie, MI 48133, Tel: 313-848-2555, TWX: 810-231-7160; Empl.: 150; *Sls. Mgr.:* Ronald Pitchford; *Dist. Mgr.:* Ronald Pitchford .... **C•1440-1444**

Local Sales Offices & Reps

AZ	Tempe, Delta Elctrns.	602-224-1601
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CA	Westminster, West Elctrn. Sls.	714-898-0120
CO	Englewood, Frontier Representatives	303-799-6063
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Pompano Beach, Hutto-Hawkins-Peregoy	305-971-5750
GA	Atlanta, Effective Mktg. Force	404-948-6023
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Indianapolis, Marketing Engrs.	317-872-5665
KS	Overland Park, Thomas L. Dowell & Assocs.	913-648-7373
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Burlington, Kitchen & Kutchin	617-229-2660
MN	Brooklyn Center, Willman Assocs.	612-566-5010
MO	St. Louis, Thomas L. Dowell & Assocs.	314-849-4234
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NY	Babylon, Astrorep	516-422-2500
NY	Rochester, Marchese Marsey & Barden	716-544-4300
OH	Beachwood, ESI	216-831-9555
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OR	Portland, Jos. V. Belusko Co.	503-222-4279
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
TX	Richardson, Barry Sls.	214-234-0255
WI	Thiensville, Control Sls.	414-242-4580

MAGNUM MICROWAVE CORP., 365 Ravendale Dr., Mountain View, CA 94043, Tel: 415-968-9281, Telex: 171596; FSC No.: 59277; *Sls. Mgr.:* David N. Fealkoff

MAGNUM OPUS CUSTOM ELCTRN. ENGRG., 284 Kennedy St, Iselin, NJ 08830, Tel: 201-283-4925; *Sls. Mgr.:* R. Galanty .... **D•1093**

MAGNUSONIC DEVICES, 290 Duffy Ave., Hicksville, NY 11801, Tel: 516-938-4700, TWX: 510-221-1850; Empl.: 275; *Sls. Mgr.:* M. Stamouli

MAIDA DEVELOPMENT CO., 20 Libby St, Hampton, VA 23663, Tel: 804-723-0785, Telex: 82-3443; Empl.: 299; *Sls. Mgr.:* Edward T. Maida, Frank Thompson .... **A•1109-1113**

Local Sales Offices & Reps

CA	Los Angeles, High Voltage Sls.	213-881-9194
CA	Mountain View, West/Mark Assocs.	415-969-1700
FL	Vero Beach, John Hansen & Assocs.	305-562-2328
MA	Burlington, Conti-Younger	617-273-1582
NC	Cary, FBD Sls.	919-467-7595
SC	Mauldin, FBD Sls.	803-828-2323
VA	Portsmouth, FBD Sls.	804-484-3162
WA	Seattle, ECCO Mktg.	206-364-0200

MALCO, Div. Microdot Electronic Components Group, 12 Progress Dr., Montgomeryville, PA 18936, Tel: 215-699-5373, Telex: 510-661-8260, TWX: 910-588-3768; *Dist. Mgr.:* J. McLaughlin .... **C•1446-1449, 1859**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Mesa, Sedco Sls.	602-835-6281
CA	Anaheim, Libratronix	714-534-7073
CA	Santa Clara, Thresum Assocs.	408-249-7400
CO	Longmont, Todd & Fry Assocs.	303-776-7331
CT	West Hartford, Pettigrew Co.	203-236-5891
FL	Clearwater, WMM Assocs.	813-461-7074
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Elk Grove Village, John G. Twist Co.	312-593-0222
IN	Greenwood, Valentine & Assocs.	317-888-2260
IA	Cedar Rapids, S & O Sls.	319-393-1845
MA	Woburn, Component Tech.	617-933-5390
MN	Bloomington, John G. Twist	612-835-2120
NM	Albuquerque, Reptronix	505-292-1718
NY	Rochester, Ossman Comps.	716-424-4460
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Cary, Montgomery Mktg.	919-467-6319
OR	Beaverton, Blair Hirsch Co.	503-641-1875
PA	Hatboro, Jacobsen Assocs.	215-674-2937
TX	Dallas, Kruvand Assocs.	214-437-3355
VA	Fairfax, Beacon North	703-591-1300
WA	Lynwood, Blair Hirsh Co.	206-774-8151
WI	Brookfield, John G. Twist Co.	414-782-2670
Can	Montreal, Que., Kaytronics, Ltd.	514-367-0101

Local Distributors

AL	Huntsville, Hamilton Avnet	205-837-7210
AZ	Tempe, Hamilton Avnet	602-231-5100
CA	Casta Mesa, Hamilton Avnet	714-754-6111
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Sunnyvale, Hamilton Avnet	408-743-3355
CT	Danbury, Hamilton Avnet	203-797-2800
GA	Norcross, Hamilton Avnet	404-447-7507
IL	Bensenville, Hamilton Avnet	312-860-7700
MD	Columbia, Hamilton Avnet	301-995-3500
MA	Woburn, Hamilton Avnet	617-273-7500
MI	Livonia, Hamilton Avnet	313-522-4700
MO	Earth City, Hamilton Avnet	314-344-1200
NH	Manchester, Yankee Elctrn. Supp.	603-625-9746
NJ	Fairfield, Hamilton Avnet	201-575-3390
NJ	Old Bridge, BTC Elctrn. Comps.	800-526-2828
NY	Hauppauge, Hamilton Avnet	516-231-9800
NY	Plainview, Progress Elctrns.	516-443-1700
NY	Rochester, Hamilton Avnet	716-474-9130
NY	Syracuse, Hamilton Avnet	315-437-2641
OH	Cleveland, Hamilton Avnet	216-831-3500
PA	Wayne, Peak Elctrn. Corp.	215-293-9000
TX	Irving, Hamilton Avnet	214-659-4111
TX	Richardson, Southwest Elctrns.	214-234-3050
UT	Salt Lake City, Hamilton Avnet	801-972-2800
WA	Bellevue, Hamilton Avnet	206-643-3950

MALLORY BATTERY, See Duracell Intl.

MALLORY CAPACITOR CO., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201, Tel: 317-636-5353, Telex: 27-2155, TWX: 687-6015; FSC No.: 317-261-1581; Empl.: 1900; *Sls. Mgr.:* A. E. Irwin; *Dist. Mgr.:* Frank Vendely .... **A•1114-1115**

Local Sales Offices & Reps

AZ	Scottsdale	602-949-7788
CA	Los Angeles	714-523-7992
CA	San Francisco	415-856-1136
CO	Denver	303-457-9373
FL	Orlando	305-855-6353
IL	Chicago	312-364-5750
IN	Indianapolis	317-636-5353
KS	Shawnee Mission	913-362-7099
MA	Boston	617-872-7776
MI	Detroit	313-524-0015
MN	Minneapolis	612-884-2881
MO	St. Louis	314-291-8223
NJ	Hillsdale	201-666-3600
NY	Syracuse	315-425-9800
NC	Raleigh	919-836-0401
OH	Dayton	513-299-5505
OR	Portland	503-643-1203
PA	Carnegie	412-279-4248
PA	Willow Grove	215-657-4250
TN	Nashville	615-889-1174
TX	Dallas	214-324-2448

MALLORY COMPONENTS DIVISION, Emhart Elec./Elctrn. Grp., 3029 E. Washington St., Indianapolis, IN 46201, Tel: 317-261-1361, Telex: 27-2155; *Sls. Mgr.:* Steve Leykauf; *Dist. Mgr.:* Mike Bland .... **A•2022**

MALLORY TIMERS, Emhart Elec./Elctrn. Grp., 3029 E. Washington St., Indianapolis, IN 46201, Tel: 317-636-5353, TWX: 317-634-4214; Empl.: 2,000; *Sls. Mgr.:* Bill Miller

MANAGE, INC., Fibre Optics Elctrns. Sys. Grp., P.O. Box 175, 40 Nichols Rd., Chicopee, MA 01014, Tel: 413-598-8204, 592-3834; Empl.: 30; *Sls. Mgr.:* David Menard

M&T CHEMICALS, INC., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065, Tel: 201-499-0200, Telex: 710-996-5841, TWX: 710-996-5842; Empl.: 1650

MANGER ELEC. CO., INC., W. Henry St., Stamford, CT 06902, Tel: 203-348-7761; Empl.: 100; *Sls. Mgr.:* J. V. Judge

MANHATTAN ELECTRIC CABLE, 225 Passaic St., Passaic, NJ 07055, Tel: 201-779-8900, Telex: 137-387; Empl.: 125; *Sls. Mgr.:* Ed Harvey; *Dist. Mgr.:* Allan Marconi

MANHATTAN ELEC. CABLE CORP., 1 Station Plaza, Rye, NY 10580, Tel: 914-967-8000, Telex: 137-387; Empl.: 125; *Sls. Mgr.:* Edward J. Harvey

MANN, HENRY, INC., 3983 Mann Road, Huntingdon Valley, PA 19006, Tel: 215-355-7200, Telex: 6851160; FSC No.: 215-355-5134; Empl.: 105; *Sls. Mgr.:* Carol Mann; *Dist. Mgr.:* James P. Massi

MANNESMANN TALLY CORP., 8301 S. 180th St., Kent, WA 98032, Tel: 206-251-5500, Telex: 32-0200; Empl.: 450; *Sls. Mgr.:* John Cooper

MANTEX CORP., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051, Tel: 313-628-9711; Empl.: 100; *Sls. Mgr.:* Dennis J. Stepien .... **B•1727**

Local Sales Offices & Reps

AZ	Phoenix, Cristee-Meade Co.	602-267-7197
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Diego, Mesa Engr. Sls. Assoc.	619-278-8021
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Lakewood, Christee-Meade Co.	303-232-0287
IL	Highland Park, Thomas B. Hunter Assoc.	312-433-7000
IN	Indianapolis, S.A.I. Mktg. Corp.	317-241-9276
KS	Leawood, Thunderbird	913-642-7220
KS	Wichita, Thunderbird	316-684-3941
MD	Baltimore, Muncy Sls. Assocs.	301-484-6376
MI	Brighton, S.A.I. Mktg. Corp.	313-227-1786
MN	St. Louis Park, Lestronix	612-926-8466
MO	Leawood, Thunderbird	913-642-7220
MO	Maryland Hgts., Thunderbird	314-567-6488
NH	Salem, Sales Engrg.	603-893-5521
OH	Columbus, S.A.I. Mktg. Corp.	614-454-8942
OH	Dayton, S.A.I. Mktg. Corp.	513-435-3181
OH	Shaker Hgts., S.A.I. Mktg. Corp.	216-751-3633
PA	Pittsburgh, S.A.I. Mktg. Corp.	412-261-0482
TX	Richardson, Thunderbird	214-690-0763
VA	Richmond, Muncy Sales Assoc.	804-288-5720

MANUFACTURING SYS., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705; Tel: 714-540-6630; Empl.: 6; *Sls. Mgr.:* Larry LeDoux

MARATHON BATTERY CO., 8301 Imperial Dr., Waco, TX 76714, Tel: 817-776-0650, TWX: 910-894-5203 MARATHON WAC; *Sls. Mgr.:* Walter H. Harder

MARATHON FLITE-TRONICS COMPANY, A Marathon Power Technologies Co., 2525 N. Naomi St., Burbank, CA 91504, Tel: 818-841-3210, Telex: 69-1487; Empl.: 65

MARATHON SPECIAL PRODS., 13300 Van Camp Rd., Bowling Green, OH 43402, Tel: 419-352-8441, TWX: 810-499-2988; Empl.: 150; *Sls. Mgr.:* J. Campisi

MARCON AMERICA CORP., 310 Era Drive, Northbrook, IL 60062, Tel: 312-564-2820; FSC No.: 564-1150; Empl.: 9; *Dist. Mgr.:* Helen A. Stubbs .... **A•1116-1117, 1887**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls.	205-533-2100
AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	San Jose, K-Lectron	408-942-9177
CO	Denver, Lindberg Co.	303-758-9033
FL	Altamonte Springs, Electro-Comp Assocs.	303-331-0173
FL	Deerfield Beach, Electro-Comp Assocs.	305-429-0802
FL	Melbourne, Electro-Comp Assocs.	305-242-0621
FL	St. Petersburg, Electro-Comp Assocs.	813-327-9677
GA	Norcross, Electro-Mech Sls.	404-447-6478
IL	Des Plaines, Electron Mktg.	312-298-2330
IN	Indianapolis, Insul-Reps	317-251-1994
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MD	Baltimore, Mech-Elec Sls.	301-342-1984
MA	Canton, D. Taggart Assocs.	617-828-6064
MI	Farmington, R. C. Merchant Co.	313-476-4600
MI	St. Joseph, R. C. Merchant Co.	616-983-7378
MN	Eden Prairie, Rockmore Sls.	612-941-1390
MO	St. Charles, M-S-B Assocs.	314-946-5577
NJ	Medford, Mech-Elec Sls.	609-654-8209
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Kingston, R. P. Kennedy Co.	914-331-0755
NY	Melville, L.I., Comtronic Assocs.	516-249-0606
NY	Rochester, R. P. Kennedy Co.	716-271-1910
NY	Rochester, R. P. Kennedy Co.	716-271-6322
NC	Raleigh, Electro-Mech Sls.	919-851-8165
OH	Cincinnati, Jayenbee Mktg.	513-531-3320
OH	Grafton, Jayenbee Mktg.	216-458-8468
OR	Portland, Harry Levinson Co.	503-245-0902
PA	McLean, E.C.C.O. Elctrn. Sls.	814-476-1376
TN	Knoxville, Insul-Reps	615-691-7586
TN	Nashville, Electro-Mech Sls.	615-885-0073
TX	Austin, Sundance Sls.	512-339-6611
TX	Houston, Sundance Sls.	713-772-4988
TX	Plano, Sundance Sls.	214-867-0592
UT	Salt Lake City, Lindberg Co.	801-467-1794
WA	Seattle, Harry Levinson Co.	206-382-1300

MARCONI INSTRUMENTS, 3 Pearl Court, Allendale, NJ 07401, Tel: 201-934-9050, TWX: 710-991-9752; *Sls. Mgr.:* William E. Bean .... **D•1262-1264**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assocs.	205-881-5031
CA	Huntington Beach, Scientific Dvcs. West	714-840-3501
CA	San Jose, Scientific Dvcs. West	408-554-0455
CA	Westminster, Marconi	714-895-7182
FL	Boca Raton, Beacon Electrns. Assocs.	305-392-3500
GA	Atlanta, Beacon Electrns. Assocs.	404-256-9640
IL	Chicago, K.W. Meyers	312-882-4808
IN	Indianapolis, K. Meyers	317-783-1030
MD	Burtonsville, Bekr Inds.	301-421-1200
MA	Stoneham, Ken Corp.	617-926-5525
MN	Minneapolis, K.W. Meyers	612-920-7080
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NM	Albuquerque, Scientific Dvcs.	505-883-3668
NY	New York City, L & M Assocs.	212-243-6155
NY	Whitney Point, Tae-Rep	607-692-3705
NC	Raleigh, Beacon Electrns. Assoc.	919-787-0330
OH	Chesterland, EQS Systems	216-729-2222
PA	Andalusia, L & M	215-245-6658
TX	Dallas, Bradenco	214-243-7261
WA	Marysville, The Western Rep	206-653-6031

MAREL INSTR. CO., 907 South East 13th Pl., Cape Coral, FL 33904, Tel: 813-574-8788; Empl.: 14; *Sls. Mgr.:* T. Swift

MARINE ELECTRIC RPD, INC., See CML Macarr Div. Marine Electric RPD, Inc.

MARINE INDUSTRIAL CABLE CORP., P.O. Box 29207, New Orleans, LA 70189, Tel: 504-254-0754

WILD OATS

MARKAT DIV., Wild Oats Corp., 3 Country Dr., Plainview, NY 11803, Tel: 516-549-9272; Empl.: 228; *Sls. Mgr.:* K. L. Campbell; *Dist. Mgr.:* W. B. Heather

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Local Sales Offices & Reps

AZ	Scottsdale, Southworth Sls.	602-945-3464
IN	Carmel, Hoosier Sls.	317-844-4535
NY	Massapequa Park, Systems Design & Engrg.	516-598-1270
OH	Centerville, Grimm & Co.	513-433-1717

MARKEL CORPORATION

MARKEL CORP., P.O. Box 752, Norristown, PA 19404, Tel: 215-272-8960, TWX: 510-660-0929; FSC No.: 03890; Empl.: 267; *Dist. Mgr.:* E. J. Barth .... **C•1689**

Local Sales Offices & Reps

AZ	Phoenix, K. Jahn Co.	602-956-9060
AR	Hot Springs, MYA, Inc.	501-262-1365
CA	Anaheim, Indl. Dielectrics	714-776-7411
CA	Berkeley, Riggs/LaMoree	415-841-0601
CA	L.A., Natl. Wire & Cable	213-225-5611
CA	Torrance, Insulation Supp.	213-320-9400
CO	Denver, Ward Elec. Supp.	303-572-3541
FL	Lighthouse Point, Jack Krutek & Assoc.	305-941-6544
IL	Naperville, J.J. Glenn	312-961-1902
KS	Overland Park, Mathews	913-642-9063
MD	Glen Burnie, F. Lott	301-744-4611
MA	Waltham, Datcom	617-891-4600
MI	Farmington, L. George & Assoc.	313-474-1505
MN	Edina, PWC	612-933-3393
NJ	Colonia, Heft & Ficarra	201-381-5193
NY	Lynbrook, Heft & Ficarra	516-599-3351
NY	Rochester, Gislason	716-454-4741
OH	Chagrin Falls, Electrolock	216-543-5125
PA	Flourtown, C. Newson	215-248-3377
SC	Greenville, Electrolock Inc.	803-297-9830
TN	Chattanooga, Jackson	615-267-4260
TX	Richardson, C.J. Garvey	214-234-3371
WA	Mercer Is., Electronic Component	206-232-9301
WI	Mequon, Wm. R. Bolles	414-241-3320
EXP	Philadelphia, Markel Corp., Exp. Dept.	215-665-2300

Local Distributors

CA	Berkeley, Riggs/LaMoree	415-841-0601
CA	Los Angeles, Natl. Wire & Cable	213-225-5611
CA	Torrance, Insulation Supp.	213-320-9400
IL	Naperville, J. J. Glenn	312-961-1902
OH	Chagrin Falls, Electrolock	216-543-5125
Can	Mississauga, Ont., Marflex	416-828-0220

MARKEM CORP., 1000 Congress St., Keene, NH 03431, Tel: 603-352-1130, TWX: 710-366-1800; Empl.: 1200; *Sls. Mgr.:* Jack Lyman

MARKENRICH CORP., 14946-A Shoemaker Ave., Santa Fe Springs, CA 90670, Tel: 213-921-0250, Telex: 298727 MARK UR; Empl.: 7

Local Sales Offices & Reps

CA	North Hollywood, Crown Elctrns.	213-877-3550
FL	Melbourne, Electro Mech. Standards	305-724-1027
FL	Sarasota, Electro Mech. Sls.	813-923-2804
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Palatine, Somers-Reagan	312-991-1108
IA	Coralville, EPA, Inc.	612-835-9022
MD	Timonium, Heller Sls. Co.	301-252-4780
MA	Reading, Lincoln Tech. Sls.	617-944-9594
MN	Edina, EPA, Inc.	612-835-9022
NJ	Vincentown, Eastern Sci. Mktg.	609-268-0250
NY	Syracuse, I. A. Hotze Assocs.	315-479-6641
OR	Hillsboro, CompRepco	503-796-1350
PA	Chalfont, Eastern Sci. Mktg.	215-822-6503
PA	Montgomeryville, Eastern Sci. Mktg.	215-368-4570
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600
VA	Vienna, Eastern Sci. Mktg.	703-281-0778

MARKETING ENGINEERS, INC., 9860 Michigan Rd., Carmel, IN 46032

MARK EYELET & STAMPING, 202 Wakelee Rd., Wolcott, CT 06716, Tel: 203-756-8847, Telex: 69-6191; Empl.: 60; *Sls. Mgr.:* Ed Cyr

MARLEE SWITCH CO., 933-D N. Central Ave., Upland, CA 91786, Tel: 714-982-8988; *Sls. Mgr.:* LeRoy Tichy

MARLOW INDS., 10451 Vista Park Rd., Dallas, TX 75238, Tel: 214-340-4900, TWX: 910-860-5161; FSC No.: 55686; Empl.: 150; *Sls. Mgr.:* Richard J. Buist; *Dist. Mgr.:* David Marlow

MARQUARDT SWITCHES INC., Route 20 East, P.O. Box 465 EEM, Cazenovia, NY 13035, Tel: 315-655-8050, Telex: 703-287-40; FSC No.: 315-655-8042; *Sls. Mgr.:* J. J. Kennedy; *Dist. Mgr.:* R. A. Philipchik .... **B•1622**

Local Sales Offices & Reps

AL	Huntsville, Electro Sls. Co.	205-830-2715
CA	Los Angeles, Universal Components, Inc.	213-641-4255

CA	Santa Clara, M-2 Marketing Group	408-986-0676
CO	Lakewood, Cristee Meade Co.	303-232-0287
FL	Orlando, Stettner Elctrns., Inc.	305-291-7756
GA	Atlanta, Electro Sls. Co.	404-394-1122
IL	Rosemont, Stettner Central, Inc.	312-671-4208
IN	Fort Wayne, J & B Engrg.	219-483-2813
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MI	Grand Blanc, Inter-Comm	313-695-0665
MN	St. Paul, Arkco Sls Co.	612-777-7454
MO	St. Louis, M-S-B Assocs.	314-946-5577
NH	Nashua, Bell Controls, Inc.	603-882-6984
NJ	Freehold, Ballou, Inc.	201-431-0514
NJ	Ridgewood, Ballou, Inc.	201-444-6990
NY	Cazenovia, S.T./Woolard Co.	315-655-8145
NY	Syosset, Ballou, Inc.	516-681-3068
NY	Whitestone, Ballou, Inc.	212-352-9233
OK	Tulsa, Rem-Air Comps. Corp.	918-742-2559
PA	Phoenixville, Gil-Tronics, Inc.	215-933-8525
SC	Easley, R-A Sls. Co.	803-859-1859
TN	Chattanooga, Electro Sls.	615-267-4260
TX	Dallas, Rem-Air Comps.	214-234-1069
UT	Sandy, G-M Assocs.	801-532-7501
WA	Kirkland, Manon Engrg.	206-827-7449
WI	Elm Grove, Key Entpr., Inc.	414-784-3390

Local Distributors

CA	Covina, Selecta Switch	213-967-4123
CA	Gardena, California Switch & Signal	213-770-2330
CA	Sunnyvale, Sierra West	408-747-1188
CO	Denver, CSID	303-292-9564
FL	Lakewood, Switch Controls	813-644-7564
FL	West Palm Beach, Nurmi Electrns.	305-686-8553
IL	Itasca, Voyager Elctrns.	312-773-4900
IL	Rosemont, Central Comps.	312-671-4208
KS	Wichita, Radio, Inc	316-264-2798
MI	Grand Rapids, S.F. Elctrns.	616-459-0216
MI	St.Claire Shores, Spemco	313-771-2700
MN	Minneapolis, Control Design Supp.	612-721-1628
MO	Maryland Heights, L-Comp	314-291-6200
NJ	Garfield, B & R Electronics	201-470-0700
NJ	Mt. Laurel, Jersey Switch	609-778-8190
NJ	Warwick, Cal-Greg Comp. Inc.	401-738-6170
NC	Gastonia, J.M.T. Electronics	704-867-4401
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Murphy Electrns,Inc.	503-642-2001
TX	Austin, Southwest Electrns.	512-837-8971
TX	Richardson, Southwest Electrns.	214-234-3050
TX	Stafford, Southwest Electrns.	713-240-4000
WA	Redmond, Murphy Electrns.	206-881-1234

MARTEL ELCTRNS. CORP., 13 Heritage Hill Rd., Windham, NH 03087, Tel: 800-821-0023, 617-275-5970, Telex: 95-1232; *Sls. Mgr.:* David DeVries

MARTIN SOUND PRODS., 28 Alpha Park, Cleveland, OH 44143-2297, Tel: 216-442-2286; Empl.: 2; *Sls. Mgr.:* DeWayne (Bud) Martin; *Dist. Mgr.:* DeWayne (Bud) Martin

MARWAY PRODS. INC., 311 N. Clara St., Santa Ana, CA 92703, Tel: 714-973-1800; FSC No.: 60955; *Sls. Mgr.:* Wayne Whitney **D•1944-1945**

MASTER APPLIANCE CORP., 2420 18th St., Box 68, Racine, WI 53403, Tel: 414-633-7791, Telex: 269-505; FSC No.: 83284; Empl.: 50; *Sls. Mgr.:* G. E. Mertins; *Dist. Mgr.:* G. E. Mertins

MASTER BOND, P.O. Box 522, Teaneck, NJ 07666, Tel: 201-343-8983; FSC No.: 59504; Empl.: 16; *Sls. Mgr.:* James Brenner

MASTER DYNAMICS CORP., 922 California Ave., Sunnyvale, CA 94086, Tel: 408-245-9040

MASTER ELCTRN. CONTROLS, P.O. Box 25905, Los Angeles, CA 90025, Tel: 213-452-1336, Telex: 182041; Empl.: 64; *Sls. Mgr.:* I. Nizam; *Dist. Mgr.:* Bob Kent

MASTERITE CORPORATION, 2841 Lomita Blvd., Torrance, CA 90505, Tel: 213-775-3471, TWX: 910-347-6237; FSC No.: 05041; Empl.: 680; *Sls. Mgr.:* C.J. Huebert; *Dist. Mgr.:* G. Peterson

MASTER LOGIC, 761 E. Evelyn, Sunnyvale, CA 94086, Tel: 408-732-7777; *Sls. Mgr.:* Stephen Allen

MATEC INSTRUMENTS, INC., 60 Metebello Rd., Warwick, RI 02886, Tel: 401-739-9030, Telex: 952101; Empl.: 55; *Sls. Mgr.:* Jerry Zschau

MATERIALS RESCH., Route 303, Orangeburg, NY 10962, Tel: 914-359-4200, Telex: 221862 MRC UR; Empl.: 1,000; *Sls. Mgr.:* Mel Lipton

MATH ASSOCS., 2200 Shames Dr., Westbury, NY 11590, Tel: 516-334-6800; FSC No.: 60373; Empl.: 37; *Sls. Mgr.:* Robert DeLia **B•1124**

Local Sales Offices & Reps

CA	Huntington Beach, Seevid	714-898-6100
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NC	Charlotte, SFI Elctrns.	704-333-0157
TX	Houston, Q-Max Mktg.	713-474-2233

Local Distributors

NY	Farmingdale, Universal Video	516-420-0224
NY	Hempstead, Global Computer Supps.	800-645-6393
PA	Uniontown, Allegheney Teleconn Sys.	412-438-0451

MATHEMATICAL APPLICATIONS GROUP/CAD/CAM, 3 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-4646, Telex: 131644

MATHEMATICAL SYSTEMS DESIGN, INC., 2850 Ocean Park Blvd., Ste. 300, Santa Monica, CA 90405, Tel: 213-450-9851; *Sls. Mgr.:* William E. Schaff

MATRA DESIGN SYSTEMS, 2840-100 Sam Tomas Expressway, Santa Clara, CA 95051, Tel: 408-986-9000, Telex: 299-656; *Sls. Mgr.:* David T. Fletcher; *Dist. Mgr.:* Rex Brooks of Brooks Tech. Grp.

MATRIX CORP., 2260 Distributors Dr., Indianapolis, IN 46241, Tel: 317-248-2036; Empl.: 10 **D•1158**

MATRIX CORP., 1639 Green St., Raleigh, NC 27603, Tel: 919-833-2837; Empl.: 30; *Sls. Mgr.:* Ray Alderman

MATRIX ENGINEERING CORP., 17000 S. Western Ave. 19, Gardena, CA 90247, Tel: 213-770-0521; Empl.: 7

MATRIX SCIENCE CORP., 435 Maple Ave., Torrance, CA 90503, Tel: 213-328-0271

MATRIX
SYSTEMS CORPORATION

MATRIX SYS. CORP., 5177 N. Douglas Fir Rd., Calabasas, CA 91302, Tel: 818-992-6776, TWX: 910-494-4975; Empl.: 50; *Sls. Mgr.:* Randy Sue Rabideau **A•1715**

Local Sales Offices & Reps

AL	Huntsville, Reynolds Assoc., Inc.	800-255-1965
AZ	Scottsdale, Faser Techn. Sls.	602-948-4404
CA	Milpitas, IFM Inc.	415-961-2828
CA	N. Hollywood, Crown Elctrns.	213-877-3550
CO	Broomfield, Sci. Dvcs.	303-449-9466
CO	Broomfield, Scientific Dvcs.	303-469-5145
CT	Marion, Poly Tek Assocs.	203-621-7000
CT	Marion, Polytek Assocs.	203-621-4542
FL	N. Palm Beach, Reynolds Assoc., Inc.	800-251-1965
GA	Huntsville, Reynolds Assoc., Inc.	800-255-1965
IL	Chicago, Comtel Midwest	312-539-4838
IN	Indianapolis, Comtel Midwest	317-253-1681
IA	Cedar Rapids, Comtel Midwest	319-377-9434
KS	Shawnee Mission, Comtel Midwest	913-722-1030
MA	Ashland, Poly Tek Assocs.	617-881-4741
MA	Falmouth Heights, RJC Assocs.	617-540-8832
MI	Southfield, Comtel-Instr.	313-358-2505
MN	Wayzata, Comtel Midwest	612-476-1551
MO	St. Louis, Comtel Midwest	314-991-5363
NY	Mamaroneck, Bassin Tech. Sls. Co.	914-698-9358
NC	Raleigh, Reynolds Assoc.	800-255-1965
NC	Raleigh, Reynolds Assoc., Inc.	800-255-1965
OH	Cleveland, Comtel Instr.	216-442-8080
OH	Dayton, Comtel Instr.	513-298-7573
OH	Hillard, Comtel Instr.	614-876-8305
OR	Portland, Topp Engrg. Sls.	206-747-5400
PA	Pittsburgh, Comtel Instr.	412-922-5720
TX	Carrollton, Seaton Corp.	214-380-0414
VA	Fairfax, Schibley Assocs.	703-591-3008
WA	Bellevue, Topp Engrg. Sls.	206-747-5400
WI	New Berlin, Comtel Midwest	414-544-6042

MATROX ELCTRN. SYS., 1055 St. Regis Blvd., Dorval, QU, Canada H9P 2T4, Tel: 514-685-2630, Telex: 05-822798; Empl.: 250; *Sls. Mgr.:* Ed Dwyer

MATSUO

MATSUO ELECTRONICS, 2134 Main Street, Suite 200, Huntington Beach, CA 92648, Tel: 714-969-2491, TWX: 910-596-1828; Empl.: 854 **A•1118-1123**

Local Sales Offices & Reps

AL	Huntsville, Beacon	205-881-5031
AZ	Tempe, Quatra Assocs.	602-820-7050
CA	Santa Clara, Logan Sls.	408-496-0660
CO	Littleton, Quatra, Inc.	303-795-3187
FL	Ft. Lauderdale, Dyne-A-Mark Corp.	305-771-6501
GA	Atlanta, Beacon	404-256-9640
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Indianapolis, Needler Sls.	317-255-8056
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
MA	Needham, Hatch Assocs.	617-444-3310
MI	Warren, DEM Elctrn. Sls.	313-575-9444
MN	St. Paul, Proud Inds.	612-646-9428
MO	Hazelwood, Palatine Sls.	314-839-0800
NJ	Medford, Champion Elctrn. Sls.	609-983-0932
NM	Albuquerque, Semi-Systems	505-898-3273
NY	DeRuyter, Net Sls.	315-662-7996
NY	Fairport, Net Sls.	716-467-4538
NY	Seaford, Henry Abbott & Assocs.	516-781-5256
NY	Troy, Net Sls.	518-274-4758
NC	Raleigh, Beacon	919-787-0330
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Dayton, Marlow Assocs.	513-435-5673
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Pittsburgh, Marlow Assocs.	412-367-8886
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Milwaukee, Berndt Assocs.	414-545-8400
Can	Markham, Ont., Reptronics	416-474-0111

Local Distributors

AZ	Phoenix, TTI	602-861-0222
CA	Garden Grove, Natl. Capacitor Supp.	714-892-7749
CA	Lakeside, Mouser Elctrns.	714-449-2220
CA	Mountain View, USI Intl.	415-969-5420
CA	N. Hollywood, TTI	213-982-0201
CA	San Diego, Mock III	619-560-0515
CA	San Fernando, Petell Elctrns.	818-365-9841
CA	San Jose, Eric Elctrns.	408-262-1111
CA	San Jose, TTI	408-943-9155
CA	Santa Ana, Projection Unltd.	714-261-2323
CA	Santee, TTI	619-449-2220
CA	Sunnyvale, Capsco	408-734-3020
CO	Commerce City, Waco Elctrns.	303-289-4743
CO	Denver, Waco Elctrns.	303-371-4370
FL	Orlando, TTI	305-859-1000
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Skokie, Kellner	312-677-1120
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Wakefield, Lorcor	617-246-1903
NJ	Fairfield, C.H.P.S., Inc.	201-882-0997
NJ	Kenilworth, Ventronics	201-272-9262
NY	Bohemia, TTI	516-567-1500
NY	E. Farmingdale, Tri-Start Elctrns.	516-293-0400
NY	Hauppauge, Prime Comps. Corp.	516-582-6258
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Ronkonkoma, Baldwin Comps.	516-588-5700
NY	Ronkonkoma, Prime Comps.	516-737-1730
OH	Cleveland, Robert Elctrns.	216-238-1711
PA	Norristown, Century Elctrn. Comps.	215-631-5400
PA	York, Elctr. Comps. for Ind.	717-846-5334
TX	El Paso, Era Elctrns.	915-592-4126
TX	Ft. Worth, TTI	817-831-0441
WA	Kent, Shannon, Ltd.	206-763-0545
Can	London, Ont., C.M. Peterson Co.	519-434-3204
Can	Scarborough, Ont., Carsten Elctrns.	416-495-9999

MAUREY INSTR. CORP., 4555 W. 60th St., Chicago, IL 60629, Tel: 312-581-4555, TWX: 910-221-6025; FSC No.: 03942; Empl.: 50; *Sls. Mgr.:* E. Maurey; *Dist. Mgr.:* Louis Derdzinski **A•2023-2027; B•1170**

Local Sales Offices & Reps

FL	Orlando, ASI	305-851-7929
FL	Plantation, Innovative Mktg.	305-583-8895
WA	Vancouver, Sls. & Engrg. Assoc.	206-573-5161

Local Distributors

CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Santa Clara, Allied Elctrns.	408-727-1690
CO	Wheatridge, Allied Elctrns.	303-425-7144
CT	Ridgefield, PIC	203-451-1533
FL	Margate, Allied Elctrns.	305-973-3070
IL	Elgin, Allied Elctrns.	
MA	Wilmington, Allied Elctrns.	617-942-0150
MI	Westland, Allied Elctrns.	313-595-6565

MO	St. Louis, Allied Elctrns.	314-878-1229
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Raleigh, Allied Elctrns.	919-821-0415
OH	Willoughby, Allied Elctrns.	216-951-0908
OK	Tulsa, Allied Elctrns.	918-663-7630
PA	Bala Cynwyd, Allied Elctrns.	215-267-6940
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Elctrns.	713-932-7321
VA	Alexandria, Allied Elctrns.	703-836-5002
WA	Seattle, Allied Elctrns.	206-767-5772

MAURY MICROWAVE, 8610 Helms Ave., Cucamonga, CA 91730, Tel: 714-987-4715, TWX: 910-581-3408; FSC No.: 13047; Empl.: 85; *Sls. Mgr.:* M. A. Maury, Jr.

MAXI-SWITCH CO., Sub. of EECO, 9697 East River Rd., Minneapolis, MN 55433, Tel: 612-755-7660, TWX: 910-576-2690; Empl.: 160; *Sls. Mgr.:* Hank Maida; *Dist. Mgr.:* E. C. Helme, Jr.

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Elmonte, Cook Entprs.	213-686-2120
CA	Los Altos, Recht Assocs.	415-964-6321
CA	Pomona, Cook Entprs.	818-443-5147
CA	San Diego, Power Assocs.	619-275-0641
CO	Denver, Williams Assocs.	303-373-4730
FL	Altamonte Springs, V.G. Sls.	305-831-8688
FL	Pompano, V.G. Sls.	305-971-0900
GA	Norcross, Montgomery Mktg.	404-447-6124
IN	Ft. Wayne, MS Sls.	219-486-3023
IA	Cedar Rapids, Harris Hanson	800-231-4343
MD	Woodbine, Naudain Assocs.	301-442-2270
MA	Westwood, Comp. Rep. Assocs., Inc.	617-329-3454
MI	Ann Arbor, Dayton Assocs.	313-995-4082
MN	Bloomington, Electronic Sls. Agy., Inc.	612-884-8291
MS	Michigan City, Jack Fisher Sls	601-224-6470
MO	St. Louis, B.C. Elex	314-731-1255
NJ	Secaucus, Addem Sls.	201-330-8300
NM	Albuqurque, Williams Assocs.	505-255-1638
NY	Penfield, John Blair	716-586-1419
NY	White Plains, Cane Tech. Sls.	914-694-9240
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Dayton, Thompson Assocs.	513-435-7733
OR	Beaverton, Quest Mktg., Inc.	503-641-7377
PA	Huntington Valley, Omega Elex	215-947-4135
TX	Austin, West & Assoc	512-441-6973
TX	Dallas, West & Assoc	214-661-9400
TX	Houston, West & Assoc.	713-777-4108
UT	Salt Lake City, Williams Assoc.	801-532-7701
WA	Bellevue, Quest Mktg., Inc.	206-747-9424

maxon DC motor

MAXON PRECISION MOTORS, INC., 838 Mitten Rd., Burlingame, CA 94010, Tel: 415-697-9614, TWX: 910-375-2049; Empl.: 270; *Sls. Mgr.:* Edward Graham ... **B•1171**

MAXWELL LABS., 8835 Balboa Ave., San Diego, CA 92123, Tel: 619-279-5100, TWX: 910-335-2063; Empl.: 300; *Sls. Mgr.:* William Fox (Prods.)

MCCOY ELECTRONICS CO., Sub. Oak Technology Inc., 100 Watts St., P.O. Box B, Mt. Holly Springs, PA 17065, Tel: 717-486-3411, TWX: 510-650-3548; Empl.: 450 ... **A•1380-1383**

Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
CA	Van Nuys, Wea-K	818-989-3070
CO	Denver, Advanced Tech	303-771-3366
CO	Littelton, Advanced Tech Mktg.	303-979-8420
CT	Meriden, JMG, Inc.	203-235-0819
FL	Deerfield Bch., Conley & Assocs.	305-421-7180
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
IL	Bensenville, Banner Tech Sls.	312-766-4131
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
MA	Norwood, JMG, Inc.	617-762-5333
MN	Minneapolis, Dunlop Conslts.	612-522-6133
KS	Overland Pk., Lorenz	913-649-5556
NJ	Haddonfield, Gray Assocs.	609-429-5300
NY	Fayetteville, S. F. Foster Co.	315-637-5427
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NY	Webster, S. F. Foster Co.	716-265-2072
OH	Cincinnati, Stegman Bline Mktg.	513-729-1969
WA	Seattle, Evergreen Assocs.	206-633-3160
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
EXP	NJ, Oradell, Sylvan Ginsbury Ltd.	201-261-3200

MCE SEMICONDUCTOR, INC., 1111 Fairfield Dr., West Palm Beach, FL 33407, Tel: 305-845-2837, Telex: 513463; Empl.: 140

MCFADDEN SYS., INC., 8953 S. Atlantic Ave., South Gate, CA 90280-9990, Tel: 213-564-5958, Telex: 677161; FSC No.: 25750; Empl.: 42

MCG
ELECTRONICS INC.

MCG ELCTRNS., 12 Burt Dr., Deer Park, NY 11729, Tel: 516-586-5125, Telex: 645518; FSC No.: 29779; Empl.: 45; *Sls. Mgr.:* Cecilia Long ... **B•1248-1253**

Local Sales Offices & Reps

CT	Norwalk, Gemini Grp.	203-852-8173
LA	Covington, Svc. Elctrl. Sls.	504-893-2830
MA	Woburn, EMS	617-229-6686
MS	Brandon, Svc. Elctrl. Sls.	601-992-9122
MO	St. Louis, Engrg. Svc. Co.	314-997-1515
NJ	Caldwell, Fred Urban	201-228-5249
NC	Greensboro, The Saylor Assocs.	919-292-0452

MCGILL MFG. CO., INC., Bearing Div., 909 N. Lafayette St., Valparaiso, IN 46383, Tel: 219-465-2200, Telex: 25-8446

MCGILL MFG. CO., INC., Electrical Div., 1002 N. Campbell St., Valparaiso, IN 46383, Tel: 219-465-2200, TWX: 910-690-4982; Empl.: 295; *Sls. Mgr.:* David Rickards (OEM Switch), Thomas Frary (Control Prods.); *Dist. Mgr.:* Thomas F. Morris ... **B•1623**

Local Sales Offices & Reps

AL	Decatur, Tenn Tech Sls.	205-350-0630
CA	S. El Monte, HMC Inc.	213-442-7970
CA	Santa Clara, Logan Sls.	408-496-0660
IN	Indianapolis, A. E. Fred Schaab	317-253-8689
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Needham, Hgts. Newscott Co.	617-444-1923
MI	W. Bloomfield, OBE, Inc.	313-332-4900
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO	Ellisville, Larco Sls.	314-394-7141
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NY	Baldwin, C. Glianna	516-378-2700
NY	N. Syracuse, Advanced Comp. Corp.	315-699-2671
OH	Cleveland, Allied Entprs.	216-779-0080
SC	Columbia, H. Heaton	803-256-9230
TX	Dallas, Erickson Sls.	214-739-5833
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, SPS Elctrns.	206-323-4140

MCGUIRK ELECTRONICS CO. INC., 212 So. Main St, P. O. Box 853, Middleton, MA 01949, Tel: 617-933-3500; FSC No.: 55902; Empl.: 10; *Sls. Mgr.:* L. McCarthy ... **D•1929**

mci
METUCHEN CAPACITORS INC.

MCI TRANSFORMER CORPORATION, 411 Manhattan Ave., Babylon, NY 11704, Tel: 516-587-0510; Empl.: 50; *Sls. Mgr.:* Timothy J. Williams ... **A•2168-2183**

MCKINSTRY METAL WORKS, INC., 285 McKinstry Ave., Chicopee, MA 01013; Empl.: 80

MCL, INC., 10 North Beach Ave., La Grange, IL 60525-2092, Tel: 312-354-4350, Telex: 910-997-8142; FSC No.: 16469; Empl.: 75; *Sls. Mgr.:* Frank Morgan ... **D•1408-1409**

Local Sales Offices & Reps

CA	Los Angeles, RF Associates	213-478-1586
CA	Palo Alto, RF Associates	415-494-3331
GA	Riverdale, MCL, Inc./Bob Lundy	404-996-6632
MA	Reading, Geder Assocs.	617-944-3105

MCLEAN ENGRG., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, Tel: 609-799-0100, TWX: 510-685-2543; FSC No.: 03522; Empl.: 135; *Sls. Mgr.:* William L. Sly; *Dist. Mgr.:* Craig A. Reed ... **C•1648-1649**

Local Sales Offices & Reps

Guelph, Ont.

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	818-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Englewood, Component Tech.	303-758-5750
CT	Canton, Motoreps, Inc.	800-243-1978
FL	Ft. Lauderdale, R.I. Smith Assocs.	305-772-5100
FL	Orlando, R.I. Smith Assocs.	305-365-8077
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Elmhurst, Scott Assocs.	312-279-5681
LA	Gretna, M. F. Sls.	504-361-4343
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Needham, Motoreps	617-449-3252
MI	East Detroit, J. Thorpe Co.	313-779-6363
MN	Minneapolis, Scott Elctrn. Sls.	612-929-2985
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Springfield, Sylvester Assocs.	201-376-3324
NM	Albuquerque, Fry-Gates	505-262-1525
NY	Albany, Reagan/Compar Albany	518-489-4777
NY	Binghamton, Reagan/Compar	607-754-8946
NY	Fairport, Reagan/Compar Albany	716-271-2230
NY	New Hartford, Reagan/Compar Albany	315-732-3775
NY	Rochester, Reagan/Compar	716-271-2230
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Dayton, Marlow Assocs.	513-275-4147
OR	Beaverton, Halbar Assocs.	503-226-0451
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Dallas, Milco Mktg.	214-783-2716
TX	Houston, Milco Mktg.	713-946-2841
VA	Charlottesville, Marktron	804-973-5874
WA	Redmond, Halbar Assocs.	206-882-0990
Can	Guelph, Ont., Hammond Mfg. Co.	519-822-2960

Local Distributors

FL	Ft. Lauderdale, Component Distrs.	305-971-4950
GA	Norcross, Component Distrs.	404-441-3320
MI	Ann Arbor, Wedemeyer Elctrn. Supp. Co.	313-665-8611

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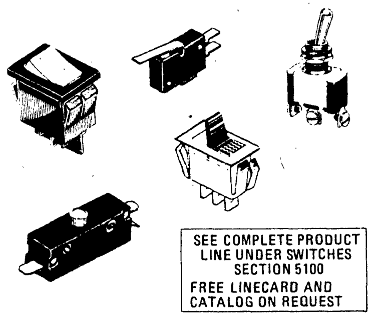

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TX	Dallas, Component Distrs.	214-698-9485
Can	Guelph, Ontario, Hammond Mfg. Co.	519-822-2960

MCLEAN MIDWEST, 4000 83rd Ave. N., Brooklyn Pk, MN 55443, Tel: 612-561-9400, Telex: 29-0883, TWX: 910-576-2951; *Sls. Mgr.:* J. Buyse .... **C•1650-1651**

3M CO., Carbonless/Related Prods Div Ind'l Optics, 3M Center, Bldg. 225-3S, St. Paul, MN. 55144, Tel: 612-733-4403, Telex: 29-7023, TWX: 910-563-3712; *Sls. Mgr.:* A. Rivard

3M-ELECTRONIC PRODUCTS DIVISION, Bldg. 502, P.O. Box 2963, Austin, TX 78769-2963, Tel: 512-834-6682; *Sls. Mgr.:* Bernie Graham

Local Sales Offices & Reps

AK	Anchorage	907-561-1030
CA	Los Angeles	213-726-6300
CA	So. San Francisco	415-571-6700
GA	Atlanta	404-447-7000
HI	Honolulu	808-422-2721
IL	Chicago	312-496-6500
MA	Boston	617-449-0300
MI	Detroit	313-827-2450
MN	St. Paul	612-733-3300
MO	St. Louis	314-997-8500
NJ	West Caldwell	201-575-2000
NC	High Point	919-889-7181
OH	Cincinnati	513-482-3100
OH	Cleveland	216-362-1700
PA	Philadelphia	215-728-5300
TX	Dallas	214-324-8100
WA	Seattle	206-244-7200

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AL	Huntsville, RM Alabama	205-852-1550
AZ	Tempe, Acacia Sls.	602-894-2874
AZ	Tempe, Richey/Western Elctrns., Inc.	602-894-9251
CA	Irvine, Acacia Sls.	714-660-0834,213-971-2428
CA	Irvine, Ratel Elctrns./Xytec	714-768-0855
CA	Los Angeles, Richey/Western Elctrns., Inc.	714-895-0060,800-227-0060
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Richey/Western Elctrns., Inc.	619-271-4511
CA	San Jose, Powell Elctrns.	408-943-9020
CA	San Jose, Ratel Elctrns./Xytec	408-946-4300
CA	Santa Clara, Richey/Western Elctrns., Inc.	408-727-7411
CA	Sun Valley, Richey/Western Elctrns., Inc.	818-768-3800,213-875-2862
CA	Sunnyvale, Acacia Sls.	408-745-7200
CO	Denver, Ragon Elctrn. Parts	303-744-3601
CO	Lakewood, Acacia Sls.	303-232-2882
CT	East Haven, JV Elctrns.	203-469-2321
CT	New Canaan, Impact Sls. Co.	203-972-1458
CT	Yalesville, Schaal Assocs./Deanco	203-269-3779
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Winter Park, Deanco	305-671-5100
GA	Atlanta, A.C. Equip. Co.	404-451-2747
GA	Atlanta, Prehler Elctrns.	404-447-5540
GA	Marietta, Deanco	404-429-0126
IL	Chicago, Prehler Elctrns.	312-328-6100
IL	Elk Grove, RM Illinois	312-364-6622
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
IN	Indianapolis, Graham Elctrns.	517-634-8202
MD	Columbia, Aztech Elctrns.	301-995-1760, 301-621-4070 in
MD	Columbia, Powell Elctrns.	301-995-0410, 301-621-4070 in
MD	Gaithersburg, Deanco	301-948-5444
MA	Burlington, Schaal Assocs./Deanco	617-272-1506
MA	Canton, Impact Sls.	617-821-1500
MA	Westboro, Powell Elctrns.	617-366-6100
MI	Grand Rapids, RM Michigan	616-531-9300
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Independence, Ragon Elctrns.	816-254-3410
MO	St. Charles, Lectronix	314-946-6424
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Englewood, Powell Elctrns.	201-894-0800
NJ	Fairfield, Deanco	201-575-7960
NY	Farmingdale, Addem Distrs.	516-752-9303
NY	Hauppauge, Schaal Assocs./Deanco	516-434-4600
NY	Ithaca, Deanco	607-257-4444
NY	Ronkonkoma, Zenith Wire & Cable	516-585-1444
NC	Cary, Powell Elctrns.	919-467-1212
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Raleigh, Prehler Elctrns.	919-876-9111
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Highland Heights, Elctrns. Mktg. Corp.	216-442-3441
OH	Middleburg Heights, Prehler	216-243-5510
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Lake Oswego, Moore Elctrns., Inc.	503-684-3100
OR	Wilsonville, Ragon Elctrns.	503-682-2929
PA	Malvern, Transtek Inds.	215-296-4400
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Austin, Kent Elctrns.	512-834-1900
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	El Paso, ERA Elctrns.	915-592-4126
TX	Houston, Kent Elctrns.	713-780-7770
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Richardson, Kent Elctrns.	214-669-2600
UT	Midvale, Ratel Elctrns./Xytec	801-562-2600
WA	Bellevue, Powell Elctrns.	206-641-4446
WA	Seattle, Ragon Elctrns.	206-241-1980
Can	London, Ont., 3M	519-451-2500

3M CO., STATIC CONTROL SYS. DIV., P. O. Box 2963, Austin, TX 78769-2963, Tel: 800-328-1368; Empl.: 300; *Sls. Mgr.:* Mike Martin .... **D•1980-1981**

Local Sales Offices & Reps

AZ	Phoenix	602-934-7413,800-221-1046
CA	Los Angeles	800-221-1045
CA	San Francisco	415-761-1155
CO	Denver	303-321-3873
DC	Washington	800-241-3669
FL	Orlando	800-241-3669
GA	Atlanta	800-241-3670
IL	Chicago	312-496-6553
MA	Boston	617-449-0300
MI	Detroit	800-323-4087
MN	St. Paul	800-392-0312
MO	St. Louis	314-997-8500
NJ	Newark	800-221-1454
NJ	West Caldwell	800-221-1454
NY	Syracuse	800-221-1455
NC	High Point	919-889-7181
OH	Cincinnati	800-241-3669
OH	Cleveland	216-362-1700
PA	Philadelphia	215-728-5300
TX	Dallas	800-442-8046
TX	Houston	800-442-8046
WA	Seattle	206-244-7200,206-241-2250

3M CO., TECH CERAMIC RESOURCES, 3M Center 225-4W, St. Paul, MN. 55101, Tel: 617-736-0601, Telex: 29-7023, TWX: 910-563-3712; Empl.: 83000

3M CO. VISUAL PRODS./INDUS. OPTICS., See 3M Co. Carbonless Related Prods. Div.

MDB SYS., 1995 N Batavia St., Orange, CA 92665, Tel: 714-998-6900, TWX: 910-593-1339; Empl.: 200; *Sls. Mgr.:* William Wollam

MDF PRODUCTS INC., 7 Johnson Dr., Danbury, CT 06811, Tel: 203-743-3579, Telex: 499-8051; FSC No.: 60628; Empl.: 5 .... **D•1265**

MEA DIV., See Mechanized Elctrn. Assembly Div., Universal Instrs. Corp.

MEASUREMENTS GROUP, INC., Box 27777, Raleigh, NC 27611, Tel: 919-365-3800, Telex: 802-502, TWX: 510-920-0770; *Sls. Mgr.:* Stephen R. Katz

MS

MEASUREMENT SYS., INC., 121 Water St., Norwalk, CT 06854, Tel: 203-838-5561, Telex: 6813573, TWX: 710-468-2185; Empl.: 97; *Sls. Mgr.:* John Cronan ... **D•1126**

Local Sales Offices & Reps

IA	Cedar Rapids, S & O Sls.	319-393-1845
MD	Columbia, Robert Elctrn. Sls.	301-995-1900
MA	Hudson, Data Rep.	617-481-0333
PA	Melrose Park, R. Meyers Assocs.	215-224-1663
TX	Richardson, OM Sls.,Inc	214-690-6746
VA	Richmond, Robert Elctrn. Sls.	804-276-3979

MEC A/S, Industriparken 23, Ballerup, Denmark DK-2750, Tel: 452-973366

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Eltron	602-266-2164
AZ	Scottsdale, SMS & Assocs.	602-998-0831
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Brea, Masco	714-529-0867
CA	Curpertino, F & F Assocs.	408-446-2349
CA	Mountain View, Switches, Inc.	415-962-8649
CA	Orange County, Pacific Switch Controls, Inc.	714-953-1254
CA	Van Nuys, Pacific Switch Controls, Inc.	213-873-4802
CO	Aurora, Mountain View Mktg.	303-360-9641
CO	Englewood, Electronic Comps. Sys.	303-781-5904
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Fort Lauderdale, KSM Elctrns., Inc.	305-971-5900
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
GA	Atlanta, KSM Elctrns., Inc.	404-458-2013
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	Indianapolis, Insul Reps	317-251-1994
IA	Cedar Rapids, Palatine Engrg. & Sls.	319-365-8071
KS	Mission, Palatine Engrg. & Sls.	913-831-0550
MA	Needham, A&M Elctrns.	617-444-8170
MA	Plainville, Enterprise Tech., Inc.	617-695-4700
MI	Bloomfield, Obe, Inc.	313-332-4900
MI	Brighton, AP Assocs.	313-229-6550
MI	Grand Rapids, Obe, Inc.	616-458-8993
MI	St. Joseph, Obe, Inc.	616-429-1160
MN	Minneapolis, Components Rep. Grp.	612-944-0800
MN	Minneapolis, Elctrn. Comps. Grp.	612-559-0720
MO	Hazelwood, Palatine Engrg. & Sls.	314-839-0800
NJ	Ho-Ho-Kus, D. J. Fisher Co., Inc.	201-652-0090
NM	Albuquerque, Syntech	505-266-7051
NY	Fairport, TAC Sls.	716-425-1070
NY	Great Neck, M.O.S. Assocs.	516-487-3966
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Cleveland, Components, Inc.	216-243-9020
OK	Bixby, Southern Sts. Mktg.	918-369-3233
PA	Glenside, Wyncote Instrmn.	215-572-6500
TX	Austin, Southern Sts. Mktg.	512-473-2741
TX	Houston, Southern Sts. Mktg.	713-558-4900
TX	Richardson, Southern Sts. Mktg.	214-238-7500
TX	Richardson, Southern Sts. Mktg.	915-238-7500
UT	Salt Lake City, Quality Comps. Sls.	801-268-8000
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Kirby, A/D Elctrns.	206-821-3208
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

CA	Hollywood, Yale Elec.	213-465-3186
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Mountain View, Target Elctrns.	415-962-8649
CA	Orange County, Pacific Switch Controls	714-953-1254
CA	San Carlos, Logan Elctrns.	415-594-0700
CA	San Diego, Pacific Switch Controls	619-264-6117
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CO	Englewood, Industrial Supp.	303-694-9444
CT	Hartford, Atlantic Switch Controls	203-527-7705
CT	Shelton, Century Elec.	203-736-208
FL	Lakeland, Switch Controls, Inc.	813-644-7564
IL	Carol Stream, Conectrix	312-653-1460
MD	Beltsville, P.S.I.	301-937-4960
MD	Columbia, D.K. Elctrns.	301-995-1950
MA	Needham, 'You Do It'	617-449-1005
MN	Minneapolis, Glen Mark	612-941-4825
NH	Nashua, Atlantic Switch	603-880-1971
NJ	Mt. Laurel, Jersey Switch	609-778-8190
OH	Columbus, Ohio Switch	613-885-0391
OR	Portland, Component Resources	503-641-8488
TX	Dallas, TexaSwitch	214-357-1768
TX	Hurst, Alectron Corp.	817-280-0313
WA	Seattle, Component Resources	206-454-8666
WA	Seattle, Radar Elctrns.	507-747-3053
Can	Toronto, Ont., Deskin Sls.	416-475-1412

MECHANICAL ENGRAVING, 4500 Bullard Ave, Bronx, NY 10470, Tel: 212-324-4455; FSC No.: 99040; Empl.: 35; *Sls. Mgr.:* Bernard W. Mandel

MECHANICAL ENTPRS., 461 Carlisle Dr., Herndon, VA 22070, Tel: 703-435-9496, TWX: 710-832-0942; Empl.: 25; *Sls. Mgr.:* R.H. Twyford .... **B•1624, 1728-1729**

Local Sales Offices & Reps

CA	Irvine, Vale Electrn. Assocs.	714-551-4821, 619-693-0113
CA	Santa Clara, Eastec Corp.	408-720-1807
CT	Bristol, Technlg. Prod. Grp.	203-583-0703
FL	Casselberry, Semi	305-831-2822
FL	Ft. Lauderdale, SEMI	305-475-3686
FL	Melbourne, Semi	305-831-2822
FL	Palm Harbor, SEMI	813-441-3902
IL	Arlington Heights, Coombs Assocs., Inc.	312-439-9810
IN	Ft. Wayne, Coombs Assocs., Inc.	219-747-7661
IN	Ft.Waynee, Coombs Assoc., Inc.	219-747-7661
IA	Cedar Rapids, Coombs Assocs., Inc.	319-362-4116

MA	Brookline, Technlg. Prods.	617-731-0858
MA	Brookline, Technology Prod. Grp.	617-731-0858
MI	Jackson, Norwood Scroggs Co.	517-750-1170
NY	Cooperstown, Fitzelle Assoc.	607-547-9333
NY	Cooperstown, Fitzelle Assocs.	607-547-9333
NY	Rochester, Lloyd Hart Assocs.	716-225-4455
TX	Dallas, Stasco	214-239-4517
WI	Milwaukee, Coombs Assocs., Inc.	414-351-6123
Can	Concord, Ont., Delco Electerns.,Inc.	416-738-1090

Local Distributors

CA	Los Angeles, Electric Switches, Inc.	213-660-1310
CA	San Diego, Sigma Electrns.	619-292-1523
IL	Wheeling, Hawk Elctrns., Inc.	312-459-4030
NY	Yonkers, Kintronics, Inc.	914-968-7736, 800-431-1658
Can	Burnaby, B.C., Rae Ind. Electrns.,LTD	604-291-8866

MECHANICAL PRODUCTS, Amstar, 1824 River St. P. O. Box 729E, Jackson, MI 49204, Tel: 517-782-0391, TWX: 810-253-0827; *Sls. Mgr.:* Bob Vangermeersch

MECHANICAL TECHN., 968 Albany Shaker Rd., Latham, NY 12110, Tel: 518-785-2353, TWX: 710-443-8150; Empl.: 1000; *Sls. Mgr.:* David W. Bender; *Dist. Mgr.:* David W. Bender

MECHANIZED ELECTRONIC ASSEMBLY DIV., Universal Instrs. Corp., P.O. Box 825, Binghamton, NY 13902, Tel: 607-772-7522, TWX: 510-252-1990; *Sls. Mgr.:* Gene Exley .... **D•1982**

Local Sales Offices & Reps

NH	Bedford, Universal Instrs. Corp.	603-625-9600
NY	Binghamton, Universal Instrs. Corp.	607-772-7472
PA	Paoli, Universal Instrs. Corp.	215-296-8811

MEDA, INC., MacIntyre Electronics Design Assocs., Inc., 1930 Isaac Newton Sq., Reston, VA 22090, Tel: 703-471-1445, Telex: 910-350-0132; Empl.: 5

MEDIA RECOVERY INC., Box 1407, Graham, TX 76046, Tel: 800-527-9497, 214-630-9625 (Texas), Telex: 73-2561; Empl.: 130; *Sls. Mgr.:* J. Ricciardi

Local Sales Offices & Reps

CA	San Francisco, Media Recovery	415-572-0167
CT	Hartford, Media Recovery of N.J.	203-528-9776
MA	Boston, Media Recovery Inc.	617-843-8400
MI	Livonia, Media Recovery	313-421-4244
TX	Dallas, Media Recovery of Tex	214-630-9625
TX	Houston, Media Recovery of Tex	713-681-5464
TX	San Antonio, Media Recovery of Texas	512-349-5854

MEGA LOGIC, 9659 Natl. Rd., Brookville, OH 45309, Tel: 513-833-5222

MEGATEK CORP., 9645 Scranton Road, San Diego, CA 92121, Tel: 619-455-5590, TWX: 910-335-2056; Empl.: 500; *Sls. Mgr.:* Robert A. Becker; *Dist. Mgr.:* Michel Schwab, Dir., International Sls.

MEGATEST, 880 Fox La., San Jose, CA 95131, Tel: 408-998-7110, TWX: 910-338-0259; Empl.: 225; *Sls. Mgr.:* Rick Carmichael

MEGATRAN ELECTRONIC POWER, Rising Sun Rd., Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 25; *Sls. Mgr.:* C. W. Harrison

MEISSNER INDS., 551 Rte. 10, Dover, NJ 07801, Tel: 201-366-1700; Empl.: 10 .... **A•1889**

MELCHER, INC., 6290 Sunset Blvd., = 1126, Los Angeles, CA 90028, Tel: 213-463-5617, TWX: 910-321-2903; *Sls. Mgr.:* Norman R. Sutherland

melcor

MELCOR/MATERIALS ELCTRN. PRODS., 994 Spruce St., Trenton, NJ 08648, Tel: 609-393-4178, Telex: 84-3314; FSC No.: 32333; Empl.: 175; *Sls. Mgr.:* M.A. Levine .... **C•1652-1653**

MELCO SLS., See Mitsubishi Elctrns.

MELLES GRIOT, 1770 Kettering St., Irvine, CA 92714, Tel: 714-261-5600, Telex: 678447; Empl.: 90; *Sls. Mgr.:* Paul H. Shirley

MEL-RAIN CONTROLS, 42974 M-43 Hwy., Paw Paw, MI 49079, Tel: 616-657-2527; FSC No.: 639; Empl.: 20; *Sls. Mgr.:* Howard F. Walter

MEL TEC, Div. Epsco, Inc., 411 Providence Hwy., Westwood, MA 02090, Tel: 617-329-1508, Telex: 95-1110, TWX: 710-348-0484; Empl.: 180

MEMODYNE, 220 Reservoir St., Needham Hgts., MA 02194, Tel: 617-444-7000, Telex: 92-2537; Empl.: 50; *Sls. Mgr.:* Joseph K. McEttrick .... **D•1068**

Local Sales Offices & Reps

AZ	Tempe, Mar Tech Assocs., Inc.	602-968-4944
CA	Fullerton, Elctrn. Comp. Mktg.	714-879-9460
CA	Santa Clara, Nelson Elctrns. Sls.	408-980-1950
CO	Englewood, F. G. Mktg. Co.	303-795-9176
CT	Hamden, Burton Forrester Associates	203-248-4380
GA	Atlanta, Magaro & Assoc.	404-451-8862
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Elmhurst, Scott Assocs.	312-279-5681
KS	DeSoto, Midtec Assocs.	910-743-6565
MA	Braintree, Burton Forrester Assocs.	617-848-7234
MI	Detroit, EQS Sys.	313-961-3042
MO	Florissant, Midtec Assocs.	313-837-5200
NY	Clark Mills, KLM Assocs.	315-853-6126
NY	Elmont, Crane & Egert Corp.	516-872-0800
NY	North Syracuse, KLM Assocs.	315-458-6214
NY	Pittsford, KLM Assocs.	716-381-8350
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Chesterland, EQS Sys.	216-729-2222
OH	Columbus, EQS Sys.	614-228-3453
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Pittsburgh, EQS Sys.	412-261-2604
TX	Houston, Acudata	713-488-8195
TX	Plano, Acudata	214-424-3567
UT	Englewood, F. G. Mktg. Co.	303-795-9176
WA	Bellevue, Topp Engrg. Sls.	206-747-5400

MEMOREX CORP., San Thomas at Central Expwy., Santa Clara, CA 95052, Tel: 408-987-1000; Empl.: 12,284

MEMORY PROTECTION DEVICES INC., 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-454-0340, 516-454-0341, Telex: 219801; *Sls. Mgr.:* Lou Asighieri/Charlotte Stalker; *Dist. Mgr.:* Sandy Silvani .... **C•1451-1453**

Local Sales Offices & Reps

AL	Huntsville, REP Inc.	205-881-9270
CA	Pleasonton, Moulthrop Sls.	415-463-0450
CA	San Diego, Tauber Assocs.	619-274-7242
GA	Tucker, Rep., Inc.	404-938-4358
IN	Indianapolis, Marketing Engrg.	317-872-5665
KS	Olathe, Rush & West	913-764-2700
MA	Burlington, Conti Younger	617-273-1582
MO	Ballwin, Rush West	314-394-7271
NJ	Mt. Laurel, Comtek	609-235-8505
NY	Pittsford, Andres Comp.	716-381-3818
NC	Raleigh, Rep., Inc.	919-851-3007
OR	Tigard, Electronic Sources	503-684-0040
TN	Jefferson City, Rep., Inc.	615-475-9012
TX	Dallas, Dunbar	214-239-7151
UT	Salt Lake City, Comp. Sls.	801-268-8440
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

AL	Huntsville, Resistacap, Inc.	205-883-4270
CA	Burlingame, Rose Elec.	415-348-0483
CA	San Diego, Tauber Elec.	619-272-7242
CA	San Jose, Cypress Elec.	408-945-8400
CA	Van Nuys, Nesco	213-781-0505
FL	Dania, Summit Distr.	305-920-6253
FL	Pompano Beach, Component South	305-971-0350
IL	Chicago, Prehler Elec.	312-384-6100
IN	Indianapolis, Graham Elec.	317-634-8202
MA	Sharon, Adcour	617-784-8123
MI	Brighton, A. P. Sls.	313-229-6550
MI	Farmington Hills, Prehler Elec.	313-473-7200
MN	Burnsville, Power Grp.	612-890-1360
MN	Thief River Falls, Digi Key	218-681-6674
NJ	Bellmawr, Mid-Atlantic	609-931-5303
NJ	Plainfield, Mars Elec.	201-757-4332
NY	Buffalo, Summit Dist.	716-887-2800
OH	Cincinnati, Hughes Peters	513-351-2000
OH	Columbus, Hughes Peters	614-294-5351
PA	Allentown, Lehigh Elec.	215-433-3045
TX	Dallas, Computer Comps.	214-239-0271
WA	Bellevue, Almac Elec.	206-643-9992

MEMTRON TECHNOLOGIES, INC., 1400 Weiss St., Frankenmuth, MI 48734, Tel: 517-652-2652, TWX: 910-380-9153; FSC No.: 6 V 417; Empl.: 53; *Sls. Mgr.:* Daniel T. Ortner .... **B•1731**

Local Sales Offices & Reps

AZ	Scottsdale, Semi-Systems Arizona, Inc.	602-991-1151
CO	Englewood, Martec Assocs.	303-741-3322
FL	Maitland, EIR, Inc.	305-660-9600
GA	Lawrenceville, Tek-Rep Mktg., Inc.	404-963-1600
IL	Wheaton, Chadra-Schilke & Assocs., Inc.	312-653-8126
IN	Indianapolis, EMCI, Inc.	317-253-1668
MA	Framington, Stone Comp. Sls. Corp.	617-875-3266
MO	Saint Charles, Buckman & Assocs.	314-946-6201
NY	Fairport, Net Sls., Inc.	716-467-4538
NY	Smithtown, T & K Sls.	516-724-3456
OH	Columbus, Tom Mulligan Co.	614-457-2242
PA	Southampton, Campbell Assocs.	215-322-6630
TX	Richardson, Lonk & Assocs.	214-238-7651
VA	Martinsville, Engineering Sls. Corp.	703-632-2365
Can	Rexdale, Ont., Bestec Elctrns., Ltd.	416-674-1330

Mepco//Electra

A NORTH AMERICAN PHILIPS COMPANY

MEPCO//ELECTRA, INC., North American Philips Corp., Columbia Rd., Morristown, NJ 07960, Tel: 201-539-2000, Telex: 136461, TWX: 710-986-7437; *Sls. Mgr.:* Michael F. Kirkowski; *Dist. Mgr.:* Robert G. Elko .... **A•1124-1126, 1890-1891, 2029; B•1008**

MEPCO//ELECTRA, INC., North American Philips Corp., 11468 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-453-0332, Telex: 820534, TWX: 910-337-1120 .... **A•2029; B•1008**

Potentiometers (Cermet, Carbon) Industrial & Military

MEPCO//ELECTRA, INC., North American Philips Corp., 5900 Australian Ave., West Palm Beach, FL 33407, Tel: 305-842-3201, Telex: 387217, TWX: 510-952-7618 .... **A•1124; B•1009**

Tantalum Capacitors (Solid, Wet Slug, Chip) Military & Industrial

MEPCO//ELECTRA, INC., North American Philips Corp., Columbia Rd., Morristown, NJ 07960, Tel: 201-539-2000, Telex: 136461, TWX: 710-986-4737 .... **A•1126, 1890-1891**

Metal Film Resistors (Established Reliability-Hermetic) Thick Film Chips, Thick Film Networks, Non-Linear Resistors, Film Trimmer Capacitors

MEPCO//ELECTRA, INC., North American Philips Corp., 6071 St. Andrews Rd., Columbia, SC 29210, Tel: 803-772-2500, Telex: 820676, TWX: 810-666-2662 .... **A•1124-1126; B•1009**

DC Aluminum Electrolytic Capacitors (Computer Grade, Axial, Radial) Military, Industrial & Consumer, AC Motor Starts, Film Capacitors (Film/Foil, Metallized), Tantalum Capacitors (Foil)

MEPCO//ELECTRA, INC., Airport Road, P.O. Box 760, Mineral Wells, TX 76067, Tel: 817-325-7871, Telex: G.P.R.-881857/S.P.R.-820545 .... **A•1890**

Metal Film Resistors (General Purpose, Standard Precision, Ultra Precision, Standard Military, Established Reliability) Carbon Film Resistors, Precision Matched Sets

Local Sales Offices & Reps

AL	Huntsville, Macro-Mktg. Assocs.	205-883-9630
AZ	Tempe, Mepco/Electra	602-968-9573
CA	Anaheim, Mepco/Electra	714-441-0385
CA	Harbor City, Refrigeration Comp.	213-325-3420
CA	Milpitas, Mepco/Electra	408-945-1020
CA	San Diego, The Rep Co.	619-292-9001
CA	Santa Clara, I-Squared	408-988-3400
CA	Sherman Oaks, Mepco//Electra	818-986-4892
CO	Englewood, Thorson Rocky Mnt.	303-779-0666
CO	Westminster, Mepco//Electra	303-460-0051
FL	Altamonte Springs, Mepco/Electra	305-339-5073
FL	Ft. Lauderdale, Mepco/Electra	305-485-0115
GA	Norcross, Over & Over, Inc.	404-449-6205
IL	Bannockburn, Heth	312-295-8440
IL	Elk Grove Village, Oasis Sls.	312-640-1850
IL	Itasca, Mepco/Electra	312-773-3399
IN	Fort Wayne, Corrao Marsh, Inc.	219-637-5548
IN	Greenfield, Corrao Marsh, Inc.	317-894-0377
IN	Indianapolis, Corrao Marsh, Inc.	317-872-7157
IN	Indianapolis, Leslie M. Devoe Co.	317-842-3245
IA	Cedar Rapids, Lorenz Sls.	319-377-4666

KS	Overland Park, PMR Corp.	913-381-0004
MD	Columbia, Delta III Assoc.	301-730-4700
MA	Woburn, Mepco/Electra	617-935-6920
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
MN	Minneapolis, Electric Comps. Sls., Inc.	612-933-2594
MO	Maryland Heights, PMR Corp.	314-569-1220
NE	Lincoln, Lorenz Sls.	402-475-4660
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200
NJ	Marlton, B.G.R. Assocs.	609-983-1020
NJ	Morristown, Mepco/Electra	201-539-2000
NJ	Springfield, Gebhardt Mktg.	201-376-4415
NY	Rochester, Electra Sls. Corp.	716-427-7860
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Charlotte, Over & Over, Inc.	704-527-3070
NC	Raleigh, Over & Over	919-872-2262
OH	Dayton, Mepco/Electra	513-278-5842
OR	Beaverton, Mepco/Electra	503-643-5516
PA	Greensburg, Pro Mark	412-832-3800
TX	Richardson, Mepco/Electra	214-231-8274
UT	West Valley City, Thorson Rocky Mountain	801-973-7969
WA	Bellevue, Mepco/Electra	206-643-4555
WI	Wauwatosa, Larsen Assoc.	414-258-0529

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Phoenix, T.T.I.	602-966-1616
AZ	Tempe, Hamilton/Avnet	602-231-5100
AZ	Tempe, Shelley Elctrns., Inc.	602-894-2058
CA	Chatsworth, Avnet Elctrns.	818-700-8668
CA	Chatsworth, Hamilton Electro Sls.	818-700-1222
CA	Chatsworth, QC Comps., Inc.	818-700-2622
CA	Chatsworth, Shelley Elctrns., Inc.	213-998-3333
CA	Chatsworth, TTI	818-709-1010
CA	Compton, Harper, S.I.D.	213-979-5090
CA	Costa Mesa, Avnet Elctrns.	714-754-6077
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2131
CA	Culver City, Hamilton/Avnet	213-558-2020
CA	Garden Grove, Hi-Rel Elctrns., Inc.	714-898-9858
CA	Ontario, Hamilton/Avnet	714-989-4602
CA	Sacramento, Hamilton/Avnet	916-920-3120
CA	San Diego, Hamilton/Avnet	619-571-7500
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	San Jose, Shelley Elctrns., Inc.	408-942-9111
CA	San Jose, TTI, Inc.	408-943-9155
CA	Sunnyvale, Hamilton/Avnet	408-743-3355
CO	Boulder, Shelley Elctrns., Inc.	303-442-2718
CO	Denver, Ragon Elctrns.	303-774-1992
CO	Englewood, Hamilton/Avnet	303-740-1000
CO	Englewood, NEP Elctrns.	303-799-9898
CT	Danbury, Hamilton/Avnet	203-797-2800
CT	New Haven, Greene Shaw Co.	203-397-0710
CT	Stratford, TTI	203-375-1400
FL	Ft. Lauderdale, Dielco	305-973-8700
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Orlando, T.T.I.	305-859-1000
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Tampa, Impala Elctrns.	813-885-4747
FL	Tampa, Shelley Elctrns., Inc.	813-884-0946
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Norcross, Hamilton/Avnet	404-447-7507
GA	Norcross, TTI	404-662-0911
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Nep Elctrns.	312-625-8400
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Carmel, Hamilton/Avnet	317-844-9603
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, RM Elctrns., Inc.	317-291-7110
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Overland Park, Hamilton/Avnet	913-888-8900
MD	Beltsville, Resco/Washington	301-937-9100
MD	Columbia, Aztech Elctrns.	301-995-1760
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	White Marsh, Resco/Baltimore	301-529-0500
MA	Burlington, TLC Elctrns.	617-273-0140
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Woburn, Hamilton/Avnet	617-935-9700
MA	Woburn, Jaco Elctrns.	617-933-7760
MA	Woburn, T.T.I.	617-938-8800
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Grand Rapids, RM Elctrns., Inc.	616-531-9300
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, RepTron Elctrns.	313-525-2700
MN	Minneapolis, Merit Elctrns.	612-546-5383
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Earth City, Hamilton/Avnet	314-344-1200
MO	Independence, Ragon Elctrns.	816-254-3410
MO	St. Louis, Olive Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp. Corp.	402-466-8221
NE	Omaha, Scott Elctrn. Supp. Corp.	402-734-6750
NH	Manchester, Hamilton/Avnet	603-624-9400
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Bohemia, Shelley Elctrns.	516-567-7751
NY	Bohemia, T.T.I.	516-567-1500
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Central Islip, Semi-Cap Elctrns.	516-582-4400
NY	East Syracuse, Hamilton/Avnet	315-437-2641
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hauppauge, Hamilton/Avnet	516-231-9800
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Hempstead, Kahgan Comps.	516-538-2300
NY	Henrietta, CAM RPC Elctrns.	716-334-5600
NY	Rochester, Hamilton/Avnet	716-475-9130
NY	Rochester, Summit Distrs.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NY	Sodus, Pace Elctrn. Prods.	315-483-9122
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Hamilton/Avnet	919-829-8030
OH	Cleveland, CAM RPC Elctrns.	216-461-4700
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Columbus, RepTron Elctrns.	614-436-6675
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Englewood, Argent Electra	513-836-8633
OH	Fairborn, Aschbacher & Assocs.	513-252-7785
OH	Westerville, Hamilton/Avnet	614-882-7004
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Almac Elctrns.	503-641-9076
OR	Lake Oswego, Hamilton/Avnet	503-635-8157
PA	Allentown, Lehigh Elctrn. Comps.	215-433-3045
PA	McKean, Advacom, Inc.	814-476-7774
PA	Norristown, Century Elctrn. Corp.	215-631-5400
PA	Pittsburgh, CAM RPC Elctrns.	412-782-3770
TX	Austin, Altair Co.	512-837-4970
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Dallas, Computer Comp.	214-239-0271
TX	El Paso, Era Elctrns.	915-592-4126
TX	Ft. Worth, T.T.I. Inc.	817-429-1440
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Irving, Hamilton/Avnet	214-659-4111
TX	Richardson, Altair Co.	214-231-5166
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
VA	Arlington, Arlington Elctrns.	703-524-2412
VA	Charlottesville, Virginia Radio Supp. Co.	804-296-4184
WA	Bellevue, Almac Elctrns. Corp.	206-643-9992
WA	Bellevue, Hamilton/Avnet	206-643-3950
WA	Kent, Shannon Ltd.	206-763-0545
WA	Spokane, Almac Elctrns. Corp.	509-924-9500
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet	414-784-4510
WI	New Berlin, NEP Elctrns., Inc.	414-785-9100
WI	New Berlin, R.M. Elctrns.	414-784-4420

MERCURY PLASTICS, A UNIT OF ZERO CORP., 672 Fuller Rd., Chicopee, MA 01020, Tel: 413-267-5561, TWX: 710-354-1450; Empl.: 100; *Sls. Mgr.:* Douglas W. Griffith

MERECO PRODUCTS DIV., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893, Tel: 401-828-4550; Empl.: 100; *Sls. Mgr.:* John E. Powell, Jr.

MERET, INC., 1815 24th St., Santa Monica, CA 90404-4998, Tel: 213-828-7496, Telex: 371-9305; Empl.: 26; *Sls. Mgr.:* Jonathan Medved .... **B•1121**

Local Sales Offices & Reps

AZ	Sierra Vista, Aytan Dove	602-458-5042
CA	West Covina, Eureka Tech. Sls., Inc.	213-331-8766
CO	Lakewood, Technical Mktg. Mfg. Inc.	303-232-1516
MA	Brookline, Boston Elctrn. Corp.	617-566-3821
IL	Northrock, Emtech	312-564-0446
NY	White Plains, Metro-Tek Assocs.	914-631-4758
UT	Salt Lake City, Global Tek., Inc.	801-972-0999
VA	Fairfax, Schibley Assocs.,Inc.	703-591-3008

MERIX CHEM. CO., 2234 East 75th St., Chicago, IL 60649, Tel: 312-221-8242; Empl.: 15; *Sls. Mgr.:* E. O. Sonneman; *Dist. Mgr.:* E. O. Sonneman

MERRILL, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437, Tel: 215-643-2116; FSC No.: 58624; Empl.: 10; *Sls. Mgr.:* J. Fournier

MERRIMAC INDS., 41 Fairfield Pl., West Caldwell, NJ 07006, Tel: 201-575-1300, Telex: 6853128, TWX: 710-734-4314; FSC No.: 12457; Empl.: 225; *Sls. Mgr.:* Gary Tahlmore; *Dist. Mgr.:* T.V.R.O. Prods. Only - Laurie Festa

MERRIMACK MAGNETICS CORP., 121 Hale St., Lowell, MA 01851, Tel: 617-458-1487; Empl.: 450; *Sls. Mgr.:* L. J. Woods; *Dist. Mgr.:* R. O. Ross

MESUR-MATIC ELCTRNS., 50 Grove St., Salem, MA 01970-2294, Tel: 617-745-7000; Empl.: 29; *Sls. Mgr.:* Kosma L. Evangelidis

METATEK INC., 410 93rd Ave. NW, P.O. Box 33129, Minneapolis, MN 55433, Tel: 612-786-8253, Telex: 4994418 Metatek; Empl.: 6; *Sls. Mgr.:* Don Hallblade; *Dist. Mgr.:* Don Hallblade

METAVAC, INC., 45-68 162nd St., Flushing, NY 11358, Tel: 212-HI5-0400; Empl.: 52; *Sls. Mgr.:* Clifford E. Sisler

METEREX CORP., 25 Industrial Park Rd., Hingham, MA 02043, Tel: 617-749-8100; Empl.: 4; *Sls. Mgr.:* K. Sharples

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Distributor

METERMASTER, 5646 Jullson St., Los Angeles, CA 90040, Tel: 213-685-4340
.... pgs. **612, 680, 701, 781, 805, 824.**

METHODE ELCTRNS., INC., 7444 W. Wilson Ave., Chicago, IL 60656, Tel: 312-867-9600, TWX: 910-221-2468; Empl.: 900; *Sls. Mgr.:* R. Close; *Dist. Mgr.:* K. Lindsey

METHODE ELECTRONICS, INC., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008, Tel: 312-392-3500, TWX: 910-687-0760; FSC No.: 95354; Empl.: 250; *Sls. Mgr.:* L. W. Ekstrom; *Dist. Mgr.:* L. W. Ekstrom

METHODS RESEARCH, 54D Asbury Ave., Farmingdale, NJ 07727, Tel: 201-938-6000; *Sls. Mgr.:* J. James Mandy

METIER MANAGEMENT SYS., INC., 5884 Point West Dr., Houston, TX 77036, Tel: 713-988-9100, Telex: 774367 (Metier Hou); Empl.: 650; *Sls. Mgr.:* James Paccotti/William Gregory

METIS, P.O. Box 1499, Bowie, MD 20716, Tel: 301-249-1702; Empl.: 2; *Sls. Mgr.:* Eric K. Pritchard

METRA INSTRS., 2056 Bering Dr., San Jose, CA 95131, Tel: 408-297-8530; Empl.: 16; *Sls. Mgr.:* Gary Heil

METRAPLEX CORP., Berkshire Indl. Park, Bethel, CT 06801, Tel: 203-748-0606, TWX: 710-456-3959; *Sls. Mgr.:* Charles B. Weaver

METRIC SYS., 645 Anchors St., Ft. Walton Beach, FL 32548, Tel: 904-244-9600, Telex: 70-2447; FSC No.: 12339; Empl.: 437

METRIX INSTRUMENT CO., 1711 Townhurst, Houston, TX 77043, Tel: 713-461-2131, Telex: 77-5486; Empl.: 50; *Sls. Mgr.:* W. B. Brown

METRON OPTICS INC., P.O. Box 690, Solana Beach, CA 92075-0690, Tel: 619-755-4477; Empl.: 15

METROPOLE PRODUCTS INC., P.O. Box 10275, Alexandria, VA 22310, Tel: 703-971-8606, 703-971-7082, Telex: 908041 BAL; FSC No.: 55908; *Sls. Mgr.:* John DePaola

METROSONICS, INC., Box 23075, Rochester, NY 14692-3075, Tel: 716-334-7300, Telex: 853348; Empl.: 80; *Sls. Mgr.:* W. Whitford; *Dist. Mgr.:* W. Whitford

METUCHEN CAPACITORS, INC., 420 Park Ave., Perth Amboy, NJ 08861, Tel: 201-442-0500, TWX: 710-998-0892; FSC No.: 55969; Empl.: 25; *Sls. Mgr.:* George Wolter .... **A•1128-1134, 1614-1615; C•1454-1457**

THE MEYERCORD CO., 365 E. North Ave., Carol Stream, IL 60188, Tel: 312-682-6200, Telex: 72-2449; Empl.: 500; *Sls. Mgr.:* Joseph Galloni

MFE CORP., Instr. Div., Keewaydin Dr., Bldg. # 1, Salem, NH 03079, Tel: 603-893-1921, Telex: 94-7477, TWX: 710-366-1887; *Sls. Mgr.:* Peter Schwartz; *Dist. Mgr.:* Jim Muckenhoupt

MF ELCTRNS. CORP., 10 Renewal Pl., New Rochelle, NY 10801, Tel: 914-576-6570, TWX: 710-563-0643; FSC No.: 08111; Empl.: 100; *Sls. Mgr.:* Bill Braverman; *Dist. Mgr.:* Bill Braverman .... **A•1384-1385**

Local Sales Offices & Reps

AL	Huntsville, E.M.A.	205-837-7363
AZ	Glendale, Southwest Elec. Mktg. Assoc.	602-278-0500

CA	Irvine, J. V. Earley & Assocs.	714-833-1806
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Denver, Matthews & Assocs.	303-450-6476
CT	Meriden, Orion Group	203-621-8371
FL	Altamonte Springs, APM Assocs.	305-869-6831
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Tampa, AMP Assocs.	813-886-2457
GA	Atlanta, E.M.A.	404-448-1215
IL	Bensenville, Banner Tech. Sls.	312-766-4131
ME	Wakefield, The Orion Group	617-245-5220
MI	Brighton, A.P.J. Assocs.	313-229-6550
MN	Minneapolis, Peterson Sls. & Assoc.	612-884-3483
NJ	Perth Amboy, Astro Rep.	201-826-8050
NM	Glendale, S. W. Elec. Mktg. Assoc.	602-278-0500
NY	Rochester, Sweetco Assocs.	716-225-2383
NY	Utica, Sweetco Assocs.	315-733-6721
NY	W. Babylon, Astro Rep.	516-422-2500
NC	Raleigh, E.M.A.	919-847-8800
OH	Dayton, APJ Assoc.	216-356-2424
OR	Portland, Controltek Sls.	503-641-0877
PA	Prospect Park, ELF Sls.	215-534-3340
TX	Austin, Matthews & Assocs.	512-479-0028
TX	Dallas, Matthews & Assocs.	214-931-0167
WA	Bellevue, Controltek Sls.	206-451-8163
WI	Mukwonago, Banner Tech. Sls.	414-363-5086

Local Distributors

CA	Burbank, Atwater Elctrns.	714-670-1426
CA	Sunnyvale, Pacesetter	408-734-5470
NJ	Northtown, Aztec Engrg.	215-539-8200
PA	Northtown, Aztec Engrg.	215-539-8200

ELECTRONICS

MG ELECTRONICS, 32 Ranick Rd., Hauppauge, NY 11788, Tel: 516-582-3400, Telex: 645113; Empl.: 14; *Sls. Mgr.:* John Kibbit; *Dist. Mgr.:* Stan Grey .... **D•1027**

MHOTRONICS., INC., 444 Lake Cook Rd., Ste. 8, Deerfield, IL 60015, Tel: 312-948-5600, TWX: 910-686-0630 .... **C•1459-1461**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, J. F. Hurlbutt Co.	602-952-2029
CA	Burbank, Mod-Co.	818-848-2215
CA	Santa Clara, Context Engrg.	408-748-8676
CO	Golden, J. F. Hurlbutt	303-279-7796
FL	Deerfield Beach, Cartwright & Bean	305-429-3400
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Elk Grove Village, Memetron	312-595-2828
IL	Mt. Prospect, The Dombrow Co.	312-253-3326
LA	Covington, Cartwright & Bean	504-892-1780
MA	Framingham, Marathon Sls., Ltd.	617-875-3566
NY	Hauppauge, Masin-Esco, Inc.	516-273-3500
NY	Syracuse, Northeastern Elctrns. Co., Inc.	315-455-7561
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-876-4130
OR	Portland, SPS Elctrns.	503-297-6919
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Austin, Swearingen Sls.	512-339-8663
WA	Redmond, SPS Elctrns.	206-323-4140

M.I.A.L., See TRW/Capacitor Div.

MICA CORPORATION, 8536 National Blvd., Culver City, CA 90232, Tel: 213-837-8100, Telex: WU 664336, ITT 4720769; FSC No.: 06216;Multiple; Empl.: 300

MICHIGAN MAGNETICS, 203 W. Third St., Vermontville, MI 49096, Tel: 517-726-0590; Empl.: 95; *Sls. Mgr.:* B. L. Killinger

MICOM SYSTEMS, INC., 4100 Los Angeles Ave, P.O. Box 8100, Simi Valley, CA 93062-8100, Tel: 805-583-8600, Telex: 687-497, TWX: 910-494-4910; *Sls. Mgr.:* M. Winters; *Dist. Mgr.:* A. Yilmaz

MICRA CORP., 120 Ricefield Lane, Hauppauge, NY 11788, Tel: 516-231-8600, TWX: 882633 MICRA US; FSC No.: 63071; Empl.: 200; *Sls. Mgr.:* Richard S. Davis

MICREL, INC., 1235 Midas Way, Sunnyvale, CA 94086, Tel: 408-245-2500, TWX: 910-379-0007; Empl.: 120

MICRO ASSOCIATES INC., 2349 Memorial Blvd., Port Arthur, TX 77640, Tel: 409-983-2051

MICROAVIONICS CORP., 3198-K Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-957-6904; Empl.: 15; *Sls. Mgr.:* B. H. Corzine

MICROBAR SYSTEMS, INC., 785 Lucerne Drive, Sunnyvale, CA 94086, Tel: 408-720-9300, TWX: 910-373-2047; *Sls. Mgr.:* Wes Bockstiegel

MICROBOND DIV., PO Box 689, Altamonte Springs, FL 32701, Tel: 305-339-8298, Telex: 56-4303; *Sls. Mgr.:* William S. Hodges

MICROCAP, INC., 11120 Roselle St., San Diego, CA 92121, Tel: 619-452-9812; Empl.: 23; *Sls. Mgr.:* Denise Kelly

MICRO-CIRCUIT ENGRG., See MCE Semiconductor

MICRO-CIRCUITS CO., INC., Route 1 - Box 518, New Buffalo, MI 49117, Tel: 616-469-2727

MICRO-COAX COMPONENTS, INC., a UTI Company, Box E, Collegeville, PA 19426, Tel: 215-489-3700, Telex: 84-6428, TWX: 510-660-6107; FSC No.: 215-489-1103; Empl.: 50; *Sls. Mgr.:* Lloyd Deery

MICRO COMPONENT TECHNLG., INC., P.O. Box 64013, St. Paul, MN 55164, Tel: 612-482-5100, Telex: 297422; Empl.: 700; *Sls. Mgr.:* James Gibson

MICROCOMPUTER DOCTORS, Computer Doctors, P.O. Box 470, College Park, MD 20740, Tel: 301-779-5110; Empl.: 1; *Sls. Mgr.:* Danny Akers

Microcomputer Power, Inc.

MICROCOMPUTER POWER, 15875 Concord Circle, Morgan Hill, CA 95037, Tel: 408-779-5700, TWX: 910-338-7694; Empl.: 60; *Sls. Mgr.:* Jim Armstrong; *Dist. Mgr.:* Jim Armstrong .... **D•1721-1723**

Local Sales Offices & Reps

AZ	Tempe, Electronic Dev. Sls.	602-438-1547
CA	Inglewood, Basic Sys.	213-673-4300
MD	Baltimore, Stemler Assocs.	301-944-8262
MA	Andover, Richard Porinton, Inc.	617-475-7055
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PA	Feasterville, Stemler Assocs.	215-638-1850
EXP	CA, Santa Clara, Prima Intl.	408-496-0722

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CA	Hayward, K E A Electronics	415-887-2900
CA	Inglewood, Basic Sys.	213-673-4300
FL	Orlando, G M I Distrs.	305-894-3354
NM	Albuquerque, Walker Elctrns.	505-883-2992

MICRO COMPUTER RENTALS, 742D Hampshire Rd., Westlake Village, CA 91361, Tel: 213-991-1704

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MICRO DEVICES PRODUCT GROUP, Therm-O-Disc, Inc., 1320 South Main Street, P.O. Box 3538, Mansfield, OH 44907, Tel: 419-756-5005, Telex: 987455; *Sls. Mgr.:* J. A. Kight .... **B•1775**

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IL	La Grange Park, Bierhaus Sls.	312-354-5100
MD	Baltimore, Callas Elctrns.	301-744-7711
MA	Peabody, OEM Sls.	617-535-2521
MI	Jackson, Norwood Scroggs Co.	517-750-1170
NY	Commack, R. C. Engrg.	516-543-3325
NY	Syracuse, L. D. Allen	315-437-8387
NC	Winston-Salem, Murcota	919-722-9445
OR	Portland, Component Technlg.	503-292-1518
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UT	Layton, Dynatech	801-546-4837
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Can	Ontario, Intrade	613-727-1272

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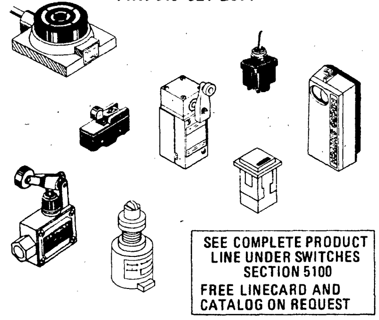

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CA	San Marino, Walls Assoc.	213-287-7276
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FL	DeBary, DJE Assoc.	305-668-6827
IL	Woodridge, Trend-Tronics	312-985-0626
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CA	Costa Mesa, Orange County Comps.	714-979-3597
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CA	San Diego, Shelley Elctrns.	619-453-7133
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MD	Ellicott City, V.P.I.	301-461-2525
MA	Hingham, O'Sullivan & Murphy	617-749-8680
MO	Kansas City, EIR	816-452-7030
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IL	Wheaton, Chadra-Schilke Assoc.	312-653-8126
IN	Noblesville, R & D Elctrn. Sls.	317-849-2026
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MO	Florissant, John F. Guernsey Co.	314-921-5720
NJ	Englewood Cliffs, E. Glass Assocs.	212-586-8440
NM	Albuquerque, C.T. Carlberg & Assocs.	505-888-3883
NY	Rochester, J.G. Welch Assocs.	716-244-1100
NC	Charlotte, Over & Over	704-527-3070
OH	Cincinnati, J.O. Olsen Co.	513-574-7711
OH	Cleveland, J.O. Olsen	216-662-3454
OR	Portland, SPS Elctrns.	503-297-6919
PA	Jenkintown, Arnold Assocs.	215-887-7870
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CA	Sunnyvale, Sierra West Elctrns.	408-747-1188
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GA	Norcross, Electramark, Inc.	404-446-7915
NH	Nashua, Bell Controls	603-882-6984
NY	Tuxedo Park, Wakeman Norton Assocs.	914-351-5241
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Local Distributors

CA	Santa Ana, Mann Southwest	714-558-3202
MA	Woburn, Elctrns. Packaging Comp.	617-935-0400

ME MID-EASTERN INDUSTRIES INC

MID-EASTERN INDUSTRIES, 100 Campus Dr., RD 1, Mt. Holly, NJ 08060, Tel: 609-267-3811; FSC No.: 06179; Empl.: 8; *Sls. Mgr.:* Daniel Ellenback ..... **D•1724-1726**

Local Sales Offices & Reps

AL	Pimsom, JM Simpson & Assocs.	205-854-2546
CA	Los Angeles, Dyna Sls.	213-268-1175
FL	Altamonte Springs, WMM Assocs.	305-831-4530
FL	Clearwater, WMM Assocs.	813-442-3913
FL	Ft. Lauderdale, WMM Assocs.	
IL	Des Plains, Marsland Assocs., Inc.	312-298-2620
IN	Indianapolis, Marsland Assocs., Inc.	317-293-5437
IA	Cedar Rapids, Marsland Assocs., Inc.	319-396-8030
MI	Centerline, Dietrich & Assocs.	313-754-6450
MN	Minneapolis, Marsland Assocs., Inc.	612-545-4481
MO	St. Louis, Marsland Assocs., Inc.	314-991-1399
NJ	Cinnaminson, Scott Sls. Co.	609-829-2991
NY	Huntington, C.R. Mayer Co.	516-WA1-7876
OH	Cleveland, Dietrich & Assocs.	216-781-1855
OH	Dayton, Dietrich & Assocs.	513-223-6042
PA	Pittsburgh, Dietrich & Assocs.	412-892-2992
TX	Garland, Tesco	214-681-1376
WA	Seattle, Eicher-Richards Co.	206-LA3-7888
WI	New Berlin, Marsland	414-786-6611

MIDGARD ELCTRNS., See Transkinetic Sys.

MIDGET LOUVER, 800 Main Ave., Norwalk, CT 06852, Tel: 203-866-2342; Empl.: 10; *Sls. Mgr.:* Frank J. Scallon; *Dist. Mgr.:* Frank J. Scallon

MIDLAND-ROSS CORP., Grimes Div., 515 N. Russell St., Urbana, OH 43078, Tel: 513-652-1431

MIDLAND-ROSS CORP., Midcom Unit, P.O. Box 3328, N. Mankato, MN 56001, Tel: 507-625-6521, TWX: 910-565-2244; Empl.: 200

MIDLAND-ROSS CORP., Midtex Div., P.O. Box 3328, No. Mankato, MN 56001, Tel: 507-625-6521, TWX: 910-565-2244; Empl.: 1008

MIDLAND ROSS

MIDLAND-ROSS CORP., NEL Unit, 357 Beloit St., Burlington, WI 53105, Tel: 414-763-3591, TWX: 910-278-2450; FSC No.: 00815; Empl.: 300; *Sls. Mgr.:* Boyd Recknagel; *Dist. Mgr.:* Lyann Jung ..... **A•1387**

Local Sales Offices & Reps

AZ	Scottsdale, EDP & Assocs.	602-991-6119
AR	Hot Springs, ASI	501-767-5444
CA	Los Angeles, EESCO	818-242-8823
CA	Los Angeles, Landa Minyard, Inc.	213-879-0770
CA	Rancho Bernardo, EESCO	619-233-5660
CA	San Mateo, Midland-Ross	415-573-5824
CA	Santa Ana, Landa Minyard, Inc.	714-543-7805
CA	Santa Clara, Caltronics, Inc.	408-727-7552
CO	Parker, A5 Co.	303-841-3651
CT	Old Saybrook, Bell Controls	203-388-0063
FL	Coral Springs, Electrocraft	305-753-8666
FL	Largo, Electrocraft	813-398-4071
FL	Winter Park, Electrocraft	305-628-4705
GA	Marietta, Midland-Ross	404-971-6778
IL	Downers Grove, Richmar Elctrn. Corp.	312-968-0118
IN	Indianapolis, Richmar Elctrn. Corp.	317-846-6383
KS	Kansas City, B. C. Elctrn. Sls., Inc.	913-342-1211
KS	Wichita, B. C. Elctrn. Sls., Inc.	316-722-0104
MD	Hunt Valley, Midland-Ross	301-666-3930
MD	Timonium, Eastern Comp. Sls. Corp.	301-561-5811
MI	Novi, Lektronics	313-349-3304

MN	Minneapolis, Holmgren Assocs.	612-786-7641
MO	Bridgeton, B. C. Elctrn. Sls., Inc.	314-291-1101
NV	Reno, Unitronics	702-825-1978
NH	East Hanover, Emtec Sls., Inc.	201-428-0600
NH	Nashua, Bell Controls	603-882-6984
NY	Albany, Lamb Comps.	518-869-3355
NY	Buffalo, Lamb Comps.	716-874-4900
NY	Melville, Emtec Sls. Inc.	516-752-1630, 510-220-9647
NY	Rochester, Lamb Comps.	716-323-1250
NY	Syracuse, Lamb Comps.	315-455-2469
NC	Raleigh, Eastern Comp. Sls. Corp.	919-787-3416
OH	Dayton, KW Elctrn. Sls., Inc.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls., Inc.	216-491-9177
OH	Worthington, KW Elctrn. Sls., Inc.	614-888-0483
OR	Lake Oswego, R.T.S., Inc.	503-227-1189
OR	Wilsonville, R.T.S., Inc.	503-638-5670
PA	Allison Park, KW Elctrn. Sls., Inc.	412-487-4300
PA	W. Conshohocken, Eastern Comp. Sls. Corp.	800-223-3850,215-825-8610
TX	Conroe, Richmar Elctrn. Corp.	713-580-4430
TX	Georgetown, Richmar Elctrn. Corp.	512-863-4535
TX	Plano, Richmar Elctrn. Corp.	214-867-8224
UT	Murray, A5 Co.	801-261-0722
WA	Auburn, R.T.S., Inc.	206-627-1790
WA	Seattle, R.T.S., Inc.	206-527-7945
WA	Vashon, R.T.S., Inc.	206-285-1363
WI	Butler, Richmar Elctrn. Corp.	414-781-1730
EXP	WI, Burlington, Midland-Ross, NEL Unit	414-763-3591
Can	Brampton, Ont., Midland-Ross of Can., Ltd.	416-453-4200

Local Distributors

CA	Anaheim, Pacesetter Elctrns.	714-777-4711
CA	Canoga Park, Tim-Co Sls.	818-992-5040
CA	Chatsworth, Integrated Elctrns.	818-998-2200
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Mock III Sls. Co.	619-560-0515
CA	San Jose, Integrated Elctrns.	408-263-1100
CA	Santa Clara, Glynn Elctrns., Inc.	408-748-1666
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Torrance, All American	213-320-0240
CA	Van Nuys, Patane Avionics	818-988-4455
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Wheat Ridge, Diplomat/ACT	303-422-9229
FL	Miami, All American	305-621-8282
GA	Atlanta, Prehler, Inc.	404-447-5540
IL	Chicago, Prehler, Inc.	312-872-4910
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IL	Rosemont, Advent Elctrns.	312-297-6200
IL	Skokie, Mar-Con Assocs.	312-675-6450
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Classic Comp. Supp.	319-363-0221
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
IA	Cedar Rapids, Bergquist	319-366-8733
MD	Beltsville, Treeko Sls.	301-792-0112
MD	Rockville, All American	301-792-0112
MA	Billerica, A. W. Mayer Co.	617-229-2255
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MN	Edina, Diplomat/ACT	612-559-2500
MN	Minneapolis, Bergquist Co.	612-835-2322
NY	Buffalo, Genessee Radio	716-546-5373
NY	Rochester, Masline Elctrns., Inc.	716-546-5373
NY	Stony Brook, Dove Elctrn. Comp., Inc.	516-689-7733
NC	Raleigh, Prehler Elctrns.	919-876-9111
OH	Cincinnati, Schuster Elec. Co.	800-543-4973
OH	Englewood, Argent Electra	513-836-8633
OH	Solon, Repco Elctrns.	216-248-8900
OK	Tulsa, Altair Co.	918-252-5781
OR	Tigard, Integrated Elctrns.	503-639-9661
PA	Pittsburgh, Alder-Tronics	412-821-5565
TX	Austin, Altair Co.	512-837-4970
TX	Austin, Diplomat/ACT	512-452-5254
TX	Dallas, Diplomat/ACT	214-980-1888
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Diplomat/ACT	713-496-4000
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, Diplomat/ACT	801-487-8131
UT	Salt Lake City, Integrated Elctrns.	801-298-1868
WA	Bellevue, Integrated Elctrns.	206-455-2727
WI	Mequon, Taylor Elec.	800-242-8914
WI	New Berlin, Classic Comps. Supp.	800-242-7408
EXP	WI, Burlington, Midland-Ross Corp.	414-763-3591
Can	Brampton, Ont., Midland-Ross of Can., Ltd.	416-453-4200

MIDLAND STANDARD, INC., 603 E. Chicago St., Box 38, Elgin, IL 60120, Tel: 312-741-6600; Empl.: 38

MIDWAY MFR. CO., 10750 W. Grand Ave., Franklin Park, IL 60131, Tel: 312-451-1360, Telex: 72-1596; Empl.: 2000; *Dist. Mgr.:* Allan Stearns

MIDWEC, See Industrial Midwec Capacitors

MIDWEST COMPS., 1981 Port City Blvd., Muskegon, MI 49443, Tel: 616-777-2602, TWX: 510-394-4130; FSC No.: 50157; Empl.: 125; *Sls. Mgr.:* J. E. Saling .... **B•1740, 1758-1765**

Local Sales Offices & Reps

AL	Huntsville, Glen White Assoc.	205-883-7938
CA	Saratoga, Testco	408-253-1900
FL	Light House Pt., R. C. Simon	305-941-2757
GA	Norcross, Glen White Assoc.	404-441-1447
IL	Chicago, D. Dolin Sls.	312-286-6200
IN	Ft. Wayne, TMC Corp.	219-432-5553
MD	Timonium, Glen White Assoc.	301-252-6360
MN	St. Paul, R. G. Ragon	612-488-0201
NJ	Burlington, Mallon Sls.	609-387-4044
NJ	Ft. Lee, Necco	201-461-2789
NY	New York, Necco	201-461-2789
NC	Raleigh, Glen White Assoc.	919-787-7023
OH	Dayton, Jay Engrg.	513-253-2151
OH	N. Royalton, Jay Engrg.	216-237-4235
OK	Tulsa, Norcom	918-664-9526
TN	Gray, Glen White Assoc.	615-477-8850
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-988-0022
VA	Lynchburg, Glen White Assoc.	804-237-6291
WA	Bellevue, Testco	206-454-7422
WI	Milwaukee, D. Dolin Sls.	414-482-1111

MIKRON INSTR., Box 211, Ridgewood, NJ 07451, Tel: 201-891-7330, TWX: 710-988-5821; Empl.: 40; *Sls. Mgr.:* K. Irani

Distributor

MIL-COMM DISTRIBUTORS, INC., 9400 Lurline Ave. # C, Chatsworth, CA 91311, Tel: 818-998-3111 .... **D•1421**

MIL ELECTRONICS, INC., 1 Mill st., Dracut, MA 01826, Tel: 617-453-8000; FSC No.: 07862; Empl.: 40; *Sls. Mgr.:* Mark Ryan

MILFORD RIVET & MACH., 857 Bridgeport Ave., Milford, CT 06460, Tel: 203-878-4631, Telex: 964363, TWX: 710-462-0538; Empl.: 400; *Sls. Mgr.:* Robert E. Kranz, Jr.

MILLEN COMPONENTS, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180, Tel: 617-438-6951, Telex: 948-025; FSC No.: 57285; Empl.: 50; *Sls. Mgr.:* R. A. Boisseau; *Dist. Mgr.:* Gardner Gray

MILLER DIAL CORP., 4400 N. Temple City Blvd., El Monte, CA 91734, Tel: 818-283-5111, TWX: 910-587-3438; *Sls. Mgr.:* Doug Hazelip

MILLER, J.W., CO., See Bell Inds.

MILLER, L.C., CO., 717 Monterey Pass Rd., Monterey Pk., CA 91754, Tel: 213-268-3611; Empl.: 45

MILLER, SANFORD, CORP., See Sanford-Miller Corp.

MILLER, W. A., CO., Mingo Loop, P.O. Box 337, Oquossoc, ME 04964, Tel: 207-864-3344; Empl.: 18; *Sls. Mgr.:* D. Hunger

MILLER-STEPHENSON CHEM. CO., INC., George Washington Hwy., Danbury, CT 06810, Tel: 203-743-4447, Telex: 643-711

MILLIFLECT, 7752 Enterprise Dr., Newark, CA 94560, Tel: 415-791-5188; Empl.: 22; *Sls. Mgr.:* J. F. Rutschow

MILLI-SWITCH CORP., Box 67, Gladwyne, PA 19035, Tel: 215-MI2-9222; Empl.: 15

MILLIVAC INSTRS., Box 997, Curry Rd. Ext., Schenectady, NY 12301, Tel: 518-355-8300; FSC No.: 85711; Empl.: 30; *Sls. Mgr.:* (Mrs.) Pola Metzger .... **D•1266**

Local Sales Offices & Reps

CA	San Diego, Jan B. Metzger	619-571-8406
MA	Needham, Addelco Corp.	617-444-4754
NY	Fayetteville, Martin P. Andrews	315-637-5291
NY	Melville, Paul W. Steen Assocs.	516-427-1114
PA	Media, S & S Div. of Klinetics	215-565-5388
TX	Houston, Scientific Sls.	713-460-9170
TX	Richardson, Scientific Sls.	214-231-6541
Can	Downsview, Ont., Tradeport Elctrns. Grp.	416-736-0866

MILL-MAX MFG. CORP., P.O. Box 300, Oyster Bay, NY 11771, Tel: 516-922-6000, TWX: 510-221-1820; *Sls. Mgr.:* Therese Malhame

MILLS RESISTOR CO., 3840 Catalina St., Los Alamitos, CA 90720, Tel: 213-598-2454; FSC No.: 34238; Empl.: 50 .... **A•1899**

Local Sales Offices & Reps

AZ	Scottsdale, Verein Corp.	602-948-3571
CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Sacramento, Mills Resistor Co.	916-422-5461
CT	Rocky Hill, Jim McPhail	203-721-1802
KS	Leawood, James Dick Co.	913-649-0805
MA	Waltham, Dynasel Assocs.	617-890-6777
OH	Chagrin Falls, ARL Co.	216-543-9124
OR	Gaston, SPS Elctrns.	206-323-4140
TX	Houston, Ev Smith Co.	713-649-5756
WA	Seattle, SPS Elctrns.	206-323-4140

Local Distributors

AZ	Phoenix, Fiesta Elctrns.	602-861-1141
FL	Ft. Lauderdale, Jaro Elctrns.	800-327-5551

MILPOWER SOURCE, INC., 49 Range Rd., Windham, NH 03087, Tel: 603-893-2834; Empl.: 150

Local Sales Offices & Reps

MD	Baltimore, Micro Comp., Inc.	301-247-0400

MILTON ROSS CO., 511 Second St. Pike, Southampton, PA 18966, Tel: 215-355-0200, TWX: 510-667-1702; Empl.: 165; *Sls. Mgr.:* M. I. Ross

MILTOPE CORP., 1770 Walt Whitman Rd., Melville, NY 11747, Tel: 516-420-0200, TWX: 510-221-1803; Empl.: 500; *Sls. Mgr.:* Robert Ceonzo; *Dist. Mgr.:* William Jennings

MILWAUKEE RESISTOR CORP., 700 W. Virginia St., Milwaukee, WI 53204, Tel: 414-271-9900; FSC No.: 82807;15109; Empl.: 100; *Sls. Mgr.:* W. R. Pollock; *Dist. Mgr.:* W. R. Pollock .... **A•1900-1905**

Local Sales Offices & Reps

CA	San Carlos, Electro Pacific	415-592-3114
IL	La Grange, PVA Co.	312-579-9300
NY	Rochester, Gislason Sls.	716-328-7400

MILWAUKEE TRANSFORMER CO., MTE Corporation, 7901 W. Clinton Avenue, Milwaukee, WI 53223, Tel: 414-358-5300; *Sls. Mgr.:* Richard T. Armantrout; *Dist. Mgr.:* Richard T. Armantrout

MIMIC, INC., P.O. Box 921, Acton, MA 01720, Tel: 617-263-2101; Empl.: 5; *Sls. Mgr.:* S. Thurston

MINCO PRODS., 7300 Commerce La., Minneapolis, MN 55432, Tel: 612-571-3121, TWX: 910-576-2848; FSC No.: 09359; Empl.: 400; *Sls. Mgr.:* J. Anderson

MIN-E-CON, 1791 Reynolds, Irvine, CA 92714, Tel: 714-250-0474, TWX: 910-595-1144; *Sls. Mgr.:* Wendell Jacob

MINELCO INC. - A TALLEY IND., 135 S. Main St., Thomaston, CT 06787-0459, Tel: 203-283-8261, TWX: 710-475-1091; FSC No.: 07479; Empl.: 61; *Sls. Mgr.:* John Pfingsten

Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
AZ	Phoenix, Dood & Co. Inc	602-482-9330
CA	Alhambra, M.W. Riedel & Co.	213-283-7694
CA	Hayward, Liaison, Inc.	415-783-1131
CO	Denver, West Inc.	303-477-8180
CT	Old Saybrook, FJS Assocs.	203-388-5374
FL	Orlando, Delmac	305-898-4688

GA	Atlanta, L & D, Inc.	404-395-7079
IL	Elk Grove Village, Midwest Meridian	312-640-9540
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MD	Severna Park, DelMarva Eng. Assoc.	301-647-8007
MA	Winchester, F.J.S. Assocs.	617-729-3135
MN	New Brighton, TWC Sls.	612-636-1770
MO	Maryland Heights, Midwest Meridian	314-878-4441
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	Syracuse, J. R. Costello	315-472-0322
NC	Greensboro, L & D, Inc.	919-292-3201
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OR	Beaverton, Caruso-Northcutt	503-646-4973
PA	Downingtown, McCoy, Inc.	215-363-0350
TX	Fort Worth, Midwest Meridian	817-654-2132
WA	Bellevue, Caruso-Northcutt	206-454-9699

MINIATURE METAL FORMING DIV., 4819 Emerald St., P.O. Box 2962, Torrance, CA 90509, Tel: 213-370-3679, Telex: 75-7989; *Sls. Mgr.:* William Kramer

MINIATURE PRECISION BEARINGS, MPB Corp., Precision Park, Keene, NH 03431, Tel: 603-352-0310, TWX: 710-366-1801; *Sls. Mgr.:* Thomas A. Rudziensky; *Dist. Mgr.:* Jack E. Barker

Mini-Circuits

MINI-CIRCUITS LAB., 2625 E. 14th St., P.O. Box 166, Brooklyn, NY 11235, Tel: 718-934-4500, Telex: 125460, 620156 (Intl.); FSC No.: 15542 .... **A•1700, 1716-1779**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Crown Elctrns.	602-944-3721
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	N. Hollywood, Crown Elctrns.	213-877-3550
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrns.	305-491-1054
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Mount Prospect, Cain Forlaw Co.	312-253-3578
MD	Columbia, M. Lader & Co.	301-730-1550
MD	Conowingo, M. Lader & Co.	301-378-3449
MA	Waltham, Scientific Devices	617-890-2252
NY	Hartsdale, Spectrum Sales	914-997-1166
NY	Skaneateles, Robtron	315-685-5731
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Lancaster, Cain Forlaw Co.	614-654-4800
PA	Lafayette Hill, M. Lader & Co.	215-825-3177
TX	Dallas, Cain & Co.	214-233-6809

Local Distributors

AL	Huntsville, Components Distrs.	205-883-7501
AR	Little Rock, Components Distrs.	501-227-6278
CA	Los Altos, Pen Stock	415-948-6552
CA	N. Hollywood, Crown Elctrns.	213-877-3550
FL	Ft. Lauderdale, Components Distrs.	305-971-4950
IL	Mt. Prospect, CFC Distributors	312-253-3578
NC	Raleigh, Components Distrs.	919-781-0262
PA	Lafayette Hill, MLC Distrs.	215-825-3177

MINI COMPUTER TECHNLG., 696 E. Trimble Rd., San Jose, CA 95131, Tel: 408-942-1616, TWX: 910-338-2281; Empl.: 30; *Sls. Mgr.:* Doug Vincent; *Dist. Mgr.:* Ed Hagenbuch

MINI-SYSTEMS, INC., 20 David Rd., North Attleboro, MA 02761, Tel: 617-695-0203, TWX: 710-348-0564; FSC No.: 50316; Empl.: 150 .... **A•1906**

Local Sales Offices & Reps

FL	Coral Springs, Marks Tech. Sls. Assocs.	305-753-3830
MA	Newton, Normell Assocs.	617-969-5478
TX	Lewisville, C & J Assocs.	214-539-0140

MINI-SYSTEMS, INC., Electronic Package Div., 168 E. Bacon St., P.O. Box 1597, Plainville, MA 02762, Tel: 617-695-2000, TWX: 710-348-0564 .... **A•1681**

MINNTRONICS CORPORATION, 2599 White Bear Ave., St. Paul, MN 55109, Tel: 612-770-5247

MITEC ELCTRNS., 15 Commerce St., Williston, VT 05495, Tel: 802-864-0064, TWX: 610-421-3572; *Sls. Mgr.:* Elayne Bernstein

MITEL SEMICONDUCTOR, P.O. Box 13089, Kanata, ON, Canada K2K 1X3, Tel: 613-592-5280, Telex: 053-3221, TWX: 610-562-8529; Empl.: 200

MITEQ INC., 125 Ricefield Lane, Hauppauge, NY 11788, Tel: 516-543-8873, TWX: 510-226-3781; Empl.: 185

MITRONICS, 2908 Oregon Court - Bldg. I-2, Torrance, CA 90503, Tel: 213-320-7011

MITSUBISHI ELCTRNS. AMERICA, Computer Peripheral Div., 991 Knox St., Torrance, CA 90502, Tel: 213-515-3993; *Sls. Mgr.:* Mike Foster

MITSUBISHI ELCTRNS., Industrial Electronics Div., 991 Knox Street, Torrance, CA 90502, Tel: 213-515-3993, Telex: 06-4703-M USA LSA, TWX: 66-4787-MELA TRNC; *Sls. Mgr.:* Don Aarons

MITSUBISHI ELCTRNS. AMERICA, INC., Semiconductor Div., 1050 East Arques Ave., Sunnyvale, CA 94086, Tel: 408-730-5900, Telex: 172296, TWX: 910-339-9549; FSC No.: 408-749-0453; *Sls. Mgr.:* John Zucker

MITSUMI ELEC. CO., LTD., 8-2, 8-Chome, Kokuryo, Chofu-City, Tokyo, Japan, Tel: 489-5333, Telex: J28846/J24935; Empl.: 1700; *Sls. Mgr.:* H. Sato; *Dist. Mgr.:* U. Nishimura

MIZAR INC.

MIZAR, INC., 302 Chester St., St. Paul, MN 55107, Tel: 612-224-8941, Telex: 469542; Empl.: 17; *Sls. Mgr.:* Susan Roth .... **D•1094-1096, 1106**

Local Sales Offices & Reps

AZ	Tempe, Foley, Tallent & Lee Inc.	602-894-2345
CA	Long Beach, B. K. & Associates	213-596-1233
CA	Los Gatos, Data-Rep	408-279-1212
CA	San Jose, Data-Rep Inc.	408-279-1212
FL	Melbourne, Reynolds & Assocs.	305-259-7000
FL	Melbourne, Star-Tec Co.	305-727-2247
IL	North Brook, Epstein & Assocs.	312-564-9292
MA	Waltham, Com-Sls. Inc.	617-890-0011
MN	Minneapolis, D. A. Case & Assoc.	612-888-8666
MO	Ellisville, Advanced Indl. Sys.	314-391-0366
NJ	Nashua, Bell Controls	603-882-6984
NJ	Springfield, Gebhardt Mktg. Inc.	201-376-4415
OH	Cuyahoga Falls, Micrographics, Inc.	216-923-3915
OH	Strongsville, Dolfuss Root & Co.	216-238-0300
PA	Hatboro, Electro-Rep Engrg.	215-674-4421
PA	Ivyland, Technico	215-322-5966
TX	Austin, Acudata, Inc.	512-346-4033
TX	Houston, Acudata, Inc.	713-580-2451
TX	Plano, Acudata, Inc.	214-424-3567
WA	Bellevue, Tasco, Inc.	216-923-3915
Can	Edmonton, Alb., 4.M. Mottl. Mktg., Ltd.	403-486-0091

MKS ELECTRONICS CORP., 454 E. Donovan Rd., Kansas City, KS 66115, Tel: 913-371-1351; Empl.: 26

MKS INSTRS., INC., 22 Third Ave., Burlington, MA 01803, Tel: 617-272-9255, Telex: 94-9375; Empl.: 130

MOBILE-TRONICS CO., INC., Box 1022, Tustin, CA 92680, Tel: 714-546-0884; Empl.: 2

MODERN CONTROLS CORP., 4636 Hidden Forest Dr., Sarasota, FL 33580, Tel: 813-351-3042; Empl.: 4

MODICON PROGRAMMABLE CONTROL DIV., Gould Inc., P.O. Box 83 S.V.S., Andover, MA 01810, Tel: 617-475-4700, Telex: 94-7402, TWX: 710-347-6610; *Sls. Mgr.:* Steven Mader (PC's); *Dist. Mgr.:* George Dannecker (Micro 84)

MODULAR COMPUTER SYSTEMS, P.O. Box 6099, Ft. Lauderdale, FL 33310, Tel: 305-974-1380, Telex: 52-2564, TWX: 510-956-9414; Empl.: 950

MODULAR AUDIO PRODS., Modular Devices Inc., 50 Orville Dr., Bohemia, NY 11716, Tel: 516-567-9620; *Sls. Mgr.:* C. Liptman

MODULAR DEVICES, 50 Orville Dr., Bohemia, NY 11716, Tel: 516-567-9620; FSC No.: 52202; Empl.: 50; *Sls. Mgr.:* C. Liptman .... **D•1011, 1727**

Local Sales Offices & Reps

FL	Enterprise, DJE Assocs.	305-321-6623
NH	Manchester, Northeast Comps.	603-627-7242
NY	Rochester, T.T.A. North-Div. Tri-Tek Assocs.	716-271-6764
NY	Wantagh, Tri-Tek Assocs.	516-221-7600
EXP	CA, San Diego, Total Elctrns. Int'l.	619-224-3291

PHOTON SOURCES, INC., 12163 Globe Rd., Livonia, MI 48150, Tel: 313-591-0101, TWX: 810-242-3270; Empl.: 140; *Sls. Mgr.:* Pete Seamans

MODULAR POWER SYS. INC., P.O. Box 180579, Austin, TX 78718-0579, Tel: 512-834-9262, Telex: 752-890; FSC No.: 58480; Empl.: 86; *Sls. Mgr.:* Manard Overall; *Dist. Mgr.:* Manard Overall

MODULAR SYSTEMS, INC., 905 Albemarle St., Charlottesville, VA 22901, Tel: 804-295-7882; Empl.: 9; *Sls. Mgr.:* G. L. Blencowe

MODUTEC, 18 Marshall St., Norwalk, CT 06854, Tel: 203-853-3636, TWX: 710-468-2039; Empl.: 300; *Sls. Mgr.:* Lester A. Velez; *Dist. Mgr.:* William J. Betz .... **D•1362-1363**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assocs.	205-881-5031
AK	Anchorage, Denali Indl. Sls.	907-243-6283
AZ	Scottsdale, Luscombe Engrg. Co.	602-949-9333
AR	Little Rock, Beacon Elec. Assoc.	501-224-5449
CA	Campbell, Luscombe Engrg. Co.	408-370-2020
CA	Pasadena, Luscombe Engrg. Co.	213-684-2000
CO	Arvada, Arrowhead Sls. Co.	303-423-5556
FL	Clearwater, Beacon Elec. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrn. Assoc.	305-491-1054
FL	Maitland, Beacon Elctrn. Assocs.	305-647-3498
FL	Melbourne, Beacon Elec. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrn. Assocs.	404-256-9640
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
IN	Carmel, Carter, McCormic & Peirce	317-844-4175
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MD	Randallstown, Beacon Elec.	703-534-7200
MA	Canton, New England Elctrn. Sls. Corp.	617-828-4835
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MN	Minneapolis, R.J. Inc.	612-866-3661
MO	St. Charles, M-S-B Assocs.	314-946-5577
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NJ	Marmora, Holdsworth & Co.	609-398-4340
NM	Albuquerque, Amonette Entprs.	505-344-4143
NY	Bainbridge, R. W. Mitscher	607-697-7192
NY	Buffalo, R. W. Mitscher	716-633-7970
NY	N. Syracuse, R. W. Mitscher	315-458-1321
NY	Pittsford, R. W. Mitscher	716-586-4012
NY	Red Hook, R. W. Mitscher	914-758-8375
NY	Rochester, R. W. Mitscher	716-227-0839
NC	Greensboro, Beacon Elctrn. Assoc.	919-275-9997
NC	Raleigh, Beacon Elctrn.	919-787-0330
OH	Cleveland, Carter, McCormic & Peirce	216-779-5100
OH	Englewood, Carter, McCormic & Peirce	513-836-0951
OR	Beaverton, Barrett-Squibb & Assoc.	503-644-2550
PA	Monroeville, Carter, McCormic & Peirce	412-372-4415
PA	Newtown Square, Holdsworth & Co.-SWR	215-356-8550
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Arrowhead Sls.	801-261-1661
VA	Fairfax, Beacon Elctrns.	703-591-1300
VA	Forrest, Beacon North	804-239-8486
WA	Redmond, Barrett Squibb, Inc.	206-885-6991
WI	Colgate, Rep-1 Assoc.	414-628-4016
EXP	Freeport, Minthorne	516-546-4700

Local Distributors

AL	Birmingham, Brownell Electro	205-322-3374
AL	Huntsville, Component Distrs.	205-883-7501
AL	Mobile, Brownell Electro	205-479-8581
AR	Little Rock, Component Distrs.	501-227-6278
CA	Inglewood, Force Elctrns.	213-776-1324
CA	Los Angeles, Erlanger Sls.	213-731-2238
CA	Los Angeles, Erlanger Sls. Co.	213-731-2238
CA	Santa Clara, Fisher-Brownell	408-988-6041
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
GA	Hapeville, Brownell Electro	404-762-5181
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Meter Master	312-593-8650
IN	Ft. Wayne, Graham Elctrns.	219-423-3422

IN	Indianapolis, Graham Elctrns.	317-634-8202
MD	Gaithersburg, Pioneer Instrumentation	301-921-0660
MA	Woburn, Brownell Electro	617-935-7820
MI	Ferndale, RAM Meter	313-398-6767
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Belleville, Miscorp	201-751-1190
NJ	Fairfield, Ampower Elctrn. Instr.	201-227-7720
NJ	S. Plainfield, Brownell Electro	201-753-4600
NY	Clarence, Trott Elctrns.	716-634-8500
NY	New York, Brownell Electro	212-691-1171
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Charlotte, Brownell Electro	704-597-1270
NC	Raleigh, Brownell Electro	919-876-6524
NC	Raleigh, Component Distrs.	919-781-0262
OH	Cleveland, Pioneer Instrumentation	216-587-3600
OH	Cleveland, Weschler Elec. Co.	216-238-2550
OH	Dayton, Pioneer Instrumentation	513-236-9900
PA	Norristown, Kimberly-James Co.	215-666-7286
SC	Columbia, Brownell Electro	803-772-6111
TN	Chattanooga, Techni-Tronics	615-875-5449
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8483
TN	Nashville, Brownell Electro	615-889-8230
TX	Dallas, Inotek Corp.	214-243-7000
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Ft. Worth, Inotek Corp.	817-831-2126
TX	Houston, American Analog	713-941-7265
TX	Houston, Brownell Electro	713-699-1981
TX	Houston, Inotek Corp.	713-688-4494
WA	Seattle, Eicher-Richards Co.	206-523-7888
WI	Milwaukee, E-M Instrs.	414-272-7799
WI	Milwaukee, Marsh Elctrns.	414-475-6000

MODU-TEL CORP., 1429 N. Halstead, Hutchinson, KS 67501, Tel: 316-662-3302, Telex: 469331 COMTRON CI; Empl.: 5; *Sls. Mgr.:* Paul Bascom

MOHAWK DATA SCIENCES, MDS Center, Herkimer, NY 13350, Tel: 315-866-5300, Telex: (71)662032; Empl.: 4500

MOHAWK WIRE & CABLE CORP., 9 Mohawk Drive, Leominister, MA 01453, Tel: 617-537-9961

MOLDCON CORP., 221 Interstate Dr., W. Springfield, MA 01089, Tel: 413-736-0371, TWX: 710-350-6463; *Sls. Mgr.:* Robert Krzynowck

MOLDING TECHNOLOGY INC., See MTI

MOLDTRONICS, INC., 703 Rogers St., Downers Grove, IL 60515, Tel: 312-968-7000, TWX: 910-695-3537; Empl.: 140; *Sls. Mgr.:* Jim Arnold

Local Sales Offices & Reps

CA	Topanga, S-J-N Sales	213-455-1813
FL	Winter Springs, Martinet Assocs.	305-699-0392
IL	Cary, Ecro Inc.	312-639-1162
IN	Indianapolis, Butler Comps.	317-253-5143
MN	St. Paul, PDQ Comps	612-690-5215
OH	Dayton, H. G. Lake Co.	513-277-8181
PA	Lancaster, Thomas G. Armstrong Assoc.	717-397-2942
RI	Wickford, R. P. Morrison Co.	401-295-5692

MOLECU-WIRE, P.O. Box 495, Farmingdale, NJ 07727, Tel: 201-938-9473, TWX: 710-723-6943; Empl.: 175 **C•1860-1862**

Local Sales Offices & Reps

CA	Montrose, Roger D. Dahl	213-245-3817
CT	Orange, KLS Sls.	203-795-6210
IL	Northbrook, Jack Norlie Assocs.	312-498-3657
KS	Shawnee Mission, B.C. Elctrn. Sls.	913-342-1211
NC	Charlotte, QED	704-525-3053
PA	Ligonier, Patterson Elec.	412-238-6238
WA	Seattle, Comptronics	206-284-4842
WI	Mequon, Robco	414-241-3348

MOLEX, INC., 2222 Wellington Ct., Lisle, IL 60532, Tel: 312-969-4550, TWX: 910-695-3227; Empl.: 4,100; *Sls. Mgr.:* Gregg Johnson; *Dist. Mgr.:* Bill Hyslop **B•1671; C•1463-1467**

Local Sales Offices & Reps

AL	Huntsville, Dennis Andrew	404-396-6120
CA	Costa Mesa, Molex	714-241-8588
CA	Encino, Dow Lebowski	714-241-8588
CA	Mission Viejo, Tony Scutetta	714-241-8588
CA	San Diego, Al Batza	619-241-8588
CA	Sunnyvale, Molex	408-773-0505
CT	West Hartford, Randy Stone	617-935-8983
FL	North Palm Beach, Chuck Vincent	404-396-6120
FL	St. Petersburg, Molex	404-396-6120
GA	Atlanta, Molex	404-396-6120
IN	Connersville, George Allen	317-844-8986
IN	Indianapolis, Steve Byrne	317-844-8986
KY	Taylorsville, Jim Lieb	404-396-6120
MD	Bethesda, Molex	404-396-6120
MA	Mansfield, Paul Hansen	617-935-8983
MA	Marblehead, Pete Evans	617-935-8983
MA	Woburn, Molex	617-935-8983
MI	Grand Rapids, Mark Fluga	616-957-1205
MI	Royal Oak, Schwegman & Assocs.	313-542-6767
MN	Edina, Mark Boe	612-893-9029
MO	Gladstone, Mark Rider	818-737-9427
MO	Independence, Dy-Tronix, Inc.	816-373-6600
NJ	Washington, Oscar Cobian	201-267-8014
NY	Webster, Joe Schmitt	716-223-6899
NC	Raleigh, Molex, Inc.	404-396-6120
OR	Lake Oswego, Gary Rohde	503-636-7558
PA	Rosemont, Ed M. Sullivan	617-935-8983
TN	Knoxville, Insul Reps.	615-691-7586
TX	Austin, Daniel Daneff	512-453-1398
TX	Dallas, Dale Otten	214-247-7117
TX	Manchaca, Max Bassler	512-453-1398
UT	West Valley, Thorson Rocky Mountain	801-973-7969
WA	Redmond, Molex	206-881-2042
PR	Hato Rey, Max Anderson Co.	809-751-2202

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Tempe, Fisher Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet	602-231-5100
AZ	Tempe, Time Elctrns. Arizona	602-967-2000
AR	Little Rock, Carlton-Bates	501-666-0206
CA	Alhambra, Fisher Brownell	213-289-0255
CA	Chatsworth, Diplomat	213-341-4411
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Diplomat	714-549-8401
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	Inglewood, Force Elctrns.	213-776-1324
CA	Los Angeles, Richley/Western Elctrns.	213-820-3777
CA	S. San Francisco, Peters-delaet	415-873-9595
CA	San Diego, Diplomat	619-292-5693
CA	San Diego, Fisher Brownell	619-560-8545
CA	San Diego, Hamilton/Avnet	619-571-7510
CA	San Diego, Richley/Western Elctrns.	619-271-4511
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Santa Clara, Force Elctrns.	408-739-1324
CA	Santa Clara, Peters-de Laet	408-727-9440
CA	Sunnyvale, Diplomat	415-964-1700
CA	Sunnyvale, Hamilton/Avnet	408-743-3355
CA	Sunnyvale, Time Northern Calif.	408-734-9888
CA	Torrance, Time Elctrns. West	213-320-0880
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Englewood, Hamilton/Avnet	303-740-1000
CO	Wheat Ridge, Bell Inds.	303-424-1985
CT	Bethel, Heilind Elctrns.	203-797-8600
CT	Danbury, Hamilton/Avnet	203-797-2800
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Pompano Beach, Comps. South	305-971-0350
GA	Atlanta, Electro-Air Corp.	404-351-3545
GA	Norcross, Hamilton/Avnet	404-447-7507
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Waldom Elctrns.	312-585-1212
IL	Crystal Lake, Sub-Sem Elctrns.	815-459-4139
IL	Mount Prospect, Magnuson Elctrns.	312-956-0700
IN	Carmel, Hamilton/Avnet	317-844-9333
KS	Overland Park, Hamilton/Avnet	913-888-8900
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Canton, Impact Elctrns.	617-821-1500
MA	Wilmington, RC Comps.	617-273-1860
MA	Woburn, Hamilton/Avnet	617-273-7500
MA	Woburn, Time New England	617-935-8080
MI	Clawson, Empire Elctrns.	313-435-0460
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Wyoming, R-M Elctrns. Co.	616-531-9300
MN	Minneapolis, Indl. Comps.	612-831-2666
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MO	Earth City, Hamilton/Avnet	314-344-1200
MO	St. Charles, Lectronix	800-325-3348
MO	St. Louis, Time Elctrn./Midwest	314-391-6444
NE	Lincoln, Scott Elctrns.	402-466-8221
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	Camden, Genral Radio Supp. Co.	609-964-8560
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	E. Syracuse, Hamilton/Avnet	315-437-2641
NY	Hauppauge, Time Elctrns. Sls.	516-273-0100
NY	Melville, Hamilton/Avnet	516-454-6060
NY	Plainview, Progress Elctrns.	516-433-1700
NY	Rochester, Hamilton/Avnet	716-475-9130
NC	Raleigh, Hamilton/Avnet	919-829-8030
NC	Raleigh, Resco	919-781-5700
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Columbus, Camelot/Ohio	614-252-0728
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Wickliffe, Gateway Megatech	216-944-8565
OR	Lake Oswego, Hamilton/Avnet	503-635-8157
PA	Broomall, Time Mid-Atlantic	215-359-1200
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
TN	Chattanooga, Techni-Tronics	615-875-5449
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Irving, Hamilton/Avnet	214-659-4111
TX	Richardson, Fisher Brownell	214-235-3177
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
VA	Lynchburg, Comps., United.	804-237-6286
WA	Bellevue, Electro-Air NW	206-641-3640
WA	Bellevue, Hamilton/Avnet	206-643-3950
WA	Seattle, Radar Elec.	206-282-2511
WI	New Berlin, Hamilton/Avnet	414-784-4510

MOLON MOTOR & COIL CORP., 3737 Industrial Ave., Rolling Meadows, IL 60008, Tel: 312-259-8700, TWX: 910-687-0428; Empl.: 350; *Sls. Mgr.:* J. Bailey

MONITOR LABS, INC., 10180 Scripps Ranch Blvd., San Diego, CA 92131, Tel: 619-578-5060, Telex: 182794

MONITOR PC

MONITOR PRODS. CO., INC., Post Office Box 1966, Oceanside, CA 92054, Tel: 619-433-4510, TWX: 910-322-1381; FSC No.: 54331; Empl.: 65; *Sls. Mgr.:* Patricia Courington **A•1388-1391**

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
AZ	Phoenix, Eltron	602-266-2164
CA	Encino, Great American Rep Co.	818-990-4870
CA	Los Altos, Elrepco	415-962-0660
CA	San Diego, Rep Co.	619-292-9001
CA	Tustin, Great American Rep. Co.	714-954-0371
CO	Aurora, Electrodyne	303-695-8903
CT	Southbury, Lindco Assocs.	203-264-7200
FL	Apopka, Tech Rep Assocs.	305-889-2286
FL	Ft. Lauderdale, Tech Rep Assocs.	305-476-7637
FL	Lake Worth, Tech-Rep Assocs.	305-968-7792
FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779
GA	Atlanta, CSR Elctrns.	404-396-3720
IL	Downers Grove, Momak Sls.	312-963-6400
IA	Davenport, Ensco Rep	319-386-6600
KS	Overland Park, Ensco Rep	913-381-7557
KS	Wichita, Ensco Rep	316-683-1070
MA	Stow, Today Comps. Sls.	617-897-7500
MN	Eden Prairie, Elctrn. Innovators	612-941-0830
MO	Maryland Heights, Ensco Rep	314-423-3935
NY	Melville, Parallax	516-351-1000
NC	Matthews, CSR Elctrns.	704-847-1927
NC	Raleigh, CSR Elctrns.	919-878-9200
OH	Dayton, Berberich & Assocs.	512-433-0342
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Austin, Mil-Rep Assocs.	512-459-8602
TX	Houston, Mil-Rep Assocs.	713-937-0127
TX	Richardson, Mil-Rep Assocs.	214-644-6731
UT	Salt Lake City, Electrodyne	801-486-3801
UT	Salt Lake City, Electrodyne, Inc.	801-486-3801
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Tech. Sls.	509-922-7600
WI	Mukwonago, Momak Sls.	414-363-7744

MONOLITHIC COMPONENTS CORP., 6828 Nancy Ridge Drive, San Diego, CA 92121, Tel: 619-457-1727

MONOLITHIC SYS., 84 Inverness Circle E., Englewood, CO 80112, Tel: 303-790-7400, Telex: 45-4498; Empl.: 100; *Sls. Mgr.:* Mike Hart

MONSANTO CO., 800 N. Lindbergh Blvd., St. Louis, MO 63167, Tel: 314-694-1000, Telex: 44-7282

MONSANTO-ELECTRONICS DIV., See General Instr., Optoelctrns. Div.

MONTEK MICROSYSTEMS, P.O. Box 1845, Huntsville, AL 35807, Tel: 205-723-2927; *Sls. Mgr.:* Paul Rainosek; *Dist. Mgr.:* Paul Rainosek

MOODY TOOLS, 43 Crompton Ave., E. Greenwich, RI 02818, Tel: 401-885-0911; Empl.: 11; *Sls. Mgr.:* J. H. Moody; *Dist. Mgr.:* D .H. Moody

Local Sales Offices & Reps

CA	Alamo, Magliano-Dodds-Evans-Hall	415-820-6395
CO	Denver, A-E-S	303-777-8733
FL	Winter Park, Floritronics	305-886-4818
IL	Palatine, Witz-Knight, Inc.	312-438-9030
MD	Baltimore, Coastline Sls. Co.	301-828-8520
NY	New York, Lane-Mizner Assocs.	212-889-9711
NY	Orchard Park, S & B Indl. Sls.	716-662-5988
OH	St. Marys, Thomas Shelby & Co.	419-394-3377
RI	Barrington, Kilburn Assocs.	401-437-1839
EXP	IL, Northbrook, Vaco/Intl.	312-564-3300
Can	Islington, Ontario, Toolquip Agy. Ltd.	416-274-4918

MORRIS, J. I., CO., 372 Elm St., Southbridge, MA 01550, Tel: 617-764-4394; Empl.: 45

MORRIS ENTPRS., 16799 Schoenborn St, Sepulveda, CA 91343, Tel: 818-894-9103, Telex: 6-74681, TWX: 910-496-1525; FSC No.: 54918; Empl.: 50; *Sls. Mgr.:* J. Dumpert

MOSS CO., See Electron General

MOTION CONTROL DEVICES, INC., 80 Stedman St., Lowell, MA 01851, Tel: 617-454-3407, Telex: 955318-INTL-DIV-ATTEN-MCD-I; Empl.: 25; *Sls. Mgr.:* Joe Laliberte

MOTOROLA INC., Auto. & Indl. Elctrns. Grp., 1299 E. Algonquin Rd., Schaumburg, IL 60196, Tel: 312-576-4850, Telex: 722443; *Sls. Mgr.:* Jay A. Bonk

MOTOROLA INC.

Component Products

MOTOROLA, INC., Compt. Divs. Clock Oscillator Dept., 2553 N. Edgington, Franklin Park, IL 60131, Tel: 312-451-1000, TWX: 910-227-0799; Empl.: 1400; *Sls. Mgr.:* Barnie Ill; *Dist. Mgr.:* Ted Hoffman ...**A•1392-1393**

Local Sales Offices & Reps

AL	Huntsville, R. O. Whitesell	205-883-5110
AZ	Scottsdale, Thorson Desert States	602-998-2444
AR	Ft. Smith, Electra Reps.	501-452-4030
CA	Campbell, Kottmeier Assocs.	408-866-5153
CA	Fullerton, Groh Assoc.	714-837-9871
CO	Englewood, Thorsen Co.	303-779-0666
FL	Clearwater, Perrott Assocs.	813-443-5414
FL	Orlando, Perrott Assocs.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-792-2211
GA	Norcross, Glen White Assoc.	404-441-1447
IN	Fort Wayne, R. O. Whitesell	219-432-5591
IN	Indianapolis, R. O. Whitesell	317-359-9283
IA	Cedar Rapids, Comstrand	319-377-1575
MD	Timonium, Glen White Assoc.	301-252-6360
MA	Natick, Wayland Engrg. Sls.	617-655-6080
MI	Southfield, R. O. Whitesell Assoc.	313-559-5454
MI	St. Joseph, R. O. Whitesell Assoc.	616-983-7337
MN	Minneapolis, Comstrand	612-788-9234
MO	St. Louis, Abrams Assoc.	314-569-0447
NM	Albuquerque, Thorsen Desert States	505-293-8555
NY	Great Neck, Trionic Assoc.	516-466-2300
NY	Rochester, Ossmann Comp. Sls.	716-442-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
NC	Raleigh, Glen White Assoc.	919-787-7016
OH	Cincinnati, R. O. Whitesell	513-521-2290
OH	Cleveland, R.O. Whitesell & Assoc.	216-447-9020
OH	Columbus, R. O. Whitesell	614-888-9396
OH	Dayton, R. O. Whitesell	513-298-9546
OK	Tulsa, H. J. Daly Co.	918-494-7711
OR	Tigard, Elctrn. Sources	503-684-0040
PA	Glenside, Koebert Assoc.	215-887-2310
PA	Pittsburgh, R. O. Whitesell	412-963-6161
TN	Gray, Glen White Assoc.	615-477-8850
TX	Dallas, Electra Reps.	214-387-3594
TX	Houston, Electra Reps.	713-530-2208
UT	West Valley City, Thorsen Co.	801-973-7969
VA	Colonial Beach, Glen White Assoc.	804-224-7764
VA	Lynchburg, Glen White Assoc.	804-237-6291
WA	Bellevue, Electronic Sources	206-451-2530
WI	Milwaukee, KMA Sls. & Co.	414-259-1771
EXP	IL, Franklin Pk., Motorola	312-451-1000

MOTOROLA INC.

MOTOROLA SEMICONDUCTOR PRODS. SECTOR, Adv. 72, Box 20912, Phoenix, AZ 85036, Tel: 602-244-6900, TWX: 910-951-1334; FSC No.: 04713; *Sls. Mgr.:* Brian Hilton; *Dist. Mgr.:* John Dunleavy .... **A•1682-1692, 2066, 2077-2087; D•1098-1101**

Local Sales Offices & Reps

AL	Huntsville	205-830-1050
AZ	Phoenix	602-244-7100
CA	Agoura Hills	213-872-1505,818-706-1929
CA	Los Angeles	818-706-1929
CA	Orange	213-417-8848
CA	Sacramento	916-922-7152
CA	San Diego	619-560-4644
CA	San Jose	408-985-0510
CO	Colorado Springs	303-599-7404
CO	Denver	303-337-3434
CT	Wallingford	203-284-0810
DC	Washington	301-577-2600
FL	Casselberry/Maitland	305-831-3422
FL	Pompano Bch./Ft. Lauderdale	305-486-9775
FL	St. Petersburg	813-576-6030
GA	Atlanta	404-256-0222
IL	Chicago/Schaumburg	312-576-7800
IN	Ft. Wayne	219-484-0436
IN	Indianapolis	317-849-7060
IN	Kokomo	317-457-6634
IA	Cedar Rapids	319-373-1328
KS	Kansas City/Mission	913-384-3050
MD	Hyattsville	301-577-2600
MA	Berlin	617-562-3856
MA	Burlington	617-273-5020
MI	Detroit/Westland	313-261-6200
MN	Minneapolis	612-941-6800
MO	St. Louis	314-872-7681
NJ	Hackensack	201-488-1200
NY	Fairport	716-425-4000
NY	Hauppauge	516-361-7000
NY	Poughkeepsie/Fishkill	914-473-8102
NC	Raleigh	919-876-6025
OH	Cleveland	216-461-3160
OH	Columbus/Worthington	614-846-9460
OH	Dayton	513-294-2231
OR	Portland	503-641-3681
PA	Philadelphia/Horsham	215-443-9400
TN	Knoxville	615-690-5592
TX	Austin	512-452-7673
TX	Dallas	214-699-3900
TX	Houston	713-783-6400
UT	Salt Lake City	801-539-1190
VA	Charlottesville	804-977-3691
WA	Bellevue	206-454-4160
WA	Seattle Access	206-622-9960
WI	Milwaukee/Wauwatosa	414-476-5554

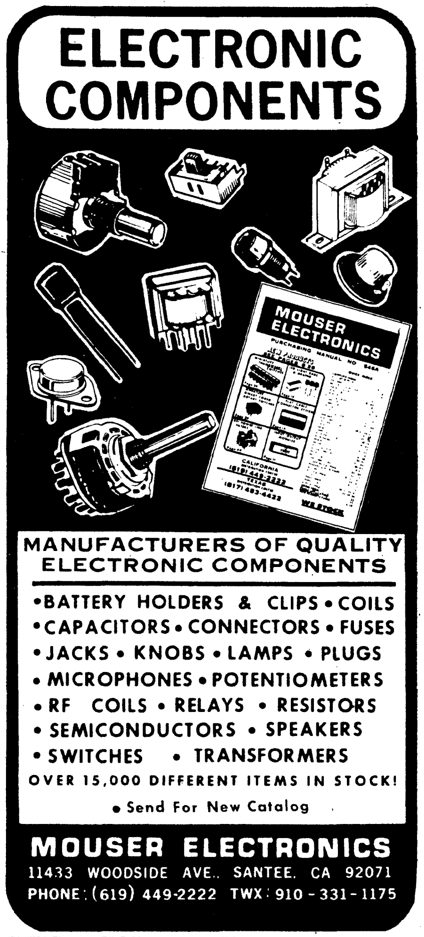
Motorola Systems Reps.

AL	Huntsville, EMA	205-830-4030
CT	Torrington, Northern Computer Sls.	203-482-3007
GA	Atlanta, EMA	404-329-0530
MA	Westwood, Northern Computer Sls.	617-326-3454
MN	Minneapolis, P.S.I. Co.	612-944-8545
NC	Raleigh, EMA	919-781-9369
OR	Beaverton, Thorson Co. Northwest	503-644-5900
PA	King of Prussia, K.S.I.	215-783-6440
WA	Bellevue, Thorson Co. Northwest	206-455-9180

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AL	Huntsville, Pioneer/Huntsville	205-837-9300
AL	Huntsville, Schweber Elctrns.	205-882-2200
AZ	Phoenix, Hall-Mark Elctrns.	602-437-1200
AZ	Phoenix, Kierulff Elctrns.	602-437-0750
AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Tempe, Anthem Elctrns.	602-966-6600
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
CA	Anaheim, Zeus Comps. West	714-632-6880
CA	Canoga Park, Hall-Mark Elctrns.	818-716-7300
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Anthem Elctrns.	818-700-1000
CA	Chatsworth, Avnet Elctrns.	818-700-2600
CA	Chatsworth, Hamilton Electro Sls.	818-700-6500
CA	Chatsworth, Kierulff Elctrns.	213-341-2211
CA	Costa Mesa, Avnet	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls./L.A.	213-558-2501
CA	Culver City, Hamilton/Avnet	213-558-2323
CA	Cypress, Kierulff Elctrns.	714-220-6300
CA	El Segundo, Hall-Mark Elctrns.	213-643-9101
CA	Irvine, Schweber Elctrns.	213-537-4321
CA	Irvine, Schweber Elctrns.	213-537-4321, 714-863-0200
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	Ontario, Hamilton/Avnet Elctrns.	714-989-4602
CA	Roseville, Bell Inds.	916-969-3100
CA	Sacramento, Hamilton/Avnet Elctrns.	916-925-2216
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Anthem Elctrns.	619-270-5200
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Diego, Kierulff Elctrns.	619-278-2112
CA	San Diego, Schweber Elctrns.	619-450-0454
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	San Jose, Future Elctrns.	408-945-9100
CA	San Jose, Hall-Mark Elctrns.	408-773-9990
CA	San Jose, Kierulff Elctrns.	408-971-2600
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	Santa Clara, Zeus Comps.	408-727-0714
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3360
CA	Torrance, Hamilton/Avnet Elctrns.	213-615-3900
CA	Tustin, Anthem Elctrns.	714-730-8000
CA	Tustin, Hall-Mark Elctrns.	714-586-9346
CA	Tustin, Kierulff Elctrns.	714-731-5711
CA	Woodland Hills, Hamilton/Avnet Elctrns.	818-887-2353
CO	Denver, Kierulff Elctrns.	303-790-4444
CO	Englewood, Anthem Elctrns.	303-790-4500
CO	Englewood, Hall-Mark Elctrns.	303-694-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-740-1000
CO	Westminster, Future Elctrns.	303-650-0123
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Future Elctrns.	203-743-9594
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Danbury, Schweber Elctrns.	203-792-3500
CT	Norwalk, Pioneer-Harvey/Norwalk	203-853-1515
CT	Wallingford, Kierulff Elctrns.	203-265-1115
CT	West Hartford, Hartford Elec. Supp. Co.	203-236-6171
FL	Altamonte Springs, Pioneer/Florida	305-834-9090
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Bradenton, Zeus Comps.	813-748-3125
FL	Clearwater, Future Elctrns.	813-441-4771
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Kierulff Elctrns.	305-486-4004
FL	Ft. Lauderdale, Pioneer/Ft. Lauderdale	305-428-8877
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Orlando, Hamilton/Avnet Elctrns.	305-628-3888
FL	Pompano Beach, Hall-Mark Elctrns.	305-971-9280
FL	St. Petersburg, Hall-Mark Elctrns.	813-530-4543
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
FL	St. Petersburg, Kierulff Elctrns.	813-576-1966
FL	Winter Park, Hall-Mark Elctrns.	305-628-3888
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
GA	Norcross, Kierulff Elctrns.	404-447-5252
GA	Norcross, Pioneer/Atlanta	404-448-1711
GA	Norcross, Schweber Elctrns.	404-449-9170
IL	Schaumburg, Future Elctrns.	312-882-1255
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7700
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns. Corp.	312-784-5100
IL	Elk Grove Village, Kierulff Elctrns.	312-640-0200
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IN	Indianapolis, Graham Elctrns. Supp.	317-634-8208
IN	Indianapolis, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Pioneer/Indiana	317-849-7300
IA	Cedar Rapids, Bell Elctrns.	319-395-0730
IA	Cedar Rapids, Hamilton/Avnet Elctrns.	319-362-4757
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
KS	Lexena, Hall-Mark Elctrns.	913-888-4747
KS	Overland Park, Schweber Elctrns.	913-492-2921
KS	Overland Pk., Hamilton/Avnet Elctrns.	913-888-8900
LA	New Orleans, Reily Elctrl. Supp.	504-897-2211
MD	Baltimore, Hall-Mark Elctrns.	301-796-9300
MD	Baltimore, Kierulff Elctrns.	301-636-5800
MD	Columbia, Future Elctrns.	301-995-1222
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MD	Gaithersburg, Pioneer/Washington	301-921-0660
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Billerica, Hall-Mark Elctrns.	617-935-9777
MA	Billerica, Kierulff Elctrns.	617-667-8331
MA	Burlington, Lionex Corp.	617-272-9400
MA	Lexington, Pioneer	617-861-9200
MA	Lexington, Zeus Comps.	617-273-0750
MA	Westborough, Future Elctrns.	617-366-2400
MA	Wilmington, Lionex Corp.	617-657-5170
MA	Woburn, Hamilton/Avnet Elctrns.	617-273-7500
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MI	Livonia, Schweber Elctrns.	313-525-8100
MI	Madison Hgts., McNaughton-McKay Elec. Co.	313-399-7500
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Edina, Schweber Elctrns.	612-941-5280
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MO	Earth City, Hall-Mark Elctrns.	314-291-5350

MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Earth City, Schweber Elctrns.	314-739-0526
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
NH	Manchester, Hamilton/Avnet Elctrns.	603-624-9400
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0110
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Fairfield, Kierulff Elctrns.	201-575-6750
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Mount Laurel, Future Elctrns.	609-778-7600
NJ	Pinebrook, Pioneer-Harvey/Pinebrook	201-575-3510
NM	Albuquergue, Alliance Elctrns.	505-292-3360
NM	Albuquerque, Bells Inds.	505-292-2700
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	Binghamton, Pioneer-Harvey/Binghamton	607-748-8211
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Fairport, Pioneer-Harvey/Rochester	716-381-7070
NY	Hauppauge, Lionex Corp.	516-273-1660
NY	Hauppauge, Pioneer/Military	516-231-9800
NY	Liverpool, Future Elctrns.	315-451-2371
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Vestal, Pioneer Elctrns.	607-748-8211
NY	Westbury, Schweber Elctrns.	516-334-7474
NY	Woodbury, Pioneer-Harvey/Woodbury	516-921-8700
NC	Charlotte, Pioneer/Carolina	704-526-8188
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns.	919-878-0810
NC	Raleigh, Kierulff Elctrns.	919-872-8410
NC	Raleigh, Schweber Elctrns.	919-876-0000
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Centerville, Hamilton/Avnet Elctrns.	513-439-6700
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cleveland, Hall-Mark Elctrns.	216-349-4632
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Cleveland, Kierulff Elctrns.	216-587-6558
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Hamilton/Avnet Elctrns.	614-882-7004
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OH	Westerville, Hamilton/Avnet Elctrns.	614-882-7004
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Kierulff Elctrns.	918-252-7537
OK	Tulsa, Schweber Elctrns.	918-622-8000
OR	Beaverton, Almac Elctrns. Corp.	503-641-9070
OR	Lake Oswego, Anthem Elctrns.	503-684-2661
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8831
OR	Portland, Kierulff Elctrns.	503-641-9150
PA	Horsham, Lionex Corp.	215-442-5150
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Pittsburgh, Hamilton/Avnet Elctrns.	412-281-4150
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Austin, Kierulff Elctrns.	512-835-2090
TX	Austin, Pioneer/Austin	512-835-4000
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Dallas, Hall-Mark Corp.	214-343-5000
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, Kierulff Elctrns.	713-530-7030
TX	Houston, Pioneer/Houston	713-988-5555
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
UT	Salt Lake City, Anthem Elctrns.	801-973-8555
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
WA	Bellevue, Almac Elctrns. Corp.	206-643-9992
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WA	Redmond, Anthem Elctrns.	206-881-0850
WA	Tukwila, Kierulff Elctrns.	206-575-4420
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Waukesha, Bell Inds.	414-784-0235
WI	Waukesha, Kierulff Elctrns.	414-784-8160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Local Sales Offices & Reps

CA	Chatsworth, Motion Tech., Inc.	818-993-3762
CO	Englewood, Integrated Motion Sys.	303-762-1817
IL	Schaumburg, Gassner & Clark Co.	312-882-8608
IN	Beech Grove, Control Sls.	317-353-6094
KS	Shawnee Mission, L.S.C., Inc.	913-362-2121
MA	Southborough, Motion Engrg.	617-485-2144
MI	Livonia, Electrolines	313-591-2428
MN	St. Paul, Northstar Motion & Cont. Co.	612-770-5311
NY	Clark Mills, KLM Garner	315-853-6126
OH	Cleveland, KT/Depco	216-442-6200
PA	Audubon, Holmes Assocs.	215-666-0636
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
TX	Dallas, Blackburn Assocs., Inc.	214-692-8885
VA	Roanoke, Engrg. & Mktg. Corp. of Vir.	703-986-1410
WA	Bellevue, Al Smith Co.	206-746-6770
WI	Milwaukee, Schreiber-Arterburn	414-545-7800

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Local Sales Offices & Reps

CA	Clayton, Moxness Prods., Inc.	415-672-9213
CA	Escondido, Estco Entprs	619-489-8746
FL	Clearwater, Frisby, Inc.	813-461-6055
GA	Lilburn, R. L. Panyik & Assocs.	404-923-3703
IN	Indianapolis, Elctrn. Sls. & Engrg.	317-849-4260
MA	Framington, Petri & Jones	617-877-4233
NY	Rochester, Empire Indl. Sls. Co., Inc.	716-244-9540
NC	Cary, Moxness Prods., Inc.	919-467-2042
OH	Xenia, Moxness Prods., Inc.	513-372-7334
WI	Racine, Moxness Prods., Inc.	414-554-5050

MOXON INC., See Kode

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MPH ELCTRNS., 2660 Loma Ave., S. El Monte, CA 91733, Tel: 213-442-7818; *Sls. Mgr.:* A. Pastecci

MPI, 4426 S. Century Dr., Salt Lake City, UT 84107, Tel: 800-821-8848; *Sls. Mgr.:* Jamie Johnston

MPS CO., 8 N. Grant Dr., Addison, IL 60101, Tel: 312-543-1748; Empl.: 2; *Sls. Mgr.:* M. C. Mitchell

MSC PRODS./EATON CORP., 1640 Monrovia St., Costa Mesa, CA 92627, Tel: 714-642-2427, Telex: 67-8433; Empl.: 350 +; *Sls. Mgr.:* J. McDorough

MSI DATA CORP., 340 Fischer Ave., Costa Mesa, CA 92626, Tel: 714-549-6000, TWX: 910-595-1719; Empl.: 700; *Sls. Mgr.:* J. Falvey; *Dist. Mgr.:* S. Altice

MSI ELECTRONICS, INC., 34-32 57th St., Woodside, NY 11377, Tel: 212-672-6500, Telex: 426407; FSC No.: 18518; Empl.: 26; *Sls. Mgr.:* A. Lederman

MSS/MACINTOSH SOFTWARE, 170 West 73rd St. Ste 12C, New York, NY 10023, Tel: 212-799-8195; *Sls. Mgr.:* David H. M. Spector

MTE CORP., 7901 W. Clinton Ave., P.O. Box 23957, Milwaukee, WI 53223, Tel: 414-358-5300, 800-558-4332 .... **A•2199**

Local Sales Offices & Reps

AZ	Tempe, EDS	602-438-1547
CA	Danville, Bontrol Sys.	415-838-8540
CA	San Diego, OMNI	619-268-9606
CA	Santa Ana, El-Mar	714-547-8933
CO	Englewood, C. M. Mktg.	303-850-9841
CT	Avon, Tom Maguire Assocs.	203-673-3019
FL	Casselberry, Southern Elctrn. Mktg.	305-831-2822
FL	Ft. Lauderdale, Southern Elctrn. Mktg.	305-475-3686
FL	Palm Harbor, Southern Elctrn. Mktg.	813-441-3902
GA	Atlanta, Grady-Duckett	404-451-3529
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
IN	Carmel, Technology Mktg.	317-844-8462
IN	Ft. Wayne, Technology Mktg.	219-432-5553
IA	Cedar Rapids, Palatine Engrg.	319-365-8071
KY	Louisville, Technology Mktg.	502-499-7808
MD	Glen Arm, Rick Volk, Inc.	301-592-7154
MA	Wellesley, Tom Maguire Assocs.	617-431-1120
MI	Birmingham, Favco	313-644-0173
MI	Grand Rapids, Favco	616-459-4425
MN	Bloomington, Kettner & Assocs.	612-884-4343
MO	Hazelwood, Palatine Engrg.	314-839-0800
MT	Blue Springs, Palatine Engrg.	816-229-4007
NH	Windham, Tom Maguire Assocs.	603-432-0363
NJ	Marlton, BGR Assocs.	609-983-1020
NY	Ridgewood, Ballou, Inc.	201-444-6990
OH	Dayton, Electro-Com	513-898-5140
OK	Tulsa, Components, Inc.	918-583-9149
TX	Austin, R. F. Kimball Co., Inc.	512-443-5284
TX	Houston, R. F. Kimball Co., Inc.	713-840-0590
TX	Richardson, R. F. Kimball Co., Inc.	214-231-3447
WA	Mukilteo, Robert Krippner	206-743-3579
WI	Milwaukee, Kettner & Assocs.	414-351-3584

M-TRON INDS., P.O. Box 630, E. Hwy. 50, Yankton, SD 57078, Tel: 605-665-9321, TWX: 910-668-3603; Empl.: 125; *Sls. Mgr.:* Mike Huennekens; *Dist. Mgr.:* Karen Hansen .... **A•1395**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9281
AZ	Tempe, SSA Sales	602-829-9338
CA	Mountain View, Taarcom	415-960-1550
CA	San Diego, Bestronics	619-693-1111
CA	Thousand Oaks, SC Cubed	805-496-7307
CA	Tustin, SC Cubed	714-731-9206
CO	Littleton, Simpson Assoc.	303-794-8381
CT	Ridgefield, Phoenix Sls.	203-438-9644
FL	Apopka, G.F. Bohman	305-886-1882
FL	Ft. Lauderdale, Bohman Assoc.	305-979-0008
FL	St. Petersburg, G F Bohman	813-522-6120
GA	Athens, ADI	404-548-0788

GA	Norcross, 20th Century	404-446-1999
IL	Arlington Hgts., Micro Sls.	312-956-1000
IN	Fort Wayne, Given Corp.	219-432-5585
IA	West Des Moines, SPS Assoc.	515-225-0607
KS	Olathe, SPS Assoc.	913-764-4460
MD	Ellicott City, Marketing Tech Inc.	301-465-5944
MA	Needham Heights, Kanan	617-449-7400
MI	Detroit, Rathsburg Assoc.	313-882-1717
MN	Bloomington, Com-Tek Sls.	612-888-7011
MO	St. Ann, SPS Assoc.	314-739-4468
NE	Panama, SPS Assoc.	913-764-4460
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NJ	Marlton, BGR	609-983-1020
NM	Albuquerque, SSA	505-881-8877
NY	Rochester, Ontec Sales	716-464-8636
NC	Smithfield, ADI	919-934-8136
OH	Dayton, Lyons Corp.	513-278-0714
OH	Richfield, Lyons Corp.	216-659-9224
SC	Fort Mill, ADI	803-547-2115
TN	Knoxville, 20th Century	615-966-3608
TN	Memphis, 20th Century	901-756-4681
TX	Austin, Mech-Tron Mktg.	512-459-0802
TX	Houston, Mech-Tron Mktg.	713-462-1432
TX	Richardson, Mech-Tron Mktg.	214-437-4833
UT	Midvale, Simpson Assoc.	801-566-3691
VA	Lynchburg, Marketing Tech Inc.	804-384-6459
WA	Redmond, Quadra Sls.	206-883-3550
WI	Menominee, Micro Sales Inc.	414-251-0151
Can	Mississaqua, Ontario, John Weiss Co.	416-673-0011
Can	Nepean, Ontario, John Weiss Co.	613-726-1436
Can	St. Laurent, Quebec, John Weiss Co.	154-337-5022
Can	Winnipeq, Manitoba, John Weiss Co.	204-774-2119

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Sterling Elect.	602-268-2121
AZ	Phoenix, Wyle Distr. Grp.	602-249-2232
AZ	Tempe, Bell Inds.	602-966-7800
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Aquara, Wyle	818-880-9000
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Irvine, Ryno Elctrns.	714-261-2500
CA	Irvine, Wyle	714-863-9953
CA	Rancho Cordova, Wyle	916-638-5282
CA	San Diego, Ryno Elctrns.	619-453-8430
CA	San Diego, Wyle	619-565-9171
CA	San Jose, Capacitors Unltd.	408-946-7676
CA	Santa Clara, Pyramid	408-727-9810
CA	Santa Clara, Wyle Distr. Grp.	408-727-2500
CA	Tustin, Image Elctrns.	714-730-0303
CO	Thornton, Wyle Distr. Grp.	303-457-9953
CO	Wheatridge, Bell Inds.	303-424-1985
CT	E. Haven, J. V. Elctrns.	203-469-2321
CT	Norwalk, Pioneer Elctrns.	203-853-1515
CT	Orange, Milgray Elctrns.	203-795-0711
CT	Wallingford, Mid-State Elect.	203-265-9900
FL	Altamonte Springs, Pioneer	305-834-9090
FL	Deerfield Beach, Pioneer Elctrns.	305-428-8877
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray	404-393-9666
GA	Norcross, Pioneer Elctrns.	404-448-1711
IL	Elk Grove, Pioneer Elctrns.	312-437-9680
IL	Hoffman Estates, Inter Comp	312-843-2040
IN	Indianapolis, Advent	317-872-4910
IN	Indianapolis, Pioneer/IN	317-849-7300
IA	Cedar Rapids, Advent	319-363-0221
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Beltsville, Resco/Wash.	301-937-9100
MD	Gaithersburg, Pioneer	301-921-0660
MD	Rockville, Milgray Elctrns.	301-468-6400
MD	White Marsh, Resco Washington	301-529-0500
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Lexington, Pioneer Elctrns.	617-861-9200
MA	Wilmington, J.V. Elctrns.	617-273-4300
MA	Woburn, 1st Frequency	617-935-3885
MI	Farmington Hills, Advent Elec.	313-477-1650
MI	Livonia, Pioneer Elctrns.	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MN	Bloomington, NWR	612-854-7329
MN	Hibbing, NWR Elec.	218-262-5228
MN	Minneapolis, Stark Elec.	612-332-1325
MN	Minnetonka, Pioneer	612-935-5444
MO	St Louis, Ric-tronics	314-576-9816
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Berlin, GCI	609-768-6767
NJ	Marlton, Milgray Elctrns.	609-983-5010
NJ	Mt. Laurel, P.A.C. Elctrns.	609-387-3549
NJ	Pinebrook, Pioneer Elctrns.	201-575-3510
NM	Albuquerque, Sterling Elect.	505-884-1900
NY	Binghamton, Pioneer Elctrns.	607-748-8211
NY	Fairport, Pioneer	716-381-7070
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Pittsford, Milgray	716-385-9330
NY	Woodbury, Pioneer Elctrns.	516-921-8700
NC	Charlotte, Pioneer Elctrns.	704-527-8188
NC	Raleigh, Century Elctrns.	918-872-2203
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Cleveland, Pioneer Elctrns.	216-587-3600
OH	Dayton, Pioneer Elctrns.	513-236-9900
OH	Maumee, RS Elec.	419-893-0721
OK	Oklahoma City, Radio Inc.	405-789-0741
OK	Tulsa, Altair	918-252-5781
OK	Tulsa, Radio Inc.	918-587-9123
OR	Hillsboro, Wyle Distr. Grp.	503-640-6000
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	Norristown, Century Elec.	215-631-5400
PA	Pittsburgh, Pioneer Elctrns.	412-782-2300
TX	Austin, Altair	512-837-4970
TX	Austin, Pioneer	512-835-4000
TX	Austin, Wyle Distr.	512-834-9957
TX	Dallas, Pioneer Elctrns.	214-386-7300
TX	Houston, Altair	713-462-3029
TX	Houston, Force Elec.	713-561-8644
TX	Houston, Pioneer	713-988-5555
TX	Houston, Wyle Laboratories	713-879-9953
TX	Irving, Force Elec.	214-438-5700
TX	Richardson, Altair	214-231-5166
TX	Richardson, Wyle Electric	214-235-9953
UT	Salt Lake City, Standard Supp.	801-486-3371
UT	Salt Lake City, Wyle Distr. Grp.	801-974-9953
VT	Richmond, Sterling Elect.	804-226-2190
WA	Bellevue, Wyle Distr. Grp.	206-453-8300
WA	Kent, Pyramid Elec.	206-872-5800
WI	Milwaukee, Marsh Elect.	414-475-6000
Can	Burnaby, BC, R-A-E Ltd / Camgaard	604-291-8866
Can	Edmonton, ALB., Cardinal Elec.	403-483-6266
Can	Montreal, PQ, Prelco Ltd.	514-389-8051
Can	Oakville, ONT., L.A. Varah Ltd.	416-842-8484
Can	Willowdale, Ontario, Electro Sonic	416-494-1666

MTS SYS., Box 24012, Minneapolis, MN 55424, Tel: 612-937-4000, Telex: 29-0521; Empl.: 1100; *Sls. Mgr.:* J. Beal

MU-DEL ELECTRONICS, INC., 2426 Linden Lane, Silver Spring, MD 20910-1288, Tel: 301-587-6087, Telex: 292038; FSC No.: 31563; Empl.: 8; *Sls. Mgr.:* Heinz E. Blum

MUELLER ELEC. CO., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, Tel: 216-771-5225; Empl.: 156; *Sls. Mgr.:* J. E. Wisneski ..... **C•1468-1472**

Local Sales Offices & Reps

AZ	Phoenix, The Health Grp.	602-247-9091
CA	Cambell, Olsheski & Assoc. Inc.	408-378-6003
CA	Downey, Ungar Sls. Assoc.	213-923-1467
CA	Gardena, Ungar Sls. Assoc.	213-538-2811
CA	W. Covina, Ungar Sls. Assoc.	213-339-1052
CO	Colorado Springs, Norris & Warren	303-576-8697
FL	Tampa, Palm State Mktg. Inc.	813-888-6316
GA	Stone Mountain, Mfg. Sls. & Mktg. Serv.	404-469-5862
IL	Libertyville, Raymond Klipp Assoc.	312-367-4676
IN	Indianapolis, John Sukup, Inc.	317-253-5501
KS	Shawnee Mission, Microtronics Inc.	913-262-1444
MA	Lynn, Keene Sls. Co., Inc.	617-595-2300
MI	Ferndale, Hilltronics Inc.	313-398-5556
MN	Minneapolis, Boerger & Assoc.	612-560-3435
MS	Jackson, Mfg. Sls. & Mktg. Serv.	601-922-8118
MO	St. Charles, Microtronics Inc.	314-946-8500
NJ	Medford, Champion Elec. Sls. Co.	609-983-0932
NJ	Rockaway, R.O.I. Sls. Co.	201-627-8879
NY	Webster, Richard W. Bienek Assoc.	716-872-0387
OR	Portland, Jud LeBrun Co., Inc.	503-244-6805
PA	Pittsburgh, F. P. Yarussi Co.	412-221-1717
SC	Ft. Lawn, Mfg. Sls. & Mktg. Serv.	803-872-4454
TN	White House, Mfg. Sls. & Mktg. Serv.	615-672-4498
TX	Dallas, J. J. Sls. Co.	214-328-9739
Can	Markham, Ontario, LenBrook Elctrns.	416-477-7722

M. U. INC., P.O. Box 1007, Oceanside, CA 92054, Tel: 619-757-7576

MUIRHEAD, 1101 Briston Rd., Mountainside, NJ 07092, Tel: 201-233-6010, Telex: 13-8275; FSC No.: 03980; Empl.: 60; *Sls. Mgr.:* Martin Wargon

MULTI-AMP CORP., TBG, 4271 Bronze Way, Dallas, TX 75237, Tel: 214-333-3201, TWX: 910-861-9052; Empl.: 400; *Sls. Mgr.:* Robert D. Libbey

MULTICORE SOLDERS, Cantiague Rock Rd., Westbury, NY 11590, Tel: 516-334-7997, TWX: 510-222-5185; Empl.: 1000

MULTI-PLATE CO., INC., 2362 Lu Field Rd., Dallas, TX 75229, Tel: 214-243-1557; Empl.: 50; *Sls. Mgr.:* Keith E. Piersall

MULTI PRODS. INTL., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009, Tel: 201-239-8183, Telex: 219289; Empl.: 25; *Sls. Mgr.:* LeRoy Gray ..... **A•1135, 2202-2203; D•1728**

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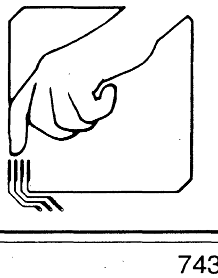

Local Sales Offices & Reps

Erickson Sls., Inc.

AL	Huntsville, Elctrns Mfrs. Agts	205-830-4030
AZ	Scottsdale, Semi Sys., Inc.	602-991-1151
AR	Little Rock, Erickson Sls., Inc.	501-225-7379
CA	Campbell, Kottmeier Assocs.	408-866-5153
CA	Temple City, NMC, Inc.	818-447-0958
FL	Coral Springs, PC Elctrn. Sls.	305-755-3980
GA	Atlanta, Elctrn. Mfrs. Agts.	404-529-0530
IL	Chicago, Esco Assocs.	312-763-0800
IN	Frankfort, C-S Elctrns. Sls.	317-659-1874
KS	Overland Park, Electri-Rep	913-649-2168
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MD	Columbia, Eastern Tech. Corp.	301-995-0202
MA	Norwood, Mac Innis Co.	617-762-8090
MI	Jenison, R.C. Nordstrom & Co	616-457-5762
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	St. Paul, Proud Inds.	612-646-9428
NJ	Cedar Grove, Legtonics Assocs.	201-239-4098
NC	Raleigh, Elctrns. Mfg. Agt.	919-781-4139
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OK	Oklahoma City, Erickson Sls., Inc.	405-682-2947
OR	Portland, Eltech	503-238-0805
PA	Albrightsville, Centurion Linear	717-722-0166
TN	Knoxville, Elctrn. Mfrs. Agts.	615-966-1286
TX	Austin, Erickson Sls., Inc.	512-445-2952
TX	Dallas, Erickson Sls., Inc.	214-739-5833
TX	Houston, Erickson Sls. Inc.	713-980-9606
WA	Bellevue, Eltech	206-643-4330

MULTITECH ELCTRNS. INC., 195 W. El Camino Real, Sunnyvale, CA 94086, Tel: 408-773-8400, Telex: 176004 MAC SUVL; *Sls. Mgr.:* James Tseng

MULTI-TECH INDS., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746, Tel: 201-431-0550; Empl.: 40; *Sls. Mgr.:* James L. Bernard

MULTI-TECH SYSTEMS, INC., 82 Second Ave. S.E., New Brighton, MN 55112, Tel: 612-631-3550, TWX: 910-563-3610; Empl.: 65; *Sls. Mgr.:* Thomas Heimerman; *Dist. Mgr.:* Peter Hanlon

MULTI-TRONIX, 3210 Terry Dr, Toledo, OH 43613, Tel: 419-472-3360; *Sls. Mgr.:* K. L. Schepler

MULTIWIRE DIV., Kollmorgen Corp., 10 Andrews Rd., Hicksville, NY 11801, Tel: 516-938-2000, TWX: 510-223-0639; Empl.: 800

MULTIWIRE NE, Kollmorgen, 41 Simon St., Nashua, NH 03061, Tel: 603-889-0083; FSC No.: 60490; Empl.: 165; *Sls. Mgr.:* Paul Lavigne

MUPAC, 10 Mupac Dr., Brockton, MA 02401, Tel: 617-588-6110, TWX: 710-345-8458; Empl.: 100

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg. Assocs., Inc.	205-883-9630
AZ	Tempe, Trembly Assocs.	602-967-2058
AR	Richardson, Lear Assocs., Inc.	214-231-5388
CA	San Diego, Hadden Assocs. Inc.	619-565-9444
CA	Santa Clara, DC Elctrns.	408-980-1199
CA	West Covina, Mupac - West Coast Off.	213-960-3042
CO	Lakewood, Trembly Assocs.	303-233-9544
FL	Orlando, Currie, Peak & Frazier	305-855-0843
IL	Addison, Engrd. Sls.	312-832-8426
IN	Fort Wayne, Hoyle Assoc.	219-485-6433
MD	Baltimore, Rep-Tron	301-799-7490
MA	Wayland, Daner-Hayes, Inc.	617-655-0888
MI	Northville, Micro Sls. Corp.	313-459-1670
MN	Minneapolis, L. F. Green Assoc.	612-571-6666
MO	Blue Springs, Chesco	816-229-1404
MO	St. Charles, Chesco	314-946-6677
NV	Las Vegas, Trembly Assocs.	702-369-8700
NJ	Woodcliff, J. Fried & Assocs.	201-391-6792
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Great Neck, F & F Metro, Inc.	516-482-4080
NY	Syracuse, Labtronics	315-455-7314
NC	Cary, Engineering Dvcs.	510-920-0632
NC	Greensboro, Currie, Peak & Frazier	919-373-0380
OH	Dayton, Micro Sls. Corp.	513-433-8171
OH	N. Olmsted, Micro Sls. Corp.	216-734-3080
PA	King of Prussia, R.J.I.	215-265-5211
PA	Norristown, RJI	215-631-1414
TX	Austin, Lear Assoc.	512-450-1059
TX	Houston, Lear Assoc.	713-488-7893
TX	Richardson, Lear Assocs.	214-231-5388
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Comtec	206-453-1188

MURATA ERIE NORTH AMERICA, INC.

MURATA ERIE NORTH AMERICA, INC., 1148 Franklin Rd., S.E., Marietta, GA 30067, Tel: 404-952-9777, Telex: 54-2329, TWX: 810-766-1531; Empl.: 1800; *Sls. Mgr.:* Jack Driscoll; *Dist. Mgr.:* Kenneth O'Connor .....**A•1002, 1136-1139, 1396-1397, 1582, 1616-1617, 1907-1909, 1990, 2030-2031, 2089, 2205; D•1028, 1729**

Local Sales Offices & Reps

AL	Huntsville, Jack W. Harvey & Assocs.	205-536-4414
AZ	Scottsdale, Murata Erie N. America	602-941-2667
CA	Los Altos, Recht. Assocs.	415-964-6321
CA	Santa Ana, Murata Erie North America	714-835-4822
FL	Lauderhill, Innovative Mktg., Inc.	305-485-6869
FL	Maitland, Murata Erie North America	305-644-0954
GA	Marietta, Murata Erie N. America	404-952-9777
IL	Des Plaines, Murata Erie North America	312-297-5560
IN	Ft. Wayne, Murata Erie North America	219-484-1528
IN	Indianapolis, Jack Harvey & Assocs.	317-872-1031
IN	Kokomo, Jack Harvey & Assocs.	317-453-4260
KY	Prospect, Jack Harvey & Assocs.	502-228-4100
MD	Columbia, Murata Erie North America	301-992-6612
MA	Wakefield, Murata Erie North America	617-245-7880
MI	Southfield, Jack Harvey & Assocs.	313-569-4477
MN	Plymouth, Murata Erie North America	612-553-1594
NJ	Springfield, Radix	201-467-4970
NC	Greensboro, Murata Erie North America	919-299-1905
OK	Tulsa, Marata Erie North America, Inc.	918-254-8668
OK	Tulsa, Murata Erie N. America	918-254-8668
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
TN	Knoxville, Jack Harvey & Assocs.	615-524-7057
TX	Austin, Murata Erie North America, Inc.	512-451-8488
TX	Richardson, Murata Erie North America	214-238-8211
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699
Can	Mississuaga, Ont., Murata Erie North America, Inc.	416-676-9484

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-837-6955
AL	Huntsville, Electro-Wise, Inc.	205-830-4764
AZ	Phoenix, R.V. Weatherford	602-272-7144
AZ	Tempe, Arrow Elctrns.	602-701-7500
AZ	Tempe, Shelley Elctrns.	601-894-2058
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, R.V. Weatherford Co.	714-547-0981
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Belmont, Varitech Elctrns.	415-593-3300
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, Diplomat Elctrns.	213-700-8700
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Englewood, Newark Elctrns.	214-678-0441
CA	Fullerton, Pyramid	714-773-0781
CA	Garden Grove, Inductive Prods. Inc.	714-892-7749
CA	Garden Grove, Natl. Capacitor Supp.	213-598-9611
CA	Glendale, R.V. Weatherford Co.	213-849-3451
CA	Inglewood, Newark Elctrns.	213-678-0441
CA	Mountain View, Shelly Elctrns.	415-969-1820
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	Pomona, R.V. Weatherford Co.	714-623-1261
CA	Sacramento, Arrow Elctrns.	916-925-7456
CA	San Diego, Arrow Elctrns.	714-565-4800
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, R.V. Weatherford Co.	714-695-1700
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Diego, Time Elctrns.	619-586-1331
CA	San Jose, Shelley Elctrns.	818-998-3333
CA	Santa Barbara, R.V. Weatherford	805-965-8551
CA	Santa Clara, Intl. Standard Comps.	408-496-0411
CA	Santa Clara, Pyramid Elctrns. Supp.	408-727-9810
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Capsco	408-734-3020
CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Sunnyvale, R.V. Weatherford Co.	408-738-8694
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Denver, Newark Elctrns.	303-423-7941
CO	Denver, R.V. Weatherford Co.	303-428-6900
CO	Englewood, Time Electrns.	303-850-7701
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Chesire, Time Elctrns.	203-271-3200
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	Orange, Milgray Elctrns.	263-795-0711
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Fort Lauderdale, Arrow Elctrns.	305-776-7790
FL	Fort Lauderdale, Diplomat Elctrns.	305-974-8700
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Orlando, Time Elctrns.	305-841-6565
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Tampa, Newark Elctrns.	813-872-5618
FL	Tampa, Shelley Elctrns.	813-884-0946
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
GA	Atlanta, Spectrum Elctrns.	404-449-4643
GA	Atlanta, Time Elctrns.	404-351-3545
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Diplomat Elctrns.	404-449-4133
GA	Norcross, Newark Elctrns.	404-448-1300
IL	Aurora, Newark Elctrns.	312-844-1988
IL	Bensonville, Diplomat Elctrns.	312-595-1000
IL	Bensonville, Milgray Elctrns.	312-350-0490
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Oakbrook, Newark Elctrns.	312-789-3130
IL	Rosemont, Advent Elctrns.	312-297-6200
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IL	Skokie, Kellner Elctrns.	312-677-1120
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Bettendorf, Newark Elctrns.	319-359-1341
IA	Cedar Rapids, Advent Elctrns. Inc.	319-363-0221
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Beltsville, Resco	301-937-9100
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Columbia, Time Elctrns.	301-964-3090
MD	Rockville, Milgray Elctrns.	301-468-6400
MD	White Marsh, Resco	301-529-0500
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Diplomat Elctrns.	617-935-6611
MA	Woburn, Time Elctrns.	617-935-8080
MI	Ann Arbor, Arrow Elctrns.	313-971-7220
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MN	Bloomington, Time Elctrns.	612-944-9192
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Hopkins, The Joal Co.	612-935-6202
MN	Minneapolis, Newark Elctrns.	612-331-6350
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Time Elctrns.	314-391-6444
NH	Manchester, Arrow Elctrns.	603-668-6968
NH	Salem, Cronin Elctrns.	603-898-4440
NJ	Cherry Hill, Diplomat Elctrns.	609-751-0440
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NJ	Rockaway, Tonar Inds.	201-586-9000
NJ	Springfield, Newark Elctrns.	201-376-9500
NJ	Totowa, Diplomat Elctrns.	201-785-1830
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Bohemia, Shelley Elctrns.	516-567-7751
NY	Buffalo, Newark Elctrns.	716-892-4321
NY	Farmingdale, Arrow Elctrns.	516-293-6363
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Time Elctrns.	516-273-0100
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Liverpool, Diplomat Elctrns.	315-652-5000
NY	Lynbrook, Varitech Elctrns.	516-593-9300
NY	Melville, Arrow Elctrns.	516-391-1485
NY	Melville, Diplomat Elctrns.	516-454-4600
NY	Pittsford, Milgray Elctrns.	711-385-9330
NY	Rochester, Arrow Elctrns.	716-275-0300
NC	Charlotte, Elctrn. Mktg. Corp.	704-394-6195
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Resco/Raleigh	919-781-5700
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Cleveland, Newark Elctrns.	216-361-4700
OH	Columbus, Elctrn. Mktg. Corp.	614-299-4161
OH	Columbus, Newark Elctrns.	614-451-0002
OH	Highland Hts., Elctrn. Mktg. Corp.	216-442-3441
OH	Kettering, Electronic Mktg. Corp.	513-439-4711
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Lake Oswego, Moore Elctrns.	503-684-3100
OR	Portland, Newark Elctrns.	503-257-0741
OR	Portland, Time Elctrns.	503-684-3780
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Broomall, Time Elctrns.	215-359-1200
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Versailles, Newark Elctrns.	412-834-8504

TX	Addison, R.V. Weatherford Co.	214-931-7333
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Carrollton, Arrow Elctrns.	214-380-6464
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Diplomat Elcrns.	214-980-1888
TX	Dallas, Milgray Elctrns.	214-248-1603
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Force Elctrns.	713-561-8644
TX	Houston, R.V. Weatherford Co.	713-688-7406
TX	Irving, Force Elctrns.	214-438-5700
TX	Austin, Diplomat Elctrns.	512-452-5254
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Arrow Elctrns.	206-634-4800
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Seattle, R.V. Weatherford Co.	206-575-1340
WI	Oak Creek, Arrow Elctrns.	414-764-6600
Can	Mississauga, Ont., Prelco Elctrns.	416-678-0401
Can	Montreal, Quebec, Future Elctrns.	514-694-7710
Can	Nepean, Ont., Prelco Elctrns.	613-726-1800
Can	Ottowa, Ont., Carsten Elctrns.	613-729-5138
Can	Scarborough, Ont., Carsten Elctrns.	416-751-2371
Can	St. Laurent, Quebec, Carsten Elctns.	514-334-8321

MURATA ERIE NORTH AMERICA, INC., 5 Fraser Ave., Trenton, ON, Canada K8V551, Tel: 613-392-2581

MURATA MFG. CO., LTD., 26-10-2-chome-Tenjin, Nagaoka-Kyo-Shi, Kyoto, Japan, Japan, Tel: 075-951-9111, Telex: J64270; Empl.: 2000; *Sls. Mgr.:* O. Otaka

MUSHIELD CO., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, Tel: 617-321-4410; FSC No.: 22780; Empl.: 10; *Sls. Mgr.:* Mark Standley

MVP ELCTRNS., 1161 N. Tustin, Orange, CA 92667, Tel: 714-639-9246, Telex: 678401; Empl.: 4; *Sls. Mgr.:* M. Vander Plaats .... **D•1012**

MWS WIRE INDS., 31200 Cedar Valley Dr., Westlake Village, CA 91362, Tel: 818-991-8553, TWX: 910-336-1689; FSC No.: 51668; *Sls. Mgr.:* M. D. McClure .... **C•1864-1865**

MYLEE DIGITAL SCIENCES, 155 Weldon Pkwy., Maryland Heights, MO 63043, Tel: 314-567-3420; Empl.: 100; *Sls. Mgr.:* G. Graves

NAE, 69 Bennett St., Lynn, MA 01905, Tel: 617-598-4800, TWX: 710-334-0254; FSC No.: 51182; Empl.: 100; *Sls. Mgr.:* Rick Kassiotis; *Dist. Mgr.:* Ellen Madden

NAMCO CONTROLS, An Acme-Cleveland Co., 7567 Tyler Blvd., Mentor, OH 44060, Tel: 216-946-9900, Telex: 24-1566; Empl.: 200; *Sls. Mgr.:* Jon Slaybaugh, V.P./Sales-Mktg.

NAMCO-LEUZE, A Namco Controls Affiliate Co., 7567 Tyler Blvd., Mentor, OH 44060, Tel: 216-946-9900, Telex: 24-1566; *Sls. Mgr.:* Jon Slaybaugh, V.P./Sales-Mktg.

NAMIKI PRECISION JEWEL CO., LTD., 15 Warren Street, Hackensack, NJ 07601, Tel: 201-343-3080, TWX: 710-990-1273; FSC No.: 201-343-3172

NANMAC CORP., 9 Mayhew St., Framingham, MA 01701, Tel: 617-872-4811; Empl.: 32; *Sls. Mgr.:* G. Nanigian; *Dist. Mgr.:* J. Manigian

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NANO PULSE INDUSTRIES, 440 Nibus St., Brea, CA 92670, Tel: 714-529-2600, Telex: 910-997-0422; FSC No.: 57222; *Sls. Mgr.:* Michael J. Schubert .... **A•1546-1549, 2206-2207**

Local Sales Offices & Reps

CA	Mountain View, West Mark Assocs.	415-969-1700
CA	San Diego, D2 Sls., Inc.	619-560-6266
CO	Arvada, Delconec, Inc.	303-422-7023
MA	Sharon, Cummings Assocs.	617-784-5600
MN	Eden Prairie, Aldridge Assocs.	612-994-8433
PA	Newtown, Yax Assocs.	215-860-2540
PA	Waterford, Bacon Elctrns.	814-796-2381
TX	Houston, Milco Mktg.	713-723-5003
WA	Redmond, Electronics Northwest, Inc.	206-883-1959

NARDA MICROWAVE CORP., 435 Moreland Rd., Hauppauge, NY 11788, Tel: 516-231-1700, TWX: 510-221-1867

NASHUA CORP., 44 Franklin St., Nashua, NH 03061, Tel: 603-880-2889, Telex: 943406; *Sls. Mgr.:* Chet Mielcarz

NATEL ENGRG. CO., INC., 4550 Runway St., Simi Valley, CA 93063, Tel: 805-581-3950, TWX: 910-494-1959; Empl.: 95 .... **A•1694-1695**

NATIONAL BERYLLIA CORP., Greenwood Ave., Haskell, NJ 07420, Tel: 201-839-1600, TWX: 710-988-5363; Empl.: 200

Distributor

NATIONAL CAPACITOR, 11731 Markon Dr., Garden Grove, CA 92641, Tel: 714-892-7749, 213-598-9611, 800-854-2451, TWX: 910-596-1316 .... **A•1127**

NATIONAL CONTROLS CORP., 931 N. DuPage Ave., Lombard, IL 60148, Tel: 312-932-6900; Empl.: 250; *Dist. Mgr.:* Cy Pfeifer

NATIONAL ELECTRIC CABLE, 16566 S.W. 72nd Ave., Portland, OR 97224, Tel: 503-620-9400, Telex: 36-0963; FSC No.: 5P935; Empl.: 125; *Sls. Mgr.:* Dick Sass .... **C•1866-1867**

Local Sales Offices & Reps

CA	Hayward	415-785-1277
CO	Englewood	303-797-8448
DE	Wilmington	302-573-2525
IL	Elk Grove Village	312-593-8100
OR	Portland	503-620-9400
TX	Houston	713-464-8555

NATIONAL ELCTRN. DISTRS. ASSN., 1420 Renaissance Dr., Ste. 211, Park Ridge, IL 60068, Tel: 312-298-9747

NATIONAL INFORMATION SYS., INC., 20370 Town Center Lane, Cupertino, CA 95014, Tel: 408-257-7700, Telex: 750031; *Sls. Mgr.:* John Enyedy

NATIONAL INSTRUMENTS, 12109 Technology Blvd., Austin, TX 78759, Tel: 512-250-9119, Telex: 756737 NAT INST AUS; Empl.: 64; *Sls. Mgr.:* Dave Aldrich; *Dist. Mgr.:* John Purvis

NATIONAL MICRONETICS, Route 28, West Hurley, NY 12136, Tel: 914-338-0333, TWX: 510-247-8046; Empl.: 900; *Sls. Mgr.:* P. A. Rivelli

NATIONAL POWER TECHNOLOGY

NATIONAL POWER TECHNLG., 2111 Howell Ave., Anaheim, CA 92806, Tel: 714-937-1301, Telex: 910-591-1893; Empl.: 85; *Sls. Mgr.:* Harold Myers .... **D•1730-1732**

Local Sales Offices & Reps

AL	Delta, Gillum Sls., Inc.	205-396-5731
CA	Canoga Park, Cummings & Assocs.	818-340-6035
CA	Palo Alto, Abbott Engrg. Co., Inc.	415-968-2265
CA	San Diego, Mesa Engrg.	619-278-8021
CO	Denver, Cummings & Assocs. Mktg., Inc.	303-455-6860
FL	Clearwater, Gillum Sls., Inc.	813-531-2248
FL	Largo, Gillum Sls., Inc.	813-531-2248
FL	Orlando, Gillum Sls., Inc.	305-857-2110
KY	Ft. Mitchell, G. W. Thelen	606-341-8181
MD	Randallstown, Beacon North	301-655-2265
MA	Chelmsford, Encotronics	617-256-4207
NJ	Berkeley Heights, Cambridge, Allen & Assocs.	201-464-0203
NY	Rochester, Fowler Beach Corp.	716-586-0468
OH	Medina, G. W. Thelen	216-723-1293
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Lebanon, Jacobsen Assocs.	717-273-9746
UT	Salt Lake City, Cummings & Assocs. Mktg., Inc.	801-263-8131
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Bellevue, Underwood-Hanify	206-451-8223
WA	Vancouver, Underwood-Hanify	503-224-0583
WI	Greenfield, Olympic	414-281-9294

NATIONAL SEMICONDUCTOR CORP., 2900 Kifer Rd., # 23-200, Santa Clara, CA 95051

NATIONAL SEMICONDUCTOR OPTOELECTRONICS, 365 Jordan Road, Troy, NY 12180-8396, Tel: 518-271-2100, TWX: 710-444-4962; *Dist. Mgr.:* Donna McLaughlin

NATIONAL SEMICONDUCTORS, LTD., See Silonex Inc.

NATIONAL SOLID STATE DEVELOPMENT, INC., See NSD

NATIONAL SONICS/XERTEX CORP., 250 Marcus Blvd., Hauppauge, NY 11787, Tel: 516-273-6600, Telex: 14-4545; Empl.: 140; *Sls. Mgr.:* John Kristoffersen

NATIONAL-STANDARD CO., 601 N. 8th, Niles, MI 49120, Tel: 616-683-8100, Telex: 25-8453, TWX: 810-270-3153; Empl.: 3100; *Sls. Mgr.:* J. L. Dayton; *Dist. Mgr.:* J. L. Dayton

NATIONAL TELEPHONE & ELCTRNS. INC., 2350 N.W. 96 Avenue, Miami, FL 33172, Tel: 305-592-0551; Empl.: 50

NATIONAL TEL-TRONICS, State Road Hill, Meadville, PA 16335, Tel: 814-724-6440, Telex: NATL TELMEAD 91-4405; Empl.: 250; *Dist. Mgr.:* D. R. Booth .... **C•1473**

Local Sales Offices & Reps

AL	Birmingham, Southeastern First Rep	205-967-7082
CA	Milpitas, Ward Elctrn. Pkg.	408-945-0420
CA	San Diego, CK Assocs.	619-279-0420
CA	Santa Ana, Electrotechnical Sls.	714-546-9305
CO	Denver, Donohue Sls. Co.	303-455-1719
CT	Hamden, F. Manzi Sls.	203-281-3534
FL	Kissimmee, Southeastern First Rep	305-846-1306
FL	Melbourne, Southeastern First Rep	305-784-4723
FL	North Palm Beach, Southeastern First Rep	305-844-3758
GA	Atlanta, Effective Mktg.	404-948-6023
GA	Atlanta, Southeastern First Rep	404-393-2073
IL	Chicago, Electro-Mech Sls. Co.	312-777-0554
IN	Columbus, Tech. Reps.	812-376-9226
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MA	Framington, Marathon Sls.	617-875-3566
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Louis, Beams Co.	314-569-1069
NJ	Cherry Hill, Ned Krouse Assocs.	609-424-3543
NJ	Nutley, Falk-Baker Assocs.	201-661-2430
NY	Macedon, M. M. Hare Co.	315-986-3742
NC	Raleigh, RepCo Mktg.	919-787-7887
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
TN	Greeneville, Dimark	615-639-0113
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
UT	Salt Lake City, Meridian Mktg.	801-968-4177
WA	Bellevue, Panoco	206-454-2503
Can	Hamilton, Ont., Cartwright & Southall Assocs.	416-528-0294

Local Distributors

AZ	Phoenix, Tri-Tek, Inc.	602-995-9352
CA	Anaheim, Bisco Inds.	714-635-0380
CA	Haywood, Allied Elctrns.	415-487-5250
CA	Industry, Ital Elctrns.	818-968-8515
CA	Redondo Beach, Mark Elctrns.	213-772-2141
CA	San Jose, Bisco Inds.	408-946-8980
CA	Santa Ana, Compu Svc.	714-546-5140
CA	Santa Ana, CR Elctrns.	714-556-2040
CA	Sunnyvale, Electronics Recs.	408-745-1420
CO	Arvada, Denver Wintronics	303-431-7161
CO	Denver, CSID	303-292-9594
FL	Pompano Beach, Components South	305-971-0350
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Franklin Park, Bisco Inds.	312-451-1230
IN	Fort Wayne, Graham Elctrn.	219-423-3422
IN	Indianapolis, Graham Elctrn.	317-634-8202
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Lynn, Land Elctrns.	617-592-2220
MN	Fridley, Voyager Elctrns. Corp.	612-571-7766
NH	Dover, American Radio	603-742-6800
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	Clifton, Meltronics, Inc.	201-340-3200
NY	Buffalo, Summit Distr.	716-884-3450
NY	Port Washington, Connector Concepts	516-883-3800

NY	Rochester, Summit Distr.	716-334-8110
NC	Winston-Salem, Kirkman Elctrns., Inc.	919-722-9131
OR	Portland, United Radio Supp.	503-233-7151
PA	Huntingdon Valley, Shap Elctrns.	215-322-7150
TX	Dallas, Heilind Elctrns.	214-351-2058
TX	Ft. Worth, Allied Elctrns.	817-336-5401
WA	Seattle, Pacific Elctrns.	206-575-1050

NATIONAL WIRE & CABLE CORP., 136 San Fernando Rd., Los Angeles, CA 90031-1780, Tel: 213-225-5611, Telex: 181409, TWX: 910-321-4155; FSC No.: 04569; Empl.: 225 .... **C•1868-1884**

Local Sales Offices & Reps

AZ	Phoenix, Coker Assoc.	602-277-7494
AR	Gassville, P.M.I. Sls. Co.	501-435-2004
CA	Redwood City, National Wire & Cable	415-365-1952
CA	San Diego, McKinley Elctrn. Sls.	619-271-7221
CA	Santa Clara, Ross Mktg.	408-988-8111
CO	Arvada, Arrowhead Sls.	303-423-5556
FL	Altamonte Springs, Gugel-Tuttle Assocs.	305-788-0845
FL	Orlando, National Wire & Cable	305-898-3801
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
HI	Hilo, Kirco Corp.	808-959-3888
IL	Northfield, H. S. Tollaksen	312-441-6644
MD	Glen Burnie, Faion Lott	301-744-4611
MA	Wellesley, Tom Maguire Assocs., Inc.	617-431-1120
MI	Livonia, Luebbe Sls.	313-477-3131
MN	Bloomington, Electro Sls. Inc.	612-854-8775
MO	St. Louis, P.M.I. Sls. Co.	314-894-0073
NJ	Wayne, GT Assoc.	201-694-6040
NY	Farmingdale, National Wire & Cable	516-752-8038
NY	Sodus, Kehoe Comp. Sls.	315-483-9122
OH	Cincinnati, Luebbe Sls.	513-891-5770
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls. Co.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Pittsburgh, Luebbe Sls. Co.	412-931-0414
TX	Fort Worth, J. H. Gibbs Assocs.	817-430-1861

NATIONWIDE ELECTRONIC SYSTEMS, See NES, Inc.

NAUGLER ENGRG., Off Dunham Rd., Beverly, MA 01915, Tel: 617-922-5634; FSC No.: 05222; Empl.: 10; *Sls. Mgr.:* Charles A. Osborn

NAZ-DAR INTL., 1087 N. Branch St., Chicago, IL 60622, Tel: 312-943-8338, Telex: 25-3303; Empl.: 53; *Sls. Mgr.:* Don Finwall; *Dist. Mgr.:* Don Finwall

N.C.E., Mail Station 331, 9925 Lyndale Ave. S., Bloomington, MN 55420, Tel: 612-890-1360; *Sls. Mgr.:* Irene R. Smith .... **D•1428-1429**

NCR COMTEN, INC., NCR Corp., 2700 Snelling Avenue N., St. Paul, MN 55113, Tel: 612-638-7777, Telex: 6879018 COMTEN, TWX: 910-563-3661; FSC No.: 7025-0010; Empl.: 2900; *Sls. Mgr.:* Lewis M. Meador; *Dist. Mgr.:* Michael R. Wageman

NCR MICROELECTRONICS DIV., NCR Corp., 8181 Byers Rd., Miamisburg, OH 45342, Tel: 800-543-5618, 513-866-7471, Telex: 241669 NCR NVMEM MSBG; FSC No.: 60924; *Sls. Mgr.:* Walt Krysiak

NCR CORP., Terminal Sys Div., Babcock Hall, Terrace Hill, Ithaca, NY 14850, Tel: 607-273-5310

NCR POWER SYSTEMS, 584 S. Lake Emma Rd., Lake Mary, FL 32746, Tel: 305-323-9250, 800-327-7612, TWX: 810-856-0290; Empl.: 156; *Sls. Mgr.:* David A. Kemp

NEC ELECTRONICS, INC., 401 Ellis Street, Mtn. View, CA 94039, Tel: 415-960-6000, TWX: 910-379-6985; Empl.: 1100; *Sls. Mgr.:* Bob Commins; *Dist. Mgr.:* Phil Hubbert

NEC ELCTRNS. USA INC., NEC Electron Div., 252 Humboldt Ct., Sunnyvale, CA 94086, Tel: 408-745-6520, Telex: 35-7475, TWX: 910-339-9539; *Sls. Mgr.:* Robert Buchanan; *Dist. Mgr.:* Jason Stewart

NEC INFORMATION SYSTEMS, NEC Corporation, 1414 Massachusetts Ave., Boxborough, MA 01719, Tel: 617-264-8000, Telex: 92-3434; Empl.: 900; *Sls. Mgr.:* Richard Gilbert

NEDA, See National Elctrn. Distrs. Assn.

NEFF INSTR., 700 S. Myrtle Ave., Monrovia, CA 91016, Tel: 818-357-2281, TWX: 910-585-1833; Empl.: 125; *Sls. Mgr.:* James T. Barber

NELSON STUD WELDING TRW INC., 28th & Toledo Ave., Lorain, OH 44055, Tel: 216-245-6931, Telex: 980466; Empl.: 350; *Sls. Mgr.:* B. Robinson

NEPENTHE/YAMAICHI, 2471 E. Bayshore, #520, Palo Alto, CA 94303, Tel: 415-856-9332, TWX: 910-373-2060; FSC No.: 415.856 8650; *Sls. Mgr.:* G. Hall

NESHAMINY TRANSFORMER, Neshaminy Electronics Corp., Edison-Furlong Road, Furlong, PA 18925, Tel: 215-794-7411; *Sls. Mgr.:* Philip Klein

NES
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NES, INC. (NATIONWIDE ELECTRONIC SYSTEMS), 3003 Wakefield, Carpentersville, IL 60110, Tel: 312-426-5900; Empl.: 293; *Sls. Mgr.:* David A. Voelker; *Dist. Mgr.:* David A. Voelker .... **B•1089; D•1069, 1127, 1159, 1365-1368**

Local Sales Offices & Reps

CA	Palo Alto, Priz Co.	415-326-9333
IL	Moline, Jim Otis & Assocs.	309-762-9311
IN	Indianapolis, Electro Dev. & Engrg. Co.	317-547-5274
LA	Baton Rouge, Control Sys. Consultants	504-292-1462
MD	Baltimore, Wistex, Inc.	301-366-6303
NE	Lincoln, Jim Otis & Assocs.	402-474-2390
NY	Albany, L-Tron Assocs. Corp.	518-482-1987
NY	Rochester, L-Tron Assocs. Corp.	716-436-4410
OH	Cincinnati, Anderson-Bolds	513-528-5680
OH	Cleveland, Anderson-Bolds	216-229-4700
PA	Wayne, Wistex, Inc.	215-687-5930
UT	Sandy, Priz Co.	801-571-7311
WI	Waukesha, BII	414-549-4141

Local Distributors

IL	Bridgeview (Chicago), Norman Equip. Co.	312-430-4000
IL	Countryside, Pacific Indicator	312-352-3500
KY	Louisville, Main Elec.	502-587-6511
NC	Charlotte, General Elctrn. of Charlotte	704-568-6793
SC	Charleston, Flow Control	803-722-0176
TX	Houston, Quality Instr. Lab	713-524-0528

NETCOM, 3002 Commercial Ave., Northbrook, IL 60062, Tel: 312-564-5100, TWX: 910-686-5478; FSC No.: 57193; Empl.: 85; *Sls. Mgr.:* Wayne Roeder

NEUTRIK PRODUCTS, See Kulka Smith

NEW ENGLAND INSTR., Robertshaw Controls, 14 Kendal Lane, Natick, MA 01760, Tel: 617-875-9711, TWX: 710-346-0398; Empl.: 600

NEW ENGLAND SMELTING WORKS, INC., 502 Union St., W. Springfield, MA 01090, Tel: 413-734-6491; FSC No.: 3439; Empl.: 35; *Sls. Mgr.:* David R. Saffer

Local Sales Offices & Reps

MI	Franklin, New England Smelting Works Inc.	313-855-1133,800-521-0352
MI	Southfield, New England Smelting Wks. Sls.	313-355-0393, 800-521-0352

NEW HAMPSHIRE BALL BEARINGS, INC., Rte. 202, Peterborough, NH 03458, Tel: 603-924-3311, TWX: 710-364-1805; Empl.: 1000

NEW HAVEN WIRE & CABLE, P.O. Box 266, New Haven, IN 46774, Tel: 219-493-4489, Telex: 232414; Empl.: 52

NEWMAN, M. M., CORP., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, Tel: 617-631-7100; FSC No.: 09106; *Sls. Mgr.:* C. Loutrel; *Dist. Mgr.:* C. Loutrel .... **C•1885**

NEW MEDIA GRAPHICS CORP., 279 Cambridge St. #5, Burlington, MA 01803, Tel: 617-272-8501

NEWPORT

NEWPORT ELECTRONICS, 630 E. Young St., Santa Ana, CA 92705, Tel: 714-540-4914, TWX: 910-595-1787; Empl.: 150; *Sls. Mgr.:* Jim Way .... **D•1370-1371**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assocs.	205-881-5031
AZ	Phoenix, CPS Assocs.	602-246-1097
CA	MT. View, IFM, Inc.	415-961-2828
CA	Pasadena, Luscombe Engrg. Co.	213-684-2000
CO	Denver, AKI Entprs.	303-388-4488
CT	Madison, Eastronix, Inc.	203-421-4514
FL	Boca Raton, Beacon Elctrns. Assocs.	305-392-3500
GA	Atlanta, Beacon Elctrns. Assocs.	404-256-9640
IL	Arlington Hgts., Brainard-Wilson	312-437-2700
IN	Carmel, Brainard-Wilson	317-844-2800
KS	Mission, H & H Elec. Sls.	913-236-4460
MD	Perry Hall, Electra-Tech	301-256-2723
MA	Bedford, Eastronix, Inc.	617-275-5775
MI	Farmington, Amtech Reps.	313-474-8300
MN	Eden Prairie, Rockmore Sls. Corp.	612-941-1390
MO	St. Charles, Power Transmission Sys.	314-928-1750
NJ	Parlin, JMR Sls.	201-254-8484
NY	East Setauket, JMR Sls., Inc.	516-689-8871
NY	Skaneateles, ADN Entprs.	315-685-8991
NC	Raleigh, Beacon Elctrns. Assocs.	919-787-0330
OH	Centerville, Dolfuss-Root & Co.	513-433-6776
OH	Strongsville, Dolfuss-Root & Co.	216-238-0300
OK	Tulsa, Associated Dyn.	918-743-8116
OR	Portland, Calvert Controls, Inc.	503-222-6473
PA	Bridgeville, Dolfuss-Root & Co.	412-221-4420
PA	King of Prussia, J. E. Cuesta & Co., Inc.	215-265-5800
TX	Addison, Associated Dyn., Inc.	214-387-3800
TX	Houston, Associated Dyn., Inc.	713-777-9443
VA	Dumfries, Electra-Tech	703-670-6962
WA	Spokane, Calvert Controls	509-244-3601
WI	Menomonee Falls, Brainard-Wilson	414-255-3400

Local Distributors

		615-885-1302
AL	Birmingham, Brownell-Electro, Inc.	205-323-4761
AL	Muscle Schoals, Jones Elctrns.	205-383-1241
AZ	Phoenix, Metermaster	602-437-1425
AZ	Tempe, Beta Distrs.	602-894-9824
AR	Little Rock, Brownell Instr. & Controls	501-562-2061
CA	Costa Mesa, FLW, Inc	714-751-7512
CA	Hayward, FLW, Inc.	415-487-2222
CA	Los Angeles, EIL Instrs., Inc.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	San Leandro, Coast Instr.	415-483-3774
CO	Englewood, Beta Distrs.	303-779-4494
CT	Middletown, EIL Instrs., Inc.	203-346-6646
FL	Miami, Brownell Electro, Inc.	305-591-2636
GA	Atlanta (Hapeville), Brownell Electro	404-762-5181
GA	Marietta, FLW, S.E.	404-424-1731
HI	Kailua, FLW, Inc.	808-945-1030
IL	Chicago, Data Elctrns. Co.	312-283-0300
IL	Elk Grove Village, Metermaster	312-593-8650
IN	Indianapolis, Data Elctrns.	317-359-5368
IA	Davenport, Universal Precision Instr.	319-326-5757
KS	Kansas City, Kornfeld Thorp	913-321-7070
KY	Louisville, EIL Instrs.	502-454-3420
LA	Baton Rouge, Beta Distrs.	504-924-6826
MD	Gaithersburg, Pioneer Instrs.	301-921-0660
MD	Sparks, EIL Instr.	301-771-4800
MA	Waltham, Calibron Instrs.	617-894-6440
MI	Livonia, Pioneer Instr.	313-525-1800
MI	Royal Oak, George Instr.	313-280-1111
MN	Plymouth, Data Elctrns.	612-559-1434
MO	St. Louis, Universal Precision Inst.	314-394-4693
NJ	Newfoundland, Hosica Labs.	201-697-6111
NM	Albuquerque, Beta Distrs.	505-966-2420
NY	Buffalo, Robert F. Lamb Co.	716-874-4900
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Hauppauge, EIL Instrs., Inc.	516-231-6333
NY	NYC, Brownell Electro	212-924-6000
NY	Rochester, Robert F. Lamb Co.	716-323-1250
NC	Concord, FLW Southeast	704-597-7623
NC	Raleigh, Brownell Electro	919-876-6524
OH	Cleveland, Metermaster	216-651-4100
OH	Cleveland, Pioneer Instr.	216-587-3600
OH	Cleveland, Weschler Elec.	216-238-2550
OH	Dayton, EIL Instrs., Inc.	513-435-2134

OH	Dayton, Pioneer Instr.	513-236-9900
OK	Tulsa, Inotek	918-622-8570
OR	Portland, Westcon	503-283-0132
PA	Pittsburgh, Pioneer Instr.	412-782-2300
TN	Memphis, FLW Southeast	901-345-3563
TN	Nashville, Brownell Electro, Inc.	615-889-8230
TX	Austin, Beta Distrs.	512-452-0199
TX	Dallas, Dallas Meter Tek	214-349-6044
TX	Dallas, Inotek	214-243-7000
TX	Ft. Worth, Inotek	817-877-5100
TX	Garland, Metermaster	214-271-5671
TX	Houston, American Analog	713-941-7265
TX	Houston, Beta Distrs.	713-682-1234
TX	Houston, Inotek	713-688-7000
TX	Richardson, Beta Distrs.	214-783-1065
UT	S.L.C., Beta Distrs.	801-972-4455
VA	Richmond, Metermetrics	804-275-1431
WA	Seattle, Eicher-Richards Co.	206-523-7888
WA	Seattle, EIL Instrs., Inc.	206-762-0880
WI	Milwaukee, E-M Instrs.	414-272-7799

NEW-TONE ELECTRONICS, INC., 44 Farrand St., Bloomfield, NJ 07003, Tel: 201-748-5089; Empl.: 50; *Sls. Mgr.:* Annette Fuchs

NEW WAVE INSTRUMENTS, 3760 Masters Court, San Jose, CA 95111, Tel: 408-629-3105

N.Y. TESTING LABS., INC., 81 Urban Ave., Westbury, NY 11590, Tel: 516-334-7770, TWX: 212-297-1449; Empl.: 50

NIC COMPONENTS CORP., 238 Rte. 109, Farmingdale, NY 11735, Tel: 516-694-0060, 800-645-9333, Telex: 221-228; Empl.: 50; *Sls. Mgr.:* Ronald J. Travis; *Dist. Mgr.:* Nancy Lamendola .... **A•1140-1141, 1910**

Local Sales Offices & Reps

AL	Huntsville, Novus Group	205-881-2207
AZ	Phoenix, Sterling Elctrns.	602-258-4531
AZ	Phoenix, Tech Sls.	602-246-1614
AR	Little Rock, Carlton Bates	501-562-9100
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Mission Viejo, Par Mktg.	714-768-6021
CA	Redwood City, James S. Heaton Co.	415-367-9000
CA	San Diego, Bestronic South	619-452-5500
CA	San Diego, Ryno	619-292-6022
CA	Santa Ana, Projections Unlimited	714-641-1472
CA	Sun Valley, QC Comps.	213-768-6111
CT	Bloomfield, SLR Assocs.	203-243-9343
CT	Danbury, Pilgrim Elctrns.	203-792-7274
FL	Clearwater, Perrott Assocs.	813-443-5214
FL	Largo, Graham Elctrns.	813-541-4434
IL	Champaign, Klaus Radio	217-356-1896
IL	Lisle, W. G. Controls	312-963-5954
IL	Melrose Park, Belford Elctrns,	312-865-2400
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Elctrn. Rep. Inc.	317-894-1414
IA	Cedar Rapids, Deeco	319-365-7551
KS	Shawnee Mission, K&M Sls.	913-262-1444
KY	Louisville, Peerless	502-637-7674
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MD	Rockville, MS Elctrns.	301-340-6400
MA	Bedford, SLR Assocs.	617-275-5550
MA	Burlington, TLC	617-273-0140
MI	Detroit, Burcaw Co.	313-533-7700
MI	Grand Rapids, SF Elctrns.	616-459-0216
MI	Livonia, Reptron	313-525-2700
MN	Bloomington, NWR	612-854-7329
MN	Golden Valley, Ambassador Ino Mktg.	612-542-8437
NH	Londonderry, S Squared	603-434-2033
NJ	Perth Amboy, Sterling	201-442-8000
NJ	Union, Cougar	201-687-7722
NY	Hauppauge, Belmont Elctrns.	516-273-1333
NY	Jericho, J-Square Mktg. Inc.	516-935-3200
NY	Suffern, M&M Assoc.	914-368-0583
NC	Greensboro, United Sls.	919-674-9849
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cincinnati, Stegman Blaine Mktg. Inc.	513-729-1969
OH	Dayton, Dulian	513-445-0424
OH	Vandalia, Stegman Blaine Mktg. Inc.	513-890-7975
OR	Beaverton, ACACIA	503-646-3377
PA	Philadelphia, Paragon Sls.	215-563-7060
TN	Nashville, Graham	615-242-2682
TX	Dallas, Design Mktg.	214-680-9767
TX	Dallas, Heiland Elctrns.	214-351-2050
TX	Hurst, Design Mktg.	817-268-2004
UT	S. Jordan, Mac III	801-566-3781
EXP	New York Farmingdale, NIC Comps. Corp.	516-694-0060

NICHICON (AMERICA) CORP., 927 E. State Pkwy., Schaumburg, IL 60195, Tel: 312-843-7500, Telex: 20-6577; FSC No.: 312-843-2798; 312-843-7125; *Sls. Mgr.:* Russ Edwards; *Dist. Mgr.:* Robert Poteracki

NICHIFU AMERICA, INC., 1494 N. Charlotte St., Pottstown, PA 19464, Tel: 215-323-7120; *Sls. Mgr.:* Roy Allen

NICOLET'S COMPUTER GRAPHICS DIVISION, P.O. Box 3020, 777 Arnold Dr., Martinez, CA 94553, Tel: 415-372-7568, TWX: 910-481-5951 ZETAPLOTS MART; FSC No.: 52893; Empl.; 150; *Sls. Mgr.:* Howard Keiper

NICOLET INSTR. CORP., Oscilloscope Div., 5225 Verona Rd., Madison, WI 53711, Tel: 608-271-3333, TWX: 910-286-2737; Empl.: 525; *Sls. Mgr.:* Dean Dawson

Local Sales Offices & Reps

AZ	Phoenix, Axtec Entprs.	602-944-9185
CA	Los Angeles, Nicolet Instr.	714-549-7611
CA	San Diego, Nicolet Instr.	619-454-6274
CA	San Jose, Nicolet Instr.	408-946-3310
CO	Littleton, Aztec Entprs.	303-795-0250
FL	Valrico, Nicolet Instr.	813-685-0444
GA	Tucker, Nicolet Instr.	404-491-0127
IL	Chicago, Nicolet Instr.	312-843-2905
MD	Lanham, Nicolet Instr.	301-459-2940
MA	Burlington, Nicolet Instr.	617-273-4404
MI	Brighton, Nicolet Instrument	313-229-4655
MN	Minneapolis, Nicolet Instr.	612-933-0048
MO	St. Louis, Nicolet Instr.	314-821-2868
NJ	Cherry Hill, Nicolet Instr.	609-665-5100
NJ	Cranford, Nicolet Instr.	201-276-6677
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Schenectady, Nicolet Instr.	518-346-2503
NC	Charlotte, Nicolet Instr. Corp.	704-364-0240
OH	Chardon, Nicolet Instr.	216-951-8249
OH	Hamilton, NIC Inst.	513-868-3611
PA	Beaver Falls, Nicolet Instrument	412-847-0100
TX	Plano, Nicolet Instr.	214-422-4014
UT	Salt Lake City, Aztec Entprs.	801-621-1655
WA	Edmonds, Nicolet Instr. Corp.	206-771-2400
WI	Madison, Nicolet Instr.	608-273-5008

NICOLET PARATRONICS, 201 Fourier Ave., Fremont, CA 94539, Tel: 415-490-8300, TWX: 910-381-7030; FSC No.: 6625; Empl.: 95; *Sls. Mgr.:* Bob Francisco

NIDEC-TORIN CORPORATION, 100 Franklin Drive, Torrington, CT 06790, Tel: 203-482-4422, Telex: 643963; Empl.: 200; *Sls. Mgr.:* Robert Murphy; *Dist. Mgr.:* Rich Brache

NISSEI SANGYO AMERICA, LTD., 1701 Golf Rd., Ste. 401, Rolling Meadows, IL 60008, Tel: 312-981-8989, Telex: 28-0547, TWX: 910-233-5865; *Sls. Mgr.:* Y. Hamada

NITRON, 10420 Bubb Rd., Cupertino, CA 95014, Tel: 408-255-7550, TWX: 910-338-0222; Empl.: 150; *Sls. Mgr.:* R. Gardner

NITTANY PIEZO CERAMICS, Box 756, Pine and Mill Streets, Bellefonte, PA 16823, Tel: 814-355-1593, 814-355-1594; FSC No.: 5955; Empl.: 28; *Sls. Mgr.:* T. E. Kolbe

NITTO DENKO AMERICA, INC., 27 Seaview Blvd., Port Washington, NY 11050, Tel: 516-484-9700, Telex: 96-1386; *Sls. Mgr.:* Steven E. Schoenstadt

NJE CORPORATION, 329 Culver Rd, P.O. Box 669, Dayton, NJ 08810-0669, Tel: 201-329-4611, TWX: 710-480-5674; FSC No.: 98380; Empl.: 125; *Sls. Mgr.:* John M. Slavik .... **D•1733**

Local Sales Offices & Reps

AL	Huntsville, REMCO-Rakes Engrg. & Mktg.	205-533-3763
AR	Fort Smith, Electra Reps	501-452-4030
CA	Garden Grove, Elsco Elctrns., Inc.	714-891-4621
CA	Los Gatos, Pro Assocs., Inc.	408-358-3861
CO	Englewood, F. G. Mktg.	303-795-9176
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBC Elctrns.	301-831-5380
GA	Atlanta, REMCO-Rakes Engrg. & Mktg.	404-447-6937
IA	Davenport, Ensco-Rep, Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep, Inc.	316-683-1070
MD	Rockville, Spectro Assocs., Inc.	301-294-9770
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Brighton, A. P. Assocs.	313-229-6550
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Maryland Heights, Ensco-Rep, Inc.	314-423-3935
NJ	Dayton, NJE Corp.	201-329-4611
NY	Lynbrook, P. Saftler & Assocs.	516-593-7880
NC	Raleigh, REMCO-Rakes Engrg. & Mktg.	919-847-5079
OH	Englewood, Allen Nace Co.	513-836-0931
OH	Richfield, Allen Nace Co.	216-659-7178
PA	Glenshaw, Allen Nace Co.	412-487-1217
TX	Austin, Electra Reps	512-339-1163
TX	Dallas, Electra Reps	214-248-3842
WA	Bellevue, Underwood-Hanify	206-451-8223
WA	Vancouver, Underwood-Hanify	503-224-0583

NKK SWITCHES OF AMERICA, INC., 14415 N. Scottsdale Rd., Ste. 600, Scottsdale, AZ 85260, Tel: 602-991-0942, TWX: 910-950-1167; FSC No.: 7T118; Empl.: 50; *Sls. Mgr.:* Clemens J. Czapinski, Jr.; *Dist. Mgr.:* Clemens J. Czapinski, Jr. .... **B•1673-1681**

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
AZ	Scottsdale, Mahaffey & Assocs.	602-991-9790
AZ	Scottsdale, NKK Switches	602-991-0942
CA	Granada Hills, C & W Component Sls.	213-368-4032
CA	Mountain View, Caltron Components Corp.	415-964-3244
CA	San Diego, McKinley Elctrn. Sls.	619-271-7221
CO	Parker, Technology Mktg.	303-841-3435
CT	Yalesville, Newscott Co.	203-269-2645
FL	Brandon, Over & Over, Inc.	813-689-9104
GA	Norcross, Over & Over, Inc.	404-449-6205
IL	Rolling Meadows, KMA Sales	312-398-5300
IN	Fort Wayne, Frank E. Kahsar Sls.	219-422-0311
IN	Indianapolis, Frank E. Kahsar Sls.	317-888-8396
KS	Merriam, Midwest Tech. Sls.	913-236-8557
MD	Timonium, Eastern Comps. Sls.	301-561-5811
MA	Needham Hgts., Newscott Co.	617-444-1923
MI	Farmington, Amtech Reps.	313-474-8300
MN	Minnetonka, SAI Mktg. Corp.	612-935-0777
MO	St. Charles, Midwest Tech. Sls.	314-441-1012
NY	Fairport, NET Sales Co.	716-467-4538
NY	Oceanside, Bittan Assocs.	516-678-6222
NC	Charlotte, Over & Over	704-527-3070
OH	Cincinnati, Frank E. Kahsar Sls.	513-922-3133
OH	Hudson, Frank E. Kahsar Sls.	216-650-1089
OR	Portland, James J. Backer, Inc.	503-297-8744
PA	West Conshohocken, Eastern Comps. Sls.	215-825-8610
TX	Dallas, Rem Air Components Corp.	214-234-1069
UT	Salt Lake City, Tech. Mktg. Assocs.	801-483-1009
WA	Seattle, James J. Backer Co.	206-285-1300
WI	Milwaukee, KMA Sls. Co.	414-259-1771
Can	Toronto, Ont., Renmark Elctrn. Sls.	416-494-5445

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2885

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CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Los Angeles, Electric Switches, Inc.	213-660-1310
CA	San Diego, Mock III Sls. Co., Inc.	619-560-0515
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Dimas, Mrs. Switch, Inc.	714-599-6639
CA	San Jose, Cypress Elctrns., Inc.	408-945-8400
CA	San Jose, Powell Elctrns.	408-943-9020
CA	San Jose, Rose Elctrn. Dist. Co.	401-263-9700
CA	Torrance, Cypress Elctrns., Inc.	213-533-6005
CA	Tustin, Western Switches & Controls	714-731-4333
CO	Arvada, Denver Wintronics	303-431-7161
CO	Aurora, Jet Elctrns. Supp. Co.	303-364-1000
CT	Danbury, Pilgrim Elctrns., Inc.	203-792-7274
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Largo, Graham Elctrns.	813-541-4434
FL	Longwood, Interec Comps., Inc.	305-834-7777
FL	Miami, Electronic Equip. Co.	305-871-3500
FL	West Palm Beach, Nurmi Elctrn. Supp., Inc.	305-686-8553
IL	Chicago, NEP Elctrns., Inc.	312-625-8400
IL	Wheeling, Hawk Elctrns., Inc.	312-459-4030
IN	Fort Wayne, Graham Elctrns. Supply	219-423-3422
IN	Indianapolis, Graham Elctrns. Supply	317-634-8202
IN	Indianapolis, MAR Elctrns.	317-875-4510
KS	Wichita, Airtechnics, Inc.	316-267-2849
LA	New Orleans, Southern Radio Supp. Co.	504-524-2343
MD	Columbia, Powell Elctrns.	301-995-0410
MD	Kensington, Marine Air Supply Co.	301-949-9560
MA	Boston, Controller Svc. & Sls.	617-269-1300
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Woburn, E.P.C., Inc.	617-935-0400
MI	St. Clair Shores, Spemco Switches Mfg.	313-771-2700
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Hopkins, The Joel Co.	612-935-6202
MO	St. Louis, Franklin Elctrns. Co.	314-993-5333
NJ	E. Brunswick, Brothers Elctrns.	201-238-2200
NJ	Englewood, Powell Elctrns.	201-894-0800
NY	Hempstead, Electronic Equip. Co.	516-538-5510
NY	Mt. Vernon, QAR Industrial Elctrn. Sls., Inc.	914-699-2224
NY	Plattsburgh, Rostech Elctrns.	518-561-8357
NY	Rochester, Masline Elctrns., Inc.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NY	Troy, Trojan Elctrn. Supp. Co.	518-274-4481
NY	Yonkers, Kintronics, Inc.	914-968-7736
NC	Cary, Powell Elctrns.	919-467-1212
OH	Cincinnati, Schuster Elec. Co.	513-489-1400
OH	Columbus, Wedemeyer Elctrn. Supp. Co., Inc.	614-436-9600
OH	Twinsburg, Schuster Elec. Co.	216-425-8134
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Norvac Elctrns.	503-644-1025
OR	Beaverton, Rose Elctrn. Distr.	503-629-9288
PA	Allentown, Lehigh Elctrn. Comps.	215-433-3045
PA	Exton, VSH Elctrns.	215-363-2250
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Wayne, Peak Elctrns.	215-293-9000
SC	Taylors, Cantrell Whlse. Prods.	803-268-1194
TN	Chattanooga, Techni-Tronics, Inc.	615-875-5449
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Dallas, Off The Shelf Comps., Inc.	214-247-0052
TX	Dallas, Wallace Elctrns.	214-340-0400
TX	Houston, E.P.C., Inc.	713-447-5800
TX	Irving, Powell Elctrns.	214-258-6841
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-240-4000
UT	Salt Lake City, Ballard Supp. Corp.	801-972-2430
WA	Bellevue, Powell Elctrns.	206-641-4446
WA	Kirkland, Priebe Elctrns., Inc.	206-821-4695
WI	Mequon, Taylor Elec.	414-241-4321
WI	Oconomowoc, GW Elctrns., Ltd	414-367-6003

NKR PRECISION MFG., Rte. 17M, Box 333, Harriman, NY 10926, Tel: 914-782-8562; Empl.: 17

NL BEARINGS/NL INDUSTRIES INC., PO Box 934, Toledo, OH 43694, Tel: 419-381-3100; Empl.: 1000; *Sls. Mgr.:* James Doherty; *Dist. Mgr.:* B. Sexauer

NMB CORP., MOTOR DIV., 9601 Mason Ave., Chatsworth, CA 91311, Tel: 213-709-1555

NOBEX DIV., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010, Tel: 415-342-8170, TWX: 910-374-2840; FSC No.: 32767; Empl.: 35

NOBLE U.S.A., INC., 151 Stanley St., Elk Grove Village, IL 60007, Tel: 312-364-6038, Telex: 206745; FSC No.: 1-3123646045; *Sls. Mgr.:* Vyto Omilijonas; *Dist. Mgr.:* Vyto Omilijonas

NOLATRON, P.O. Box 4042, Harrisburg, PA 17111, Tel: 717-564-3398; Empl.: 10

NOLL, J. A. CO., P.O. Box 312, Monroeville, PA 15146, Tel: 412-733-1009; *Sls. Mgr.:* P. Carson; *Dist. Mgr.:* P. Carson

NON-LINEAR SYSTEMS/DIV. OF KAYPRO CORP., 533 Stevens Ave., Solana Bch., CA 92075, Tel: 619-481-3900, TWX: 910-322-1132; Empl.: 55; *Sls. Mgr.:* Ben W. Fisher; *Dist. Mgr.:* Jeanne Simmons

Local Distributors

AZ	Phoenix, Metermaster	602-273-7331
CA	Costa Mesa, Marvac Elctrns.	714-540-3280
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Hayward, Allied Elctrns.	415-487-5250
CA	Hollywood, Yale	213-465-3186
CA	Irvine, Meter Craft	714-979-1420
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	Monterey, Zackit	408-375-3144
CA	Oakland, Western Electro. Mech.	415-452-1936
CA	Palo Alto, Metermaster	415-968-0313
CA	San Diego, Metermaster	619-560-4841
CA	San Jose, Allied Elctrns.	408-727-1690
CO	Denver, E. I. L.	303-534-4160
CT	Middletown, E. I. L.	203-346-6646
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0550
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
FL	Palm City, Eil Instrs.	305-725-8300
GA	Atlanta, Brownell Electro	404-762-5181
GA	Atlanta, Metermaster	404-446-0166
IL	Bridgeview, Eil Instrs.	312-430-2292
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elk Grove, Metermaster	312-593-8650
IL	Itasca, Metermaster	312-250-0606
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Peoria, Klaus Radio	309-691-4840
IN	Indianapolis, Eil Instrs.	317-545-1373
KY	Louisville, Eil Instrs.	502-637-7677
LA	Harahan, Indus. Instru. Works	504-733-8355
LA	Lafayette, Ralph's of Lafayette	318-234-4507
MD	Elkridge, Sunshine Sci. Instrs.	301-796-5600
MD	Marlow Heights, Allied Elctrns.	301-423-0161
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MD	Sparks, E. I. L. Instrs	301-252-1260
MA	Boston, Allied Elctrns.	617-942-0150
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	Hingham, Sager Elec. Supp.	617-542-2281
MI	Ferndale, Ram Meter	313-547-1000
MN	Minneapolis, Instrumentation Svc.	612-544-8916
MO	Kansas City, Electronic Supp.	816-931-0250
MO	St. Louis, Eil Instrs.	317-545-1373
NV	Las Vegas, Hurley Elctrns.	702-384-5666
NJ	Edison, Brownell	202-287-2030
NJ	N. Caldwell, Hosica Labs	201-256-7724
NM	Albuquerque, Electronic Parks	505-293-6161
NY	Albany, Edwin E. Taylor	518-438-7811
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Hauppauge, Eil Instrs.	516-231-6333
NY	Mineola, Allied Elctrns.	516-248-2360
NY	New York, Advance Elctrns.	212-687-2224
NY	Port Chester, Wise Elctrns.	914-939-3940
NY	Rochester, Eil Instrs.	716-424-5750
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Charlotte, Brownell Electro	704-597-1270
NC	Raleigh, Brownell Electro	919-876-6524
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Metermaster	216-651-4100
OH	Columbus, Hughes Peters	614-294-5351
OH	Dayton, Eil Instrs.	513-435-2134
OH	Wickliffe, Gateway-Megatech	216-944-8565
OK	Oklahoma City, Trice	405-524-4411
OK	Tulsa, Radio, Inc.	918-587-9123
OK	Tulsa, Trice	918-585-5718
OR	Portland, United Radio Supp.	503-434-2171
PA	Philadelphia, Sunshine Sci. Instrs.	215-673-5600
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Pittsburgh, Eil Instrs.	412-731-5230
PA	Reading, Barbey	215-376-7451
PA	York, Cumberland	717-845-8791
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Chattanooga, Curle Elctrns.	615-266-4728
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Brownell Electro	615-889-8230
TX	Austin, Electrotex	512-454-0318
TX	Dallas, Dallas Meter Tek	214-349-6044
TX	Dallas, Eil Instrs.	214-931-1236
TX	Dallas, Metermaster	214-271-5671
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Elctrns.	713-681-2983
TX	Houston, Eil Instrs.	713-271-3100
TX	Houston, Electrotex	713-526-3456
TX	San Antonio, Sherman Elctrns.	512-224-1001
VA	Alexandria, Eil Instrs.	703-354-4330
VA	Virginia Beach, Eil Instrs.	804-499-3746
WA	Seattle, Eil Instrs.	206-762-0880

NORELCOM INDS., 63 Marine St., Farmingdale, NY 11735, Tel: 516-249-7245; Empl.: 55; *Sls. Mgr.:* Richard E. Thaw; *Dist. Mgr.:* Regina Vena

C. A. NORGREN CO., 5400 South Delaware, Littleton, CO 80120-1663, Tel: 303-794-2611; Empl.: 661; *Sls. Mgr.:* Patrick Maley

NORITAKE ELCTRNS., INC., Noritake Co., Ltd. (Japan), 22410 Hawthorne Blvd., #6, Torrance, CA 90505, Tel: 213-373-6704, Telex: 67-4910; *Sls. Mgr.:* T. Ohki

NORLAND CORP., Norland Dr., Ft. Atkinson, WI 53538, Tel: 414-563-8456, Telex: 26-5448; Empl.: 275; *Sls. Mgr.:* Robert J. Millar

NORPLEX DIV., 10 V.O.P. Plaza, Des Plaines, IL 60016, Tel: 312-391-2000

NORSAL INDS., 85 D Hoffman Lane So., Central Islip, NY 11722, Tel: 516-234-1200, TWX: 510-227-1045; *Sls. Mgr.:* Les Lipset

NORTH AMERICAN PHILIPS CONTROLS CORP., See Airpax Corporation, Cheshire Div.

NORTH AMERICAN PHILIPS LIGHTING, Bank St., Hightstown, NJ 08520, Tel: 609-448-4000, TWX: 510-685-5651; Empl.: 600; *Sls. Mgr.:* C. J. Lehmann

NORTH AMERICAN PRINTED CIRCUIT DIV., Tyco Labs., Inc., Box 145, Stafford, CT 06075, Tel: 203-684-2703; Empl.: 230

NORTH AMERICAN SOAR CORP., 11126 Cornell Ave., Cherry Hill, NJ 08002, Tel: 609-488-1060; Empl.: 7; *Sls. Mgr.:* Robert Liska **D•1174, 1267-1281, 1394-1396**

NORTH ATLANTIC INDS., Instrument Div., 60 Plant Ave., Hauppauge, NY 11788, Tel: 516-582-6500, TWX: 510-227-9660; FSC No.: 07342; Empl.: 320; *Sls. Mgr.:* K. Salz **D•1283, 1373**

Local Sales Offices & Reps

AZ	Phoenix, Aztec Entprs.	602-944-9185
CA	Cupertino, T. Louis Snitzer Co.	408-257-8333
CA	Delmar, T. Louis Snitzer Co.	714-226-0305
CA	Los Angeles, T. Louis Snitzer Co.	213-836-6170
CO	Littleton, Aztec Entprs.	303-795-0250
CT	Cheshire, Meco	203-271-0026
FL	Cocoa Beach, TeqSpec	305-783-3444
FL	Palm Harbor, Teqspec	813-785-2296
GA	Marietta, Periphix Teqspec	404-980-9328
IL	Chicago, Pat Lind Elctrns.	312-726-3513
IN	Indianapolis, Pat Lind Elctrns.	317-632-7444
MD	Wheaton, Brimberg Sls. Co.	301-946-2670
MA	Reading, Meco	617-944-6660
MI	Madison Hgts., WKM Assoc.	313-588-2300
MN	Circle Pines, P. Lind	612-786-5770
NM	Albuquerque, Aztec Entprs.	505-262-1688
NC	Winston-Salem, Teqspec III	919-723-8102
OH	Cleveland, WKM Assoc.	216-524-5930
OR	Beaverton, Northwest Test & Meas.	503-646-9966
PA	Doylestown, Tech. Instr. Sls.	215-345-4110
TX	Houston, Scientific Sls.	713-460-9170
TX	Richardson, Sci. Sls.	214-231-6541
UT	Ogden, Aztec Entprs.	801-621-1655
WA	Redmond, Northwest Test & Meas.	206-881-8857
WI	Milwaukee, Pat Lind Elctrns.	414-224-0146

NORTHEAST SCIENTIFIC CORP., 30 Wetherbee St., Acton, MA 01720, Tel: 617-263-2711; Empl.: 10; *Sls. Mgr.:* C. Moritz

NORTHERN ENGRG. LABS., See Midland-Ross Corp., NEL Unit

NORTHERN PRECISION LABS., 11 Madison Rd., Fairfield, NJ 07006, Tel: 201-227-4800, TWX: 710-734-4301; Empl.: 95; *Sls. Mgr.:* M.P. Nigro

NORTH HILLS ELCTRNS., 1 Alexander Pl., Glen Cove, NY 11542, Tel: 516-671-5700, Telex: 46-6886; FSC No.: 98821; Empl.: 100; *Sls. Mgr.:* H. H. Marx **A•1243, 1780, 2208-2210; D•1734**

Local Sales Offices & Reps

CA	Los Angeles, McDougall/McLauglin Co.	213-477-8556
CA	Palo Alto, Tri Rep	415-965-1822

MD	Silver Spring, A2Y	301-598-5740
MA	Burlington, Microwave Comps. Mktg.	617-273-3106
MA	Woburn, Microwave Comp. Mktg., Inc.	617-273-3106
MN	Minneapolis, Hei-Lite Sls.	612-861-6051

NORTHLAKE ENGRG., 999 Anita Ave., Antioch, IL 60002, Tel: 312-395-5710;.FSC No.: 50638; Empl.: 120; *Sls. Mgr.:* W. A. Hardt

NORTHWEST MICROCIRCUITS, INC., 2115 N. College, Newberg, OR 97132, Tel: 503-538-7081; Empl.: 7; *Sls. Mgr.:* Wm. H. Ferwalt

NORTON, One New Bond St., Worcester, MA 01606, Tel: 617-853-1000, Telex: 920428, TWX: 710-340-1126; Empl.: 19000

NORTON ASSOCS., 10 Di Tomas Ct., Copiague, NY 11726, Tel: 516-842-4666; FSC No.: 08739

NORTON CHEMPLAST, 31-150 Dey Rd., Wayne, NJ 07470, Tel: 201-696-4700, TWX: 710-988-5834; Empl.: 300; *Dist. Mgr.:* Wes Wheeler

NORTRAN, Power Elctrns. Corp., 96 Milton Rd., Rochester, NH 03867, Tel: 603-332-3334, TWX: 510-297-4462; *Sls. Mgr.:* Robert S. Karstedt

NOTHELFER WINDING LABS, See NWL Transformers

NOUMENON CORP., 512 Westline Dr., Alamdea, CA 94501, Tel: 415-521-2145, Telex: 176340; *Sls. Mgr.:* Michael C. Mead

nova

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NOVA ELEC., Hobart Bros. Co., 263 Hillside Ave., Nutley, NJ 07110, Tel: 201-661-3434, Telex: 219077; FSC No.: 29019; Empl.: 50; *Sls. Mgr.:* Kenneth Niovitch .... **D•1946**

Local Sales Offices & Reps

AZ	Glendale, Adtek	602-931-9289
AZ	Phoenix, Adtek	602-931-9289
CA	Laguna Hills, Elotek Sys.	714-830-4856
CA	San Diego, Elotek Sys.	714-830-4856
CA	SunnyVale, Ichirep	408-249-2585
FL	Orlando, Data Rep	305-843-5224
FL	Orlando, Datarep	305-843-5224
GA	Atlanta, Teqspec II	404-399-6780
HI	Honolulu, Victor Kim Assoc.	808-841-6266
IL	Schaumberg, Kenneth Meyers Co.	312-882-4808
IN	Indianapolis, Kenneth Meyers Co.	317-243-6681
IA	Cedar Rapids, Kenneth Meyers Co.	
MD	Silver Springs, Sel-Tronics Inc.	301-589-3391
MA	Norwell, Bordewieck Eng. Sls. Co.	617-659-4915
MA	Wakefield, Bordewieck Engrg.	617-659-4915
MI	Highland Park, Marsh Equip. Co.	313-869-9200
MN	Minneapolis, Kenneth Meyers Co.	612-920-7080
MO	St. Louis, Comtel Midwest	314-991-5363
NJ	Elmwood Park, L&M Assoc.	201-797-0441
NY	Buffalo, Bromor Co.	716-874-4595
NY	New York, L&M Assoc.	212-243-6155
NC	Winston-Salem, Teqspec III	919-723-8102
OH	Columbus, R. D. Cloon Assoc.	614-459-2890
OH	Columbus, R.D. Cloon Assoc.	614-459-2890
PA	Pittsburgh, Donwil Assoc.	412-343-6767
PA	Reading, L&M Assoc.	215-775-9559
TN	Montgomeryville, Teqspec II	615-587-0980
TX	Houston, T-S-H	713-868-2190
WA	Seattle, Industrial Elctrn. Equip.	206-775-3516
EXP	Hayden Int'l. Corp.	
Can	Lachine Quebec, Electro Design	513-636-4838

NOVA TRAN, 100 Deposition Dr., Clear Lake, WI 54005, Tel: 715-263-2333; FSC No.: 56643; Empl.: 45; *Sls. Mgr.:* R. Schley

NOVATRONICS, Box 878, Pompano Beach, FL 33061, Tel: 305-942-5200, TWX: 510-956-9878; Empl.: 225; *Sls. Mgr.:* W. G. Peters

NRD

NRD, Mark IV Ind., Inc., 2937 Alt Blvd. N., Grand Island, NY 14072, Tel: 716-773-7634, Telex: 91578 NRD GRDI; *Sls. Mgr.:* James R. Curtis; *Dist. Mgr.:* Larry Keating .... **D•1983**

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Mountain View, Tech-Ser, Inc.	415-969-9020
CA	Torrance, Tech-Ser, Inc.	213-320-8101
CO	Commerce City, Williams Assocs.	303-289-5647
FL	Orlando, Delmac Sls.	305-898-4688
GA	Atlanta, Electro-Rep Assocs.	404-320-1134
IL	Libertyville, Ray Klipp Assocs.	312-367-4676
IN	Indianapolis, Electronic Mktg. Conslts., Inc.	317-253-1668
MD	Laurel, CSDS	301-490-3800
MA	Ashland, Sullivan & Powers	617-881-5055
MA	Weston, Sullivan & Powers	617-899-3443
MI	Grand Blanc, Inter-Comm	313-695-0666
MN	Eden Prairie, Bitronics Sls. Co.	612-944-9070
MO	Liberty, Lectro-Reps	816-781-2522
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mt. Vernon, Oalco	212-260-5637
NY	Rochester, Pak-Tek, Inc.	716-544-5705
NC	Charlotte, Electro-Rep Assocs.	704-527-2530
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Dallas, P. J. Scanlon Co., Inc.	214-231-4661
UT	Salt Lake City, Williams Assocs.	801-485-6511
Can	Scarborough, Ont., Sigma Mktg.	416-752-4017

Local Distributors

CT	Wallingford, Astesch, Inc.	203-265-4241
KS	Witchita, R.S.C. Elctrns.	316-267-5213
MD	Laurel, RMA Co.	703-273-6660
MA	Holliston, R-Tech	617-429-7222
MI	Flint, Royalite	313-238-8641
MI	Grand Rapids, S.F. Elctrns.	616-459-0216
MI	Pontiac, Techno Inds., Inc.	313-628-4090
MO	St. Louis, Van Sickle Radio Elctrns., Inc.	314-621-5000
NY	Cortland, Monroe-Metz	1-800-424-2442
PR	Rio Piedras, Rubber & Gasket Co. of P.R.	809-763-8787
Can	Mississauga, Ont., Prelco Elctrns.	416-678-0401
Can	Montreal, Que., Prelco Elctrns.	514-389-8051
Can	Nepean, Prelco Elctrns.	613-726-1800

NSD, 10936 Portal Dr., Los Alamitos, CA 90720, Tel: 714-527-4896; *Sls. Mgr.:* Paul Pomerantz; *Dist. Mgr.:* Paul Pomerantz

NTK TECHNICAL CERAMICS, NGK Spark Plugs (U.S.A.), Inc., 1701 N. Greenville Ave. #205, Richardson, TX 75081, Tel: 214-235-8332; FSC No.: 95-246-1286; *Sls. Mgr.:* K. C. Ogawa; *Dist. Mgr.:* Mark Ota .... **A•1398-1399; B•1805; D•1029**

Local Sales Offices & Reps

AL	Huntsville, L&D, Inc.	919-292-3201
CA	Culver City, DeAngelo Rothman and Co. Inc.	213-827-2202
CA	San Jose, Frequency Control Assocs.	408-446-0200
CT	Bloomfield, Zaslow Sales Co.	203-242-7781
FL	Maitland, D.J. Ellis & Assocs. Inc.	305-645-1101
GA	Atlanta, L&D Inc.	404-455-3483
IN	Indianapolis, Intl. Elctrns. Corp. of Indiana	317-257-8115
IN	Scottsburg, Intl. Elctrns. Corp. of Indiana	812-752-4611
IA	Chanhassen, Barnes Sls. Assocs.	612-934-2907
KS	Overland Park, Barnes Midwest Sls.	913-341-9317
MD	Baltimore, Espy Sls. Co.	301-441-6982
MI	Ann Arbor, Elliott Sls. Co.	313-662-4087
MN	Chanhassen, Barnes Sales Assocs.	612-934-2907
NY	Smithtown, Pafi Assocs.	516-360-0940
NC	Raleigh, L&D Inc.	919-876-5301
PA	Rydal, Espy Sls. Assocs.	215-576-0780
TN	Seymour, Espy Sls. Assocs.	315-573-6511
VA	Richmond, Espy Sls. Assocs.	804-359-0125
WA	Seattle, Northmar Inc.	206-524-5170

NUCLEAR RESCH. CORP., 125 Titus Ave., Warrington, PA 18976, Tel: 215-343-5900, Telex: 510-665-8525 NRC WNTN; FSC No.: 96696; Empl.: 85; *Sls. Mgr.:* D.T. McIntyre, V.P.

Local Sales Offices & Reps

FL	Naples, Nuclear Research Corp.	813-775-8686
IL	Mt. Prospect, Contemporary Science	312-255-3793
NC	Charlotte, BinCo.	704-366-5092
SC	Georgetown, Nuclear Research	803-546-1724

NUCLEONIC PRODS., See Thomson-CSF Comps. Corp., Passive Comps. Div.

NU-CONCEPT COMPUTER SYS., Rte. 309 & Advance La., Colmar, PA 18915, Tel: 215-822-8400, Telex: 5106614838; FSC No.: 58561; Empl.: 17; *Sls. Mgr.:* Thomas Dvorak

NU DATA, 32 Fairview Ave., Little Silver, NJ 07739, Tel: 201-842-5757, Telex: 132405, TWX: 710-722-5754; Empl.: 20; *Sls. Mgr.:* Keith Taylor

NUMARK ELCTRNS. CORP., 503 Raritan Ctr., Edison, NJ 08817

NUMERIX CORP., 20 Ossipee Rd., Newton, MA 02164, Tel: 617-964-2500, Telex: 948032; *Sls. Mgr.:* Harold Messias

NU-METRICS, 947 Longdale Ave., Longwood, FL 32750, Tel: 305-331-7717; Empl.: 12; *Sls. Mgr.:* Timothy Check

NURAD, INC., 2165 Druid Pk. Dr., Baltimore, MD 21211, Tel: 301-462-1700, TWX: 710-234-1071; Empl.: 120

NWL TRANSFORMERS

NWL TRANSFORMERS, Rising Sun Rd., P.O. Box 358, Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 230; *Sls. Mgr.:* C. W. Harrison .... **A•2211; D•1735**

NWL TRANSFORMERS, Rising Sun Rd., P.O. Box 358, Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 225; *Sls. Mgr.:* C. W. Harrison .... **D•1735**

NYE, WILLIAM F., INC., P.O. Box G-927, New Bedford, MA 02742-0927, Tel: 617-996-6721, Telex: 940807; Empl.: 15

NYLTITE, 3451 S. Clinton Ave., S. Plainfield, NJ 07080, Tel: 201-561-1300; *Sls. Mgr.:* Frances Gould

Nytronics Components Group, Inc.

NYTRONICS COMPONENTS GRP., INC., Orange St., Darlington, SC 29532, Tel: 803-393-5421, TWX: 810-665-2182; FSC No.: 83125; Empl.: 502; *Sls. Mgr.:* Mack W. Windham ..... **A•1142-1155, 1204, 1244-1263, 1550-1554, 1911**

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	Granada Hills, Clemick Neenan & Assocs.	818-895-2431
CA	San Diego, Clemick Neenan & Assocs.	619-693-0863
CA	Sunnyvale, W.W. Posey	408-746-0771
CO	Denver, Component Sls.	303-759-1666
FL	Boca Raton, Lawrence Assocs.	305-368-7373
GA	Chamblee, B.C.I.	404-455-0405
IL	Rolling Meadows, Sumer Inc.	312-991-8500
IN	Indianapolis, EMCI	317-253-1668
KS	De Soto, Mid-Tec Assoc.	913-441-6565
MA	Woburn, Astrorep of New England	617-938-6692
MI	Rockford, H.C. Heym Assoc.	616-874-7443
MN	Minneapolis, Dunlop Conslts.	612-529-7626
MO	Florissant, Mid-Tec Assoc.	314-837-5200
NJ	West Orange, National Atlantic	201-731-0703
NY	Pittsford, W.A. Franklin Sls.	716-248-8251
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NC	Charlotte, B.C.I. Inc.	704-567-0473
OH	Akron, Imtech	216-666-1185
OK	Tulsa, Design Mktg.	918-742-2589
OR	Tigard, Eltech, Inc.	503-684-3458
PA	Narberth, Bresson Assocs.	215-664-6460
TX	Dallas, Design Mktg.	214-680-9767
TX	Round Rock, Design Mktg.	512-255-9896
UT	Salt Lake City, Component Sls.	801-466-8623

VA	Lynchburg, Bresson Assocs.	703-237-1304
WA	Bellevue, Eltec	206-643-4330
WI	Brookfield, Sumer, Inc.	414-784-6641
Intl	Ramat Gan, Isreal, Sietel Engrg., Ltd.	03-265571
Can	Toronto, Ont., RFQ, Ltd.	416-595-0616

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CA	Garden Grove, Hi Rel	213-594-9571
CA	Garden Grove, Inductive Prods.	714-891-2572
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CA	Thousand Oaks, Bell	805-499-6821
CA	Walnut, A. C. L.	213-331-0735
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CO	Englewood, Industrial Elctrns.	303-694-9444
CO	Wheatridge, Bell Inds.	303-424-1985
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IL	Chicago, Bell Inds.	312-982-9210
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IA	Cedar Rapids, Newark Elect.	312-362-1171
MD	Baltimore, Radio Elect.	301-823-0070
MD	Beltsville, Newark Elec.	301-937-5085
MA	Needham, Cronin Elctrns.	617-449-0500
MA	Waltham, Sterling Elec.	617-894-6200
MN	Minneapolis, Joel Co.	612-545-5669
MN	Minneapolis, Newark Elect.	216-361-4700
NJ	Kenilworth, Newark Elect.	201-272-8410
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NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hauppauge, Jaco Elect.	516-273-5500
NY	Plainview, ACI Elect.	516-293-6630
NY	Rome, Rome Elect.	315-337-5400
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OH	Cleveland, Newark Elect.	216-361-4700
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PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	York, E. C. I.	717-846-5334
TX	Dallas, Wholesale Elect.	214-824-3001
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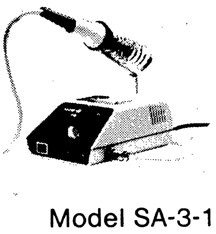

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OAK MATERIALS GROUP INC., Laminates Div., 1 Mechanic Street, Hoosick Falls, NY 12090, Tel: 518-686-4379, Telex: 710-965-9721; FSC No.: 53240; *Sls. Mgr.:* Robert L. Fidrych; *Dist. Mgr.:* Richard Spiak

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AZ	Phoenix, S. Fisher Assoc.	602-247-7865
CA	Mill Valley, Roy Colen Sls., Inc.	415-383-8700
CA	Newhall, Lessing Assoc.	213-348-6662
CO	Arvada, C B Elctrn. Mktg.	303-422-0561
FL	Tampa, SRT Marketing	813-884-4805
GA	Atlanta, Millar Elctrl.	404-261-6160
IL	Elmhurst, E.S.I.	312-941-0710
IN	Mulberry, Maish Sls.	317-296-2322
MA	Millis, R. G. Assoc.	617-376-2044
MN	Minneapolis, Kodo Assoc.	612-881-1255
MO	Kansas City, Nevco	816-421-1751
MO	St. Louis, Nevco	314-843-7406
NY	Rochester, Warren Kaufman Assoc.	716-266-2728
NY	Whitestone, J. Brown Elctrl. Sls.	718-767-1977
NC	Raleigh, Millar Elctrl.	919-787-9564
OH	Akron, Shamrock Elctrl.	614-888-7638
OH	Dayton, Shamrock Elctrl.	513-298-1227
TX	Richardson, Campion Sls.	214-238-8145
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CA	Costa Mesa, Pat Dooley Co.	714-548-2232
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CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Hayward, FLW, Inc.	415-786-9070
CO	Boulder, Meas. Conslts.	303-449-7506
CT	Wallingford, Pat Jenks Assocs.	
FL	Orlando, Datarep	305-843-5224
GA	Acworth, Zelco Assocs.	404-974-8647
IL	Columbia, R. L. Weisheimer & Assocs.	618-281-4148
IL	Park Ridge, Elctrn. Instr. Assocs.	312-298-2290
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MN	Minneapolis, The Mark Co.	612-933-3026
NJ	Garwood, E. R. Mertz, Inc.	201-232-4643
NY	Latham, L-Tron Corp.	518-785-5032
NC	Charlotte, Zelco Assocs.	704-523-2961
OH	Dayton, Mohawk Intronics	513-434-8873
OH	No. Ridgeville, TMS, Inc.	216-327-3527
PA	Carnegie, Flow Media	412-923-1619
PA	King of Prussia, FLW, PA, Inc.	215-337-4343
TN	Memphis, Jordan/Marlar/Hale, Inc.	901-452-7441
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Meas. Conslts.	801-364-3174
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

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OHMITE MFG. CO., 3601 W. Howard St., Skokie, IL 60076, Tel: 312-675-2600, Telex: 72-4433, TWX: 910-223-0805; FSC No.: 44655; *Sls. Mgr.:* Robt. Axthelm; *Dist. Mgr.:* Robt. Axthelm .... **A•1912-1921, 2032-2033**

Local Sales Offices & Reps

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AK	Anchorage, H. J. Lang Assoc.	907-279-5741
AZ	Phoenix, Mercury Eng. Sls.	602-244-0123
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Palo Alto, Ohmite Mfg. Co.	415-494-6954
CA	San Diego, Wiley Co.	619-571-2881
CO	Denver, Lindberg Co.	303-758-9033
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
FL	Deerfield Beach, Cartwright & Bean	305-429-3400
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Skokie, Ohmite Mfg. Co.	312-675-2600
IN	Indianapolis, Electronic Reps, Inc.	317-894-1414
IN	Mishawaka, Electronic Reps, Inc.	219-259-9365
LA	Covington, Cartwright & Bean	504-892-1780
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MI	Grosse Pointe Park, Greiner Assocs.	313-499-0188
MN	St. Paul, Northport Engrg.	612-457-8000
MS	Jackson, Cartwright & Bean	601-981-1170
MO	Gladstone, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	River Edge, Ohmite Mfg. Co.	201-488-3690
NJ	Willingboro, Ohmite Mfg. Co.	609-871-1691
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Rochester, Electra Sls.	716-427-7860
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Charlotte, Polytech Svcs.	704-372-4161
OH	Chardon, Ohmite Mfg. Co.	216-287-7454
OH	Dayton, Ohmite Mfg. Co.	513-277-6543
OK	Broken Arrow, Erickson Sls.	918-455-4276
OR	Tigaird, Electronic Sls.	503-245-2342
PA	Monroeville, Ohmite Mfg. Co.	412-373-2695
TN	Knoxville, Cartwright & Bean	615-693-7450
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TX	Austin, Erickson Sls.	512-445-2952
TX	Dallas, Erickson Sls.	214-739-5833
TX	Houston, Erickson Sls.	713-226-1604
UT	Salt Lake City, Lindberg Co.	801-467-1794
WA	Mercer Island, Electronic Comp Sls.	206-232-9301

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CA	Santa Clara, I2 Inc.	408-988-3400
CA	Woodland Hills, Interstate Mktg. Assoc.	213-883-7606
CO	Aurora, High Tech. Assocs.	303-695-1990
FL	Maitland, Beacon	305-647-3489
KS	Overland Pk., Advanced Techn. Sls.	913-642-6675
MA	Shrewsbury, Compatible Comps.	617-422-7641
MN	Mendota Hgts., G-II Sales	612-454-3086
NJ	Englewood, Harold Gray Assocs.	201-894-0894
NM	Albuquerque, Power Entprs.	505-298-1918
NY	Rochester, Fritz Dasson	716-338-1699
OH	Cincinnati, John F. Kilfoil Co.	513-791-6150
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TX	Lewisville, Jim Hughes Co.	214-221-1536

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OKONITE, Box 340, Ramsey, NJ 07446, Tel: 201-825-0300, TWX: 710-988-1017; Empl.: 1900; *Sls. Mgr.:* A. C. Coppola

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AL	Birmingham	205-592-8968
AZ	Tempe	602-838-8596
CA	Los Angeles	213-802-1759
CA	S. San Francisco	415-873-8590
CO	Denver	303-759-2776
FL	Tampa	813-877-0581
GA	Atlanta	404-953-3510
IL	Downers Grove	312-932-8200
LA	New Orleans	504-246-3840
MA	Hingham	617-749-3374
MI	Southfield	313-569-3230
MO	Frontenac	314-997-2320
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NC	Charlotte	704-535-6535
OH	Cincinnati	513-761-1333
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AZ	Scottsdale, Frontier Technology	602-998-4438
CA	Santa Clara, Applied Micro Tech.	408-730-1289
CA	Woodland Hills, Applied Micro Tech.	213-888-2027
CO	Englewood, Davis Assocs., Inc.	303-761-7980
FL	Melbourne, Reynolds & Assoc.	305-259-7000
IL	Park Ridge, Ad Tech Inc.	312-692-7320
MA	Waltham, Digital Sales	617-899-4300
MI	Southfield, Infinity, Inc.	313-557-7230
MN	Minneapolis, Jen-Ray Sys.	612-831-5060
NJ	Boonton, Winter Assoc.	201-334-3434
NY	Caledonia, E. F. Sls.	716-538-4754
TX	Houston, Dyna Marketing	713-460-0314
EXP	IL, Chicago, Computer Overseas Corp.	312-332-3272
Can	Scarbouough, Ontario, Finnan Engineered Prods., Ltd.	416-438-6070

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OMNI SWITCH, INC., 21630 N. 19th Ave., Suite B-20, Phoenix, AZ 85027, Tel: 602-582-0629, Telex: 602-582-0665; Empl.: 100; *Sls. Mgr.:* Jim Burkett

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OMNITEK, INC., P.O. Box 102, 820 Pennsylvania Blvd., Feasterville, PA 19047, Tel: 215-355-4443, TWX: 510-667-1730; FSC No.: 54316; *Sls. Mgr.:* Frank Shandelman

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CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
CA	Santa Clara, Comtronics	408-773-9800
CT	Burlington, Tritek, Inc.	617-272-4550
MA	Burlington, Tritek, Inc.	617-272-4550
NJ	Paramus, Design Elctrns.	201-845-6224
TX	Hurst, El-Tec Sls.	817-268-2896

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CA	Campbell, Sheehan Mktg. Assocs.	408-370-6900
CT	Windsor, Janco Technlg.	203-743-9436
FL	Lauderhill, Innovative Mktg.	305-485-6869
FL	Lighthouse Point, Sales Engrg. Concepts	305-781-4800
FL	Melbourne, EMS, Inc.	305-724-1027
GA	Cumming, RGA Sls., Inc.	404-438-4125
IL	Chicago, LGS Elctrns. Co.	312-456-9616
IN	Ft. Wayne, Corrao Marsh, Inc.	219-637-5548
IA	Cedar Rapids, Cahill, Schmitz & Cahill	319-377-8219
MD	Baltimore, Controy Sls.	301-296-2444
MN	Minneapolis, White Sls. Co.	612-755-0855/3511
NJ	Palisades Park, Janco Technlg.	201-941-4008
NY	Rochester, Alan Lupton Assocs., Inc.	716-482-7700
OH	Cincinnati, Ken C. Hoffman, Jr. Co.	513-931-1686
OH	Dayton, Patrick Montplaisir	513-434-4316
OK	Tulsa, The Hugh Daly Co.	918-494-7711

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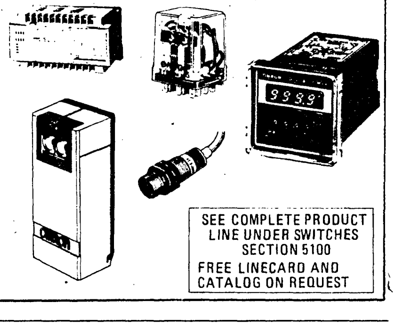

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AL	Huntsville, Hamilton Avnet Elctrns.	205-837-7210
AL	Huntsville, Pioneer/Huntsville	205-837-9300
AZ	Phoenix, Wyle Labs.	602-249-2232
AZ	Tempe, Hamilton Avnet Elctrns.	602-231-5100
AZ	Tucson, Wyle Labs.	602-884-7082
AR	Little Rock, Carlton Bates	501-562-9100
CA	Agoura, Wyle Labs.	818-880-9000
CA	Chatsworth, Hamilton Avnet Elctrns.	818-700-2600
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls. Orange County	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Wyle Labs.	213-322-8100
CA	Huntington Beach, Opto 22 Distibutor Sls.	714-891-5861
CA	Irvine, Wyle Labs.	714-863-9953
CA	Ontario, Hamilton Avnet Elctrns.	714-989-4602
CA	Rancho Cordova, Wyle Labs.	916-638-5282
CA	Sacramento, Hamilton Avnet Electronics	916-925-2216
CA	San Diego, Hamilton Avnet Elctrns.	619-571-7510
CA	San Diego, Wyle Labs.	619-565-9171
CA	Santa Clara, Wyle Labs.	408-727-2500
CA	Sunnyvale, Hamilton Avnet Elctrns.	408-743-3355
CO	Englewood, Hamilton Avnet Elctrns.	303-740-1000
CO	Thornton, Wyle Labs.	303-457-9953
CT	Danbury, Hamilton Avnet Elctrns.	203-797-2800
CT	Norwalk, Pioneer/Connecticut	203-853-1515
DC	Washington, Hamilton Avnet Elctrns.	301-621-5410
FL	Altamonte Springs, Pioneer/Orlando	305-834-9090
FL	Deerfield Beach, Pioneer/Ft. Lauderdale	305-771-7520
FL	Fort Lauderdale, Hamilton Avnet Elctrns.	305-971-2900
FL	Orlando, Hamilton Avnet Elctrns.	305-628-3888
FL	St. Petersburg, Hamilton Avnet Elctrns.	813-576-3930
GA	Norcross, Hamilton Avnet	404-447-7507
GA	Norcross, Pioneer/Georgia	404-448-1711
GA	Norcross, Professional Control Corp.	404-449-4577
IL	Bensenville, Hamilton Avnet Elctrns.	312-860-7700
IL	Berkeley, Tara	312-449-6434
IL	Elk Grove Village, GBL Goold Elctrns.	312-593-3220
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Moline, Jim Otis	309-762-9311
IN	Carmel, Hamilton Avnet Elctrns.	317-844-9333
IN	Indianapolis, Pioneer/Indiana	317-849-7300
IN	Indianapolis, Process Automation Devices	317-849-3682
IA	Cedar Rapids, Hamilton Avnet Elctrns.	319-362-4757
KS	Overland Park, Hamilton Avnet Elctrns.	913-888-8900
MD	Baltimore, Automation Indl. Control	301-944-8400
MD	Columbia, Hamilton Avnet Elctrns.	301-995-3500
MD	Gaithersburg, Pioneer Technlgs. Grp., Inc.	301-921-0660
MD	Mount Airy, Thermal Devices	301-442-1007
MA	Lexington, Pioneer/Massachusetts	617-861-9200
MA	N. Redding, Martindale Assocs.	617-664-0355
MA	Woburn, Hamilton Avnet Elctrns.	617-273-7500
MI	Grand Rapids, Hamilton Avnet Elctrns.	616-243-8805
MI	Livonia, Hamilton Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Madison Heights, McNaughton-McKay Elect.	313-399-7500
MN	Minneapolis, Cassidy Elctrns.	612-944-0100
MN	Minnetonka, Hamilton Avnet Elctrns.	612-932-0600
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MN	St. Paul, Kim Controls	612-780-2991
MO	Earth City, Hamilton Avnet Elctrns.	314-344-1200
NE	Omaha, Jim Otis & Assocs.	402-392-0523
NH	Manchester, Hamilton Avnet Elctrns.	603-624-9400
NJ	Cherry Hill, Hamilton Avnet Elctrns.	609-424-0100
NJ	Fairfield, Hamilton Avnet Elctrns.	201-575-3490
NJ	Newark, Norman Bragar	201-344-1100
NJ	Pine Brook, Pioneer/New Jersey	201-227-1262
NM	Albuquerque, Hamilton Avnet Elctrns.	505-765-1500
NY	East Syracuse, Hamilton Avnet Elctrns.	315-437-2641
NY	Fairport, Pioneer/Rochester	716-381-7070
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NY	Melville, Hamilton Avnet Elctrns.	516-434-7421
NY	Rochester, Hamilton Avnet Elctrns.	716-475-9130
NY	Vestal, Pioneer/Binghamton	607-748-8211
NY	Woodbury, Pioneer/Woodbury	516-921-8700
NC	Charlotte, Pioneer/Carolina	704-527-8188
NC	Charlotte, Regan Controls	704-523-9137
NC	Raleigh, Hamilton Avnet Elctrns.	919-878-0810
OH	Centerville, I. P. D.	513-435-2086
OH	Cincinnati, Richard Equip.	513-271-8666
OH	Cleveland, Hamilton Avnet Elctrns.	216-831-3500
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Great Lakes Controls Corp.	614-451-7872
OH	Columbus, Hamilton Avnet Elctrns.	614-882-7004
OH	Dayton, Hamilton Avnet Elctrns.	513-439-6700
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	North Royalton, Great Lakes Controls Corp.	216-582-0020
OK	Tulsa, Quality Comps.	918-664-8812
OR	Hillsboro, Wyle Labs.	503-640-6000
OR	Lake Oswego, Hamilton Avnet Elctrns.	503-635-8831
OR	Portland, Pacific Control Supply	503-249-2033
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	King of Prussia, Applied Controls	215-265-3832
PA	Pittsburgh, Customized Control Sys.	412-921-3196
PA	Pittsburgh, Great Lakes Control Corp.	412-341-8922
PA	Pittsburgh, Hamilton Avnet Elctrns.	412-281-4150
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Addison, Quality Comps.	214-733-4300
TX	Austin, Hamilton Avnet Elctrns.	512-837-8911
TX	Austin, Pioneer/Austin	512-835-4000
TX	Austin, Quality Comps.	512-835-0220
TX	Austin, Wyle Labs.	512-834-9957
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Houston, Hamilton Avnet Elctrns.	713-780-1771
TX	Houston, Pioneer/Houston	713-988-5555
TX	Houston, Quality Comps.	713-240-2255
TX	Houston, Wyle Labs.	713-879-9953
TX	Irving, Hamilton Avnet Elctrns.	214-659-4111
TX	Richardson, Wyle Labs.	214-235-9953
UT	Salt Lake City, Hamilton Avnet Elctrns.	801-972-2800
UT	Salt Lake City, Wyle Labs.	801-947-9953
WA	Bellevue, Hamilton Avnet Elctrns.	206-643-3950
WA	Bellevue, Wyle Labs.	206-453-8300
WA	Kent, Shannon, Ltd.	206-763-0545
WA	Redmond, Cascade Controls	206-881-8843
WI	Germantown, Professional Control Corp.	414-251-3000
WI	Milwaukee, Hamilton Avnet Elctrns.	414-784-4510
WI	Milwaukee, Taylor Elctrns.	414-241-4321

OPTRON, INC., See TRW Optron

ORAM ELCTRNS., Rte. 22, Putnam Business Park, Brewster, NY 10509-9587, Tel: 914-279-2966, Telex: ORAM 628-382-40; Empl.: 25; *Sls. Mgr.:* Vincent A. Gianguzzi

ORAM ELECTRONICS, 12 Cranston Rd., Pittsford, NY 14534, Tel: 716-381-4673; Empl.: 150; *Sls. Mgr.:* M. I. Mindell ... **D•1740**

ORBIT INDS., 2670 Lockheed Way, Carson City, NV 89701, Tel: 702-882-6123; Empl.: 10

ORBIT INSTRUMENT CORP.

ORBIT INSTRUMENT CORP., 80 Cabot Ct., Hauppauge, NY 11788, Tel: 516-435-8300, TWX: 510-221-2122; FSC No.: 11263; *Sls. Mgr.:* Bruce Reissman, Dennis Sunshine ... **B•1735; D•1129**

Local Sales Offices & Reps

CA	San Diego, Orbit Instr. Corp.	619-566-3437

ORBIT INSTRUMENT OF CAL., 6431 Global Dr., Cypress, CA 90630, Tel: 714-527-0561, TWX: 510-221-2122; FSC No.: 11263; *Sls. Mgr.:* Bruce Reissman

ORIEL CORP., 250 Long Beach Blvd., Stratford, CT 06497-0872, Tel: 203-377-8282, TWX: 710-453-8719

ORIONICS, INC., 34368E Frontage Rd., Bozeman, MT 59715, Tel: 406-586-8256, TWX: 910-963-2063

ORTEL CORP., 2015 W. Chestnut St., Alhambra, CA 91803, Tel: 818-281-3636, Telex: 752434; *Sls. Mgr.:* Brent J. Ware

OSBORNE TRANSFORMER, 19636 Derby St., Detroit, MI 48203, Tel: 313-368-4136; Empl.: 30; *Sls. Mgr.:* J. R. Osborne

OSCILLATEK CORP., 620 North Lindenwood Dr., Olathe, KS 66062, Tel: 913-829-1777, Telex: 437045; FSC No.: 57693; Empl.: 24; *Sls. Mgr.:* A. Ghafoor ... **A•1402-1407**

OSHINO ELECTRIC LAMP WORKS, LTD., 5-2, Mianami-Shinagawa 2-chome, Shinagawa-Ku, Tokyo, Japan, Tel: 03-471-8548, Telex: 0242-2117; FSC No.: 03-450-3939; Empl.: 300; *Sls. Mgr.:* T. Koyama ... **B•1090**

Local Sales Offices & Reps

CA	Fountain Valley, WAMCO Inc.	714-545-5560

OSLO CONTROLS, 328 Industrial Ave, Cheshire, CT 06410, Tel: 203-272-2794, TWX: 710-455-3774; *Sls. Mgr.:* J. J. Martinez ... **B•1684-1685**

Local Sales Offices & Reps

	Century Elec. Supp.	
CA	Los Angeles, Minarik Elec.	213-485-1291
CA	Riverside, Elctrn. Supp.	714-683-7300
AZ	Scottsdale, Semi-Systems	602-991-1151
CA	Brea, Masco	714-529-0866
CA	Mountain View, Westech Sls.	415-961-1422
CO	Englewood, Computech Mktg.	303-773-3981
CT	Bloomfield, Zaslow Sls.	203-242-7781
FL	Longwood, CBC Elctrns.	305-831-5380
IL	Lisle, W-G Controls	312-963-5954
MD	Silver Spring, L. G. White & Co.	301-434-1555
MI	Grosse Pointe Park, Greiner Assocs.	313-499-0188
MN	Minneapolis, JOS-CO/Melius	612-861-3343
MO	St. Louis, Hill & Co.	314-432-1136
NJ	Caldwell, Grimm Siegal Assocs.	201-575-9300
NY	Syracuse, Canavan-Scanlon Assocs.	315-437-1271
OH	Cincinnati, O. H. Bromberg & Assocs.	513-771-9333
OH	Mentor, KT/DEPCO	216-729-3588
PA	Broomall, White-Whiddett	215-353-6347
TX	Dallas, Glidden Electro Equip.	214-341-0610
WA	Mercer Island, J. H. Andersen & Assocs.	206-232-0484

Local Distributors

CA	Gardena, California Switch & Signal	213-770-2330, 213-538-9830
CA	Los Angeles, Master Distrs.	213-829-4656
CA	Los Angeles, Minarik Elect.	213-485-1291
CA	Riverside, Elctrn. Supply	714-683-7300
CA	San Diego, Deco Elctrns.	619-693-1595
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Tustin, Western Switches	714-731-4333
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CT	Shelton, Century Elec. Supply	203-736-2684
CT	West Hartford, Atlantic Switch Controls	203-527-7705
FL	Lakeland, A A Elec.	800-237-8274
FL	Lakeland, Switch Controls	813-644-7564
IL	Lombard, R. M. Elctrns.	312-932-5150
IL	Wheaton, Conectrix	312-653-1460
MA	Canton, Impact Elctrns.	617-821-1500
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Elctrn. Center	612-338-5881
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Mt. Laurel, Jersey Switch	609-778-8190
NY	Woodside, Switches Unltd.	212-478-5000
OH	Cincinnati, Cartessa Mfg.	513-522-3100
OH	Columbus, Ohio Switch	614-885-0319
TX	Dallas, Glidden Electro Equip. Co.	214-341-0610
TX	Dallas, Texaswitch	214-357-1768
WI	Mequon, Taylor Elec.	414-241-4321
EXP	Ponce PR, Distributronics	809-843-3321
PR	Ponce, Distributronics	809-843-3321

OSTBY & BARTON, 487 Jefferson Blvd., Warwick, RI 02886, Tel: 401-739-7310, Telex: 927573; *Sls. Mgr.:* Jos. E. Burns

OTTO ENGRG., 2 E. Main St., Carpentersville, IL 60110, Tel: 312-428-7171, Telex: 722426; FSC No.: 21649; Empl.: 120; *Sls. Mgr.:* R. E. Sparks ... **B•1686-1687**

Local Sales Offices & Reps

CA	Los Angeles, Electric Switches, Inc.	213-664-2125, 213-660-1464
AL	Decatur, El Tech	205-353-7899
CA	Anaheim, Gabriel & Assocs.	714-666-0660
CA	Costa Mesa, Gabriel Assocs.	714-957-1981
CO	Denver, Lindberg Co.	303-758-9033
FL	Deerfield Beach, Newell Hynes Assocs., Inc.	305-429-3207
IL	Downers Grove, Rockford Controls Co.	312-960-2046
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
IN	Indianapolis, Rockford Controls Co.	317-248-2518
MA	Needhan Heights, Newscott	617-444-1923
MI	Madison Heights, Pine Sls., Inc.	313-589-0350
MN	Minneapolis, Boerger & Assocs.	612-560-3435
MO	Kansas City, Harris-Hanson Co.	816-444-9494

MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Medford, Jack McCoy, Inc.	609-953-0770
NY	Great Neck, Tylinski Co.	516-466-9070
NC	Kernersville, Heritage Sls. Assocs.	919-996-4374
OH	Cleveland, Electro-Com	216-676-8154
OH	Dayton, Electro-Com	513-898-5140
TX	Dallas, Control Comps. Corp.	214-458-8877
WA	Bellevue, James Findlay Co.	206-455-9597

Local Distributors

AZ	Tempe, Fisher Brownell	602-967-1464
CA	Los Angeles, Electric Switches, Inc.	213-664-2125
MD	Kensington, Marine Air Supp.	301-949-1353
MA	Hingham, Sager Elec. Supp.	617-749-6700
NM	Albuquerque, International Elctrns.	505-345-8127
NY	Hicksville, Durham Aircraft Svc., Inc.	516-681-9800
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Woodside, Durham Aircraft Srvc.	212-274-9000
NC	Greenville, Womack Elctrns.	919-758-5047
TX	Dallas, Associated Aircraft Supp.	214-331-4381

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OVENAIRE, Electronic Technologies Inc., 706 Forrest St., Charlottesville, VA 22901, Tel: 804-977-8050, TWX: 910-997-8053; FSC No.: 12020; Empl.: 165; *Sls. Mgr.:* Andy Bell .... **A•1408-1411**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
CA	San Mateo, Melvin Sls.	415-349-7445
CA	Van Nuys, R.L. Assocs.	213-782-7826
CO	Loveland, Morbak Mktg.	303-669-8900
FL	Maitland, Ellis & Assocs.	305-645-1101
GA	Atlanta, L & D Inc.	404-395-7079
IL	Des Plaines, Janus Inc.	312-298-9330
IN	Fort Wayne, TX Sls., Inc.	219-489-4447
MD	Towson, Dickison Sls. Co.	301-823-0923
MA	Milton, Naton Assocs.	617-698-0670
MN	St. Paul, Countryman	612-645-9151
NJ	Cherry Hill, H. J. White Co.	609-428-4544
NJ	Paramus, Eltech Sls.	201-967-1309
NY	Buffalo, Quality Comps.	716-837-5430
NC	Greensboro, L & D, Inc.	919-292-3201
NC	Raleigh, L&D Inc.	919-876-5301
TN	Seymour, L&D Inc.	615-577-1549
TX	Bedford, W. Pat Fralia Co.	817-354-1144
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WI	Milwaukee, Janus Inc.	414-476-9104

OVEN INDS., 191 Hempt Rd., P.O. Box 290, Mechanicsburg, PA 17055, Tel: 717-766-0721; FSC No.: 21302; Empl.: 70; *Sls. Mgr.:* T. M. Nolan

OXLEY, INC., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028, Tel: 213-463-5120, TWX: 910-321-2903; *Sls. Mgr.:* Norman R. Sutherland

Local Sales Offices & Reps

CA	San Jose, J. T. McFarland Assocs.	408-286-9333
CA	Tustin, West, Inc.	714-852-9211
CT	Meriden, Abbott-Allison Co.	203-481-0405
FL	Tampa, APM Assocs.	813-886-2457
IL	Chicago, Electro-Tech Mktg. Assocs.	312-588-4535
MN	St. Paul, Bonament Heyda Co.	612-484-8531
NY	Rochester, R. P. Kennedy Co.	716-271-6322
PA	Paoli, Stitzer Assocs.	215-644-5500
TX	Richardson, Eagle Marketing	214-238-5383

PACCOM, 3928 148th NE, Redmond, WA 98052, Tel: 206-883-9200, 800-426-6254, TWX: 910-449-2592; Empl.: 15; *Sls. Mgr.:* D. Tully; *Dist. Mgr.:* C. Beaudette

PACE INC., 9893 Brewers Ct., Laurel, MD 20707, Tel: 301-490-9860, Telex: 87446; *Sls. Mgr.:* James K. Bausell

PACER INDUSTRIES, INC., 1450 First Ave., Chippewa Falls, WI 54729, Tel: 715-723-1141, Telex: 260391; FSC No.: 60162; *Sls. Mgr.:* Steven Prince; *Dist. Mgr.:* Steven Prince

PACIFIC ATLANTIC ELCTRNS., Box 754, El Cerrito, CA 94530, Tel: 415-237-5837, TWX: 910-366-7296; Empl.: 4; *Sls. Mgr.:* P. Yen; *Dist. Mgr.:* P. Yen

PACIFIC CYBER/METRIX INC., 6800 Sierra Ct., Dublin, CA 94568, Tel: 415-829-8700, TWX: 910-389-6890; *Sls. Mgr.:* R. Nelson

PACIFIC COMMUNICATIONS, 2041-A S. Grand Ave., Santa Ana, CA 92705, Tel: 714-546-0147; Empl.: 35

PACIFIC ELECTRICORD, 747 W. Redondo Bch. Blvd., Gardena, CA 90247, Tel: 213-532-6600, TWX: 910-346-7619; Empl.: 600; *Sls. Mgr.:* W. A. Fiechtner; *Dist. Mgr.:* Gary M. Payne

PACIFIC ELECTRO DYNAMICS, INC., 11465 Willows Rd. N.E., Redmond, WA 98052, Tel: 206-881-1700, TWX: 910-449-2977; Empl.: 350

PACIFIC INSTRS. INC., 215 Mason Circle, Concord, CA 94518, Tel: 415-827-9010, TWX: 910-481-9977; Empl.: 45 .... **D•1015**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.-Mid South, Inc.	205-533-5896
CA	Alhambra, Dale-Dahl Assocs.	213-682-3417
CA	Walnut Creek, Dale/Dahl Assocs.	415-933-9595
CT	Hamden, JBL Assocs.	203-281-3161
FL	Maitland, Wade H. Boggs, Inc.	305-647-2226
IL	Park Ridge, EIA, Inc.	312-298-2290
MA	Acton, Applied Measurements	617-263-2766
MI	Farmington Hill, Anderson Elctrns., Inc.	313-553-7600
NJ	Elizabeth, Instrumentation Prods., Inc.	201-351-1155
NM	Albuquerque, Vic Myers Assocs.	505-884-6878
NY	Latham, L-Tron Corp.	518-785-5332
OH	Dayton, RDP Corp.	513-253-6171
PA	Pittsburgh, Wainwright Tech. Sls., Inc.	412-487-5055
PA	Radnor, Roberts Engrg.	215-688-6525
TX	Arlington, John T. Houston Assocs., Inc.	817-265-2931
VA	Arlington, Gans & Pugh Assocs.	703-527-3262
WA	Bellevue, Tasco, Inc.	206-453-1414
Can	Rexdale, Ont., SRP Control Sys., Ltd.	416-746-0117

PACIFIC MAGNETICS CORP., 2602 Transportation Ave., Ste. F, National City, CA 92050, Tel: 619-474-8216; *Sls. Mgr.:* Mary Hill

PACIFIC MEAS., INC., 488 Tasman Drive, Sunnyvale, CA 94086, Tel: 408-734-5780, TWX: 910-339-9273; Empl.: 100; *Sls. Mgr.:* Ed Mendel

PACIFIC MICROCOMPUTERS, INC., 160 Chesterfield Dr., Cardiff, CA 92007, Tel: 619-436-8649, Telex: 701-578; Empl.: 34; *Sls. Mgr.:* Phyllis Maloy

PACIFIC MICRO SYS., INC., 160 Gate 5 Rd., Sausalito, CA 94965, Tel: 415-331-2525; Empl.: 12; *Sls. Mgr.:* Donald Shipley; *Dist. Mgr.:* Donald Shipley

PACIFIC
POWER SOURCE CORP.

PACIFIC POWER SOURCE CORP., 15122 Bolsa Chica St., Huntington Bch., CA 92649, Tel: 714-898-2691, 800-854-2433; Empl.: 49; *Sls. Mgr.:* A. F. Hatlestad .... **D•1949-1953**

Local Sales Offices & Reps

KS	Overland Park, Ramsey Assocs.	913-649-6996
MA	Burlington, Intersell, Inc.	617-273-3844
MN	Minneapolis, Loren Green Assocs.	612-571-6666
MO	Maryland Heights, Ramsey Assocs.	314-878-5042
NY	Dewitt, D. B. Assocs. Inc.	315-446-0220
NY	Wantagh, Bytec Reps.	516-781-7400
WA	Bellevue, Al Smith	206-746-6770
WA	Vancouver, Al Smith	206-892-9912

Local Distributors

EXP	Los Angeles, CA, Trans World Trade	213-476-8406

PACIFIC RESISTOR CO.

PACIFIC RESISTOR CO., 18300 Oxnard St., Tarzana, CA 91356, Tel: 818-345-7811, Telex: 06416; *Sls. Mgr.:* Douglas Trewhitt .... **A•1926-1927**

Local Sales Offices & Reps

CA	San Jose, Silcon Valley	408-286-7510
MN	St. Paul	612-642-2828

PACIFIC SCIENTIFIC CO., 4301 Kishwaukee, Rockford, IL 61105, Tel: 815-966-3600, Telex: 257-315; Empl.: 400

PACIFIC SWITCH CONTROLS, INC., 16116 Leadwell St., Van Nuys, CA 91406, Tel: 213-873-4802

PACIFIC TIMER INC., 21739 N.E. 18th Way, Redmond, WA 98052, Tel: 206-881-1785; *Sls. Mgr.:* Karen A. Pettyjohn

PACIFIC TRANSDUCER, 2301 Federal, Los Angeles, CA 90064, Tel: 213-478-1134; Empl.: 23

PACTEC DIV., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, Tel: 215-365-8400, Telex: 83-1732; *Dist. Mgr.:* Edward Fitzpatrick .... **C•1002, 1070-1071**

Local Sales Offices & Reps

AZ	Phoenix, Gramer & Co.	602-995-9455
CA	Buena Park, PAC-TEC CORP.	714-522-6410
CA	Fallbrook, Martronix	619-728-7678
CA	Santa Clara, Warren Assoc.	408-988-7762
CO	Englewood, High Plains Mktg.	303-792-2020
FL	Key Largo, Jerrold Helbein & Assocs., Inc.	305-367-3025
IL	Arlington, Brainard-Wilson Mktg.	312-437-2700
IN	Indianapolis, STB & Assocs., Inc.	317-844-9227
MD	Columbia, Snowden Center	301-964-0225
MA	Newton, Gerber Sls.	617-969-2620
MI	Warren, Burcaw Co.	313-573-4605
MN	Excelsior, Lestronix	612-474-1935
MN	St. Louis Park, Lestronix	612-926-8466
MO	Grandview, Harris Hanson Co.	816-763-6200
MO	St. Louis, Harris Hanson Co.	314-432-3611
NJ	Broomall, L. D. Lowery, Inc.	215-528-5170
NJ	Woodcliff Lake, Joe Freid & Assoc.	201-391-6792
NY	Great Neck, F & F Metro	516-482-4080
NY	Mendon, Tech-Mark	716-624-3840
OH	Richfield, Bear Mktg.	216-659-3131
OR	Portland, James J. Backer Co.	503-297-8744
PA	Broomall, L.D. Lowery, Inc.	215-528-5170
TX	Dallas, MGR Elctrn.	214-238-5246
UT	Salt Lake City, High Plains Mktg.	801-968-9456
WA	Seattle, James J. Backer Co.	206-285-1300
WI	Colgate, Rep 1 & Assocs.	414-628-4016
Can	Markham, Ont., Avotronics, LTD	416-475-2024
Can	Ottawa, Ont., Avotronics, LTD	613-233-5527
Can	Pointe Claire, Que., Avotronics, LTD	514-697-2135

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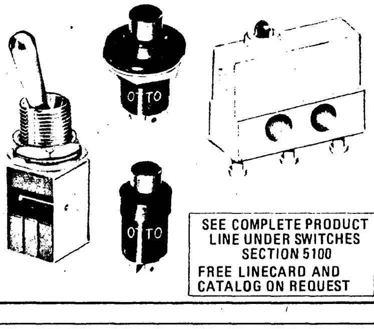

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AL	Huntsville, Forbes Distrbg.	205-533-4150
AZ	Phoenix, Lion Elctrns.	602-869-9611
AZ	Phoenix, R. V. Weatherford	602-272-7144
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Tempe, Circut Specialists, Inc.	602-966-0764
AZ	Tucson, Anatech Corp.	602-881-2348
AZ	Tucson, Elliot Elctrns.	602-884-7394
CA	Anaheim, A-Z Elctrns.	714-634-3620
CA	Burbank, Electronic City	213-842-5275
CA	Canoga Park, Sandy's Elctrns. Supp.	213-346-8353
CA	Costa Mesa, Marvac	714-540-3280
CA	Cucamonga, Abletronics	714-987-7606
CA	El Segundo, Force Elctrns.	213-772-1324
CA	El Toro, R-Vac	714-586-1210
CA	Freemont, Terminal Sls. Corp.	415-656-7722
CA	Gardena, California Switch & Signal	714-522-8600
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Goleta, Bill's Stereo	805-967-8280
CA	Monterey, Zackit (Monterey)	408-375-3144
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Redding, North Valley Elec. Distr.	916-222-1500
CA	Sacramento, Zackit/Sacramento	916-446-3131
CA	San Diego, R. V. Weatherford	619-695-1700
CA	San Diego, Southland Comps.	619-578-6630
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Jose, Rose Elctrns.	408-263-2934
CA	San Rafael, Electronics Plus	415-457-0456
CA	Santa Anna, C. R. Elctrns., Inc.	714-556-2040
CA	Valleyo, Zackit (Valleyo)	707-644-6676
CO	Denver, Gateway Elctrns.	303-458-5444
CO	Denver, Intergrated Elctrns.	303-292-5337
CO	Denver, R. V. Weatherford	303-428-6900
CO	Greeley, Greely Walker	303-353-3241
CT	New Haven, Hatry Elctrns.	203-527-1881
CT	New London, Jan Elctrns.	203-442-4386
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Midstate Elctrns.	203-265-9900
DE	Wilmington, Wholesale Elctrns.	302-656-9988
FL	Clearwater, Electronic Precepts of FL	813-530-9781
FL	Dania, Summit Distrs.	305-920-6253
FL	Longwood, Interec Comps.	305-834-7777
FL	Miami, Electronic Equip. Co.	305-871-3500
FL	Orlando, EMSCO	305-849-6362
FL	St. Petersburg, Knapp of Florida	813-392-0406
FL	Tampa, Dow Elctrns.	813-626-5195
FL	Tampa, Leader Elctrns.	813-870-3315
FL	Tampa, Sunex Elctrns.	813-885-4074
FL	West Palm Beach, Nurmi Elctrns.	305-686-8553
GA	Atlanta, Ack Radio	404-351-6340
GA	Atlanta, Specialty Distr. Co.	404-873-2521
IL	Berwyn, BB & W Inc.	312-242-1533
IL	Chicago, Electronic Distrs.	312-283-4800
IL	Chicago, R. W. Elctrns.	312-248-2480
IL	Elk Grove, Martec Assocs.	312-956-8090
IL	Geneva, Melvin Elctrns.	312-279-5015
IL	Mt. Prospect, Tri State Elctrns.	312-255-0600
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Peoria, Klaus Radio	309-691-4840
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Bloomington, Stansifer Radio Co.	812-336-6339
IN	Gary, Calumet Elctrns.	317-887-4961
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Electronic Service Parts	317-635-7822
IN	Indianapolis, Prehler Elctrns.	800-228-5839
IN	Jasper, Elex Mart	812-482-4101
IA	Cedar Rapids, Iowa Radio Supply	319-393-4510
KS	Overland Park, Burnstein & Assocs.	913-642-6444
KS	Salina, Electronics, Inc.	913-827-7377
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Louisville, Peerless Elctrns.	502-637-7674
MD	Aberdeen, Harco Elctrns.	301-838-7990
MD	Beltsville, Mark Elctrns.	301-595-5040
MD	Beltsville, P.S.I.	301-937-4960
MD	Gaithersburg, Almo Elctrns.	301-792-9197
MD	Glen Burnie, Revacto of Maryland	301-766-3400
MD	Rockville, Capitol Radio	301-881-2270
MD	Towson, Baynesville Elctrns.	301-823-0082
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Newton Upper Falls, In Stock Products Co.	617-964-6200
MI	Battle Creek, Great Lakes Elctrns.	616-731-4156
MI	Berrien Springs, Data Comms.	616-471-2119
MI	Clawson, Radio Supp. & Engrg.	313-435-6420
MI	Farmington Hills, Prehler Elctrns	800-336-1406
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
MI	Lansing, Fulton Radio	517-394-5020
MI	Livonia, RS Elctrns.	313-525-1155
MN	Minneapolis, Aero-Space-Computer Supp.	612-884-4725
MN	Minneapolis, Northern Elctrns.	612-944-1167
MO	St. Louis, Gateway Elctrns.	314-427-6116
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Frenchtown, Sintec/Aries	201-996-4093
NJ	Pine Brook, Parts Masters	201-227-7797
NM	Albuquerque, Walker Radio Co.	505-883-2992
NY	Buffalo, Summit Distr.	716-887-2800
NY	Farmingdale, Midway Indl. Electro	516-293-6800
NY	Freeport, KRP Elctrns.	516-623-3346
NY	New York, Advance Elctrns.	212-730-7030
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rochester, Summit Distr.	716-334-8110
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NC	Burlington, Womack Elctrns.	919-227-7486
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, R. S. Elctrns.	513-793-2450
OH	Columbus, Hughes-Peters	614-294-5351
OH	Strongsville, Roberts Elctrns.	216-238-1711
OK	Oklahoma City, She Elctrns.	405-843-5941
OK	Tulsa, Radio Inc.	918-587-9123
OR	Beaverton, Norvac Elctrns.	503-644-1025
OR	Beaverton, Rose Elctrns	503-629-9288
OR	Portland, Radar Elec.	503-232-3404
PA	Allentown, A.A. Peter, Inc.	215-434-5237
PA	Coatesville, County Supply	215-384-4585
PA	Marcus Hook, Linwood Wholesalers	215-485-0777
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Willow Grove, Resco Elctrns.	215-659-4575
PA	York, Rosen Elctrns.	717-843-7881
RI	Pawtucket, Jabbour Elctrns.	401-944-2570
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Chattanooga, Curle Elctrns. Supp.	615-266-4729
TN	Chattanooga, Techni-Tronics	615-842-0514
TN	Clarksville, Randolph, Hale & Matthews	615-647-2325
TN	Columbia, Randolph & Williams	615-388-7566
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Memphis, Bluff City	901-345-9500
TN	Nashville, Bluff City	615-242-8000
TN	Nashville, Randolph & Rice	615-255-5602
TN	Tullahoma, Randolph & Vandergriff	615-455-4531
TX	Austin, EPC	512-339-1131
TX	Austin, Galtronics	512-837-7470
TX	Dallas, R. V. Weatherford	214-243-1571
TX	Dallas, Wholesale Elctrns. Supp.	214-824-3001
TX	Forth Worth, Allied Elctrns.	817-336-5401
TX	Houston, Ace Elctrns.	713-688-8114
TX	Houston, EPC	713-447-5800
TX	Houston, Force Elctrns.	713-561-8644
TX	Houston, Gateway Elctrns.	713-978-6575
TX	Irving, Force Elctrns.	214-438-5700
TX	San Antonio, Altex Elctrns.	512-828-0503
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Charlottesville, Virginia Radio	804-296-4184
VA	Richmond, Meter Metrics Div./Tr.	804-275-2675
VA	Springfield, Crossroads Elctrns.	703-931-0600
WA	Bellevue, Almac Elctrns. DKM Co.	206-643-9992
WA	Seattle, R. V. Weatherford	206-575-1340
WA	Seattle, Radar Elec.	206-282-2511
WA	Seattle, Zephyr Elctrn. Sls.	206-241-1980
WI	Milwaukee, Industrial Elctrns., Inc.	414-276-1212
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oshkosh, Electronic Inds., Inc.	414-235-8930
Can	Mississauga, Ont., Rush Elctrns.	416-677-7280
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710

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Local Sales Offices & Reps

CA	Laguna Hills, Elotek Sys., Inc.	714-830-4856
CO	Boulder, A. Bissell Co. Indl. Sls.	303-444-1173
FL	Orlando, Physimetrics, Inc.	305-894-8081
GA	Atlanta, Physimetrics, Inc.	404-955-0155
IL	Lansing, Van Meter Instrs., Inc.	312-474-3580
IN	Indianapolis, Carter, McCormic & Peirce, Inc.	317-844-4175
MD	Rockville, Electronic Mktg. Assocs., Inc.	301-744-7700
MI	Farmington Hills, W. R. Hummon & Assocs., Inc.	313-474-0661
NJ	Plainfield, Cosine, Inc.	201-654-3551
NM	Albuquerque, Burt Dieruf Assocs.	505-299-0989
NY	Clark Mills, KLM-Garner	315-853-6126
NY	N. Syracuse, KLM-Garner	315-458-6214
NY	Pittsford, KLM-Garner	716-381-8350
NC	Concord, Physimetrics, Inc.	704-788-1317
OH	Englewood, Carter, McCormic & Peirce, Inc.	513-836-0951
OH	Fairview, Carter, McCormic & Peirce, Inc.	216-799-5100
PA	Monroeville, Carter, McCormic & Peirce, Inc.	412-372-4415
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
WA	Seattle, Paine Instrs., Inc.	206-723-1705
Can	Burlington, Ont., Panacon Control Sys., Inc.	416-336-7139
Can	Richmond, B.C., Maxwell Morton Assocs., Ltd.	604-273-1337

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PALADIN, 3543 Old Conejo Rd., Newbury Park, CA 91320, Tel: 805-499-0318, Telex: 910-494-2799; Empl.: 9; *Sls. Mgr.:* Ronald Vogel

PALL ULTRAFINE FILTRATION CORP., 2200 Northern Blvd., East Hills, NY 11548, Tel: 516-484-5400, Telex: 968855, TWX: 510-223-0606; Empl.: 3500; *Sls. Mgr.:* Alison Ray; *Dist. Mgr.:* Fred Nordhauser

PALOMAR ENGRS., Box 455, Escondido, CA 92025, Tel: 619-747-3343; Empl.: 9

PAMOTOR, 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-1203, TWX: 910-374-2353; Empl.: 35; *Sls. Mgr.:* F. L. Nelson; *Dist. Mgr.:* F. L. Nelson

PAMRAN, 1101 Cedar Creek, Racine, WI 53402, Tel: 414-639-9076; Empl.: 28; *Sls. Mgr.:* R. C. Pfeil

PANAMETRICS, 221 Cresent St., Waltham, MA 02254, Tel: 617-899-2740, Telex: 6817337, 951006; Empl.: 200; *Sls. Mgr.:* Bob Mel

PANASONIC, IND'L. ELCTRN. COMPS., Panasonic, Elctrn. Comps. Div., Box 1503, Secaucus, NJ 07094, Tel: 201-348-7000, Telex: 701 992-8920; Empl.: 25 .... **D•1422-1427**

Local Sales Offices & Reps

AZ	Phoenix, Dar-C	602-991-0110
FL	Fern Park, S.E.C.	305-781-4800
FL	Lighthouse Pt., S.E.C.	305-781-4800
MI	Brighton, A.P. Assocs.	313-229-6550
MI	Holland, AP Assocs.	800-624-5496
OH	Dublin, AP Assocs.	800-624-5496
OH	Fairview Park, AP Assocs.	800-624-5496
OH	Lorain, AP Assocs.	800-624-5496
PA	Eastern PA, Comtek	609-235-8505
PA	Western PA, AP Assocs.	800-624-5496

Local Distributors

AZ	Scottsdale, Electro Mktg.	602-991-0110
CO	Colorado Springs, C.M.T.	303-598-6888
NJ	Clifton, Engineered Assem.	201-340-0600
OR	Wilsonville, Micro Power	503-694-2888

PANAVISE PRODS., 2850 E. 29th St., Long Beach, CA 90806, Tel: 213-595-7621, Telex: 18-2135; Empl.: 29; *Sls. Mgr.:* Michael Steffen; *Dist. Mgr.:* Michael Steffen

PANDUIT CORP., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, Tel: 312-532-1800, Telex: 25-4560; FSC No.: ;06383; Empl.: 1200 .... **C•1474-1476, 1888-1891**

Local Sales Offices & Reps

AL	Birmingham, Frank Parker & Assocs.	205-853-3152
AK	Anchorage, Bar Elec. Agt.	907-345-7281
AZ	Phoenix, Panduit Corp.	602-861-3969
AR	Little Rock, Byron Carson Co.	501-568-6798
CA	Los Altos, Ewing-Foley	415-941-4525
CA	San Diego, Tak Sls. Co.	619-287-6141
CA	Santa Ana, Panduit Corp.	714-546-5700
FL	Lakeland, Panduit Corp.	813-665-5850
GA	Atlanta, Panduit Corp.	404-256-5940
HI	Honolulu, Agencies Co./Pacific	808-359-8343
IN	Fort Wayne, Panduit Corp.	219-424-4082
IN	Indianapolis, Panduit Corp.	317-251-8332
IA	Des Moines, Panduit Corp.	515-280-8343
KS	Kansas City, Panduit Corp.	913-764-7170
KY	Louisville, A. L. Pickens Co.	502-491-4215
LA	New Orleans, Wells-Keown & Assocs.	504-244-0330
MD	Landover, Agency Group, Inc.	301-773-9292
MI	Fraser, Panduit Corp.	313-791-1700
MI	Grand Rapids, Panduit Corp.	616-942-0420
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, Panduit Corp.	314-894-7800
NH	Salem, Sales Eng. Co.	603-893-5521
NY	Niagara Falls, Panduit Corp.	800-532-4439
NC	Winston-Salem, L. G. White Southern	919-725-3612

OH	Cincinnati, Panduit Corp.	513-874-0660
OH	Cleveland, Panduit Corp.	216-835-2050
OH	Columbus, Panduit Corp.	614-262-6052
OK	Tulsa, Panduit Corp.	918-745-1420
OR	Portland, Panduit Corp.	503-654-9455
PA	Carnegie, Myles F. Smith & Assoc.	412-276-5363
PA	Erie, Myles F. Smith & Assocs.	814-459-7464
PA	Glenside, Kunz, Powell & Assoc.	215-224-2434
SC	Greenville, L. G. White Southern	803-271-0630
TN	Knoxville, Panduit Corp.	615-588-2476
TN	Memphis, Byron Carson Co.	901-276-0614
TN	Nashville, Panduit Corp.	615-871-0732
TX	Dallas, Panduit Corp.	214-620-7713
TX	Houston, Panduit Corp.	713-580-0100
TX	San Antonio, Panduit Corp.	512-656-2208
VA	Richmond, L. G. White Southern	804-740-7093
WA	Bellevue, Panduit Corp.	206-454-7267
WV	Dunbar, Myles F. Smith & Assoc.	304-768-9910
WI	Appleton, H. Mercer Co.	414-739-6223
PR	Santurce, L. Gandia & Assocs.	809-725-3473

PANEL COMPONENTS CORP., P.O. Box 6626M, Santa Rosa, CA 95406, Tel: 707-523-0600, Telex: 176-747; Empl.: 18 .... **B•1254-1255; C•1478-1482, 1892-1893**

Local Sales Offices & Reps

AL	Huntsville, DHR Mktg. Inc.	205-533-5165
CA	Santa Clara, Ross Mktg. Assoc.	408-988-8111
CA	Tustin, Schoenbachler-Dobson Co.	714-544-1888
CO	Englewood, Omega Ltd.	303-762-1921
GA	Atlanta, DHR Mktg., Inc.	404-451-9848
IL	Northbrook, Raines & Assocs.	312-498-0890
IA	Marion, M-S-B Assocs., Inc.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs., Inc.	913-432-2131
MA	Lexington, Zieco	617-861-8300
MN	St. Paul, Arkco Sls.	612-777-7454
MO	St. Charles, M-S-B Assocs., Inc.	314-946-5577
NY	Great Neck, Tylinski Assocs.	516-466-9070
NY	Rochester, Lloyd Hart Assocs.	716-244-3253
NC	Raleigh, DHR Mktg., Inc.	919-876-5450
OH	Cleveland, K-T Depco	216-442-6200
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Doylestown, T.O.E. Sls.	215-348-2212
PA	Pittsburgh, K-T Depco	412-367-1011
SC	Greenville, DHR Mktg. Inc.	803-235-3594
TX	Lewisville, Jim Hughes Co.	214-221-1536
TX	Stafford, Jim Hughes Co.	713-343-0673
WA	Seattle, Earl & Brown Co.	206-284-1121
Can	Ottawa, Ont., Lloyd Ellam Assocs.	613-224-1720

PANEL CONTROLS, 1000 Mt. Elliott Ave., Detroit, MI 48207, Tel: 313-568-2400; Empl.: 24

PANELGRAPHIC CORP., 10 Henderson Dr., W. Caldwell, NJ 07006, Tel: 201-227-1500, TWX: 710-734-4367; FSC No.: 52657; Empl.: 100

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PAN-MAGNETICS INTL., INC., 455-A Carson Plaza Dr., Carson, CA 90746, Tel: 213-532-1790, Telex: 664-759; *Sls. Mgr.:* W. Dull ... **A•1265, 2213-2220; D•1742-1743**

Local Sales Offices & Reps

AZ	Scottsdale, E.D.P. & Assocs.	602-991-6119
CT	Marlborough, Precision Sls.	203-295-0580
GA	Norcross, Dixie Tech. Mktg., Inc.	404-447-6832
IN	Kokomo, Schillinger Assocs., Inc.	317-452-4057
KS	Overland Park, Electri-Rep	913-649-2168
MD	Towson, Electronic Comp. Mktg.	301-321-8611
MA	Newton, Precision Sls.	617-969-0594
MN	Minneapolis, DeBeck-Hays Assocs.	612-835-3610
MO	Maryland Heights, Electri-Rep, Inc.	314-878-8209
NC	Raleigh, Dixie Tech. Mktg., Inc.	919-878-0909
OR	Tigard, Electronic Sources	503-684-0040
WA	Bellevue, Electronic Sources	206-643-0400

PANNIER CORP., Graphics Div., John Fitch Industrial Park, Warminster, PA 18974, Tel: 215-672-3600; Empl.: 45; *Sls. Mgr.:* Barry Stefaniw

PAPST MECHATRONIC CORP., Aquidneck Indl. Pk., Newport, RI 02840, Tel: 401-849-5930, Telex: 952092; *Sls. Mgr.:* Emanuel V. Lauria

PARABAM, INC., 3017 E. Las Hermanas St., Rancho Dominguez, CA 90221, Tel: 213-537-1771; Empl.: 85

PARAGON ELECT., 606 Parkway Blvd., Two Rivers, WI 54241, Tel: 414-793-1161, Telex: 26-3450; Empl.: 1000; *Sls. Mgr.:* Don Karman

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PARALINE TRANSFORMER CORP., 511 South Palm Ave., Alhambra, CA 91803, Tel: 818-281-0222; FSC No.: 59465; Empl.: 52 .... **A•2221-2225**

PARAMOUNT TUBE, INC., 1430 Progress Rd., Ft. Wayne, IN 46808, Tel: 219-484-4111; Empl.: 46; *Sls. Mgr.:* D. L. Gibson

PARKER HANNIFIN CORP., 17325 Euclid Ave., Cleveland, OH 44112, Tel: 216-531-3000, Telex: 980636

PARKER MCCRORY MFG. CO., 2000 Forest Ave., Kansas City, MO 64108, Tel: 816-221-2000; *Sls. Mgr.:* Ken Turner; *Dist. Mgr.:* Ken Turner

PARKER SEAL GRP., P.O. Box 11751, Lexington, KY 40512, Tel: 606-269-2351; Empl.: 2,200; *Sls. Mgr.:* Frank Chesnik

PARLEX CORP., 145 Milk St., Methuen, MA 01844, Tel: 617-685-4341, ext. 325, TWX: 710-342-1528; Empl.: 600; *Sls. Mgr.:* Valerie Mickalide

PARSONS MFG., 1055 O'Brien Dr., Menlo Park, CA 94025, Tel: 415-324-4726, TWX: 910-373-2106; Empl.: 85; *Sls. Mgr.:* C. E. Plummer

PASO SOUND PRODS., 14 First St, Pelham, NY 10803, Tel: 914-738-4800, Telex: 646783 Paso Pelm; Empl.: 50; *Sls. Mgr.:* David Moore

Local Sales Offices & Reps

CA	West Covina, Don Forth Assocs.	818-919-2322
CT	Greenwich, Miller Assoc.	203-869-7793
FL	Hialeah, Miguel A. Lopez	305-822-6853
FL	Pembroke Pines, World Wide Prods., Inc.	1-800-223-5651
GA	Marietta, Dewitt Austin Co.	404-926-4943
IL	Arlington Heights, Brainard Wilson Mktg.	312-437-2700
IN	Carmel, Brainard Wilson Mktg.	317-844-2800
MA	Braintree, Anderson Sls. Assocs.	617-848-9194
MN	Moorhead, Northland Assocs.	218-233-4616
NJ	Moorestown, Piper Mktg.	609-235-8006
NY	Liverpool, Jack Mesnick Sls.	315-622-3211
NC	Charlotte, De Witt Austen Co.	704-334-0174
OH	Medina, J. H. Podolny Co.	216-725-8814
PA	Pittsburgh, James Podolny Co.	412-353-5877
TN	Memphis, Electronic Sls. Co.	901-682-2281
VA	Ashland, Piper Mktg.	804-798-9299
WI	Waukesha, Brainard Wilson Mktg.	414-255-3400
Can	Toronto, Paco Elctrns.	416-475-0740

PASS & SEYMOUR, INC., P.O. Box 4822, Syracuse, NY 13221, Tel: 315-468-6211, Telex: 93-7232; *Sls. Mgr.:* Kenneth Hooper

PATHCOM, INC., Pace Two-Way Radio Prods., 24105 S. Frampton Ave., Harbor City, CA 90710, Tel: 213-325-1290; Empl.: 600

PATTON-MACGUYER INC., 17 Virginia Ave., Providence, RI 02905, Tel: 401-941-6000; FSC No.: 77147; Empl.: 55; *Sls. Mgr.:* J. Allen

Local Sales Offices & Reps

CA	Mission Viejo, Coastline Connectors	714-859-7878
GA	Cumming, Reno Ivy & Assocs.	404-887-4533
MI	Farmington, Lloyd George & Assocs.	313-474-1505
MO	Lee's Summit, MYA Midwest Inc.	816-525-1290
NC	Greensboro, Manufacturers Sales	919-274-2474
OH	Chesterland, P.M.S. Associates	216-729-2248
RI	Providence, Patton-MacGuyer Inc.	401-941-6000

PAYNE ENGRG., Box 70, Scott Depot, WV 25560, Tel: 304-757-7353, Telex: 88-5452; Empl.: 40; *Sls. Mgr.:* Matthew J. Gilberto; *Dist. Mgr.:* Diane Nelson

PCA ELECTRONICS INC.

28 SMD 3/85

PCA ELCTRNS., 16799 Schoenborn St., Sepulveda, CA 91343, Tel: 818-892-0761, Telex: 67-4681, TWX: 910-496-1525; FSC No.: 97722; Empl.: 45; *Sls. Mgr.:* Ben Weinberg .... **A•1556-1566**

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assocs.	602-955-3193
CA	San Diego, Littlefield & Smith Assoc.	619-455-0055
CA	Santa Clara, Fahrner-Miller Assocs.	408-727-9800
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
IL	Westchester, W. G. Brouillette & Assocs.	312-345-6500
MA	Southboro, KSA of New England	617-485-9432
MN	Minneapolis, Bill Deming and Assocs.	612-888-5000
NJ	Wayne, Howard Kagan Assocs.	201-694-1115
OH	Cleveland, Weschler Elec. Corp.	216-238-2550
OR	Portland, Elctrn. Comp. Sls.	503-245-2342
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1354
UT	Salt Lake City, Sage Sls.	801-467-5451
VA	Front Royal, Eltron Sls., Ltd.	702-635-7201
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WA	Seattle, Elctrn. Comp. Sls.	206-232-9301

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PIEZOTRONICS

PCB PIEZOTRONICS, 3425 Walden Ave., Depew, NY 14043-2495, Tel: 716-684-0001, TWX: 710-263-1371; Empl.: 110; *Sls. Mgr.:* Roy Maines

Local Sales Offices & Reps

CA	Alhambra, Dale-Dahl Assocs.	213-682-3417
CA	Walnut Creek, Dale-Dahl Assocs.	415-933-9595
CT	Hamden, Northeast Engrg.	203-248-4481
FL	Orlando, Microspec, Inc.	305-299-6508
GA	Lilburn, Microspec, Inc.	404-921-3840
IL	Crystal Lake, ITI Systems	815-455-1411
MD	Dayton, Gans-Pugh Assocs.	703-527-3262
MA	Danvers, Northeast Engrg.	617-774-3010
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MO	St. Louis, Adelphi, Inc.	314-821-1232
NM	Albuquerque, Rustco Entprs.	505-292-2741
NY	Manhasset, Northeast Engrg.	516-365-9633
NY	Syracuse, Labtronics, Inc.	315-455-7314
OH	Englewood, Carter, McCormic & Peirce	513-836-0951
OH	Fairview Pk, Carter, McCormic & Peirce	216-779-5100
PA	Chester Springs, Letronix	215-458-8977
PA	Monroeville, Carter, McCormic & Peirce	412-372-4415
SC	Rock Hill, Microspec, Inc.	803-366-3015
TN	Nashville, Microspec, Inc.	615-383-4064
TX	Dallas, Techn. Prods.	214-357-9603
TX	Houston, Techn. Prods.	713-493-6520
UT	Logan, Western Mktg. Assocs.	801-753-0073
VA	Arlington, Gans-Pugh Assocs.	703-527-3262
WA	Seattle, Brett Assocs.	206-431-8090

PC INTERNATIONAL, 4400 MacArthur Blvd., Newport Beach, CA 92660, Tel: 714-476-1020

PCK ELASTOMERICS, INC., Kollmorgen Corporation, 333 Byberry Road, Hatboro, PA 19040, Tel: 215-672-0787, 215-672-4741, TWX: 510-387-236; FSC No.: 64914; *Sls. Mgr.:* Thomas G. Campbell; *Dist. Mgr.:* John Seibert .... **C•1483**

Local Sales Offices & Reps

AZ	Scottsdale, TC Elctrn. Sls., Inc.	602-994-5153
CA	Fullerton, Libratronix	714-871-1513
CA	Mountain View, Marquez & Assocs.	415-966-1012
CT	South Dartmouth, Kentronics	617-999-2188
FL	Coral Springs, Janco Resch. & Sls. Co.	305-755-0631
ID	Spokane, L. D. Elctrns.	509-922-0883
IL	Arlington Heights, Coombs Assocs., Inc.	312-439-9810
IN	Ft. Wayne, Coombs Assocs., Inc.	219-747-4017
IA	Cedar Rapids, Coombs Assocs., Inc.	319-362-4116

MA	Wakefield, Kentronics	617-246-0245
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Brooklyn Center, William Assocs.	612-566-5010
NJ	Madison, Livera-Polk Assocs., Inc.	201-377-3220
NY	Glen Head, Livera-Polk Assocs., Inc.	516-759-9300
OR	Beaverton, L. D. Elctrns.	503-649-8556
WA	Snohomish, L. D. Elctrns.	206-568-0511
WI	Milwaukee, Coombs Assocs., Inc.	414-351-6123

PCK TECHNOLOGY DIV., Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747, Tel: 516-454-4400, Telex: 6852163, TWX:; Empl.: 250; *Sls. Mgr.:* J. F. Dennis-Browne

PCM-PAC CYBER-METRIC, 6800 Sierra Ct., Dublin, CA 94568, Tel: 415-829-8700, TWX: 910-389-6890; Empl.: 19; *Sls. Mgr.:* T. J. Netoff

PC TRANSFORMER CORP., 64 D Nancy St., West Babylon, NY 11704, Tel: 516-491-3300; FSC No.: 62281; Empl.: 11; *Sls. Mgr.:* Stanley L. Goldstein .... **A•2226-2229**

PEARSON ELCTRNS., 1860 Embarcadero Rd., Palo Alto, CA 94303, Tel: 415-494-6444, Telex: 171-412; FSC No.: 05280; Empl.: 23; *Sls. Mgr.:* Patricia L. Pearson .... **A•2230**

PECA, INC., 592 Winks Lane, Bensalem, PA 19020, Tel: 215-245-1550; Empl.: 30; *Sls. Mgr.:* Jean Douglass

PENFIELD, INC., West & W. Main Sts., Plantsville, CT 06479, Tel: 203-621-9141; Empl.: 25

PENN AIRBORNE PRODS., Industrial Hwy., Southampton, PA 18966, Tel: 215-355-3400, Telex: 834759; FSC No.: 25805; Empl.: 25; *Sls. Mgr.:* W. Williams

PENN ENGRG. & MFG., P.O. Box 1000, Danboro, PA 18916, Tel: 215-766-8853; FSC No.: 46384; Empl.: 480; *Sls. Mgr.:* John E. O'Brien

PENN FIBRE & SPEC., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124, Tel: 215-288-7366; Empl.: 66; *Sls. Mgr.:* L. C. Jones

PENN KEYSTONE CORP., Unimax Switch Corp., Ives Rd., P.O. Box 152, Wallingford, CT 06492, Tel: 203-269-8701, Telex: 96-3485, TWX: 710-476-1397; FSC No.: 03034; *Sls. Mgr.:* Jack Fitzgerald

PENN RESCH. CORP. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144, Tel: 404-429-9061, Telex: 753010; *Sls. Mgr.:* Wallace Hundley

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PENN-TRAN CORP., Box 1321, Rte. 144N, Wingate, PA 16880, Tel: 814-355-1521, Telex: 706473; FSC No.: 50783; Empl.: 115; *Sls. Mgr.:* William Holt .... **A•1266, 2231; D•1741**

Local Sales Offices & Reps

AZ	Tempe, Systems Sls. of Arizona	602-829-9338
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Pasadena, A-F Sls. Engrg., Inc.	213-681-5631
CO	Englewood, Dynatech, Inc.	303-773-2830
CT	Madison, United Comp.	203-245-4810
IN	Ft. Wayne, Aktron	219-747-3650
MN	Minneapolis, International Sls. Co.	612-831-8423
NM	Albuquerque, Systems Sls. of New Mexico	505-881-8877
NY	Mendon, Tech-Mark, Inc.	716-624-3840
NC	Raleigh, DHR Mktg., INc.	919-876-5450
OR	Portland, Intertech Sls.	503-775-3390
PA	Glenside, Koebert Assocs., Inc.	215-887-2310
UT	Layton, Dynatech, Inc.	801-546-4837
VA	Front Royal, Eltron Sls., Ltd.	703-635-7201

PENNTUBE PLASTICS, Madison Ave. & Holly St., Clifton Heights, PA 19018, Tel: 215-622-2300, Telex: 845-212; Empl.: 145

PENN VIDEO INC., 929 Sweitzer Ave., Akron, OH 44311, Tel: 216-762-4840, Telex: 98-6327 PVI-AKR; Empl.: 40; *Sls. Mgr.:* Sandra Donaldson; *Dist. Mgr.:* Chris Abrams

PENNWALT CORP., Three Pkwy., Philadelphia, PA 19102, Tel: 215-587-7520, TWX: 215-569-9748

PENRIL DATACOMM, Penril Corp., 207 Perry Parkway, Gaithersburg, MD 20877, Tel: 301-921-8600, TWX: 710-828-0522; Empl.: 250; *Sls. Mgr.:* David L. Johnson

PERCON, 2190 W. 11th, Eugene, OR 97402, Tel: 503-344-1189; Empl.: 9; *Sls. Mgr.:* Peter Harnack; *Dist. Mgr.:* Peter Harnack

PERFECT GEAR & INSTR., 2101 Jericho Tpk., New Hyde Park, NY 11040, Tel: 516-328-3300, TWX: 510-223-0642; Empl.: 210; *Sls. Mgr.:* Murray Ores

PERFECTION MICA CO., see Magnetic Shield Div.

PERFORMANCE CONTROLS INC., 333-E Byberry Rd., Hatboro, PA 19040, Tel: 215-675-6500, Telex: 881478; FSC No.: 61773; Empl.: 30; *Sls. Mgr.:* M. Edward Wokulich .... **B•1178**

PERIPHERALS, 3001 Red Hill, Bldg. 6, Ste. 107, Costa Mesa, CA 92626, Tel: 714-540-4925

PERITEK CORP., 5550 Redwood Rd., Oakland, CA 94619, Tel: 415-531-6500, TWX: 910-366-2029; *Sls. Mgr.:* John Brogan

PERKIN-ELMER

PERKIN-ELMER CORP., Elctrn. Prods. Dept., Main Ave., Norwalk, CT 06856, Tel: 203-762-4786, TWX: 710-468-3213; Empl.: 70; *Sls. Mgr.:* D. P. Duggan ...**A•2232**

Local Sales Offices & Reps

CA	Encino, C.D.H. Assocs.	213-707-1970

PERMAG, 400 Karin La., Hicksville, NY 11801, Tel: 516-822-3311, TWX: 710-581-5264; Empl.: 50

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FL	Boca Raton, Olson Assocs.	305-368-1845
IL	Chicago, Karl D. Engle Co., Inc.	312-539-1820
NC	Raleigh, DHR Mktg., Inc.	919-781-1961

Local Distributors

AZ	Phoenix, The Advance Grp.	602-437-1334
CA	Anaheim, The Advance Grp.	714-870-0300
CA	Belmont, The Advance Grp.	415-592-4550
CO	Denver, The Advance Grp.	303-388-0923
FL	Boca Raton, Olson Assocs.	305-368-1845
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Canal Winchester, Rudolph Bros.	614-833-0707
OH	Dayton, Electro Supp.	513-299-5020
TX	Houston, The Advance Grp.	713-956-5436
WA	Seattle, The Advance Grp.	206-575-4323

PERMALUSTER, INC., 1844 N. Keystone St., Burbank, CA 91504, Tel: 213-849-4543; Empl.: 9; *Sls. Mgr.:* J. Ross

PERMANENT MAGNET, 4437 Bragdon St., Indianapolis, IN 46226, Tel: 317-547-1336; Empl.: 85; *Sls. Mgr.:* Jack Amigh

PERMA POWER ELCTRNS., 5615 W. Howard Ave., Chicago, IL 60648, Tel: 312-647-9414; Empl.: 52; *Sls. Mgr.:* Michael Shatz; *Dist. Mgr.:* Michael Shatz ....**B•1256; C•1690-1691**

Local Sales Offices & Reps

AR	El Dorado, D. Bellew Sls.	214-373-4590
CA	San Francisco, Techn. Sls.	415-467-1434
CA	Sun Valley, Tegni-Rep	213-768-4223
CO	Denver, Stan Sliz & Assoc.	303-666-4760
MA	Wolburn, W & D Mktg.	617-935-5610
IN	Indianapolis, Green-Wissler	317-872-9981
MI	Plymouth, J. Malcolm Flora	313-453-4296
MN	St. Paul, R. W. Sls.	612-646-2710
MO	Jefferson City, C. A. Vignola	314-636-3121
NJ	Marlton, Fahy Mktg.	609-983-2366
NY	Phelps, L. S. M. Assocs.	315-548-4891
NY	Plainview, Landau & Mack	516-293-3310
NC	Greensboro, Adams & Assocs.	919-272-6838
OH	Stow, J. Lehner Co.	216-686-1965
TX	Dallas, Berthold Sls.	214-328-0067
WA	Seattle, Northmar, Inc.	206-524-5170
EXP	N.Y., Plainview, Morhan Export.	516-293-5582

PERRY AMPLIFIER, 138 Fuller St., Brookline, MA 02146, Tel: 617-734-0844; Empl.: 18; *Sls. Mgr.:* N. Geskos

PERSONAL MICRO COMPUTERS, 275 Santa Ana Ct., Sunnyvale, CA 94086, Tel: 408-737-8441, TWX: 910-379-5022

PERTEC PERIPHERALS CORP., P.O. Box 2198, Chatsworth, CA 91311, Tel: 818-882-0030, TWX: 910-494-2093; Empl.: 650; *Sls. Mgr.:* Bernie Kallai

PERVEL INDS., INC., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374, Tel: 203-564-2741, Telex: 966450; Empl.: 350; *Sls. Mgr.:* Rick Arnold

PFC, See Southern Elctrns. Co. Inc.

PHALO CORP., Transitron Elctrn. Corp., 2 Friberg Parkway, Westborough, MA 01581, Tel: 617-366-0830, Telex: 92-0416, TWX: 710-392-1383; Empl.: 450

PHAOSTRON INSTRUMENT & ELECTRONIC CO., 151 Pasadena Ave., South Pasadena, CA 91030, Tel: 213-255-1471

PHELPS DODGE CABLE & WIRE, Box 2100, Greenwich, CT 06836, Tel: 203-625-3200, TWX: 710-560-0006; Empl.: 750; *Sls. Mgr.:* T. P. Reilly

PHELPS DODGE INTL., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134, Tel: 212-775-1395, 800-221-3333

PHELPS DODGE MAGNET WIRE, P.O. Box 600, Ft. Wayne, IN 46801, Tel: 219-456-4444, TWX: 810-332-1501; *Sls. Mgr.:* G. H. Guyer; *Dist. Mgr.:* W. H. Deininger

PHILADELPHIA INSULATED WIRE CO. INC., 333 New Albany Rd., Moorestown, NJ 08057, Tel: 609-235-6700, TWX: 710-897-0187; Empl.: 110; *Sls. Mgr.:* Fred Newman

PHILAMON, INC., 33 Dubon Ct., Farmingdale, NY 11735, Tel: 516-249-2700, TWX: 510-224-6512; FSC No.: 95267; Empl.: 27; *Sls. Mgr.:* B.F. Grib

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PHILIPS ECG, INC., 100 First Ave., Waltham, MA 02254, Tel: 617-890-6107; Empl.: 600; *Sls. Mgr.:* D. R. Kronenwetter; *Dist. Mgr.:* E. H. Frost

PHILIPS ELECTRONICS, LTD., Crystal Dept., 601 Milner Avenue, Scarborough, Ontario, Can. M1B 1M8, Tel: 416-292-5161, Telex: 065-25100, TWX: 610-492-0483; Empl.: 40; *Sls. Mgr.:* Mr. Jack F. Gehrels

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CA	El Segundo, Fetty/Schoenduve, Inc.	213-322-4991
FL	Pompano Beach, Technology Mktg. Assocs.	510-955-9854
NY	Great Neck, Tylinski Assocs., Inc.	516-466-9070

PHILIPS ELMET, 1560 Lisbon Rd., Lewiston, ME 04240, Tel: 207-784-3591, TWX: 710-223-0675; Empl.: 250

PHILIPS TELEVISION SYS., INC., P.O. Box 618, 900 Corporate Dr., Mahway, NJ 07430, Tel: 201-529-1550, Telex: 37-62558; *Sls. Mgr.:* Warren Anderson, Dir. of Mktg.

PHILIPS TEST & MEASURING INSTRS., 85 McKee Dr., Mahwah, NJ 07430, Tel: 201-529-3800; Empl.: 70; *Sls. Mgr.:* Bob Hynes

PHILMORE MFG., 40 Inip Dr., Inwood, NY 11696, Tel: 516-239-6161; Empl.: 22

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PHI TECHNOLOGIES, INC., 4605 North Stiles, Oklahoma City, OK 73105, Tel: 405-521-9000, TWX: 901-831-3286; Empl.: 60; *Sls. Mgr.:* Gary Zebrowski .... **D•1052-1054**

PHOENIX CONTACT, 1900 Greenwood St., Harrisburg, PA 17104, Tel: 717-232-0500, TWX: 510-650-4913; *Sls. Mgr.:* Howard C. Minnick, Jr.; *Dist. Mgr.:* Mark F. Gilliford .... **C•1484-1488**

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AZ	Scottsdale, Mahaffey & Assocs. Inc.	602-991-9790
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CA	San Diego, Luscombe Engrg. Co.	619-295-4300
CO	Denver, Spectrum Sls.	303-696-1601
CT	Bloomfield, Zaslow Sls. Co.	203-242-7781
FL	Tampa, J-R Controls	813-961-9478
GA	Atlanta, C.S.R Elctrns.	404-396-3720
IL	Mt. Prospect, Magnuson Assocs./Magnuson Elctrns.	312-956-0700
KS	Merriam, Mid-West Tech. Sls.	913-236-8557
MD	Baltimore, McCourt Co., Inc.	301-747-0044
NJ	Rockaway, R.O.I. Sls. Co.	201-627-8879
NY	North Syracuse, Lachut Electrical Sls.	315-422-2575
NC	Charlotte, Mec-Tric Control Co.	704-376-8555
OH	Medina, J. C. Hofstetter Co.	216-241-4880
PA	Carnegie, Brown-Yates Electrical Equip. Co.	412-279-1101
PA	Willow Grove, Jacobson-Rodger Assocs.	215-657-4300
TX	Dallas, Lynn Elliott Co., Inc.	214-239-8533
TX	Houston, Lynn Elliott Co., Inc.	713-499-1571
VA	Richmond, McCourt Co., Inc.	804-741-3253
WA	Bellevue, Comtec	206-453-1188

Local Distributors

AZ	Phoenix, Sterling Elctrns.	602-2121
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CA	Duarte, Nelson West Coast, Inc.	213-303-1526
CA	Gardenia, Cal Switch	213-770-2330
CA	Riverside, Elctrn. Supply Co.	714-683-7300
CO	Englewood, E & M Sls., Inc.	303-761-6202
CT	Wallingford, Sager Electrical	203-265-4600
FL	Lakeland, A-A Elec.	813-665-6941
GA	Atlanta, A-C Equip.	404-451-2747
GA	Norcross, Mayer Elec. Supp. Co.	404-447-6800
IL	Lombard, MacGregor & Co. Inc.	312-629-5752
IN	Carmel, Altex Elctrns.	317-848-1323
LA	Baton Rouge, Ralph's Indl. Elctrns.	504-344-3761
LA	Lafayette, Ralph's Indl. Elctrns.	318-234-4507
MD	Baltimore, A.I.C.	301-747-0044
MA	Hingham, Sager Electrical	617-749-6700
MI	Roseville, Madison Elec.	313-778-7640
MO	St. Charles, Lectronix Inc.	314-946-6424
NJ	East Rutherford, A-A Elec.	201-777-5477
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Orchard Park, Park Elec.	716-662-7070
NY	Rochester, Rochester Radio	716-454-7800
NY	Syracuse, Salmon Motor Repair	315-455-7924
NC	Charlotte, Dixie Elctrns.	704-377-5413
NC	Gastonia, JMT Elctrns. & Controls, Inc.	704-867-4401
OH	Cincinnati, Schuster Elctrns.	513-489-1400
OH	Cleveland, Adcon Engrg.	216-238-3915
OH	Twinsburg, Schuster Elctrns.	216-425-8134
OR	Portland, North Coast Elec.	503-228-5111
OR	Portland, United Radio Supp.	503-233-7151
PA	Bradford, B-B Elec. Supp. Co.	814-368-4173
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PA	Reading, R.A.M. Motors and Controls	215-376-7102
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TX	Houston, General Elec. Supp. Co.	713-939-5100
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Houston, Timers & Controls, Inc.	713-894-0714
UT	Salt Lake City, Standard Supp. Co.	810-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Spokane, North Coast Controls	509-922-1317
WI	Cedarburg, A-A Elec.	414-377-8000

PHOENIX DATA, INC., 3384 W. Osborn Rd., Phoenix, AZ 85017, Tel: 602-278-8528, TWX: 910-951-1364; Empl.: 55; *Sls. Mgr.:* Art Swiggers

PHOENIX MICROSYSTEMS, P.O. Box 4206, Huntsville, AL 35802, Tel: 205-881-2173, Telex: 752592; Empl.: 45; *Sls. Mgr.:* Mel Mayo

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PHOTOCIRCUITS RIVERHEAD DIV., KOLLMORGEN CORP., See Additive Products Div., Kollmorgen Corp.

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PHOTODYNE, 1175 Tourmaline Dr., Newbury Park, CA 91320, Tel: 818-889-8770, Telex: 18-1159; FSC No.: 59912; Empl.: 48; *Sls. Mgr.:* Eamon Murphy; *Dist. Mgr.:* Eamon Murphy .... **B•1122-1123**

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AL	Huntsville, JMS	205-533-5450
CA	San Luis Obispo, Johnson Assocs.	213-670-4794
CA	Sunnyvale, Ichirep Co.	408-249-2585
HI	Honolulu, Data Mgt. Assn.	808-943-1944
IL	Rosemont, Synmark Sls. Co.	312-825-3455
IN	Ossian, Science Sls.	219-622-7383
MA	Sudbury, Poulin Assocs.	617-443-7333
MN	Minneapolis, All Phase Agency	612-835-4940
MO	St. Louis, Engineering Svcs. Co.	314-997-1515
NJ	Pennsauken, Scientific Reps.	609-662-5222
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NC	Fayetteville, Zim-Tek	919-488-4101
OH	Risingsun, Mecom Inc.	419-457-3231
TX	Dallas, Southwestern Engrg. & Equip. Co.	214-340-1741
TX	Houston, Southwestern Engrg. & Equip. Co.	713-820-2500
VA	Fairfax, Scientific Assocs.	703-385-0600
WA	Walla Walla, Northwest Tech. Co.	509-529-2051

PHOTON, INC., 14125 Capri Dr. #4, Los Gatos, CA 95030, Tel: 408-866-0566, Telex: 17-1618 refer: Photon; Empl.: 12; *Sls. Mgr.:* John M. Fleischer

PHOTO RESCH., Kollmorgen Corp., 3000 N. Hollywood Way, Burbank, CA 91505, Tel: 818-843-6100, Telex: 69-1427; FSC No.: 92434; Empl.: 68; *Sls. Mgr.:* M. L. Woolsey

PHOTOSWITCH DIV., Electronics Corp. of Amer., 265 Winter St., Waltham, MA 02154, Tel: 617-466-8000; *Sls. Mgr.:* S. L. Davis

PHOTRONIC LABS., Secor Rd., Brookfield Ctr., CT 06805, Tel: 203-775-0465; Empl.: 55; *Sls. Mgr.:* Deno Macricostas

PHO-TRONICS, 8701 W. Bradley Rd., Milwaukee, WI 53224, Tel: 414-355-6704, TWX: 910-262-3099; Empl.: 85; *Sls. Mgr.:* John R. Henry

PIC DESIGN, P.O. Box 1004, Middlebury, CT 06762, Tel: 203-758-8272, TWX: 710-477-5234; Empl.: 150; *Sls. Mgr.:* Robert W. Westlake

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MO	St. Louis, Harris-Hanson Co.	314-432-3611
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OH	Cincinnati, G&H Sls. Co.	513-272-0580
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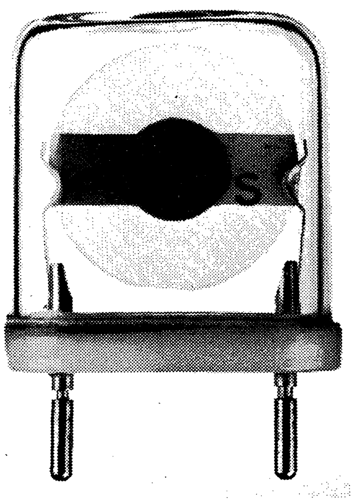

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PIONEER MAGNETICS, 1745 Berkeley St., Santa Monica, CA 90404, Tel: 213-829-6751, Telex: 182-093, TWX: 910-343-6249; FSC No.: 08676; Empl.: 450; *Sls. Mgr.:* A. Hagiwara .... **D•1752-1753**

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TX	Dallas, Blair Engrg.	214-241-5655
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WA	Vancouver, Halbar Assocs.	206-696-0170
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CA	Santa Ana, EESCO/LANDA/MINYARD, Inc.	714-543-7805
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FL	Lighthouse Point, Jack Krutek & Assocs., Inc.	305-941-6544
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MO	St. Louis, Cadon Tech. Co.	314-645-8670
NJ	Springfield, F. F. Sylvester Assoc.	201-376-3324
NY	Rochester, APEX Assocs., Inc.	716-235-9052
NC	Raleigh, Eastern Comps. Sls. Corp.	919-787-3416
OH	Dayton, Electro-Com	513-898-5140
OR	Tigard, Components West, Inc.	503-684-1671
PA	W. Conshohocken, Eastern Comps. Sls. Corp.	215-825-8610
TX	Seagoville, Delta Comps., Inc.	214-287-6333
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PLASTRONICS INC., 3111 Gardenbrook, Dallas, TX 75234, Tel: 214-243-0611, TWX: 910-860-5542; Empl.: 47

PLATO PRODS., 2120 E. Allen Ave., Glendora, CA 91740, Tel: 800-423-4510, Telex: 673-488; FSC No.: 32399; Empl.: 75; *Sls. Mgr.:* Walter Schaub

PLESSEY CERAMIC DIV., 8th & Harrison Sts., Frenchtown, NJ 08825, Tel: 201-996-2121, TWX: 510-235-3399; Empl.: 198; *Sls. Mgr.:* William Blackford

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PLESSEY MICROSYSTEMS, The Plessey Co., Ltd., One Blue Hill Pla., Pearl River, NY 10965, Tel: 914-735-4661

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AR	Searcy, Industry Controls Assoc.	501-268-8552
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OH	Chagrin Falls, Exonic Sys.	216-247-4788
OH	Cincinnati, Shaum Mfg.	513-793-6145
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OK	Tulsa, Horizon Engrg. Sls. Co.	918-252-7222
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POMONA ELECTRONICS, See ITT Pomona

POP FASTENERS DIV., 510 River Rd., Shelton, CT 06484, Tel: 203-735-9341, Telex: 963465, TWX: 710-451-3734; Empl.: 375; *Sls. Mgr.:* James Lynch

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CA	San Diego, El-Com, Inc.	619-578-0900
CA	San Diego, Fischer-Brownell	619-560-8545
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CA	Santa Clara, Richey Western	408-727-7411
CT	New Haven, Cronin Elctrns.	203-265-3134
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Orlando, Intertec Comps.	305-834-7777
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
IL	Chicago, Advent Elctrns.	312-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Kansas City, Milgray Elctrns.	913-236-8800
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Boston, Cronin Elctrns.	617-449-5000
MA	Burlington, Milgray Elctrns.	617-272-6800
MI	Detroit, Advent Elctrns.	313-477-1650
MN	Minneapolis, Industrial Comps., Inc.	612-831-2666
NJ	Marlton, Milgray Elctrns.	609-983-5010
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	North Syracuse, ANDCO	315-699-2660
OH	Cleveland, Milgray Elctrns.	216-447-1520
PA	Philadelphia, Çentury Elctrn. Comps.	215-631-5400
TX	Richardson, Fischer-Brownell	214-235-3177
WA	Kirkland, Fischer-Brownell	206-821-4788

POTTER INSTR., 10 Main St., Gonic, NH 03867, Tel: 603-332-1991, Telex: 94-4483; FSC No.: 11-1563382; Empl.: 20; *Sls. Mgr.:* S. Alexander

POULIN ASSOCIATES, INC., 302 North Rd., Sudbury, MA 01776, Tel: 617-443-7333; *Sls. Mgr.:* Scott Spalding

POWERBOX, INC., 1860 Broadway, New York, NY 10023, Tel: 212-586-1992; *Sls. Mgr.:* Len Elmlund

POWER COMPS. CO., Vanguard Elctrns. Co., 1480 W. 178th St., Gardena, CA 90248, Tel: 213-323-8120, TWX: 910-346-7067; FSC No.: 213-329-8427; *Sls. Mgr.:* Ken Finley

POWER CONTROL, 122 Gamma Dr., Pittsburgh, PA 15238, Tel: 412-782-3120; Empl.: 75

POWER CONTROLS, P.O. Box 5860, San Antonio, TX 78201, Tel: 512-734-7155, Telex: 767222; Empl.: 90; *Sls. Mgr.:* Robert A. McAlister

POWER CONVERSION PRODS., 42 East St., Box 380, Crystal Lake, IL 60014, Tel: 815-459-9100, TWX: 910-634-3356; FSC No.: 31751; Empl.: 130; *Sls. Mgr.:* C. Seyer

Local Sales Offices & Reps

CA	San Jose, Manufacturing Mktg. Grp.	408-446-0176
CO	Aurora, Electro-Tek Sales	303-343-8937
DC	Baltimore, Callas Elctrns.	301-744-7711
FL	Tampa, Telcom Assocs.	813-935-5006
IL	Chicago, Power Conversion Prods.	312-787-0723
IL	Park Ridge, Conrardy Co.	312-692-2226
LA	Metairie, Lynn Elliott	504-831-4669
MI	Farmington Hills, Joseph H. Clark Sls. Co.	313-553-0610
NJ	Cherry Hill, L. H. Walke	609-424-3766
NM	Albuquerque, Electro-Tek Sls.	505-883-4871
NY	White Plains, Metrotek Assocs.	914-631-4758
OH	Chagrin Falls, Joseph H. Clark Sls. Co.	216-247-7848
TX	Richardson, Power Conversion Prods.	214-644-0108

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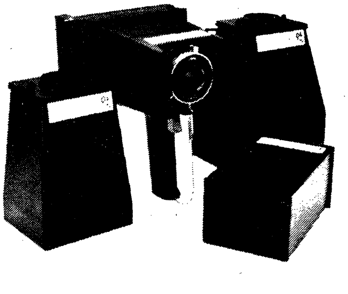
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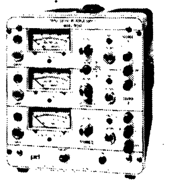

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(203) 773-3441 in New Haven, CT

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(301) 621-5077 in Wash., DC Area

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POWER DESIGNS, INC., 1700 Shames Dr., Westbury, NY 11590, Tel: 516-333-6200, TWX: 510-222-6561; Empl.: 100; *Sls. Mgr.:* Lillian Kelly .... **D•1755-1759**

Local Sales Offices & Reps

AZ	Scottsdale, Gemini Sls.	602-948-5900
CA	North Hollywood, O'Halloran Assocs.	818-877-0173
CA	Palo Alto, O'Halloran Assocs.	415-326-1493
IL	Elk Grove Village, Loren Green & Assocs.	312-593-0282
IN	Indianapolis, Loren Green & Assocs.	317-293-9827
MN	Minneapolis, Loren Green & Assocs.	612-571-6666
MA	North Billercia, AST/Servo Sys., Inc.	617-667-8541
NY	Great Neck, The Instrument Mart	516-487-7430
Can	Ottawa, Subtec, Ltd.	613-744-3066

POWER DYNAMICS, 59 Lakeside Ave., West Orange, NJ 07052, Tel: 201-762-6886, Telex: 666 173, TWX: 136567 (PDI); FSC No.: 60046; *Sls. Mgr.:* James Papianni; *Dist. Mgr.:* Lyle Scott ....**A•1628; B•1258-1259, 1689; C•1489-1493, 1615**

Local Sales Offices & Reps

CA	Laguna Niguel, David Budge & Assoc.	714-831-7720
CA	Laguna Niguel, David Budge Assocs.	714-831-7720
CA	Mountain View, Bart Budge Assocs.	415-961-0940
CA	San Diego, David Budge Assocs.	619-587-0131
CT	Vernon, GM Assoc.	203-646-4443
FL	Coral Springs, E.P.M. Corp.	305-755-5387
FL	Coral Springs, EPM Corp.	305-755-5387
FL	Orlando, EPM Corp.	305-755-5387
FL	Vero Beach, EPM Corp.	305-425-6149
GA	Atlanta, Electro Sls., Inc.	404-394-1122
GA	Lawrenceville, BTF, Inc.	404-963-9495
IL	Crystal lake, E. S. Healy Assocs.	815-459-4386
IL	Crystal Lake, E. S. Healy & Assocs.	815-459-4386
KY	Louisville, KW Elctrn. Sls.	502-451-1860
MA	Framingham, G.M. Assocs.	617-872-4871
MA	Framingham, GM Assoc.	617-872-4871
MI	Ypsilanti, Tamco Inc.	313-572-1950
MI	Ypsilanti, Tamco, Inc.	313-572-1950
MN	Minneapolis, R. K. Sls.	612-786-5713
MN	Minneapolis, RK Sls.	612-786-5713
NH	Exeter, GM Assoc.	603-778-7472
NJ	Englewood Cliffs, Ed Glass Assoc.	201-592-0200
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200
NY	Fayetteville, C. W. Floring Assocs., Inc.	315-637-4552
NY	Poughkeepsie, C. W. Floring Assocs., Inc.	914-471-2973
NY	Scottsville, C. W. Floring Assocs., Inc.	716-271-6865
NY	Syracuse, C. W. Floring Assocs., Inc.	315-478-2149
NC	Raleigh, Barker Assocs.	919-876-0282
NC	Raleigh, BTF, Inc.	919-782-3493
OH	Dayton, K. W. Elctrns.	513-890-2150
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Heights, K. W. Elctrns.	216-491-9177
OH	Shaker Heights, KW Elctrn. Sls.	216-491-9177
OH	Worthington, K. W. Elctrns.	614-888-0483
OH	Worthington, KW Elctrn. Sls.	614-888-0483
OK	Tulsa, Rem-Air Comp.	918-742-2559
OR	Tigard, Electronic Comp. Sls.	503-245-2342
PA	Allison Park, K. W Elctrns.	412-487-4300
PA	Allison Park, KW Elctrn. Sls.	412-487-4300
PA	Prospect Park, Elf Sls.	215-534-3340
TN	Chattanooga, Electro Sls.	615-267-2160
TX	Dallas, Rem-Air Comp.	214-234-1069
TX	Dallas, Rem-Air Comps.	214-234-1069
UT	Salt Lake City, Aspen Sls.	801-467-2401
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301
PR	Old San Juan Stn., Casanova Indl. Sls. Corp.	809-753-8674
Can	Toronto, Tienkay, Inc.	416-661-5499

Local Distributors

CA	Burlingame, Rose Elctrns.	415-348-2740
CA	El Segundo, Force Elctrns.	714-522-1324
CA	San Jose, Force Elctrns.	408-943-1324
CA	San Jose, Rose Elctrns.	408-263-9700
CT	New Canaan, Impact Sls.	203-972-1458
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
GA	Atlanta, KSM	404-458-2013
IL	Crystal Lake, Sub-Sem	312-782-3954
MA	Canton, Impact Sls.	617-821-1500
MN	Bloomington, NWR Elctrns.	612-854-7329
NC	Raleigh, Century Elctrns.	919-872-2203
OR	Beaverton, Murphy Elctrns.	503-642-2001
OR	Beaverton, Rose Elctrns.	503-629-9288
PA	Norristown, Centuty Elctrns.	215-631-5400
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TX	Austin, Southwest Elctrns.	512-837-8971
TX	Houston, Force Elctrns.	713-561-8644
TX	Irving, Force Elctrns.	214-438-5700
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	San Antonio, Force Elctrns.	512-733-7177
TX	Stafford, Southwest Elctrns.	713-240-4000
WA	Redmond, Murphy Elctrns.	206-881-1234

POWER ELCTRNS., 96 Milton Rd., Rochester, NH 03867, Tel: 603-332-3334; Empl.: 125; *Sls. Mgr.:* Robert S. Karstedt

POWER FUNCTIONS ENGRG., 3831 Cavalier Dr., Garland, TX 75042, Tel: 214-278-0996; Empl.: 9

POWER GENERAL, Unitrode, 152 Will Dr., Canton, MA 02021, Tel: 617-828-6216, TWX: 710-348-0200; Empl.: 400; *Sls. Mgr.:* Steve Dutton; *Dist. Mgr.:* Paul Hurly .... **D•1760-1767**

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Scottsdale, TC Elctrn. Sls.	602-994-5153
CA	Orange, XBX Sls.	714-998-8200
CA	San Jose, Custom Tech. Sls.	408-252-9901
CO	Englewood, Frontier Reps.	303-799-6063
FL	Melbourne, EMS	305-724-1027
FL	Plantation, EMS	305-587-7146
FL	Sarasota, EMS	813-923-2804
IL	Palatine, T-Squared Assocs.	312-991-2144
IA	Cedar Rapids, Palatine Eng. & Sls.	319-365-8071
KS	Mission, Palatine Eng. & Sls.	913-831-0555
MA	Canton, Power Gen.	617-828-6216
MI	Birmingham, Favco	313-644-0173
MI	Grand Rapids, Favco	616-459-4425
MN	Minneapolis, Comtek Sls.	612-888-7011
MO	Hazelwood, Palatine Engrg. & Sls.	314-839-0800
NV	Reno, Dunning & Assocs.	702-329-9004
NJ	Rockaway, R.O.I. Sls. Co.	201-340-1515
NY	Cortland, Net Sls. Co.	607-756-6592
NY	DeRuyter, Net Sls.	315-662-7996
NY	Fairport, Net Sls.	716-467-4538
NY	Troy, Net Sls.	518-274-4758
NY	Webster, Net Sls. Co.	716-467-4538
NC	Winston Salem, Murcota	919-722-9445
OH	Columbus, McFadden Sls.	614-459-1280
OR	Aloha, Huntley Assocs.	503-649-5388
TX	Austin, Mech-Tron Mktg.	512-835-0980
TX	Dallas, Mech-Tron Mktg.	214-343-3786
TX	Houston, Mech-Tron Mktg.	713-462-1432
VA	Fairfax, Beacon North	800-572-0405
VA	Falls Church, Beacon North, Inc.	703-591-1300
VA	Forest, Beacon North, Inc.	804-239-8486
WA	Everett, Huntley Assocs.	206-353-1833

Local Distributors

Intl	Belgium, Gent, Belgium Computer Prods.	
Intl	France, Orsay, Microel	907.08.24

POWER GROUP INTERNATIONAL, Dept. 227, 2200 West 66th Street, Richfield, MN 55423, Tel: 612-890-1360; FSC No.: 25441; Empl.: 500; *Sls. Mgr.:* Hortense M. Rowe .... **D•1428-1429**

POWER INSTRS. PRODUCTS, Amatek/Mansfield & Green Div., 8600 Somerset Dr., Largo, FL 33543, Tel: 813-536-7831, Telex: 808-741; Empl.: 45; *Sls. Mgr.:* Tony Ruggiero

POWER INTEGRITY CORP., 1840 Pembroke Rd., P.O. Box 9682, Greensboro, NC 27408, Tel: 919-379-9773; *Sls. Mgr.:* James T. Fesmire

POWER LABS, INC., 5 Towle Ave., Dover, NH 03820, Tel: 603-742-4613; Empl.: 9

POWERMARK, 3855 Ruffin Rd., San Diego, CA 92123, Tel: 619-565-8363; Empl.: 75; *Sls. Mgr.:* Ron Baietto .... **D•1955**

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AL	Birmingham, Sesco	205-988-8304
AK	Anchorage, John P. Bagoy & Assocs.	907-274-8531
AZ	Phoenix, Bob Anderson Co.	602-266-2070
CO	Colorado Springs, Cleveland Entprs. of Colo.	303-597-8872
FL	St. Petersburg, Sesco	813-576-6991
GA	Atlanta, Sesco	404-458-6423
HI	Honolulu, Ind'l. Elctrns.	808-533-6095
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282

KS	Shawnee, Atech	913-268-9644
LA	Baton Rouge, Sesco	504-928-4951
MD	Gaithersburg, Powell-Pendergraph	301-921-4200
MA	Wellesley, Power Conversion Sys.	617-235-7884
MN	Minneapolis, Loren Green Assocs.	612-571-6666
MO	St. Louis, Atech	314-428-7447
NH	Londonderry, Power Conversion Sys.	603-434-2371
NJ	Ridgewood, Ballou, Inc.	201-444-6990
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Cary, Sesco	919-467-7482
OH	Cleveland, Jim Finnegan & Co.	215-238-5905
OK	Tulsa, Sesco	918-622-3868
PA	King of Prussia, J. E. Cuesta & Co.	215-265-5800
TX	Austin, Sesco	512-892-2490
TX	Dallas, Sesco	214-231-9364
TX	Houston, Sesco	713-999-3510
VA	Richmond, Powell-Pendergraph	804-270-1400
WA	Bellevue, Underwood-Hanify Assocs.	206-451-8223
WA	Vancouver, Underwood-Hanify Assocs.	503-641-4463

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POWER-ONE, INC., Power-One Linear Products, 740 Calle Plano, Camarillo, CA 93010, Tel: 805-987-8741, TWX: 910-336-1297; FSC No.: 54407; Empl.: 317 .... **D•1768-1773**

Local Sales Offices & Reps

AZ	Tempe, System Sls. of AZ	602-829-9338
CA	Los Angeles, A-F Sls. Engrg.	213-681-5631
CA	Pasadena, A-F Sls. Engrg.	213-681-5631
CA	San Diego, A-F Sls. Engrg.	619-224-8424
CA	San Jose, Richards Assocs.	408-297-3010
CO	Denver, Quorum 3	303-696-8480
FL	Casselberry, Elctrn. Mktg.	305-339-7070
GA	Marietta, FLW Southeast	404-424-1731
IL	Itasca, L-Tec	312-773-2900
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, ATS	913-642-6675
MA	Brockton, Forsberg	617-522-6300
MI	Southfield, L. H. Dickelman	313-353-8210
MN	Minneapolis, Components Grp. Corp.	612-374-1250
MO	St. Louis, ATS	314-227-4448
NE	Lincoln, Lorenz Sls.	402-475-4660
NM	Albuquerque, System Sls. of AZ	505-881-8877
NY	Great Neck, Trionic Assocs.	516-466-2300
NY	Pittsford, C. W. Beach	716-586-3200
NY	Syracuse, C. W. Beach	315-446-9587
OH	Columbus, Tom Mulligan Co.	614-457-2242
OK	Tulsa, Advance Tech. Sls.	918-664-0482
OR	Beaverton, W3	503-641-5790
PA	Philadelphia, Eastern Comp. Sls.	215-825-8610
PA	Stewartstown, Eastern Comp. Sls.	800-223-3850
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
UT	Sandy, Quorum 3	801-943-9227
VA	Manasas, Eastern Comp. Sls.	703-368-3936
WA	Seattle, W3	206-285-2667
WI	Milwaukee, L-Tec	414-774-1000

Local Distributors

AZ	Phoenix, Arrow Elctrns.	602-968-4800
AZ	Phoenix, Sterling Elctrns.	602-258-4531
CA	Chatsworth, Arrow Elctrns.	213-701-1133
CA	Chatsworth, Diplomat Elctrns.	818-341-4411
CA	Costa Mesa, FLW	818-989-5237
CA	Los Angeles, Hanex, Inc.	213-556-3807
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Jose, Compumech Elctrns.	408-289-9171
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Denver, Arrow Elctrns.	303-696-1111
CO	Englewood, Diplomat Elctrns.	303-799-8300
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	Norwalk, Pioneer/Connecticut	203-853-1515
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Sterling Elctrns.	203-265-9535
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Pioneer/Lauderdale	305-771-7520
FL	Miami, Elctrn. Equip. Co.	305-871-3500
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8253
GA	Norcross, Diplomat Elctrns.	404-449-4133
IL	Arlington Heights, C. W. Elctrns.	312-489-9810
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Elk Grove Village, Pioneer/Chicago	312-439-9680
IL	Northbrook, Classic Comps.	312-272-9650
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Classic Comps.	317-872-4777
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Edwardville, C. Tennant & Sons	913-441-1801
LA	Metairie, Sterling Elctrns.	504-887-7610
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Canton, Impact Sales	617-821-1500
MA	Woburn, Arrow Elctrns.	617-933-6770
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elec.	616-243-0912
MI	Livonia, Pioneer/Mich.	313-525-1800
MI	Livonia, Reptron	313-525-2700
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Aero Space Computer	612-884-4725
MN	Minnesota, Pioneer/Twin Cities	612-935-5444
MO	St. Charles, Finnigan Elctrns.	314-946-6201
MO	St. Louis, Arrow Elctrns.	314-567-6888
NE	Omaha, Scott Elctrns.	402-734-6750
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NJ	Pine Brook, Pioneer/NJ	201-575-3510
NJ	Saddle Brook, Arrow Elctrns.	201-797-5800
NJ	Totawa, Diplomat Elctrns.	201-785-1830
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Sterling Elctrns.	505-854-1900
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, CAM/RPC Elctrns.	716-865-2080
NY	Rochester, Zeller Elctrns.	716-254-8840
NY	Woodbury, Pioneer/Woodbury	516-921-8700
NC	Charlotte, Pioneer/Carolina	704-527-8188
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Southeastern Elctrns.	919-828-2311
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Applied Data Mgt.	513-579-8108
OH	Cleveland, CAM/RPC Elctrns.	216-461-4700
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Reptron	614-436-6675
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Portland, Radar Elec.	503-232-3404
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	Lancaster, CAM/RPC Elctrns.	717-392-8141
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Alder Tronics	412-821-5565
PA	Pittsburgh, CAM/RPC Elctrns.	412-782-3770
PA	Wayne, Peak Elctrns.	215-293-9000
RI	Warwick, Major Edwards Elctrns.	401-781-3000
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Force Elctrnd.	214-438-5700
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Force Elctrns.	713-772-8483
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Diplomat Elctrns.	801-486-4135
VA	Richmond, Arrow Elctrns.	804-282-0413
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Seattle, Radar Electric	206-282-2511
WI	Oak Creek, Arrow Elctrns.	414-764-6600
EXP	CA, Los Angeles, Hanex, Inc.	213-556-3807

POWER-ONE, INC., Power-One Switching Products, 833 Flynn Rd., Camarillo, CA 93010, Tel: 805-482-0757, Telex: 752083; FSC No.: 54407; Empl.: 214

POWER PAC INC.

POWER PAC, 32 Meadow St., S. Norwalk, CT 06856, Tel: 203-866-4484; FSC No.: 53998; Empl.: 175; *Sls. Mgr.:* Abe Partner .... **D•1774-1778**

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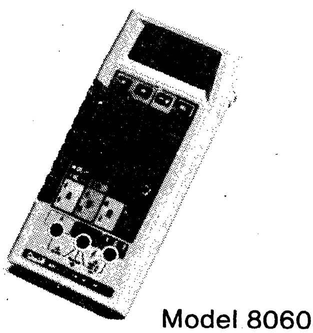

Model 8060a

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
CA	Los Altos, AARD Engr.	415-948-5740
CA	Westlake Village, Powerdyne Inc.	213-991-0632
CT	Hamden, Digital Sls. Assoc.	203-248-3641
GA	Chamblee, BCI	403-455-0405
MD	Seabrook, W. A. Brown-Equip. Co.	301-577-6105
MA	Waltham, Digital Sls. Assoc.	617-899-4300
MN	Minneapolis, R.J. Inc.	612-866-3661
NJ	E. Hanover, Emtec	201-428-0600
NJ	Princeton, Murtronics	609-394-3737
NJ	Teaneck, SGL Sls.	201-837-2352
NY	Cazenovia, S.T. Woolard	315-655-8145
NY	Melville, Emtec	516-752-1630
NC	Raleigh, BCI	919-781-9426
PA	Harrisburg, Beil & Whitaker	717-564-6900
TX	Houston, Scientific Sls.	713-666-5318
TX	Richardson, Scientific Sls.	214-231-6541

Local Distributors

CT	Hamden, Digital Sls. Assoc.	203-248-3641
MA	Waltham, Digital Sls. Assoc.	617-899-4300

POWER-PAK, INC., 6216 Oakton St., Morton Grove, IL 60053, Tel: 312-966-6000; Empl.: 16; *Sls. Mgr.:* Robert Villari

POWER PRODUCTS DIV., COMPUTER PRODS., INC., See Power Products Group

COMPUTER PRODUCTS™
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POWER PRODUCTS DIV., Computer Products, Inc., 2981 Gateway Drive, Pompano Beach, FL 33069, Tel: 305-974-2442, TWX: 510-956-3098; FSC No.: 62125; Empl.: 180 .... **D•1446, 1552-1553, 1559-1572, 1584-1585**

Refer to Computer Prods., Inc., Pompano Beach, FL, for sales offices & representatives & distributors.

POWER-SCIENCE, 7667 Vickers St., San Diego, CA 92111, Tel: 619-292-4322; Empl.: 6; *Sls. Mgr.:* E. Cooper

POWER SONIC
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POWER-SONIC, Box 5242, 3106 Spring St., Redwood City, CA 94063, Tel: 415-364-5001, Telex: 348400; Empl.: 30; *Sls. Mgr.:* B. A. Ender; *Dist. Mgr.:* B. A. Ender .... **D•1431**

Local Sales Offices & Reps

CA	Irvine, English/Damco	714-837-3801
FL	Tampa, SRT Mktg.	813-884-4805
IL	River Forest, Pete Collins	312-366-7076
MA	Natick, Steve Dworkin	617-653-7188
MS	Jackson, Welch & Doby	601-932-5534
NY	Wantagh, Dony Tech. Sls.	516-826-5550
NC	Raleigh, DHR Mktg.	919-876-5450
PA	Media, W. Reeves Assocs.	215-566-6709
SC	Greenville, DHR Mktg.	803-235-3594
TX	Dallas, Power Connection	214-357-8207

Local Distributors

CA	Chatsworth, Mil-Comm Distr.	213-998-3111
CA	Fountain Valley, Components Center	714-979-0433
CA	Santa Clara, Components Center	408-988-3751
CO	Denver, Hensley Battery	303-455-3643
CT	Waterbury, Lighting Svcs., Inc.	203-756-8148
FL	Miami, ESL Elctrn. Distr.	305-633-6973
FL	Tampa, Leader Elctrns.	813-870-3315
GA	Atlanta, Allied Elctrns.	404-237-3366
GA	Atlanta, Security Wherehouse	404-955-1006
IL	Chicago, Allied Elctrns.	312-697-8200
IL	Villa Park, Melvin Elctrns.	312-378-7741
LA	Lafayette, Ralph's Elctrns.	318-234-4507
MA	Sharon, Adcour	617-784-3996
MI	Detroit, Alarm Supp.	313-425-2500
MO	St. Louis, Olive Elctrns.	314-426-4500
NM	Albuquerque, Betatron, Inc.	505-344-2381
NY	Ridgewood, J.A. McDermott Corp.	212-456-3606
OK	Tulsa, Radio, Inc.	918-587-9123
PA	Pittsburgh, Triangle Elctrns.	412-441-9659
TX	Austin, Harrison Indl. Elctrns.	512-458-3555
TX	Ft. Worth, Allied Elctrns.	817-265-9341
TX	Houston, Harrison Equip.	713-652-4700
TX	San Antonio, Sherman Elctrns.	512-224-1001
VA	Richmond, Sterling Elctrns.	804-226-2190

POWER SYSTEMS, 12 Tobey Rd., Bloomfield, CT 06002, Tel: 203-243-0357, TWX: 710-425-8778; FSC No.: 50463; Empl.: 375; *Sls. Mgr.:* Richard Milne ...... **D•1780-1781**

Local Sales Offices & Reps

AZ	Phoenix, Tech Sls./Powerhouse	602-246-1614
CA	San Jose, Powerhouse	408-748-1555
CA	Santa Ana, Powerhouse	714-549-9599
CT	Westbrook, Comptech, Inc.	203-399-9704
MA	Tyngsboro, Comptech	617-649-3030

POWER SYSTEMS & CONTROLS, INC., 3206 Lanvale Ave., Richmond, VA 23230, Tel: 804-355-2803; Empl.: 40

POWER SYS. GRP., Rantec Div., Emerson Elec., 9401 Oso Ave., Chatsworth, CA 91311, Tel: 818-885-8223, TWX: 910-493-1247; FSC No.: 04971; Empl.: 265; *Sls. Mgr.:* Daniel L. Esau

POWERTEC, INC.

POWERTEC, INC., 20550 Nordhoff St., Chatsworth, CA 91311, Tel: 818-882-0004, TWX: 910-494-2092; Empl.: 349; *Sls. Mgr.:* Royston A. Allman .... **D•1782-1799**

POWERTECH, INC., 0-02 Fairlawn Ave., Fairlawn, NJ 07410, Tel: 201-791-5050, Telex: 353970; FSC No.: 32953; Empl.: 49; *Sls. Mgr.:* Alan J. Melnyk

Power Technology Inc.

POWER TECHNOLOGY, INC., P.O. Box 9769, Little Rock, AR 72219, Tel: 501-568-1995, TWX: 910-722-7313; Empl.: 69; *Sls. Mgr.:* John Webb .... **B•1125**

POWERTREND, INC., 3139-G Los Feliz Dr., Thousand Oaks, CA 91362, Tel: 805-496-2945; *Sls. Mgr.:* R. Jones

POWER TEN, INC., 486 Mercury Dr., Sunnyvale, CA 94086, Tel: 408-738-5959, Telex: 172588 SNLO; FSC No.: 61987; *Sls. Mgr.:* Vince Mutascio .... **D•1779**

Local Sales Offices & Reps

AZ	Mesa, Insight	602-820-4955
AZ	Phoenix, Jayson Co., Inc.	602-867-1964
IA	Cedar Rapids, Palatine Engrg. & Sls.	319-365-8071
KS	Mission, Palatine Engrg. & Sls.	913-831-0555
MO	Hazelwood, Palatine Engrg. & Sls.	314-839-0800
NJ	Wayne, Ramapo	201-839-6767
NY	Rochester, Scientific Dvcs.	716-334-2445
OR	Portland, Westcon	503-283-0132
PA	Glenside, Koebert	215-887-2310
TX	Austin, Eberts Elctrns. Sls.	512-258-1067
TX	Latexo, Eberts Elctrns. Sls.	409-687-4342

POWERTRON, See Industrial Test Equipment Co., Inc.

POWERTRON, Contraves Goerz Corp., 3821 Barranger Dr., Charlotte, NC 28210, Tel: 704-525-8962, Telex: 572-444; *Sls. Mgr.:* Sam LoBue

POWR-UPS CORP., 50 Orville Drive, Bohemia, NY 11716, Tel: 516-589-3602; Empl.: 50; *Sls. Mgr.:* Alon Kopstein .... **B•1182-1183**

Local Sales Offices & Reps

CA	Fullerton, ESCO	714-879-7260
CA	San Diego, Total Elctrns. Int'l.	619-224-3291
IL	Oak Brook, A.G. Erickson	312-323-1367
KS	Shawnee Mission, LSC, Inc.	913-362-2121
MA	Southborough, Motion Engrg.	617-485-2144
NY	Pittsford, Magna Prod. Corp.	716-586-8621
OH	Dover, AJ Assocs.	216-343-2224
PA	Audubon, Holmes Assocs.	215-666-0636

PPC PRODS., 7516 Central Industrial Dr., Riviera Beach, FL 33404, Tel: 305-848-9606, TWX: 510-952-7611; FSC No.: 33178; Empl.: 50; *Sls. Mgr.:* Nick Ernick

PPD

PPD, INC., Hwy. 70W, Resco Ct., P.O. Box 31347, Raleigh, NC 27612, Tel: 919-781-3955 .... **A•1157-1165**

PPM, INC., 4521 Emery Ind. Pkwy., Cleveland, OH 44128, Tel: 216-292-6006; Empl.: 20; *Sls. Mgr.:* A. L. Bletcher .... **D•1291**

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CO	Denver, J. Smith & Assocs.	303-597-5343
MI	Ferndale, Tiby Co.	313-547-3550
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NC	Charlotte, Binco	704-366-5092
OH	Cleveland, Tiby Co.	216-371-5335
OH	Dayton, Tiby Co.	513-277-3822

PRACTICAL AUTOMATION, Trap Falls Rd., Shelton, CT 06484, Tel: 203-929-5381, Telex: 6813310; Empl.: 150; *Sls. Mgr.:* R. M. Banzaca

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mfr. Agts., Inc.	205-830-4030
CA	Los Alamitos, Gemini Assocs.	213-594-9618
CA	Mountain View, Thorson West	415-964-9300
CA	North Hollywood, Gemini Assocs.	818-846-2633
CA	San Diego, Gemini Assocs.	619-268-1181
CT	Ellington, J. J. Wild, Inc.	800-223-9456
FL	St. Petersburg, Elctrn. Mfr. Agts., Inc.	813-894-1171
IL	Elk Grove Village, Martec Assocs.	312-956-8090
MD	Rockville, JH Computer	301-424-0700
MA	Needham, J. J. Wild	617-449-5600
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MN	Minneapolis, Chris & Assocs.	612-861-1634
NJ	Pompton Lakes, Wild & Rutkowski	201-839-0071
NY	Clark Mills, KLM-Garner	315-853-6126
NY	Jericho, Wild & Rutkowski	516-935-6600
NY	Pittsford, KLM-Garner	716-381-8350
NC	Winston Salem, Elctrn. Mfr. Agts.	919-784-7304
OH	Cleveland, Electro Sls. Assoc.	216-261-5440
OH	Dayton, Electro Sls. Assoc.	513-426-5551
PA	Willow Grove, QED Elctrns.	215-657-5600
TX	Houston, Barry Sls. Inc.	713-784-5860
TX	Richardson, Barry Sls. Inc.	214-234-0255
WA	Bellevue, Tasco Inc.	206-453-1414

PRACTICAL TECHNOLOGY, 12 Village Ctr., Box 449, Carmel Valley, CA 93924, Tel: 408-659-3128; FSC No.: 59089; Empl.: 7; *Sls. Mgr.:* Keith Rosburg

PRAGMATIC DESIGNS, INC., 950 Benicia Ave., Sunnyvale, CA 94086, Tel: 408-736-8670, Telex: 17-1627, TWX: Nanet D Suvl; FSC No.: 94-2543110; Empl.: 45

PRD ELCTRNS., DIV. OF HARRIS CORP., see Harris Corp., PRD Electronics Div.

Precicontact, inc.

PRECICONTACT, INC., 835 Wheeler Way, Langhorne, PA 19047, Tel: 215-757-1202, Telex: 83-4253; FSC No.: 60197; *Sls. Mgr.:* Joseph Carroll .... **C•1494-1495**

Local Sales Offices & Reps

AL	Huntsville, Electro Sls., Inc.	205-830-2715
AZ	Litchfield Park, G. B. Elctrns.	602-935-3984
AZ	Tuscon, G.B. Elctrns.	602-297-9759
CA	Mountain View, The Gene Woempner Co.	415-964-5454
CA	Orange, Elctrn. Tech. Assocs.	714-998-2901
CO	Englewood, White Sls. Co.	303-694-9555
GA	Atlanta, Electro Sls., Inc.	404-394-1122
IL	Rolling Meadows, Heartland Tech. Mktg.	312-577-9222
IN	Greenwood, Valentine & Assocs.	317-888-2260
IN	South Bend, Valentine & Assocs.	219-288-7070
MD	Rockville, Mechtronics Sls., Inc.	301-340-2130
MA	Norwood, The Mac Innis Co.	617-762-8090
NJ	Mountain Lakes, Components for Elctrns.	201-334-2921

NY	Courtland, Net Sls. Co.	607-756-6592
NY	DeRuyter, Net Sls. Co.	315-662-7996
NY	East Northport, Components For Elctrns.	516-266-5020
NY	Fairport, Net Sls. Co.	716-467-4538
NY	Troy, Net Sls. Co.	518-274-4758
NY	Webster, Net Sls. Co.	716-467-4538
NC	Raleigh, Tingen Tech. Sls., Inc.	919-781-1100
OH	Cincinnati, Makin & Assocs.	513-871-2424
OR	Portland, Electronic Mktg. Grp.	503-289-5320
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Lebanon, Jacobsen Assocs.	717-273-9746
PA	Pittsburgh, Kneip Sls.	412-823-0169
TN	Chattanooga, Electro Sls., Inc.	615-267-4260
TX	Plano, Sundance Sls.	214-867-0592
UT	Salt Lake City, Charles Fields & Assocs.	801-531-6177
WA	Redmond, Electronic Mktg. Grp.	206-882-0962
WI	Milwaukee, Heartland Tech. Mktg.	414-931-0606
Can	Rexdale, Ont., Electro Source, Inc.	416-675-4490
Can	Vancouver, B.C., Davetek Mktg.	604-430-3680

Local Distributors

AZ	Litchfield Park, GB Elctrns.	602-935-3984
CA	Orange, Electronic Connexions Corp.	714-998-2901
CA	San Diego, Park West	619-277-8433
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, DC Elctrns. Supp.	408-980-1199
CA	Sunnyvale, Future Elctrns.	408-745-6570
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Denver, CSID, Inc.	303-292-9594
CO	Westminster, Future Elctrns.	303-650-0123
CO	Wheatridge, Cypress Elctrns.	303-431-2622
CT	Danbury, Future Elctrns.	203-743-9594
CT	Norwalk, Park Distrs.	203-853-2010
CT	Wallingford, Cronin Elctrns., Inc.	203-265-3134
FL	Clearwater, Electronic Precepts of FL	813-530-9781
FL	Clearwater, Future Elctrns.	813-441-4771
FL	Lake Park, Park/South, Inc.	305-863-7275
FL	Pompano Beach, Components South	305-971-0350
IL	Lisle, Components, Inc.	312-852-7707
IL	Palatine, OHM Elctrns., Inc.	312-359-5500
IN	Indianapolis, Mar Elctrns.	317-875-4510
MD	Columbia, Future Elctrns.	301-995-1222
MD	Rockville, Wire Tech., Inc.	301-340-1445
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Norwood, Emtel Elctrns.	617-769-9500
MA	Westborough, Future Elctrns.	617-366-2400
MA	Westford, Electronic Specialty Intl.	617-486-8495
MA	Wilmington, Aved Elctrns.	617-657-8310
NH	Nashua, Brevan Elctrns.	603-889-7230
NJ	Bellmawr, Mid-Atlantic Elctrns.	609-931-5303
NJ	Berlin, GCI Corp.	609-768-6767
NJ	Englewood, Powell	201-894-0800
NJ	Mt. Laurel, Future Elctrns.	609-778-7600
NJ	Springfield, Route Elctrns.	201-379-7710
NM	Albuquerque, Connecting Comps. Div.	505-345-8921
NY	Bohemia, Norelcom Elctrns. Corp.	516-567-8866
NY	Brooklyn, Beryl Elctrns.	718-383-2208
NY	Brooklyn, Connector Resources	718-383-2208
NY	East Syracuse, Future Elctrns.	315-453-6633
NY	Farmingdale, Resources for Elctrns.	516-420-8555
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Future Elctrns.	315-451-2371
OH	Dayton, Televox, Inc.	513-294-4499
OH	Mansfield, Rush Elctrns. Distrs., Inc.	419-756-2311
OR	Beaverton, Component Resources	503-641-8488
PA	Wayne, Peak Elctrns.	215-293-9000
PA	York, E.C.I.	717-843-8971
TX	Allen, Prime Distrbg. Co.	214-231-0170
TX	Grand Prairie, Dial Supp.	214-647-2371
TX	Richardson, Jaco Elctrns.	214-235-9575
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-240-4000
UT	Salt Lake City, Future Elctrns.	801-972-8489
WA	Bellevue, Future Elctrns.	206-624-9609
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Seattle, Pacific Elctrns.	206-575-1050
WI	Brooklyn Center, Willman Assocs.	612-566-5010
Can	Calgary, Alb., Future Elctrns.	403-259-6408
Can	Downsview, Ont., Future Elctrns.	416-663-5563
Can	Edmonton, Alb., Future Elctrns.	403-486-0974
Can	Ottawa, Ont., Future Elctrns.	613-820-8313
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710
Can	Vancouver, B.C., Future Elctrns.	604-438-5545

PRECISION COMPONENTS, INC., 1110 W. National Ave., Addison, IL 60101, Tel: 312-543-6400

PRECISION ELCTRN. COMPS. LTD., 1919 Hafis Rd., Toronto, ON, Canada M6M 2V6, Tel: 416-249-7103, Telex: 06-969671

PRECISION ELCTRNS., 9101 King Ave., Franklin Park, IL 60131, Tel: 312-678-5350; Empl.: 25; *Sls. Mgr.:* William Stow

PRECISION EXTRUSIONS, INC., Box 120, Bensenville, IL 60106, Tel: 312-766-0340; *Sls. Mgr.:* Jim Achen

PRECISION
FILTERS, INC.

PRECISION FILTERS, 240 Cherry St., Ithaca, NY 14850, Tel: 607-277-3550, Telex: 646846; FSC No.: 66-II-F & 66-II-I; Empl.: 49; *Sls. Mgr.:* D. F. Chandler .... **A•1624-1627; D•1017**

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs.	602-820-1127
CA	La Crescenta, Beckrep	818-957-1111
CA	San Jose, Synergistic Sls.	408-292-6573
CO	Colorado Springs, Cleveland Entprs. of Colorado	303-597-8872
DC	Arlington, Gans & Pugh	703-527-3262
FL	Osprey, Dick Ridgewell Co.	813-484-2020
MD	Dayton, Gans & Pugh Assocs.	301-596-9094
MN	Chanhassen, Electronic Instr. Consits.	612-445-7056
NJ	Midland Park, Langstrom Instrs.	201-891-2829
NM	Albuquerque, Cleveland Entprs.	505-265-7893
UT	Salt Lake City, Cleveland Entprs.	801-355-8424
VA	Arlington, Gans & Pugh Assocs.	703-527-3262
WA	Bellevue, Topp Engrg. Sls.	206-747-5400
Can	Downsview, Ont., Rayonics Scientific	416-736-1600

PRECISION LAMP, INC., 480 Aaron Dr., Cotati, CA 94928, Tel: 707-792-0333, Telex: 348498; Empl.: 25

PRECISION LEVEL VIAL CO., Warren Industries Inc., 1800-D Mearns Rd., Warminster, PA 18974, Tel: 215-675-2355; Empl.: 12; *Sls. Mgr.:* Christopher Beyer; *Dist. Mgr.:* Christopher Beyer

PRECISION MECHANISMS, 44 Brooklyn Ave., Westbury, NY 11590, Tel: 516-ED3-5955; FSC No.: 08127; Empl.: 26; *Sls. Mgr.:* Leon N. Canick

PRECISION METAL PRODS. CO., Centennial Indl. Pk., Peabody, MA 01960, Tel: 617-532-5500, TWX: 710-347-0123; FSC No.: 86577; Empl.: 54; *Sls. Mgr.:* Robert H. Degnan

Local Sales Offices & Reps

AZ	Phoenix, J. Osborn Assocs.	602-996-1291
CA	Corte Madera, P. Oneal & Assocs.	415-924-1691
CA	Garden Grove, Impact Elctrns., Inc.	213-431-3581
CO	Arvada, Challenge Sls.	303-427-3149
FL	Clearwater, Chaco Sls.	813-536-9503
IL	Hinsdale, Hill-Gray Assocs.	312-325-4810
IN	South Bend, Schillinger Assocs.	219-291-6258
NJ	Cherry Hill, ESA Assoc.	609-667-4066
NJ	Verona, L. J. Roth Assoc.	201-857-3393
NY	Syracuse, C.W. Floring & Assocs.	315-478-2149
OH	Dayton, Electro-Com	513-276-3993
OR	Portland, Paul Oneal Assoc N/W, c/o Clyde W. Olsen	503-775-3552
SC	Greenville, Component Sales Co.	803-288-1922
TX	Richardson, Draper Co.	214-680-1650

PRECISION MICRO IMAGES, Box 1330, Altamonte Springs, FL 32701, Tel: 305-830-7244, Telex: 56-4303; *Sls. Mgr.:* Williams S. Hodges

PRECISION MONOLITHICS, INC., 1500 Space Dr., Santa Clara, CA 95054, Tel: 408-727-9222, TWX: 910-338-0218; FSC No.: 06665; Empl.: 1,000; *Sls. Mgr.:* Jo Nall; *Dist. Mgr.:* Mike Dennison

PRECISION RESISTIVE PRODS., INC., P.O. Box 189, Highway 61 South, Mediapolis, IA 52637, Tel: 319-394-9131; Empl.: 90; *Sls. Mgr.:* Oscar Cline; *Dist. Mgr.:* Oscar Cline .... **A•1929**

Local Sales Offices & Reps

CA	Anaheim, Impact Electrns. Inc.	714-533-1351
CA	Los Altos, Frauman Assoc.	415-941-0660
CA	San Diego, KCE	619-278-7640
CO	Denver, Williams Assocs.	303-373-4730
CT	Milford, Cuming Assocs.	203-878-3946
FL	Cocoa Beach, Reynolds & Assocs.	305-784-4700
IL	Chicago, Ellinger Sls.	312-763-1570
IN	Greenwood, Valentine Assocs.	317-888-2200
MD	Ellicot City, Technical Sls. Inc.	301-461-2400
MA	Waltham, Jesco, Inc.	617-893-0094
MI	Warren, DEM Elctrns. Sls.	313-575-9444
MN	Minneapolis, Intl. Sls.	617-831-8423
MO	St. Charles, Chesco	314-946-6677
NY	Hauppauge, Masin-Enco, Inc.	516-273-3500
NY	Syracuse, C.W. Floring and Assocs., Inc	315-478-2149
OH	Cincinnati, G & H Sls. Co.	513-272-0580
TX	Richardson, Campion Sls. Co.	214-238-8145
WA	Seattle, W3 Assocs., Inc.	206-285-2667

PRECISION RESISTOR CO., INC., 10601 75 St. N., Largo, FL 33543, Tel: 813-541-5771, Telex: 821788; FSC No.: 48615; Empl.: 45; *Sls. Mgr.:* R. L. Wright .... **A•1930-1933; B•1770-1771**

PRECISION TECH. SEWING, 921 E. Charleston Rd., Palo Alto, CA 94303, Tel: 415-856-2128

PRECISION TUBE, Church Rd. & Wissahickon, N. Wales, PA 19454, Tel: 215-699-5801, Telex: 84-6439; FSC No.: 82413; Empl.: 240; *Sls. Mgr.:* William J. McNeil

Local Sales Offices & Reps

AZ	Tempe, Walter Assocs.	602-967-1020
CA	Carlsbad, Addem San Diego	619-729-9216
CA	Santa Ana, RMS Assocs.	714-556-4155
CA	Santa Clara, R. Donahue Assocs.	408-727-6694
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Melbourne, Hanson Assocs.	305-727-7474
IL	Park Ridge, Probe Electrns.	312-696-2828
IN	Indianapolis, John Sukup Inc.	317-253-5501
IA	Cedar Rapids, Snider Sls. Co.	319-362-4410
MD	Frederick, Applied Engrg. Prod., Inc.	301-663-4202
MA	Burlington, Tri Tek	617-272-4550
MO	St. Peters, D-S Sls.	314-928-5153
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NY	Huntington, CDB Enterprises	516-692-5200
NY	Syracuse, I.A. Hotze	315-479-6641
TX	McKinney, Williams Assocs.	214-548-0995
EXP	Hants England, Sealectro. Ltd	011-44-705-373211
EXP	Ramat-Gan Isreal, Elina, Ltd	03-7514129
EXP	Toulo Cedex France, Sealectro, SA	011-33-947-58443
Can	St. Laurent Quebec, RF Microwave, Ltd	514-931-8115

Local Distributors

CA	El Cajon, Micro Mode Prods.	619-449-3844
CA	Santa Clara, Waltronic Sls.	408-727-1200
CA	Sunnyvale, Electronic Resources	408-745-1420
FL	Stuart, Microwave Comp., Inc.	305-286-4455
MD	Baltimore, Resco Baltimore	301-823-0070
MD	Beltsville, Resco Washington	301-937-9100
MA	Woburn, Pacer Electrns.	617-935-8330
NY	Freeport, Mil Spec Wire & Cable	516-546-5454
NY	New Rochelle, Compucon Dists.	914-576-2888
Can	St. Laurent Quebec, Omniconnect, Inc.	514-335-2337

PREFERRED ELCTRNS., INC., Main Line Dr, P.O. Box 954, Westfield, MA 01086, Tel: 413-568-2301, Telex: 955-339; Empl.: 250; *Sls. Mgr.:* Merton I. Rosenberg

pei
PREH ELECTRONICS
INDUSTRIES, INC.

PREH ELECTRONICS INDUSTRIES, INC., 5665 Howard Street, Niles, IL 60648, Tel: 312-647-8338, Telex: 297112; FSC No.: 36-3193682; Empl.: 7; *Sls. Mgr.:* George Zib .... **A•2034; B•1736; C•1497**

Local Sales Offices & Reps

CA	Sunnyvale, James Inds. West	408-971-6016
IL	Inverness, James Inds., Inc.	312-358-8000

PREMAX PRODS. DIV., Highland & College Aves., Niagara Falls, NY 14305, Tel: 716-285-9186, Telex: 91-531; FSC No.: 74183; Empl.: 350

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PREMIER METAL PRODS. CO., 381 Canal Pl., Bronx, NY 10451, Tel: 212-993-9200; Empl.: 75; *Sls. Mgr.:* Anthony E. Bozza .... **C•1072-1073**

Local Sales Offices & Reps

AZ	Phoenix, CPS Associates	602-246-1097
CA	City of Industry, Premier Metal	818-336-4534
CA	San Jose, Silicon Valley Sls., Inc.	408-286-7510
CA	Westmunster, West Elctrn. Sls. Co.	714-898-0120
CO	Denver, AKI Enterprises	303-338-4488
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Lake Worth, Adams & Assocs.	305-588-7630
GA	Marietta, Adams & Assocs.	404-973-0853
IL	Elmhurst, Utronix Sls.	312-834-1100
KS	Overland Park, Delltron Co.	913-649-2078
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Needham, Eagle Assocs.	617-444-3446
MI	Brighton, Electronic Sources	313-227-3598
MN	Minneapolis, J.E.M. Anderson Co.	612-823-6459
MO	St. Louis, Delltron Co.	314-869-4779
NM	Rio Rancho, RML Associates	303-757-6654
NY	New Hyde Park, Harris & Aldrich Sls.	516-488-2622
NY	Syracuse, Lewis-Dunnigan Co.	315-446-5522
NY	Yonkers, Sonkin Assocs.	914-968-8282
NC	Greenboro, Adams & Assocs.	919-272-6838
OH	Akron, ImTech Inc.	216-666-1185
PA	Bensalem, Eastern Instrmn.	215-245-6660
TX	Bedford, W. Pat Fralia Co. Inc.	817-267-3577
TX	Houston, W. Pat Fralia Co. Inc.	713-772-1572
EXP	FL, Miami, Emec, Inc.	305-871-3124

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AL	Opelika, Southern Elctrns.	205-745-5298
AZ	Phoenix, Dalis Elctrns.	602-275-2885
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	San Jose, Quement Elctrns.	408-998-5900
CT	Middletown, Midstate Elctrns.	203-347-5638
FL	Dania, Summit Elctrns.	305-920-6253
FL	Miami, Electronic Equip. Co.	305-871-3500
IL	Elk Grove Village, GBL/Gould Elctrns.	312-593-3220
IN	Fort Wayne, Graham Elctrns.	219-423-3422
LA	Baton Rouge, Menard Elctrns.	504-355-0323
MD	Baltimore, ASI Elctrns.	301-265-5100
MD	Baltimore, Resco	301-823-0070
MD	Bethesda, Empire Elctrns.	301-656-3300
MA	Hingham, Sager Electrical Supp.	617-749-6700
MA	Newton, Greene-Shaw Co.	617-969-8900
MI	Ann Arbor, Purchase Radio Supp.	313-668-8696
MO	Kansas City, Walters Radio Supp.	816-531-7015
NJ	Cranford, Garden State Indl. Elec.	201-272-6400
NJ	Green Brook, Green Brook Elctrn.	201-968-3500
NJ	Hanover, State Elctrns. PTS	201-887-2550
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Broadline Elec. Dist.	516-231-4100
NY	Hempstead, Davis Elctrn. Corp.	516-483-9200
NY	Lynbrook, Peerless Radio Dist. Corp.	212-523-3456
NY	LIC, H. L. Dalis Inc.	212-361-1100
NY	New York, Argil Elec. LTD	212-691-8111
NY	New York, Martin Audio/Video Corp.	212-541-5900
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Simcona Elctrn. Corp.	716-328-3230
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Yonkers, Yonkers Elec. Supp.	914-969-6044
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Warren, Rem Elctrns.	814-453-5626
PA	Allentown, Federated Elctrns.	215-437-4481
PA	Braddock, Leff Elctrns.	412-271-7100
PA	Horsham, Toner Cable Equip.	215-675-2053
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Reading, Barbey Elctrns.	215-376-6116
PA	West Chester, West Chester Elec. Supp.	215-696-7500
RI	Warwick, Edwards Elctrns.	401-732-3200
SC	Charleston, Wholesale Indl. Elec.	803-722-2634
TN	Clarksville, Randolph Hale & Matthews	615-647-2325
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Nashville, Randolph & Rice	615-255-5601
TN	Tullahoma, Randolph Rice & Williams	615-455-4531
TX	Farmers Branch, Summers Elec. Co.	214-748-6533
TX	Ft. Worth, Swieco Inc.	817-335-6521
TX	Houston, Lenert Co.	713-225-1465
VA	Arlington, Arlington Elctrns.	703-524-2412
WA	Seattle, Radar Elec. Co.	206-282-2511

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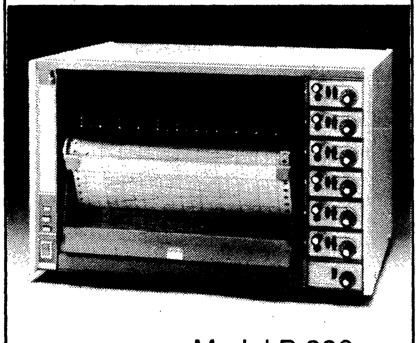

Model R-306

PREMIER MICROWAVE, 35 New Broad St., Port Chester, NY 10573, Tel: 914-939-8900, TWX: 710-569-1609; FSC No.: 15870; Empl.: 70 .... **A•1781**

Local Sales Offices & Reps

CA	Los Angeles, R.F. Assocs.	213-478-1586
GA	Smyrna, BC Elctrn. Sls.	404-436-5169
IL	Chicago, L.G.S. Elctrns. Sls.	312-456-9616
MD	Catonsville, Callas Elctrns. Dist.	301-744-7711
MA	Natick, Gerald Rosen	617-879-5505
MO	St. Louis, Boweng Tech. Rep.	314-429-7327
NY	Huntington, C.D.B. Entprs.	516-692-5220
OH	Dayton, BEK Assocs.	513-278-1343.
EXP	CA, N. Hollywood, Air Frame Mfg. & Supp.	213-765-2600

Local Distributors

CA	Los Angeles, R.F. Assocs.	213-478-1586
FL	Cleatwater, Brennan Assocs., Inc.	813-446-5006
GA	Smyrna, B-C Electrns. of Geroria	404-436-5169
IL	Chicago, L.G.S. Electrns.	312-456-9616
MD	Catonsville, Callas Electrns.	301-744-7711
MA	Framingham, Gerald Rosen Co.,Inc.	617-879-5505
MO	St. Louis, Boweng Technical Reps., Inc.	314-429-7327
NY	Fayetteville, R.D. Sherman, Inc.	315-637-9861
NY	Huntington, GDB Enterprises	516-692-5200
OH	Dayton, KW Electrns., Sls.	513-890-2150
TX	McKinney, Williams Assoc.	214-548-0995
EXP	Shantinagar, Hyderabad, Kashinath & Co.	346-353-6942
Can	Lachine, Quebec, Electrodesign Ltd	514-636-4838

PREM MAGNETICS, 3521 N. Chapel Hill Rd., McHenry, IL 60050, Tel: 815-385-2700, TWX: 910-642-3763; Empl.: 300; *Sls. Mgr.:* D. Hertel .... **A•2265-2267**

PRES-AIR-TROL CORP., 1009 Boston Post Rd., Mamaroneck, NY 10543, Tel: 914-698-2026-800-431-2625 (outside NY) .... **B•1690**

PRESIDIO COMPONENTS, INC., 7185 Construction Ct., San Diego, CA 92121, Tel: 619-578-9390, TWX: 910-335-1254; FSC No.: 60212

Local Distributors

TX	Richardson, Central States Comps.	214-644-2070

PRESS-ON PRODS., 39 Factory Rd., Addison, IL 60101, Tel: 312-628-2255; Empl.: 40; *Sls. Mgr.:* T. Cummins

PRESSURE CONTROLS, INC., 406 Cortlandt St., Belleville, NJ 07109, Tel: 201-751-5003; Empl.: 15; *Sls. Mgr.:* P. Emmarco

PRESSURE SYSTEMS, INC., 15 Research Dr., Hampton, VA 23666, Tel: 804-865-1243, Telex: 901406; Empl.: 45; *Sls. Mgr.:* J. S. Yakshe

PRESTOLITE WIRE DIV., 3529 24th St., Port Huron, MI 48060, Tel: 313-987-6300

PRESTON SCIENTIFIC, 805 E. Cerritos Ave., Anaheim, CA 92805, Tel: 714-776-6400, Telex: 655-321; Empl.: 61; *Sls. Mgr.:* Charles J. McGuire .... **D•1161**

Local Sales Offices & Reps

AL	Huntsville, Mo-Co	205-881-5968
AZ	Scottsdale, Williams Assocs.	602-947-4297
CA	Laguna Hills, Elotek	714-830-4856
CA	Santa Clara, PBC Assocs.	408-727-7244
CO	Denver, Williams Assocs.	303-289-5647
CT	Avon, Power Mark	203-678-0123
FL	Orlando, Truex Assocs.	305-859-2160
IL	Arlington Heights, Coombs Assocs.	312-439-9810
IN	Ft. Wayne, Coombs Assocs.	219-747-7661
KS	Shawnee Mission, Techn. Sls. Assocs.	913-888-3330
MD	Clarkesville, Riffe Assocs.	301-953-2811
MA	Falmouth, RJC Assocs.	617-540-8832
MN	St. Paul, Vikeland Sls.	612-645-4647
MO	Ferguson, Techn. Sls. Assocs.	314-725-5361
NJ	Franklin, Hansen/Hughes	201-848-8900
NM	Albuquerque, Williams Assocs.	505-255-1638
NC	Winston-Salem, Radco	919-722-9671
OH	Dayton, Hocker Assocs.	513-298-8638
OR	Portland, Sci. Dvcs.	503-292-6934
PA	Cheltenham, Stein Instrmn.	215-379-1990
TX	Houston, Lear Assocs.	713-488-7893
TX	Spring, Lear Assocs.	713-370-7449
UT	Salt Lake City, Williams Assocs.	801-485-6511
WA	Bellevue, Sci. Dvcs.	206-747-5169
WI	Milwaukee, Coombs Assocs.	414-351-6123

PRIMELINE-SOLTEC DISTBN., Soltec Corp., P.O. Box 818, Sun Valley, CA 91353-0818, Tel: 800-525-5554, 818-764-5400, Telex: 494-3094 SOLTEC UI; *Sls. Mgr.:* Phillip Braden; *Dist. Mgr.:* Byron G. McIntire

PRIME/POWER

PRIME POWER, INC., Prime Technology Co., Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092; *Sls. Mgr.:* J. L. Jamieson .... **D•1801**

Local Sales Offices & Reps

CA	Buena Park, Chuck Cooper Co.	714-739-8526
CO	Denver, WEST High-Tech, J.V.	303-477-8180
CT	Washington, Tri-Com Assocs.	2-3-563-2241
NJ	Fort Lee, FJK Assocs., Inc.	201-592-1002

PRIME TECHNOLOGY, See General Risistance, Inc., Transducers and Systems, Inc. Prime Power, Inc.,

AND INTERNATIONAL INSTRUMENTS, INC.

PRIMO, 25-1, 6-Chome, Mure, Mitakashi, Tokyo, Japan, Tel: 0422-43-3121, Telex: 2822-326; Empl.: 350; *Sls. Mgr.:* S. Shirota

PRINCETON CASE CO., INC., 667 Lehigh Ave., Union, NJ 07083, Tel: 201-687-1750; Empl.: 60; *Sls. Mgr.:* S. E. Parker

PRINCETON ELCTRN. PRODS., Box 101, North Brunswick, NJ 08902, Tel: 201-297-4448, TWX: 710-380-3832; Empl.: 70; *Sls. Mgr.:* R. Shermister; *Dist. Mgr.:* R. Shermister

PRINCO INSTRS., INC., 1020 Industrial Hwy., Southampton, PA 18966, Tel: 215-355-1500; FSC No.: 48620; Empl.: 66; *Sls. Mgr.:* S. A. Clayton

PRINTER PRODUCTS, Capitol Circuits Corporation, 25 Denby Road, Boston, MA 02134, Tel: 617-254-1200; Empl.: 200; *Sls. Mgr.:* John Callanan

PROBE MASTER, INC., 4898 Ronson Ct., San Diego, CA 92111, Tel: 619-560-9676, 800-854-1519, 800-772-1519; *Sls. Mgr.:* Dick Press .... **D•1397**

PROBE-RITE, INC., 2725 Lafayette St., Santa Clara, CA 95050, Tel: 408-727-0100, TWX: 910-338-0260; *Sls. Mgr.:* Marilyn Bailey

PROCESS ANALYZERS, INC., 3 Headley Pl., Fallsington Ind'l Pk, Fallsington, PA 19054, Tel: 609-921-7330, TWX: 510-685-9254

PRODUCTION INDUSTRIES, INC., 12880-E Pierce Street, Pacoima, CA 91331, Tel: 818-896-0555, 800-423-5618; *Dist. Mgr.:* Linda Dice ... **C•1075-1077; D•1384**

PRODUCTS FOR RESCH., 88 Holten St., Danvers, MA 01923, Tel: 617-774-3250, Telex: 940-287; Empl.: 20; *Sls. Mgr.:* Harry Martin

PTS

FREQUENCY SYNTHESIZERS

PROGRAMMED TEST SOURCES, Beaver Brook Rd., Littleton, MA 01460, Tel: 617-486-3008; Empl.: 20 ... **D•1292**

Local Sales Offices & Reps

CA	La Crescenta, Beckrep, Inc.	818-957-1111

PROJECTS UNLTD., 3680 Wyse Rd., Dayton, OH 45414, Tel: 513-890-1918, TWX: 810-450-2523; Empl.: 75; *Sls. Mgr.:* Greg Kimpton

PRO-LOG, 2411 Garden Rd., Monterey, CA 93940, Tel: 408-372-4593, TWX: 910-360-7082; Empl.: 200

PROTEON, INC., 4 Tech Circle, Natick, MA 01760, Tel: 617-655-3340, Telex: PROTEON; Empl.: 75; *Sls. Mgr.:* Arthur F. Lynch

PROTO STAMPING CORP., 850 Charter St., Redwood City, CA 94063, Tel: 415-365-0498, Telex: 709241; *Sls. Mgr.:* David Duncan

PROTO SYSTEMS OF ATLANTA, 625 Sims Industrial Blvd., Alpharetta, GA 30201, Tel: 404-475-1330, Telex: 469432; *Sls. Mgr.:* John Gregory

PROTOTEK, INC., 25 Standen Dr., Hamilton, OH 45015, Tel: 513-874-5094; FSC No.: 60813 ... **C•1714**

Local Sales Offices & Reps

CA	Riverside, Cal Tech Pro, Inc.	714-682-8506
CA	Santa Clara, Covington Sls.	408-241-2877
CO	Denver, Matthews & Assocs., Inc.	303-450-6476
MD	Gaithersburg, Simcomp, Inc.	301-258-9358
MA	Tewksbury, United Sls., Inc.	617-658-4281
OH	Columbus, Seltech Mktg.	614-451-3865
TX	Dallas, Matthews & Assocs., Inc.	214-248-7881
EXP	CT, Litchfield, Intrade, Inc.	800-243-5252

PSG INDS., 1225 Tunnel Road, Perkasie, PA 18944, Tel: 215-257-3621, Telex: 827361; FSC No.: 18509; Empl.: 150; *Sls. Mgr.:* John Feldermann, Jr.

PTC TRANSFORMERS, P.O. Box 397, Rising Sun Road, Bordentown, NJ 08505, Tel: 609-298-8200, Telex: 510-685-3645; Empl.: 25; *Sls. Mgr.:* C. W. Harrison

PTK DIVISION, Emerson Electric Co., 1173 Los Olivos Ave., Los Osos, CA 93402, Tel: 805-528-5858, Telex: 88-8863, TWX: 910-351-5802; FSC No.: 60132; Empl.: 140; *Sls. Mgr.:* Wayne Hamari

PTL ELCTRNS., 10211 Vinemont St., Dallas, TX 75218, Tel: 214-327-3180; Empl.: 10

PTS ELECTRONICS INC., Box 272, Bloomington, IN 47401, Tel: 812-824-9331; Empl.: 525; *Sls. Mgr.:* R. W. King; *Dist. Mgr.:* J. Hamilton

PTX-PENTRONIX INC., 1737 Cicotte, Lincoln Park, MI 48146, Tel: 313-388-3100, Telex: 23-0398; Empl.: 21; *Sls. Mgr.:* J. Schultz

PULIZZI ENGINEERING, INC., 3260 S. Susan St., Santa Ana, CA 92704-6865, Tel: 714-540-4229; *Sls. Mgr.:* Michael B. Pulizzi; *Dist. Mgr.:* Michael B. Pulizzi ... **D•1956-1958**

Local Sales Offices & Reps

AL	Huntsville, E.M.A	205-830-4030
CA	San Jose, J & M Mktg.	408-996-8763
IA	Des Moines, Beams 500 to 528	515-255-1148
MA	Brookline, Vernon Newland	617-739-2727
NJ	Union, Stearns Assocs.	201-686-2980
TX	Dallas, T.S.S	214-458-0644

PULNIX AMERICA, INC., 770-A Lucerne Drive, Sunnyvale, CA 94086, Tel: 408-733-1560, Telex: 172541 PULNIX AMERICA; *Sls. Mgr.:* Mary Pomgrey

PULSAR PRODUCTS DIV., 2700 Merced St., San Leandro, CA 94577, Tel: 415-577-7236, TWX: 910-366-7033; Empl.: 24

PULSE ENGRG. INC., A Varian Sub., P.O. Box 12235, San Diego, CA 92112, Tel: 619-268-2400, TWX: 910-335-1527; Empl.: 1200; *Sls. Mgr.:* Leonard M. Luner

PULSE INSTRS. CO., 1234 Francisco, Torrance, CA 90502, Tel: 213-515-5330; Empl.: 20; *Sls. Mgr.:* Ron Perry

PULVER LABORATORIES, INC., 415 S. 8th. St., Boise, ID 83702, Tel: 208-342-1000, Telex: 62135850, TWX: 469834; FSC No.: 208-342-5500; *Sls. Mgr.:* Cindy Christensen

PYLE INDUSTRIES, INC., 501 Center St., P.O. Box 620, Huntington, IN 46750, Tel: 219-356-1200; Empl.: 175; *Sls. Mgr.:* Frank Pyle, Jr.; *Dist. Mgr.:* Mark Pyle

PYLE-NATIONAL, Brand-Rex Company, 1334 N. Kostner Ave., Chicago, IL 60651, Tel: 312-342-6300, Telex: 25251, TWX: 910-221-0335; FSC No.: 49367; Empl.: 800; *Sls. Mgr.:* Mike Carroccia; *Dist. Mgr.:* Neil Buchler(Eastern)/R. Williams(Western)

PYLON ELEX DEVELOPMENT CO. LTD., 2300 Victoria, Lachine, PQ, Canada H8S 1Z3, Tel: 514-637-1186, Telex: 05-821680; *Sls. Mgr.:* Andy Scrimshaw

PYROCOM CO., 924 N. 143rd St., Seattle, WA 98133, Tel: 206-365-3535

PYROFERRIC INTL., INC., 200 Madison St., Toledo, IL 62468, Tel: 217-849-3300, TWX: 910-663-0616; Empl.: 50; *Sls. Mgr.:* S. John Horner

PYROFILM RESISTOR CO., See KDI Electronics

Q-MATIC CORP., 3194-D Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-545-8233, Telex: 67-8389

Q-S PRODUCTS CO., INC., 3605 S.W. Snoqualmie St., Seattle, WA 98126, Tel: 206-937-5505

Q-SYSTEMS, PO Box 35879, Tucson, AZ 85740, Tel: 602-293-4923, TWX: 910-952-1185; Empl.: 7; *Sls. Mgr.:* M. Lloyd

Q-TECH CORP., 2201 Carmelina Ave., Los Angeles, CA 90064, Tel: 213-820-4921, Telex: 69-6140; FSC No.: 51774; Empl.: 65; *Sls. Mgr.:* H. Phillips ... **A•1420-1422**

Local Sales Offices & Reps

AZ	Scottsdale, Western High Tech Mktg.	602-949-0873
CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
CA	Northridge, Tauber-Dreyer	213-993-0048
FL	Melbourne, Reynolds & Assocs.	305-259-7000
IL	Northbrook, Allied Comp. Reps., Inc.	312-498-6658
MA	Malden, J-K Assocs.	617-321-2922
NJ	Glen Gardner, F & M Tech. Sls.	201-832-7216
NJ	Paramus, Eltech Sls.	201-967-1309
NM	Albuquerque, Western High Tech Mktg.	505-262-2461
NY	Kings Park, Eltech Sls.	201-967-1309
TX	Houston, TCI Elctrns.	713-774-5019

QUADRA SALES CORP., 14825 NE 40th, Suite 340, Redmond, WA 98052, Tel: 206-833-3550

QSI

QUALIDYNE SYS., Unitech Ltd., 3055 Del Sol Blvd., San Diego, CA 92154, Tel: 619-429-7440, 619-575-4400, Telex: ESL227140; FSC No.: 619-429-1011; Empl.: 300; *Sls. Mgr.:* James J. Louden ... **D•1803-1809**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Thor Engrg.	602-437-1463
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Chatsworth, Raltech, Inc.	818-700-0933
CA	Diamond Bar, Raltech, Inc.	714-861-1530
CA	Santa Clara, Gagner-Toomey Assocs.	408-244-2200
CO	Englewood, Frontier Reps., Inc.	303-799-6063
CT	Guilford, O.E.M. Mktg. & Sls.	203-453-5424
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Glencoe, Howard Benjamin & Assocs.	312-835-0150
IA	Cedar Rapids, Electromec Sls., Inc.	319-362-6413
MA	Franklin, OEM Mktg. & Sls.	617-528-4460
MN	Burnsville, Electromec Sls., Inc.	612-894-8200
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NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Columbus, Micro Tec, Inc.	614-451-2400
OH	Dayton, Micro Tec, Inc.	513-435-0644
OH	Highland Heights, Micro Tec, Inc.	216-442-1555
OR	Beaverton, Quest Mktg., Inc.	503-641-7377
PA	Pittsburgh, Micro Tec, Inc.	412-931-3380
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UT	Ogden, Frontier Reps., Inc.	801-546-4029
WA	Bellevue, Quest Mktg., Inc.	206-747-9424

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QUAM CORPORATION, 900 W. 128th St. Ste 208, Burnsville, MN 55337, Tel: 612-894-2360, TWX: 910-5762754; Empl.: 20; *Sls. Mgr.:* Larry Blethen

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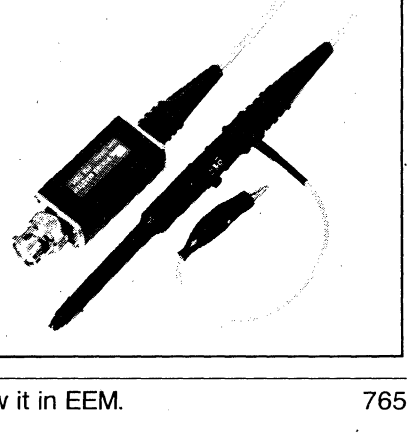

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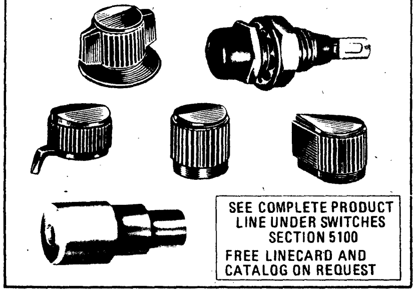

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RADIO RESCH. INSTR. CO., INC., Two Lake Ave. Extension, Danbury, CT 06811-5295, Tel: 203-792-6666, Telex: 962444 RADAR DURY; FSC No.: 57174; *Sls. Mgr.:* E. B. Doyle

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RAGEN DATA SYSTEMS, INC., 3 Oval Dr., Central Islip, NY 11722, Tel: 516-234-3800, TWX: 510-227-4901; Empl.: 52

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RAMCOM SYSTEMS, 4141-C Glencoe Ave., Marina Del Rey, CA 90292, Tel: 213-827-4432; *Sls. Mgr.:* Ralph Tisdale

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RAMTEK, 2211 Lawson Lane, Santa Clara, CA 95050, Tel: 408-988-2211, Telex: 171954, TWX: 910-339-9379; Empl.: 465; *Sls. Mgr.:* Tony Glinskas

R & D CIRCUITS, 2381B S. Clinton Ave. Dept. 1202, Plainfield, NJ 07080, Tel: 201-561-8286

RANSCO INDS., INC., Sub. Despatch Ind., Inc., 2201 Statham Blvd., Oxnard, CA 93033, Tel: 805-487-7777, Telex: 6-59235; Empl.: 280; *Sls. Mgr.:* L. W. Benjamin

RAPIDSYN, 3233 Roymar Rd., Oceanside, CA 92054, Tel: 619-439-7500, Telex: 18-1196; FSC No.: 32423; Empl.: 100; *Sls. Mgr.:* Andrew Boyer

RASTER GRAPHICS, INC., P. O. Box 5157, Bend, OR 97701, Tel: 503-388-2584

RATELCO, 1260 Mercer, Dept. EEM, Seattle, WA 98109, Tel: 206-624-7770, Telex: 888729; FSC No.: 14259; Empl.: 120; *Sls. Mgr.:* D. Terpstra

RATH MICROTECH CORP., Rath Affiliated Cos., 2505 Foster Ave., Janesville, WI 53545, Tel: 608-754-2222, 800-356-9464, Telex: 26-5409; *Sls. Mgr.:* Jim Coenen

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RAYTHEON CO., Submarine Signal Div., 1847 W. Main Rd., P.O. Box 360, Portsmouth, RI 02871, Tel: 401-847-8000, Telex: 927787, TWX: 710-382-6923; FSC No.: 94404; Empl.: 2600; *Sls. Mgr.:* Jerry K. Martin

RAYTHEON OCEAN SYS. CO., Submarine Signal Div., Risho Ave., Westminster Pk., E. Providence, RI 02914, Tel: 401-438-1780, Telex: 6814078; Empl.: 90

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RCA DISTR. & SPECIAL PRODS. DIV., RCA Corp., 2000 Clements Bridge Rd., Deptford, NJ 08096, Tel: 609-541-3636; *Sls. Mgr.:* H. L. Craton

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RCD COMPONENTS, INC., 330 Bedford St., Manchester, NH 03101, Tel: 603-669-0054, Telex: 943-512 RCD COMP MAN; Empl.: 350 .... **A•1934-1935**

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AL	Huntsville, Montgomery Mktg. Inc.	205-830-0498
AZ	Phoenix, Elec-Com Assoc.	602-967-8644
CA	Canoga Park, Cummings & Assocs.	213-340-6035
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CA	Woodland Hills, Cummings & Assocs.	213-340-6035
CO	Denver, Cummings & Assocs.	303-455-6860
FL	Apopka, G. F. Bohman	305-886-1882
GA	Norcross, Montgomery Mktg. Inc.	404-447-6124
ID	Boise, N. R. Schultz Co.	208-377-8686
IL	Elk Grove Village, The John G. Twist Co.	312-593-0200
KS	Overland Park, Ensco-Rep Inc	913-381-7557
MI	Livonia, Electronic Salesmasters	800-321-1848
MO	Maryland Heights, Ensco-Rep Inc	314-423-3935
NJ	Cherry Hill, Trinkle Sales Inc.	609-795-4200
NM	Alburquerque, Elec-Com Assocs.	505-898-6101
NY	Hempstead, Kahgan Sls.	516-538-2300
NY	Kingston, R. P. Kennedy Co., Inc.	914-876-2700
NY	Rochester, R. P. Kennedy Co., Inc.	716-271-6322
NC	Cary, Montgomery Mktg. Inc.	919-467-6319
OH	Beachwood, Electronic Salesmasters	216-831-9555
OR	Beaverton, N. R. Schultz Co.	503-643-1644
PA	Allentown, Trinkle Sls. Inc.	800-257-8210
TX	Dallas, Design Mktg. Inc.	214-680-9767
TX	Irving, Design Mktg.	214-255-2110
TX	Round Rock, Design Mktg.	512-255-9686
WA	Bellevue, N. R. Schultz Co.	206-454-0300
WI	Brookfield, The John G. Twist Co.	414-782-2670

R. C. ELCTRNS. INC., 5386 Hollister Ave., Santa Barbara, CA 93111, Tel: 805-964-6708, Telex: 295281; Empl.: 10; *Sls. Mgr.:* Chao-Sun Pang; *Dist. Mgr.:* Chao-Sun Pang

RCI/DATA, 1992 Lakewood Rd., Toms River, NJ 08753, Tel: 201-341-8361; Empl.: 15; *Sls. Mgr.:* Robert Fierro

RCL·Shallcross
WIREWOUND RESISTORS

RCL ELECTRONICS, INC., 195 McGregor St., Manchester, NH 03102, Tel: 603-627-3831, TWX: 710-220-1876; FSC No.: 01686; Empl.: 300 ... **A•1936-1941**

SHALLCROSS, INC., U.S. 70 East, Smithfield, NC 27577, Tel: 919-934-5181, TWX: 510-939-1463; FSC No.: 54294; Empl.: 150 .... **A•1936-1941**

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NY	Buffalo, Quality Comps.	716-837-5430
OK	Tulsa, Genzel	918-622-7744
TX	Arlington, Procomp	817-640-4336
Can	Kanata, Ont., Gidden/Morton Assocs.	416-671-8111

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IN	Indianapolis, Classic Comps.	317-872-4777
MA	Burlington, TLC	617-273-0140
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-0216
NY	Bohemia, Shelley Elctrns.	516-567-7751
PA	Norristown, Century Elctrn. Comps.	215-631-5400
Can	Scarborough, Ont., Carsten Elctrns.	416-495-9999

RCL-Shallcross Local Sls. Offs. & Reps.

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AZ	Phoenix, ISDS	602-971-6250
CA	Chatsworth, WCV Co.	818-700-0933
CA	Palo Alto, Mollard Mktg.	415-961-0456
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FL	Longwood, AMP Assocs.	305-869-6831
FL	Merritt Island, APM Assocs.	305-453-4322
FL	Tampa, AMP Assocs.	813-886-2457
GA	Dunwoody, CSR Elctrns.	404-396-3720
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Burlington, Kitchen & Kutchen	617-229-2660
MI	Livonia, Luebbe Sls. Co.	313-477-3131
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO		
MO	Grandview, Harris/Hanson Co.	816-763-6200
MO	St. Louis, Harris/Hanson Co.	312-432-3611
NE	Lincoln, Lorenz Sls. Co.	402-475-4660
NJ	Marlton, BGR Assocs.	609-983-1020
NY		
NY	Buffalo, Quality Comps.	716-837-5430
NY	Manlius, Quality Comps.	315-682-8885
NY	Melville, Comtronic Assocs.	516-249-0505
NC	Raleigh, CSR Elctrns.	919-878-9200
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Luebbe Sls. Co.	216-333-0425
OH	Columbus, Luebbe Sls. Co.	614-431-0474
OH	Dayton, Luebbe Sls. Co.	513-294-0426
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OR	Portland, James J. Backer Co.	503-297-8744
OR	Salem, James J. Backer Co.	503-362-0717
PA	Pittsburgh, Luebbe Sls. Co.	412-931-0414
SC	Taylors, CSR Elctrns.	803-292-2292
UT	Salt Lake City, Elcom	801-532-7940
WA	Seattle, James J. Backer Co.	206-285-1300

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AZ	Phoenix, TTI	602-966-1616
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, T.T.I.	408-943-9155
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IL	Northbrook, Classic Comps.	312-272-9650
CT	Hamden, Almo Elctrns.	203-288-6556
MD	Columbia, Aztech Elctrns.	301-995-1760
FL	Tampa, Shelley Elctrns.	813-884-0946
MA	Woburn, TTI	617-938-8800
MA	Billerica, A. W. Mayer Co.	617-229-2255
NY	Bohemia, TTI	516-567-1500
NY	Farmingdale, Command Elctrns.	516-293-1212
NY	Hauppauge, Jaco Elctrns.	516-273-5500
MN	Minneapolis, Aerospace Computer Supp.	612-884-4725
NY	Rochester, Simcona	716-328-3230
NY	Rome, Rome Elctrns.	315-337-4500
NC	Raleigh, Resco-Raleigh	919-781-5700
OH	Dayton, Stotts Friedman	513-298-5555
OH	Englewood, Argent Inds.	513-836-8633
OH	Solon, REH-Electra	216-248-1636
OK	Tulsa, Altair	918-252-5781
PA	McKean, Advacom	814-476-7774
PA	McKeesport, Barno Radio	412-751-5966
PA	Pittsburgh, Aldertronics	412-821-5565
NY	Rockville Center, Milano Bros. Intl.	516-764-2200
TX	Ft. Worth, TTI	817-831-0441
TX	Houston, Altair	713-462-3029
TX	Richardson, Altair	214-231-5166
WA	Bellevue, Almac Elctrns.	206-643-9992
WI	New Berlin, Classic Comps.	414-786-5300

R-COLUMBIA PRODS. CO., INC., 2008 St. Johns Ave., Highland Park, IL 60035, Tel: 312-432-7915; Empl.: 20

RDF CORPORATION, 23 Elm Ave., Hudson, NH 03051, Tel: 603-882-5195, TWX: 710-228-1882; Empl.: 120; *Sls. Mgr.:* Arthur Di Venuti

RDI/REED DEVICES, INC., 525 Randy Rd., Carol Stream, IL 60188, Tel: 312-682-4100, TWX: 910-252-2118; FSC No.: 53337; Empl.: 85; *Sls. Mgr.:* H. J. Roeser .... **C•1498-1501**

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AL	Huntsville, Alpha	205-533-0766
AZ	Phoenix, Augat Sls.	602-224-0950
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Sunnyvale, Schwerin/Merrill	408-735-7900
CO	Denver, Augat Sls.	303-757-2100
FL	Ft. Lauderdale, APM Assoc.	305-565-0056
FL	Longwood, APM Assoc.	305-869-6831
FL	Tampa, APM Assoc.	813-886-2457
GA	Atlanta, Alpha	404-491-9430
IL	Glen Ellyn, Rockford Controls	312-469-6016
IN	Indianapolis, Rockford Controls	317-248-2518
IA	Davenport, Ensco-Rep., Inc.	319-386-6600
KS	Overland Park, Ensco-Rep., Inc.	913-381-7557
KS	Wichita, Ensco-Rep., Inc.	316-683-1070
MA	Norwood, Augat Sls.	612-792-3164
MI	Novi, Lektronics	313-349-3304
MN	Minneapolis, HMR	612-831-7400
MO	Maryland Hts., Ensco-Rep., Inc.	314-423-3935
NJ	Pitman, Colrud Corp.	609-589-5866
NY	Commack, Augat Metro	516-864-3811
NY	Farmingdale, Augat Metro	516-753-0012
NY	Rochester, H.C. Johnson	716-586-0777
NC	Kernersville, Wallace Elctrn.	919-996-2742
OH	Columbus, K.W. Elec. Sls.	614-888-0483
OH	Dayton, K W Elctrn. Sls.	513-890-2150
OH	Shaker Hts., K.W. Elec. Sls.	216-491-9177
OR	Portland, Augat Sls.	503-253-7172
PA	Allison Park, K.W. Elec. Sls.	412-487-4300
TN	Memphis, Glen White	901-761-5941
TN	Oak Ridge, Alpha Mktg.	615-482-4681
TX	Dallas, Augat Sls.	214-788-4211
TX	Georgetown, Augat Sls.	512-479-9447
TX	Houston, Augat Sls.	713-495-3100
VA	Reston, Colrud Corp	703-620-6612
WA	Augat Sls.	206-455-2846
WI	Westbend, Rockford Controls	800-323-1042

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AZ	Phoenix, Dalis	602-275-2885
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Tempe, Time Elctrns.	602-967-2000
AZ	Tucson, Inland Elec. Supp.	602-889-5301
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Belmont, Lodan Elctrns.	415-592-4600
CA	Buena Park, Control Des.	714-521-5040
CA	Chatsworth, Time Elctrns.	818-998-7200
CA	Fremont, Term. Sls.	415-656-7722
CA	Gardena, Calif. Switch & Signal	213-538-9830
CA	Los Angeles, Elec. Switches	213-660-1310
CA	San Carlos, Control Des.	415-592-4808
CA	San Diego, Deco Elctrns.	
CA	San Diego, Time Elctrns.	619-586-1331

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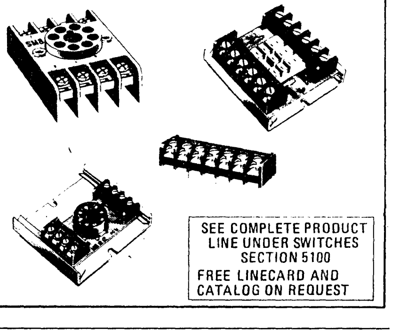

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FREE LINECARD AND CATALOG ON REQUEST

CA	San Jose, Con. Parts	408-263-9521
CA	San Jose, Rose Elec.	408-263-9700
CA	Santa Monica, Master Distr.	213-452-1229
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Denver, CSID	303-292-9594
CO	Englewood, Indl. Elctrns.	303-694-9444
CO	Englewood, Time Elctrns.	303-850-7701
CT	Cheshire, Time Elctrns.	203-271-3200
CT	Stratford, Utronic	203-378-4201
FL	Ft. Lauderdale, Comp. Dist.	305-971-4950
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Largo, Lodan Elctrns.	813-595-5811
FL	Orlando, Time Elctrns.	305-841-6565
GA	Atlanta, Elctrl. Control Prod.	404-455-1216
GA	Atlanta, Time Elctrns.	404-351-3545
GA	Norcross, Comp. Dist.	404-441-3320
GA	Stone Mountain, Control Des.	404-979-3500
IL	Addison, Lectro Comps.	312-543-1680
IL	Arlington Heights, Lo Dan Elctrns.	312-398-5311
IL	Chicago, Otto Frankenbush	312-647-0755
IL	Genoa, Control Des.	815-784-6515
IL	Oak Park, Newark Elctrns.	312-524-1800
IL	Peoria, Klaus Radio	309-691-4840
IL	Rockford, Mid-West Assoc.	815-962-8036
IN	Ft. Wayne, Graham Elec.	219-423-3422
IN	Indianapolis, Control Des.	317-788-4559
IA	Cedar Rapids, Deeco	319-365-7551
IA	Marion, Control Des.	319-373-2923
KY	Louisville, P. I. Burks Co.	502-589-3960
LA	Lafayette, Ralph's Indl. Elec.	318-234-4507
LA	New Orleans, Southern Radio Supp.	504-524-2343
LA	New Orleans, Wm. B. Allen Supp.	800-535-9593
MD	Beltsville, Treeko Sls.	301-937-8260
MA	Burlington, QPL Elec. Dist.	617-229-2424
MA	Middleboro, Glynn Elec.	617-947-4262
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Southfield, Michigan Lectrols	313-353-1350
MN	Bloomington, Time Elctrns.	612-944-9192
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725
MN	Minneapolis, Control Des.	612-721-1628
MN	Minneapolis, Newark Elec.	612-331-6350
MO	St. Louis, Control Des.	314-426-3150
MO	St. Louis, Olive Indl.	314-426-4500
MO	St. Louis, Time Elctrns.	314-391-6444
NE	Lincoln, Scott Elctrn.	402-466-8221
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Jersey City, Cuny & Gerber	201-653-0222
NY	Buffalo, Summit	716-884-3450
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Mt. Vernon, QAR Indl. Elec. Sls.	914-699-2224
NY	Rochester, R. Baker Elctrns.	716-586-9164
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Charlotte, Control Des.	704-588-4410
NC	Raleigh, Southeastern Radio	919-828-2311
NC	Winston-Salem, Kirkman Elctrns., Inc.	919-722-9131
OH	Akron, Akron Elctrn.	216-762-8818
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Columbus, Elctrns. Mktg. Co.	614-299-4161
OH	Columbus, Elm Equip. Co.	614-236-0888
OH	Dayton, ESCO	513-226-1133
OH	Dayton, Scotts-Friedman Co.	513-298-5555
OH	Solon, Repco	216-248-8900
OH	Warren, Rem Elctrn. Supp.	216-373-1300
OH	Wickliffe, Gateway Megatech	216-944-8565
OK	Tulsa, Radio	918-587-9123
OR	Lake Oswego, Rose Elctrn.	503-635-8823
OR	Portland, Platt Elec. Supp.	503-228-3121
OR	Portland, Radar	503-232-3404
OR	Portland, Time Elctrns.	503-684-3780
OR	Tigord, Moore Elctrns.	503-684-3100
PA	Broomall, Time Elctrns.	215-359-1200
PA	Malvern, Control Des.	215-296-0150
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Phila. Elec.	215-568-7400
SC	Greenville, Emsco	803-233-4121
SC	Greenville, Emsco	
TN	Memphis, Brownell Electro	901-795-8487
TX	Dallas, Control Des.	214-358-1441
TX	Dallas, Dallas Meter-Tech.	214-349-6044
TX	Dallas, Time Elctrns.	214-385-0566
TX	Houston, Angie Elctrns.	713-659-8386
TX	Houston, Electronic Packaging Corp.	713-447-5800
UT	Salt Lake City, Stuart Elctrns. Supp.	801-466-8603
UT	Salt Lake City, Western Controls	801-292-5900
WA	Bellevue, Time Elctrns.	206-641-3640
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Platt Elec. Supp.	206-624-4083
WA	Seattle, Radar Elec.	206-282-2511
WI	Green Bay, A-A Elec.	414-499-0258
WI	New Berlin, Control Des.	414-784-1015
WI	West Allis, Marsh Elctrns.	414-475-6000

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REACTEL, INC., 687-D Lofstrand La., Rockville, MD 20850, Tel: 301-279-5535; FSC No.: 60458; Empl.: 20; *Sls. Mgr.:* D. E. Claycomb

Local Sales Offices & Reps

CA	North Hollywood, Crown Elctrns.	213-877-3550
CA	Sunnyvale, ESCO Assocs.	408-745-1410
VA	Fairfax, Beacon North	703-591-1300

REAL TIME SYS., 152 S. MacQuesten Pkwy., Mt. Vernon, NY 10550, Tel: 914-667-0425; *Sls. Mgr.:* A. Citrin

REBLING PLASTICS CO., 150 Franklin Drive, Warrington Ind. Park, Warrington, PA 18976

RECORDER SYS. DIV., See Gulton Inds., Inc., Graphic Instrs. Div.

RECOTON CORP., 46-23 Crane St., Long Island City, NY 11101, Tel: 718-392-6442, Telex: 236047 RCTN; Empl.: 150; *Sls. Mgr.:* George Calvi

RECYCLENE PRODUCTS, 1910 Trade Zone, San Jose, CA 95131, Tel: 408-945-8600; FSC No.: 24496D; *Sls. Mgr.:* Mitch Tuchman

REDINGTON COUNTERS, 130 Addison Rd., Windsor, CT 06095, Tel: 203-688-6205, Telex: 64-3390 REDCO WSOR; *Sls. Mgr.:* Alan Schoenhut; *Dist. Mgr.:* George Angelovich

REED SWITCH DEV. CO. INC., PO Box 1464, Kerrville, TX 78028, Tel: 512-896-4444; Empl.: 1

RE-EL CIRCUITS, INC., See RCI/Data

REEVE ELECTRONICS, Mellish E. Murray, 1720 W. Fulton St., Chicago, IL 60612, Tel: 312-670-0150; Empl.: 25; *Sls. Mgr.:* George Elliott

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Division, Dynamics Corporation of America

REEVES-HOFFMAN DIV., 400 W. North St., Carlisle, PA 17013, Tel: 717-243-5929, TWX: 510-650-3510; Empl.: 391; *Sls. Mgr.:* Daniel V. Kingery .... **A•1423-1427; C•1619-1621**

Local Sales Offices & Reps

AZ	Phoenix, Chaparral Elctrns.	602-252-0897
CA	Culver City, Westaironics	213-641-4123
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CO	Boulder, R.G. Entprs.	303-447-9211
FL	Apopka, G. F. Bohman Assocs.	305-886-1882
ID	Boise, N. R. Schultz	208-377-8686
IL	Chicago, ESCO Assocs.	312-763-0800
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Wakefield, H. Jappe Co.	617-245-9359
MN	Minneapolis, Intl. Elctrns.	612-571-0000
NY	Huntington, Compar N.Y.	516-423-5660
NC	Charlotte, JWL Assocs.	704-541-5750
OH	Cincinnati, Tri-State Mktg.	513-761-7993
OR	Beaverton, N. R. Schultz	503-643-1644
PA	Hatboro, Electro Rep Engrg.	215-674-4421
TX	Irving, Kite Elctrns. Sls.	214-438-9336
WA	Bellevue, N. R. Schultz	206-454-0300
Intl	CH, Zurich, Kurt Hirt	(01) 51-21-21
Intl	FR, Orsay, Cemitronic	(6) 907-84-38
Intl	FR, Paris, Tekelec Airtronic	(1) 534-75-35
Intl	GR, Munchen, Tekelec Airtronic	(089) 594621
Intl	IT, Milano, Tekelec Airtronic	(02) 73-80-641
Intl	NL, Zoetermeer, Tekelec Airtronic	(079) 31-01-00
Can	Ontario, R. D. Assocs.	416-444-0959

REFAC ELCTRNS. CORP., P.O. Box 809, Winsted, CT 06098, Tel: 203-379-2731, TWX: 710-449-6464; FSC No.: 28564; Empl.: 80; *Sls. Mgr.:* Chuck Altschul .... **B•1091**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe Engrg.	818-684-2000
CA	San Diego, Luscombe Engrg.	619-295-4300
CO	Boulder, Luscombe Engrg.	303-772-3342
CT	Kensington, Norman Stachelek Co.	203-828-6161
FL	Clearwater, Delmac Sls.	813-447-5192
FL	Fort Lauderdale, Delmac Sls.	305-739-0016
FL	Orlando, Delmac Sls.	305-898-4688
FL	Palm Bay, Delmac Sls.	605-724-8377
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Mt. Prospect, Interep	312-577-8899
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MA	Canton, New England Elctrn. Sls.	617-828-4835
MI	Madison Heights, Pine Sls.	313-539-0350
MN	Minneapolis, Holmgren Assocs.	612-786-7641
MO	Kansas City, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NY	E. Syracuse, Nycom Co.	315-437-8343
NY	Williamsville, Nycom Co.	716-633-9395
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Columbus, R. J. Sls.	614-253-2898
OR	Beaverton, Luscombe Engrg.	503-636-6664
PA	Norristown, Denco Data Equip. Corp.	215-630-8990
TX	Dallas, SW Mktg.	214-341-8631
TX	Houston, SW Mktg.	713-864-6281
VA	Lynchburg, Burgin-Kreh Assocs.	804-239-2626
WI	Milwaukee, Interep	414-774-1100
Can	Mississauga, Ont., Advanced Sls. Grp.	416-677-8200

Local Distributors

CA	Chatsworth, Anthem Elctrns.	818-700-1000
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CA	Van Nuys, Patane Avionics	818-988-4455
CO	Denver, Integrated Elctrns.	303-292-6121
CT	Hartford, Atlantic Switch Controls	203-527-7705
FL	Lakeland, Switch Controls, Inc.	813-644-7564
IL	Carol Stream, Concetrix, Inc.	312-653-1460
IL	Hoffman Estates, Intercomp, Inc.	312-843-2040
IL	Lombard, RM Elctrns.	312-932-5150
IN	Indianapolis, Advent Elctrns.	317-872-4910
MA	Canton, Electronic Pkg.	617-821-2111
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NH	Nashua, Atlantic Switch Co., Inc.	603-800-1971
NJ	Milford, Sintec Co.	201-996-4093
NJ	Mt. Laurel, Jersey Switch	609-778-8190
NJ	Roselle, Lectron Inds.	201-245-5858
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, SAI	516-293-2710

NY	Rochester, Summit Distrs.	716-334-8110
OH	Cleveland, Pruitt Energy Sources	216-566-1545
OH	Columbus, Ohioswitch, Inc.	614-885-0319
OR	Beaverton, Hansen Elctrns. Corp.	503-642-4455
PA	Willow Grove, RESCO	215-659-4440
TX	Houston, Electronic Pkg.	713-447-5800
Can	Point Claire, Que., Future Elctrns.	514-694-7710
Can	Scarborough, Ont., Carsten Elctrns.	416-751-5095

REGDON CORP., 3713 Grand Blvd., Brookfield, IL 60513, Tel: 312-485-5152, TWX: 910-691-2214; FSC No.: 27190; Empl.: 65 ..... **B•1475**

Local Sales Offices & Reps

	San Carlos	415-594-0700
AL	Decatur, Tenn Tech	205-350-0630
CA	Los Altos, J. W. Wilhoit	415-961-3660
CA	Valencia, DJM Elctrns.	818-362-4309
CT	Woodbury, Mark-Rep Assocs.	203-263-3047
FL	Maitland, EIR, Inc.	305-660-9600
GA	Atlanta, Tenn Tech	404-622-5784
IL	Downers Grove, Richmar Elect. Corp.	312-968-0118
IN	Indianapolis, Richmar Elctrns.	317-846-6383
MN	Edina, T.H. Hanson & Co.	612-893-9960
NH	Plaistow, Mark-Rep Assocs.	603-382-9563
NJ	Florham Park, Varrelman-Gorman Co.	201-992-2505
NY	Binghamton, NHA	607-754-3214
NY	Pittsford, NHA	716-586-9002
NC	Raleigh, Tenn Tech	919-266-3610
OH	Cleveland, J. N. Bailey	216-892-1510
OH	New Lebanon, J. N. Bailey	513-687-1325
PA	Abington, Indl. Mktg. Specialists Co.	215-659-0444
TN	Chattanooga, Tenn Tech.	615-894-3012
TX	Austin, K & H Sales	512-258-8841
TX	Plano, K & H Sales	214-423-6520
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

CA	San Carlos, Logan Elctrn. Supp.	415-594-0700
MA	Lynn, Land Elctrns.	617-592-2220
NJ	Fairlawn, Relay Specialties	201-797-3313

REGENCY SYSTEMS, INC., 3200 Farber Drive, Champaign, IL 61820, Tel: 217-398-8067, Telex: 27-0486; Empl.: 60; *Sls. Mgr.:* Ken Perry; *Dist. Mgr.:* Jill Koepke

REGENT CONTROLS, 39 Fanny St., P.O. Box 767, Shelton, CT 06484-0767, Tel: 203-736-2924; *Sls. Mgr.:* Wendell E. Carroll

REHLANDER ASSOCS., 118A Bridge St., Beverly, MA 01915, Tel: 617-922-5961; *Sls. Mgr.:* Michael Rehlander ..... **B•1213**

REICH ASSOCS., Rt. 4, Box 4620, Lakehills, TX 78063, Tel: 512-751-3220, Telex: 358048; FSC No.: 55916; Empl.: 10; *Sls. Mgr.:* W. Reich

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RE INSTRUMENTS CORP., 31029 Center Ridge Rd., Westlake, OH 44145, Tel: 216-871-7617, TWX: 810-427-9257; Empl.: 15; *Sls. Mgr.:* P. A. Bosworth ...... **D•1295**

REI SLS., 19525 Business Centre Dr., Northridge, CA 91324, Tel: 617-938-0900; Empl.: 5; *Sls. Mgr.:* T. P. Fitzgerald

RELATIONAL MEMORY SYS., 1650 Berryessa Rd., Ste. B, San Jose, CA 95133-1082, Tel: 408-729-3011, 800-448-4880, TWX: 910-379-0014; Empl.: 10; *Sls. Mgr.:* Jennifer Phipps

LAW, R. E. INSTRUMENT, INC., 7735 W. 112th Pl., Palos Hills, IL 60465, Tel: 312-974-4000; FSC No.: 6685-6695; *Sls. Mgr.:* Harry Booth; *Dist. Mgr.:* R. Gene Law

RELAY SERVICE CO., 1310 N. Pulaski Rd., Chicago, IL 60651, Tel: 312-AL2-2700; Empl.: 30; *Sls. Mgr.:* Chas. H. Badger

RELAY SPECIALTIES, 1300 Plaza Rd., Fair Lawn, NJ 07410, Tel: 201-797-3313, 800-526-5376, Telex: 642751; Empl.: 48; *Sls. Mgr.:* S. R. Gershberg

Local Sales Offices & Reps

CA	Los Alamitos, The Rep House	213-598-3379
CT	Manchester, Vin-Tech, Inc.	203-646-3007
MD	Baltimore, Com Tech Assocs.	301-583-1993
TX	Dallas, Art Brawner & Assocs.	214-824-4013

RELCO PRODS., 5594 E. Jefferson Ave., Denver, CO 80237, Tel: 303-756-1143; FSC No.: 14454; Empl.: 7

RELIABILITY, INC., 16400 Park Row, P.O. Box 218370, Houston, TX 77218, Tel: 713-492-0550, TWX: 910-881-1739; FSC No.: 54098; Empl.: 800; *Sls. Mgr.:* J. Marcussen

RELIANCE COMM/TEC, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

RELIANCE ELECTRIC CO., Marketing Info Center, P.O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, 800-245-4497 In Ohio

RELIANCE FUSE, 2070 Maple St., Des Plaines, IL 60016, Tel: 312-299-2211, Telex: 726-453; FSC No.: 72076;F15160E; Empl.: 200

For nearest sales office, phone 1-800-245-4501 (in Ohio, 1-800-245-4497)

RELIANCE FUSE, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

RELIANCE PLASTICS & PACKAGING, 225 Belleville Ave., Bloomfield, NJ 07003, Tel: 201-748-2222; Empl.: 35; *Sls. Mgr.:* Hale Smith

RELMS, See Relational Memory Systems, Inc.

REMEE PRODS. CORP., 41 Bridge St., Florida, NY 10921, Tel: 914-651-4431, Telex: 64-6715; Empl.: 135; *Sls. Mgr.:* Ken Pimental; *Dist. Mgr.:* Ken Pimental

REMEX CAM OPERATIONS, Ex-Cell-O Corporation, 1230 S. Lewis Street, Anaheim, CA 92805, Tel: 714-535-4160, Telex: 183-040; Empl.: 105; *Sls. Mgr.:* Stan Vitt; *Dist. Mgr.:* Stan Vitt

RENAISSANCE MARKETING, INC., 463 Union Ave., Westbury, NY 11590, Tel: 516-271-2389

RENBRANDT, INC., 6 Parmelee St., Boston, MA 02118, Tel: 617-445-8910; FSC No.: 99934; Empl.: 25; *Sls. Mgr.:* M. Rogers

RENCO, 26 Coromar Dr., Goleta, CA 93017-3094, Tel: 805-968-1525, TWX: 910-334-1180; FSC No.: 34479; Empl.: 170; *Sls. Mgr.:* Larry Wade ..... **B•1824-1825; D•1131**

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Group, Inc.	213-598-9645
CA	Westlake Village, Electro-Craft Corp.	818-889-3631
CO	Englewood, Electro-Craft Corp./RENCO	303-762-1754
GA	Marietta, Electro-Craft Corp./RENCO	404-971-2669
IL	Palatine, Electro-Craft Corp./RENCO	312-991-4570
NH	Salem, Electro-Craft Corp./RENCO	603-893-5552
NJ	Cherry Hill, Electro-Craft Corp./RENCO	609-662-0555
NY	Buffalo, Ross Equip. Co., Inc.	716-634-0990
NY	Elmira, Ross Equip. Co., Inc.	607-734-4175
NY	Rochester, Ross Equip. Co., Inc.	716-271-5660
NY	Syracuse, Ross Equip. Co., Inc.	315-463-6691
OH	Cincinnati, Electro-Craft Corp./RENCO	513-474-4171
WA	Bellevue, Sweo Engrg.	206-644-2725
Can	Edmonton, Alb., Hank Mottle Mktg., Ltd.	403-468-1292

RENCO ELCTRNS., 60 Jefryn Blvd., E., Deer Park, NY 11729, Tel: 516-586-5566 ... **A•1274-1276, 2268-2269**

Toll-Free Engineering Hot Line 800-645-5828, in NY State 516-586-5566

REPCO, 2421 N. Orange Blossom Trail, Box 7065, Orlando, FL 32854, Tel: 305-843-8484, Telex: 56-6536

REPRODUCTION TECHNOLOGIES INC., Dept. EM, P.O. Box 815, Bristol, IN 46507-0518, Tel: 219-848-5233, 219-848-5333; Empl.: 8 ..... **D•1034**

Local Sales Offices & Reps

GA	Chamblee, Secom Sys.	404-455-0672
IN	Indianapolis, Carlton Security Sys.	317-787-8545
KY	Louisville, Audio Mktg. Assocs.	502-935-2580
MA	Falmouth Heights, R J C Assocs.	617-540-8832
MI	Ferndale, Shalco	313-547-4771
MN	Minneapolis, KODO Assocs.	612-881-1255
OH	Brecksville, Audio Mktg. Assocs.	216-526-2426
OH	North Canton, Audio Mktg. Assocs.	216-499-1172

REPUBLIC ELCTRNS. CORP., 176 E. 7th St., Paterson, NJ 07524, Tel: 201-279-0300, TWX: 710-988-5908; FSC No.: 93958; Empl.: 125; *Sls. Mgr.:* W. Eisenberger ..... **A•1167**

Local Sales Offices & Reps

CA	Los Angeles, Corcoran Assocs.	213-823-2425
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Commerce City, Williams Assocs.	303-289-5647
FL	Sunrise, Arnold Milrot & Assoc.	305-748-6446
IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
IN	Ft. Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Ard Sales Co.	319-393-6392
MD	Ellicott City, Nelson Elctrns.	301-747-7887
MA	Walthan, Deltech Sls. Inc.	617-894-4550
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Grandview, R. R. Burton & Assocs.	816-763-5385
MO	Maryland Hgts., R. R. Burton & Assocs.	314-434-1678
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	Liverpool, Precision Sls.	315-451-3480
NY	New Hyde Park, Comp-Tech Sls.	516-593-2628
NY	Pittsford, Precision Sls.	716-381-2820
NY	Pleasant Valley, Precision Sls.	914-635-3233
NC	Charlotte, Jake Rudisill Assocs.	704-377-6901
OH	Columbus, Tom Mulligan & Assocs.	614-457-2242
OK	Tulsa, Hugh J. Daly Co.	918-627-4159
PA	Lancaster, Electro Rep.	717-299-5877
TX	Lewisville, Marathon Assocs.	214-436-8882
WA	Lynnwood, Blum & Assocs.	206-777-6656

Local Distributors

CA	San Fernando, Petell Elctrns.	213-365-9841
IL	Skokie, Kellner Elctrns.	312-677-1120
NJ	Perth Amboy, Metuchen Capacitors	201-442-0500
NY	Hauppauge, Semi Cap Elctrns.	516-582-4400

REPUBLIC ELECTRONICS CO., 575 Broad Hollow Rd., Melville, NY 11747, Tel: 516-249-1414, Telex: 96-1460; FSC No.: 95750; Empl.: 125; *Sls. Mgr.:* William Shaver

REPUBLIC PACKAGING CORP., 9160 S. Green St., Chicago, IL 60620, Tel: 312-233-6530, Telex: 25-4621; *Sls. Mgr.:* Hal Grossman; *Dist. Mgr.:* Herb Fasth

RESDEL ENGRG., 300 E. Live Oak Ave., Arcadia, CA 91006, Tel: 213-684-2600, TWX: 910-582-3219; Empl.: 170

RESEARCH, INC., Box 24064, Minneapolis, MN 55424, Tel: 612-941-3300, Telex: 29-0502; Empl.: 250; *Sls. Mgr.:* Brian Callahan

RESEARCH PRODS., 1015 E Washington Ave., Madison, WI 53701, Tel: 608-257-8801, TWX: 910-286-2781

RESISTANCE TECHNOLOGY INC., 1260 Red Fox Rd., St. Paul, MN 55112, Tel: 612-636-9770; *Sls. Mgr.:* Michael Geraci; *Dist. Mgr.:* Michael Geraci

RESISTORS, INC., 5226 W. 26th St., Chicago, IL 60650, Tel: 312-652-7555; Empl.: 50 ..... **A•1942**

Local Sales Offices & Reps

CT	Plantsville, Parnetics Co.	203-628-9343
IL	Arlington Hgts., Resistance Specialists	312-259-6571
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MI	Lathrup Village, R.C. Nordstrom & Co.	313-559-7373
NY	New York City, Symon Assocs.	212-757-3638
OH	Wickliffe, W.J. Brauer & Assocs.	216-943-0601
WI	Milwaukee, Honkamp Sls. Co.	414-463-2530

RES-NET, 110 Route 10, Whippany, NJ 07981, Tel: 201-887-2260, out of state 800-526-0704; FSC No.: 55 877; Empl.: 42; *Sls. Mgr.:* David Beck ..... **A•1943**

Local Sales Offices & Reps

CA	Palo Alto, Mollard Mktg.	415-961-0456
MA	Waltham, Dynasel Assocs.	617-890-6777

Local Distributors

NJ	Whippany, ADI American Distributors Inc.	201-428-0510

REVERE CORP. OF AMER., 845 N. Colony Rd., Wallingford, CT 06492, Tel: 203-269-7701, Telex: 96-3482, TWX: 710-476-3197; Empl.: 389; *Sls. Mgr.:* R. Paukstys

REXNORD CHEMICAL PRODS. INC., 6120 E. 58th Ave., Commerce City, CO 80022, Tel: 303-289-5651, Telex: 45-0331; *Sls. Mgr.:* Michael P. Manegold

Local Sales Offices & Reps

CA	Glendora, Rexnord Chem. Prods.	818-963-1109
FL	South Merritt Island, John Rule Assocs.	305-777-5952

IL	Northfield, Special Elec.	312-446-5113
MI	Roseville, Special Elec. Co.	800-558-0604
MN	Excelsior, JPM Assocs.	612-474-3408
MO	St. Louis, Special Elec. Co.	314-962-1150
OH	Cleveland, Special Elec. Co.	216-441-5244
PA	Doylestown, Rexnord Chem. Prods.	215-348-2147
RI	Lincoln, Special Elec. Co.	401-727-1136
WI	Milwaukee, Special Elec. Co.	414-383-6370

RFD, INC., 5024 Nassau St., Tampa, FL 33607, Tel: 813-872-1502, TWX: 810-876-9146; *Sls. Mgr.:* Thomas W. Facer

RFI CORPORATION, 100 E. Pine Aire Dr., Bay Shore, NY 11706, Tel: 516-231-6400, TWX: 510-227-6233; FSC No.: 13619;15733; Empl.: 250; *Sls. Mgr.:* Robert Fitzpatrick .... **A•1629**

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	Scottsdale, Williams-Assocs.	602-947-4297
CA	Monterey Park, M.W. Riedel Co.	213-283-7694
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CO	Denver, Williams-Assocs.	303-373-4730
FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779
IL	North Riverside, J. Popp Sls.	312-447-6124
IN	Ft. Wayne, Denton Mktg., Inc.	219-627-5515
IA	Davenport, Ensco-Rep	319-386-6600
KS	Overland Park, Ensco-Rep	913-381-7557
MD	Rockville, Mechtronics Sls.	301-340-2130
MO	St. Louis, Ensco-Rep	314-423-3935
NH	Hudson, EMC Sls., Inc.	603-880-3671
NJ	Cherry Hill, H.J. White Co.	609-428-4544
NM	Albuquerque, Williams-Assocs.	505-255-1638
NY	Great Neck, Trionic Assocs.	516-466-2300
NC	Winston-Salem, Murcota Corp.	919-722-9445
PA	McKean, Ecco Elctrn. Sls.	814-476-1376
TX	Garland, McBride Sci. Sls.	214-494-5000
WA	Seattle, Granville Gillette Assocs.	206-284-3344

RFL INDS., A Dowty Grp. Co./Comms. Div., Powerville Rd., Boonton, NJ 07005, Tel: 201-334-3100, TWX: 710-987-8352; FSC No.: 49673; Empl.: 300

RFL INDS., A Dowty Grp. Co./Instr. Div., Powerville Rd., Boonton, NJ 07005, Tel: 201-334-3100, TWX: 710-987-8352; FSC No.: 49673; Empl.: 300

RFL INDS., Thermocontrol Div., W. Prospect St., Box 250, Brandon, VT 05733, Tel: 802-247-6811, TWX: 710-987-8352; Empl.: 350; *Sls. Mgr.:* Bob Berman; *Dist. Mgr.:* Bob Berman

RF MONOLITHICS, INC., 4441 Sigma Rd., Dallas, TX 75234, Tel: 214-233-2903, TWX: 910-860-5474; Empl.: 90; *Sls. Mgr.:* William Spurgeon

RF POWER LABS, INC., 21820 87th S. E., Woodinville, WA 98072, Tel: 206-481-8833, Telex: 32-1042; FSC No.: 057143; Empl.: 17; *Sls. Mgr.:* Greg Cook

RHG ELECTRONICS LAB., INC., 161 E. Industry Ct., Deer Park, NY 11729, Tel: 516-242-1100, TWX: 510-227-6083; Empl.: 180; *Sls. Mgr.:* Martin D. Markson

RHINO SALES CORP., 620 Andrews Ave., P.O. Box 367, Kewanee, IL 61443, Tel: 309-853-4461

RHOMBUS INDS., 15801 Chemical Ln., Huntington Bch., CA 92649-1595, Tel: 714-898-0960, TWX: 910-596-1826; Empl.: 60 .... **A•1568-1573**

Local Sales Offices & Reps

CA	Irvine, J. V. Earley & Assocs.	714-833-1806
CA	Redwood City, James S. Heaton Co.	415-367-9000
CO	Parker, A-5 Co.	303-841-3651
FL	Coral Springs, MTS Assocs.	305-753-3830
MA	Malden, J. K. Assocs.	617-321-2922
NC	Cary, Engineering Dvcs.	919-469-9323
TX	Irving, Space Elctrns.	214-251-3636
PR	Caquas, Arami Camacho	809-743-0657

Local Distributors

AZ	Phoenix, A-5 Co.	602-943-3941
WA	Redmond, Compu-Rep	206-788-3005

RICHARD CALDWELL SOFTWARE, 1617 Whitton Ave., San Jose, CA 95116-2455, Tel: 408-251-3485

RICHARD HIRSCHMANN OF AMERICAN, See Hirschmann

RICHARD-LEE CO., Box 724, New Providence, NJ 07974, Tel: 201-276-0710; Empl.: 8

RICHARDS, ARKLAY S., CO., INC., 72 Winchester St., Newton Highlands, MA 02161-1793, Tel: 617-527-1512; *Sls. Mgr.:* L. K. Richards

RICHCO PLASTIC CO., 5825 N. Tripp Ave., Chicago, IL 60646, Tel: 312-539-4060, TWX: 910-221-1938; FSC No.: 06915; Empl.: 250; *Sls. Mgr.:* Craig Richardson; *Dist. Mgr.:* Ted Pavoris

RI/CONTROL SYSTEMS, Research, Inc., P.O. Box 24064, Minneapolis, MN 55424, Tel: 612-941-3300, Telex: 29-0502; Empl.: 260; *Sls. Mgr.:* Brian Callahan

RIDGE TOOL CO., Sub. Emerson Elec., Co., 400 Clark St., Elyria, OH 44036, Tel: 216-323-5581, Telex: 0243420

RIFA

RIFA, INC., Greenwich Off. Pk. 3, P.O. Box 3110, Greenwich, CT 06836-3110, Tel: 203-625-7300, Telex: 221976 ERIANUR .... **D•1810-1811**

Local Sales Offices & Reps

CA	Cupertino, Pacific Elctrns., Inc.	408-733-9920
FL	St. Petersburg, Tech-Rep Assocs., Inc.	813-577-2779
IL	Elk Grove Village, Carlson Elctrns. Sls.	312-956-8240
MD	Glen Burnie, Macrotech Assocs., Ltd.	301-437-5588
NV	Reno, Unitronics	702-825-1978
NH	Londonderry, Power Conversion Sys.	603-434-2370
NJ	Marlton, Naudain Assocs.	609-983-5300
NJ	Parlin, JMR Sls., Inc.	201-254-8484
NY	East Setauket, JMR Sls., Inc.	516-689-8871
TX	Austin, Tesco, Inc.	512-834-8374
TX	Garland, Tesco, Inc.	214-681-1376
WI	Milwaukee, Carlson Elctrns., Sls.	414-476-2790
Can	Calgary, Alb., Deskin Sls.	403-466-2106
Can	Edmonton, Alb., Deskin Sls.	403-466-2106
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Montreal, Que., Deskin Sls.	514-331-2860
Can	Ottawa, Ont., Deskin Sls.	613-729-1099
Can	Vancouver, B.C., Deskin Sls.	604-273-4963
Can	Winnipeg, Man, Deskin Sls.	403-466-2106

Local Distributors

FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779

RIL ELCTRNS., INC., 125 Titus Ave., P.O. Box H, Warrington, PA 18976, Tel: 215-EL5-1361; Empl.: 25

RING KING VISIBLES, INC., 2210 Second Ave., Muscatine, IA 52761, Tel: 319-263-8144, Telex: 468559; Empl.: 150; *Sls. Mgr.:* Dave White

RIPLEY, 46 Nooks Hill Rd., Cromwell, CT 06416, Tel: 203-635-2200, TWX: 710-428-9567; Empl.: 100; *Sls. Mgr.:* R. S. Clark

RISK, GEORGE, INDS., GRI Plaza, Kimball, NE 69145, Tel: 308-235-4645, TWX: 910-620-9040; FSC No.: 24229; Empl.: 100; *Sls. Mgr.:* J. Fisher; *Dist. Mgr.:* J. Fisher .... **B•1737**

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs. of Ariz.	602-820-1127
CA	Anaheim, Galaxie Sales Int'l.	714-752-1580
CA	Escondido, Cirolia Elctrn. Sls.	619-743-3015
CA	San Carlos, Kafco	415-591-6758
FL	Tamarac, Davmik Sls.	305-920-2222
AL	Huntsville, Elctrn. Mfr. Agt.	205-830-4030
IL	Wheaton, Chadra-Schilke & Assoc.	312-653-8126
MA	Lexington, Jodan Tech.	617-862-2354
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	Maryland Heights, Kebco	314-576-4111

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
CA	Santa Ana, Advanced Computer Prods.	714-558-8813

RLC ELCTRNS., INC., 83 Radio Cir., Mt. Kisco, NY 10549, Tel: 914-241-1334, TWX: 710-571-2103; FSC No.: 12598; *Sls. Mgr.:* Philip H. Wright

RMF PRODS., INC., 1275 Paramount Pkwy., P.O. Box 520, Batavia, IL 60510, Tel: 312-879-0020; Empl.: 11; *Sls. Mgr.:* R. Frieders .... **C•1616**

RMS ELECTRONICS INC., 50 Antin Pl., Bronx, NY 10462, Tel: 212-892-6700; Empl.: 100; *Dist. Mgr.:* Seymour Goldberg

RMS TECHN., 706 Industry Dr., Hampton, VA 23661, Tel: 804-838-2458; Empl.: 7

ROANWELL, 180 Varick St., New York, NY 10014, Tel: 212-989-1090, TWX: 710-581-6555; FSC No.: 82872; Empl.: 200; *Sls. Mgr.:* C. Carl Hilsdorf; *Dist. Mgr.:* C. Carl Hilsdorf

RO
RO ASSOCIATES

RO ASSOCS., 246 Caspian Dr., Box 61419, Sunnyvale, CA 94088, Tel: 408-744-1450, TWX: 910-339-9304; FSC No.: 24230; Empl.: 90; *Sls. Mgr.:* R. D. Okada .... **D•1812-1814**

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.	205-533-5896
AZ	Phoenix, Sigma	602-241-1334
CA	Los Angeles, Amasco	213-516-8561
CA	San Francisco, Amasco	408-733-8690
CO	Denver, F.G. Mktg.	303-795-9176
DC	Washington, Gans & Pugh	703-527-3262
FL	Orlando, OEM Mktg.	305-299-1000
IL	Chicago, John Kennaugh & Assoc.	312-980-2570
KS	Shawnee Mission, Midtec	913-441-6565
MD	Baltimore, Gans & Pugh	703-527-3262
MA	Boston, Intersell	617-273-3844
MO	St. Louis, Midtec	314-837-5200
NM	Albuquerque, Fry-Gates, Inc.	505-262-1525
NY	Mt Vernon, Sonkin Assocs.	914-968-8282
NY	Utica, B. D. Hummel Co.	315-736-7821
OH	Centerville, Omega Sls., Inc.	513-434-5507
OK	Tulsa, Cunningham Comp. Corps.	918-492-0390
PA	Philadelphia, Gans & Pugh	703-527-3262
TX	Dallas, Cunningham Comps. Corp.	214-669-9706
TX	Houston, Cunningham Comps. Corp.	713-461-4197
WA	Seattle, Huntley Assocs.	206-353-1833

ROBBINS & MEYERS, INC., Motor & Control Sys. Div., Rte. 4, Bob McCormick Rd., Gallipolis, OH 45631, Tel: 614-446-9868, Telex: 241353 .... **B•1184**

ROBERT BOSCH CORP., See Bosch, Robert, Corp.

ROBINSON-HALPERN, One Apollo Rd., P.O. Box 248, Plymouth Meeting, PA 19462-0248, Tel: 215-825-9200, TWX: 510-660-8637; FSC No.: 12400; Empl.: 80; *Sls. Mgr.:* J. Lanza

ROBINSON-NUGENT, INC., 800 East 8th St., New Albany, IN 47150, Tel: 812-945-0211, TWX: 810-540-4082; Empl.: 567; *Sls. Mgr.:* Hap Taylor

ROBISON ELCTRNS., P.O. Box 8121, San Luis Obispo, CA 93403-8121, Tel: 805-544-8000; FSC No.: 19080; Empl.: 45

ROCHESTER INSTR. SYS., 255 N. Union St., Rochester, NY 14605, Tel: 716-263-7700, Telex: 978457; Empl.: 330

ROCKBESTOS CO., P.O. Box 1102, New Haven, CT 06504, Tel: 203-772-2250

ROCKLAND INSULATED WIRE & CABLE, 87 Broadway, Haverstraw, NY 10927, Tel: 914-429-3103; FSC No.: 12111

ROCKLAND SYS. CORP., See Wavetek Rockland Scientific, Inc.

ROCKWELL FILTER PRODS., 2990 Airway Ave., Costa Mesa, CA 92626, Tel: 714-641-5311, Telex: 685532; Empl.: 100; *Sls. Mgr.:* Lee Cornett

ROCKWELL INT'L., 4311 Jamboree Rd., Newport Beach, CA 92660, Tel: 800-854-8099, TWX: 910-591-1654; FSC No.: 34576; Empl.: 1995; *Sls. Mgr.:* K. MacDonald; *Dist. Mgr.:* K. Foster

ROCKWELL INTL., Commercial Elctrns. Opers., 1200 N. Alma Rd., Richardson, TX 75081, Tel: 214-996-5000, Telex: 73-307, 73-2490, TWX: 910-867-4709; Empl.: 15,000

RODALE ELCTRNS. CORP., 603 Chestnut St., Garden City, NY 11530, Tel: 516-222-0050, TWX: 510-222-0274; *Sls. Mgr.:* John B. Clement

RODELCO ELCTRNS. CORP., 356A Comac Rd., Deer Park, NY 11729, Tel: 516-643-5110; Empl.: 28

ROD-L ELECTRONICS, INC., 1098 Hamilton Ct., Menlo Park, CA 94025, Tel: 415-322-0711, TWX: 296210 .... **D•1296-1301**

Local Sales Offices & Reps

AL	Huntsville, Sci. Svcs. SE	205-536-1969
AZ	Phoenix, Venturesearch	602-894-5216
CA	Carson, Amasco	213-516-8561
CA	Sunnyvale, Amasco	408-733-8690
CO	Conifer, Energy Equip. Sls.	303-674-8111
FL	Orlando, Sci. Dvcs. SE	305-841-8180
IL	Elk Grove, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MD	Baltimore, Sci. Reps.	301-321-1411
MA	Reading, Scheinfein Assocs.	617-944-2304
MN	Minneapolis, Instrmn. Svcs., Inc.	612-544-8916
MO	Florissant, Web Elctrns.	314-921-5720
MO	Kansas City, Paloma Sls. Co.	816-358-7272
NJ	Fairfield, Addem Sls.	201-882-0993
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	De Witt, DB Assocs.	315-446-0220
NC	Winston-Salem, Sci. Dvcs.	919-765-5776
OH	Centerville, Micro Sls.	513-433-8171
OR	Portland, Control Tek Sls., Ltd.	503-641-8180
TX	El Paso, Venturesearch	915-594-4094
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600
VA	Fairfax, Sci. Reps.	703-385-0600
WA	Spokane, Control Tek Sls., Ltd.	509-922-2971

ROEAN INDUSTRIES, INC., 12970 Branford, Ste. C, Pacoima, CA 91331, Tel: 818-767-7047, Telex: 758630 TGMC; Empl.: 8

ROEDERSTEIN ELCTRNS., INC., P.O. Box 5588, Statesville, NC 28677, Tel: 704-872-8101, Telex: 240802, TWX: 301-240802; *Sls. Mgr.:* Frank Acuff

Local Sales Offices & Reps

AL	Hunstville, CSR Elctrns.	205-533-2444
AZ	Tempe, Dowling Tech. Grp.	602-893-7555
CA	PAlo Alto, Abbott Engrg. Co., Inc.	415-968-2265
CA	Sunnyvale, REI	408-866-7950
CA	West Covina, Component Svc., Inc.	213-960-4761
CO	Aurora, Sage Sls., Inc.	303-750-3501
CT	North Haven, Kitchen & Kutchin, Inc.	203-239-0212
FL	Coral Springs, E. P. M. Corp.	305-755-5387
FL	Orlando, E. P. M. Corp.	305-425-6149
GA	Atlanta, CSR Elctrns.	404-396-3720
IL	Rosemont, STC	312-671-4208
IN	Bloomington, John Hershman	812-339-9563
IN	Ft. Wayne, J & B Engrg.	219-483-2813
KS	Kansas City, Delltron	816-436-6445
MA	Burlington, Kitchen & Kutchin	617-229-2660
MA	Lincoln, Kitchen & Kutchin	615-259-9017
MO	St. Louis, Delltron	314-869-4779
NJ	Leonia, Peter E. Schmitt Co., Inc.	201-944-2806
NY	Cazenovia, ST/Woolard	315-655-8145
NC	Raleigh, CSR Elctrns.	919-878-9200
PA	Feasterville, Knowles Assocs.	215-322-7100
TX	Austin, Semco	512-837-0893
UT	Salt Lake City, Sage Sls., Inc.	801-467-5451
VA	Lynchburg, ST/Woolard	804-528-5421
WA	Kirkland, Manon Engrg.	206-827-7449
Can	Concord, Ont., Votron Elctrns., Inc.	416-669-9870

ROGAN, 3455 Woodhead Dr., Northbrook, IL 60062, Tel: 312-498-2300, TWX: 910-686-0008; Empl.: 100; *Sls. Mgr.:* D. Pelletier; *Dist. Mgr.:* D. Pelletier

ROGERS CORP., Bus Products Division, 5750 East McKellips Rd., Mesa, AZ 85205, Tel: 602-830-3370

ROGERS CORP., Box 700, Chandler, AZ 85224, Tel: 602-963-4584, TWX: 910-950-1961; Empl.: 400; *Sls. Mgr.:* Paul Anderson

ROGERS CORP., One Technology Dr., Rogers, CT 06263, Tel: 203-774-9605, TWX: 710-448-0047; Empl.: 2500; *Sls. Mgr.:* Paul L. Anderson .... **C•1715**

Local Sales Offices & Reps

AL	Huntsville, G. S. Jordan	205-881-7971
AZ	Scottsdale, H.R. Crowder	602-991-8908
AZ	Tempe, M. F. Iosue	602-839-5478
CA	Carlsbad, D. Bergheimer	619-434-1297
CA	Corona, R. A. Forester	714-734-5881
CA	Palo Alto, R. A. Greenman	408-947-7797
CA	Poway, A. W. Riel	619-487-1065
CA	Poway, A.W. Riel	619-487-1065
CA	San Jose, R.H. Jackson	408-947-7797
CA	San Jose, W. J. Stolp	408-947-7797
CT	Bristol, J. F. Witkewicz	203-583-4341
CT	Norwich, G. R. Jessel	203-376-0276
FL	Melbourne Beach, P. R. Pratt	305-725-6105
IL	Hazel Crest, J. R. Menees	312-798-5800
KY	Louisville, G. P. Harris	502-224-9163
MI	Livonia, J. M. Allan	313-427-8228
MN	Northfield, W. P. Kelly	507-663-1050
NH	Londonderry, W. J. Coyne	603-434-5358
NJ	Pitman, R. M. Neidig	609-582-1666
NJ	Springfield, S. D. Wellen	201-944-7777
NY	Poughkeepsie, V. H. Potter	914-485-6763
NY	Rochester, R. C. Bangs	716-454-6520
OH	Shaker Hgts., E. R. Perme	216-283-5486
OH	Xenia, J. L. Forte	513-426-8993
PA	Hermitage, H. A. Harriman	412-983-3742
PA	Holtwood, T. G. Sleasman	717-284-4328
SC	Rock Hill, E. E. Wild	803-366-2952
TX	Round Rock, B.D. Duke	512-244-3074
VA	Lynchburg, L.J. Rodrigue	804-384-9517
VA	Roanoke, J. L. Settles	703-774-8478
WA	Seattle, L. B. Keen	206-575-4175

R-OHM (EASTERN OPER.), 2303 W. Meadowview Rd. # 3, Kingston Bldg., Greensboro, NC 27407, Tel: 919-855-0217

ROHM CORP., 8 Whatney, Irvine, CA 92718, Tel: 714-855-2131, TWX: 910-595-1721; Empl.: 125; *Sls. Mgr.:* Mike Hammel

ROLM MIL-SPEC COMPUTERS, Rolm Corp., 1 River Oaks Pl., San Jose, CA 95134, Tel: 408-942-8000, TWX: 910-338-0247; FSC No.: 14345; Empl.: 1000; *Sls. Mgr.:* Peter Cicata; *Dist. Mgr.:* Peter Cicata

ROLM CORP., 4900 Old Ironsides Dr., M/S 626, Santa Clara, CA 95054, Tel: 408-986-1000; Empl.: 10,000

ROLYN OPTICS CO., 738 Arrowgrand Cir., Covina, CA 91722-2199, Tel: 818-915-5707/5717, Telex: 67-0380

ROME CABLE CORP., P.O. Box 71, Rome, NY 13440, Tel: 315-337-3000

RONOR SYSTEMS, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492, Tel: 203-265-2110; Empl.: 12

RONTRON ENGINEERING, 25 Rose St., Branford, CT 06405, Tel: 203-488-5020

ROSE

ROSE ENCLOSURES SYS., INC., 12140 Parklawn Dr., Rockville, MD 20852, Tel: 301-984-1783, Telex: 908-107 Resi Rove; *Sls. Mgr.:* Paul Bruhn .... **C•1078-1079**

ROSEMONT-NASHVILLE, INC., See Chromalox Instrs. & Controls

ROSEN GRANDON ASSOCIATES INC., 7807 Whittier St., Tampa, FL 33617, Tel: 813-985-4911; Empl.: 1; *Sls. Mgr.:* Jane R. Rosen-Grandon

ROSS ENGRG. CORP., 540 Westchester Dr., Campbell, CA 95008, Tel: 408-377-4621, Telex: 858840, TWX: 910-590-8033; FSC No.: 23598; Empl.: 45; *Sls. Mgr.:* Hugh C. Ross .... **B•1443**

ROSTONE CORP., P.O. Box 7497, Lafayette, IN 47903, Tel: 317-474-2421, TWX: 810-342-1887; Empl.: 500

Local Sales Offices & Reps

FL	Fern Park, Blair Engrg., Inc.	305-834-1244
MA	Framingham, Petri-Jones, Inc.	617-877-4233
NY	Canandaigua, Brandon Assocs., Inc.	716-394-6080
NY	Liverpool, Brandon Assocs., Inc.	315-652-3954
NC	Greenboro, Blair Engrg., Inc.	919-292-8200
OK	Tulsa, Blair Engrg., Inc.	918-622-3100
PA	Norristown, Brandon Assocs., Inc.	215-278-0500
TX	Austin, Blair Engrg., Inc.	512-458-3107
TX	Dallas, Blair Engrg., Inc.	214-241-5655
TX	Houston, Blair Engrg., Inc.	713-973-8800

ROTEK INSTR. CORP., 390 Main St., Waltham, MA 02254, Tel: 617-899-4611; *Sls. Mgr.:* Eliot Warner

ROTRON, INC., See EG & G Rotron

ROWE INDUSTRIES, INC., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, Tel: 419-729-9761, TWX: 810-442-1734; FSC No.: 82878; Empl.: 89; *Sls. Mgr.:* D. L. Mang; *Dist. Mgr.:* D. L. Mang .... **C•1502-1504, 1895**

Local Sales Offices & Reps

AZ	Chandler, Blackhart Assocs.	602-831-2566
CA	San Jose, V. C. Robinson	415-969-4831
FL	Fern Park, EIR, Inc.	305-830-9600
KS	Leawood, Thunderbird	913-642-7220
KS	Wichita, Thunderbird	316-684-3941
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Burlington, Don C. Richard	617-272-1595
MA	Lowell, Underwood Sls.	617-256-8191
MI	Holland, Com-Tek Sls.	616-399-5719
MN	Hopkins, KITS Co.	612-933-1888
MO	Maryland, Thunderbird	314-567-6488
NM	Albuquerque, Ron-tek	505-299-4124
NC	Winston-Salem, Dula Assocs.	919-768-7166
OH	Beachwood, RC Assocs.	216-292-4954
OH	Cuyahoga Falls, Lee Tronics	216-928-8584

RTE AEROVOX INC., 740 Belleville Ave., New Bedford, MA 02745, Tel: 617-994-9661, TWX: 710-344-6985; FSC No.: 4K459; Empl.: 700; *Sls. Mgr.:* Jack Chmura; *Dist. Mgr.:* Matthew Simon

RTE DELTEC CORP., 2727 Kurtz St., San Diego, CA 92110, Tel: 619-291-4211, 800-854-2658, TWX: 910-335-1246; FSC No.: 52297; Empl.: 200 .... **D•1959**

Local Sales Offices & Reps

AL	Huntsville, FM Assocs., Ltd.	205-882-0689
AK	Soldotna, Air Tek	907-262-5937
AZ	Scottsdale, Barnhill Assocs.	602-947-7841
CA	Los Altos, Jay Stone & Assocs.	415-948-4563
CA	Vista, Failsafe Power Corp.	619-726-0980
CO	Englewood, Barnhill Assocs.	303-779-3600
CT	Avon, Power Mark	203-678-0123
FL	Jupiter, FM Assocs., Ltd.	305-746-2996
FL	Orlando, FM Assocs., Ltd.	305-851-5710
GA	Atlanta, FM Assocs., Ltd.	404-446-0033
HI	Honolulu, Hawaiian Inds. Instru. Sls. Corp.	808-533-4232
IL	Arlington Heights, Dytec/Central, Inc.	312-394-3380
IN	Indianapolis, Dytec/Central, Inc.	317-247-1316
IA	W. Des Moines, Data Power Technlg. Corp.	515-223-5605
KS	Lenexa, Engineered Equip. Co.	913-492-9221
MI	Madison Heights, WKM Assocs., Inc.	313-588-2300
MN	Golden Valley, JR Assocs.	612-546-4110
MO	St. Louis, Applied Power Sys.	314-383-5858
NE	Omaha, Data Power Tech. Corp.	402-592-7860
NJ	Lodi, SDM Reps.	201-368-0125
NJ	Pennsauken, Scientific Reps.	609-662-5222
NM	Albuquerque, Barnhill Assocs.	505-299-7658
NY	Rochester, SDM Reps.	716-247-8770
NC	Ramseur, FM Assocs., Ltd.	919-824-2196
OH	Dayton, WKM Assocs., Inc.	513-434-7500
OH	Independence, WKM Assocs., Inc.	216-524-5930
PA	Pittsburgh, WKM Assocs., Inc.	412-892-2953
TX	Austin, Barnhill Assocs.	512-451-0217
TX	Houston, Barnhill Assocs.	713-688-9971
TX	Richardson, Barnhill Assocs.	214-231-2573
UT	Murray, Barnhill Assocs.	801-262-3000
VA	Fairfax, Scientific Assocs., Inc.	703-385-0600
WA	Seattle, F/M Sales Co.	206-628-9620
EXP	CA, San Diego, RTE Deltec Corp.	619-291-4211

RTEPOWER/MATE

RTE, Power/Mate Co., 514 S. River St., Hackensack, NJ 07601, Tel: 201-440-3100, TWX: 710-990-5023; Empl.: 375; *Sls. Mgr.:* Robert E. Allison .... **D•1816-1827**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Luscombe Engrg. Co.	602-949-9333
CA	Campbell, Luscombe Engrg. Co.	408-370-2020
CA	Pasadena, Luscombe Engrg. Co.	213-684-2000
CA	Pasadena, Reaction Comps.	213-648-2000
CA	San Diego, Luscombe Engrg. Co.	619-295-4300
CO	Englewood, Delta Sls.	303-799-0646
FL	Winter Park, EMA, South	305-671-6800
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Chicago, Data Elctrns. Co.	312-283-0300
IN	Indianapolis, Data Elctrns. Co.	317-359-5368
KS	Overland Pk., Electri-Rep	913-649-2168
MD	Rockville, Marktron	301-251-8990
MA	N. Chelmsford, Power Assocs.	617-251-7756
MI	Southfield, Infinity, Inc.	313-557-7230

MN	Plymouth, Data Elctrns.	612-559-1434
MS	Jackson, Welch & Doby, Inc.	601-932-5534
MO	St. Louis, Electri-Rep	314-878-8209
NJ	Lodi, TRC Elctrns.	201-779-8282
NY	Buffalo, R. W. Mitscher Co., Inc.	716-633-7970
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc.	513-433-2800
OR	Beaverton, Luscombe Engrg./NW	503-636-6664
PA	Willow Grove, QED Elctrns.	215-657-5600
TX	Austin, Beacon Elctrns. Assocs.	512-331-5115
TX	Dallas, Beacon Elctrns. Assocs.	214-437-1505
UT	Salt Lake City, Delta Sls. Assocs.	801-487-7571
EXP	NY, Greast Neck, Auriema, Inc.	516-487-0700
Can	Rexdale, Ont., Source Elctrns., Ltd.	416-675-6235

Local Distributors

AZ	Scottsdale, Galtec	602-949-9765
CA	Campbell, Sierra Comps.	408-370-2242
CA	Pasadena, Reaction Comps.	213-648-2000
CO	Englewood, Deltex	303-799-1088
IL	Chicago, Dalec	312-283-0300
MA	North Chelmsford, Power Assocs.	617-251-7756
NJ	Lodi, TRC Elctrns.	201-779-8282
NC	Cary, Distall Sls.	919-467-2902
OH	Centerville, IPD	513-435-2086
OR	Lake Oswego, Cesco Distrs.	503-636-6664
PA	Willow Grove, QED Elctrns. of PA	215-657-5600
TX	Dallas, CDI	214-644-0373

RTRON CORP., 7324 Lawndale, Skokie, IL 60076, Tel: 312-679-7180, TWX: 910-223-0810; FSC No.: 19130; *Sls. Mgr.:* R. McLean

RTS Systems INC.

RTS SYSTEMS, INC., Compact Video, Inc., 1100 W. Chestnut St., Burbank, CA 91506, Tel: 818-840-7119, Telex: 194855, TWX: 910-498-4987; Empl.: 75; *Sls. Mgr.:* Shelley Brown **D•1055**

Local Sales Offices & Reps

AL	Birmingham, Gray Comms. Conslt.	205-942-2824
AL	Birmingham, Sonics Assocs.	205-942-9631
AL	Cropwell, Broadcast Sys.	205-525-5467
AL	Huntsville, Central Dynamics Corp.	205-837-5180
AL	Mobile, Gray Comms. Conslt.	205-343-0662
AK	Anchorage, N V S Sys.	907-349-3523
AZ	Cottonwood, R I A Corp.	602-634-8065
AZ	Phoenix, Siboney Communications Inc. (SCI)	602-252-5992
AZ	Tucson, SCI	602-881-5432
CA	Berkeley, Curtis M. Karplus, Esq.	415-642-1942
CA	Burbank, H N E Inc.	213-508-7543
CA	Burbank, Tri Tronics	213-843-2170
CA	El Monte, Cetec Vega	213-442-0782
CA	Encino, Everything Audio	213-995-4175
CA	Glendale, Paramount Sound Sys. Corp.	213-956-3222
CA	Inglewood, Audio Visual Hdqtrs. Corp.	213-419-4040
CA	Lawndale, Omega Video	213-679-9021
CA	Long Beach, K T Elctrns.	213-424-0979
CA	Los Angeles, Acromedia Corp.	213-410-4141
CA	Los Angeles, Hollywood Sound Sys.	213-466-2416
CA	Los Angeles, Shoreline Ltd.	213-851-1236
CA	Los Angeles, Skaggs Video Los Angeles	213-556-2133
CA	Los Angeles, Tourkow & Co.	213-664-8884
CA	N. Hollywood, Audio Svcs. Corp.	213-980-9891
CA	N. Hollywood, Best Audio	213-763-2378
CA	N. Hollywood, Doc Siegel Audio	213-877-2300
CA	N. Hollywood, Theatre Vision	213-769-0928
CA	Newbury Park, Westlake Audio	213-655-0303
CA	Nipomo, Broadcast Sys.	805-929-4476
CA	Pasadena, Audio Engrg. Assocs.	213-798-9127
CA	San Diego, Centro Corp.	619-560-1578
CA	San Diego, Skaggs Video San Diego	619-578-9640
CA	San Diego, SCI	714-578-7777
CA	Santa Clara, Video Comms. Corp.	408-988-2968
CA	Sun Valley, Burns Audio	213-768-1701
CA	Sunnyvale, Video Media	408-733-6500
CA	Walnut, Video Comms. Corp.	714-594-2442
CO	Denver, Film/Video Equip. Svc.	303-778-8616
CO	Englewood, Skaggs Video Denver	303-740-9031
CT	Shelton, Anton Bauer	203-929-1100
FL	Gainesville, Gray Comms. Conslt.	904-376-2435
FL	Miami, Gray Comms. Conslt.	305-591-3637
FL	Miami, Hubbard Comms.	305-594-0744
FL	Miami, Midwest Corp.	305-592-5355
FL	Orlando, Gray Comms. Conslt.	305-896-7414
FL	St. Petersburg, Hubbard Comms.	813-577-7759
FL	Tampa, Gray Comms. Conslt.	813-885-1411
FL	Tampa, SCI	813-985-4687
GA	Albany, Gray Comms. Conslt.	912-883-2121
GA	Doraville/Atlanta, Gray Comms. Conslt.	404-455-3121
GA	Norcross, SCI	404-441-3300
GA	Norcross/Atlanta, Tech. Video Sys.	404-447-6621
GA	Union City/Atlanta, Allied Broadcast Equip.	404-964-1464
IL	Chicago, Allied Broadcast Equip.	312-794-0224
IL	Elk Grove Vlg., Swiderski Elctrns.	312-364-1900
IL	Harvey, Bridgewater Custom Sound	312-596-0309
IL	Morton Grove, Roscor Corp.	312-539-7700
IL	Quincy, Harris Corp.	217-222-8200
IN	Evansville, Kavco	812-476-6327
IN	Indianapolis, Kavco	317-251-0800
IN	Indianapolis, Midwest Corp.	317-251-5750
IN	Indianapolis, R C A Corp.	317-273-3547
IN	Richmond, Allied Broadcast Equip.	317-962-8596
IA	Davenport, Video Midwest	319-322-1525
IA	Des Moines, Video Midwest	515-244-1447
KY	Edgewood, Midwest Corp.	800-543-1584
KY	Lexington, Midwest Corp.	606-277-4994
KY	Louisville, Midwest Corp.	502-491-2888
LA	Harahan/New Orleans, Gray Comms. Conslt.	504-733-7265
MD	Bethesda, Professional Prods.	301-657-2141
MD	Lanham, Midwest Corp.	301-577-4903
MD	Rockville, Peirce Phelps Inc.	301-984-7979
MA	Boston, Professional Recording & Sound	617-254-2110
MA	Framingham, Landy Assocs.	617-877-9570
MA	Needham Hgts., Capron Lighting & Sound Co.	617-444-8850
MA	Newton, Lake Sys. Corp.	617-244-6881
MI	Ann Arbor, Hy James Audio Professionals	313-994-0934
MI	Oak Park, Midwest Corp.	313-399-6361
MI	Troy/Detroit, Midwest Corp.	313-689-9730
MN	Minneapolis, Todd Comms.	612-941-0556
MN	Minneapolis, Video Midwest	612-831-2248
MS	Bay St. Louis, Harris Corp. S. Central Reg.	601-255-3337
MO	Chesterfield, Television Engrg. Corp.	314-532-4700
MO	El Dorado Springs, Broadcast Sys.	417-876-6254
MO	St. Louis, Antech Labs	314-997-5666
NE	Omaha, Todd Comms.	402-341-7600
NV	Las Vegas, Acromedia Corp. Las Vegas	702-362-7552
NV	Las Vegas, Western Media Entprs.	702-873-2014
NJ	Atlantic City, Telemeasurements	609-345-2670
NJ	Cherry Hill, Landy Assocs.	609-424-4660
NJ	Clifton, Telemeasurements	201-473-8822
NJ	Mahwah, Philips Television Sys.	201-529-1550
NJ	Mountain Lakes, Turner Engrg.	201-263-0023
NJ	Northvale, A F Assocs.	201-767-1000
NM	Albuquerque, SCI	505-884-6858
NM	Los Lunas, Dyma Engrg.	505-865-6700
NY	New York, Adcom Comms.	212-265-1760
NY	New York, Camera Mart	212-757-6977
NY	New York, M P C S Video Inds.	212-586-3690
NY	New York, Martin Audio/Video Corp.	212-541-5900
NY	New York, Tech. Video Sys.	212-580-3104
NY	New York, Westec Audio Video	212-586-1662
NC	Charlotte, Midwest Corp.	704-399-6336
NC	Charlotte, Reliable Music	704-375-8662
NC	Raleigh, Southeastern Sight & Sound	919-828-2311
NC	RTP, Broadcast Sys.	919-851-1956
NC	Winston-Salem, Tech. Video Sys.	919-748-0916
OH	Cleveland, Midwest Corp.	216-447-9745
OH	Columbus, Kavco	614-274-0180
OH	Columbus, Midwest Corp.	614-476-2800
OH	Dayton, Kavco	513-898-2003
OH	Dayton, Midwest Corp.	513-275-3339
OH	N. Royalton, Kavco	216-237-1950
OH	Parma Hgts., Reddish Sound	216-885-1222
OK	Claremore, R I A Corp.	918-341-9066
OK	Tulsa, M Z B & Assocs.	918-743-2661
OR	Portland, Baldwin Mktg. Co.	503-234-1359
PA	Allentown, Daveland Co.	215-439-8701
PA	Carnegie, Alpha Video & Elctrns.	412-923-2070
PA	Gibsonia, Midwest Corp.	412-443-6720
PA	King of Prussia, Maris Equip. Corp.	215-275-9300
PA	Philadelphia, Lerro Elctrl. Corp.	215-223-8200
PA	Philadelphia, Peirce Phelps Inc.	215-879-7205
PA	Pittsburgh, R P C Elctrns.	412-782-3770
TN	Knoxville, Gray Comms. Conslt.	615-523-3107
TN	Nashville, Consolidated Media Sys.	615-244-3933
TN	Nashville, Gray Comms. Conslt.	615-883-9175
TX	Amarillo, Magnetic Media Corp.	806-358-2468
TX	Arlington, Midcom	817-640-4573
TX	Austin, Broadcast Sys.	512-836-6014
TX	Austin, M Z B & Assocs.	512-837-7240
TX	Austin, Magnetic Media Corp.	512-451-0138
TX	Austin, SCI	512-454-7194
TX	Corpus Christi, SCI	512-883-6688
TX	Dallas, M Z B & Assocs.	214-233-5535
TX	Dallas, Magnetic Media Corp.	214-931-0404
TX	Dallas, Video Sys.	214-349-0951
TX	El Paso, SCI	915-598-8538
TX	Houston, L D Systems	713-695-9400
TX	Houston, M Z B & Assocs.	713-448-0881
TX	Houston, Magnetic Media Corp.	713-771-9125
TX	Houston, SCI	713-686-9685
TX	Houston, Video Sys.	713-686-9651
TX	Irving, SCI	214-258-8470
TX	Lubbock, Video Sys.	806-792-2325
TX	Madison, SCI	615-865-1980
TX	Plano, Allied Broadcast Equip.	214-423-8667
TX	Plano, Broadcast Sys.	214-867-8775
TX	San Antonio, Video Sys.	512-824-2311
UT	Salt Lake City, R I A Corp.	801-486-8822
UT	Salt Lake City, Skaggs Telecom Svc.	801-539-1420
UT	Salt Lake City, Skaggs Video Sls.	801-539-1420
VA	Richmond, Professional Prods.	804-794-2585
VA	Virginia Beach, Midwest Corp.	804-464-6256
VA	Woodbridge, Broadcast Sys.	703-494-4998
WA	Federal Way, Allied Broadcast Equip.	206-927-4337
WV	Charleston, Midwest Corp. Corporate H/Q	304-343-8874
WV	Nitro/Charleston, Midwest Corp.	304-722-2921

RUSH/HOUSTON, INC., 600 Kealrick, Ste C-40, Houston, TX 77060, Tel: 713-682-5151; *Sls. Mgr.:* Fred Murphy

RUSSELL INDS., 3000 Lawson Blvd., Oceanside, NY 11572, Tel: 516-536-5000; Empl.: 20; *Sls. Mgr.:* H. Russell

RUTHERFORD RESCH. PRODS., Box 249, Rutherford, NJ 07070, Tel: 201-933-2091; Empl.: 4; *Sls. Mgr.:* Dr. A. Blanck; *Dist. Mgr.:* Dr. A. Blanck

RVS ELECTRONICS, INC., 40 North St., Middletown, NY 10940, Tel: 914-342-3199, Telex: 820778; Empl.: 15

Local Sales Offices & Reps

CA	San Diego, Mesa Engrg. (Rep)	619-268-3500
NY	Middletown, RVS Elctrns., Inc.	914-342-3199

Local Distributors

AZ	Phoenix, Jensen Tools	602-968-6241
MA	Bedford, Continental Resources	617-275-0850
NJ	Northvale, Glasgal Comms.	201-768-8082
NY	Pleasantville, Electronic Tool	914-769-8070
PA	Blue Bell, W.J. Wisely Assocs.	215-275-0658

RYAN INTL. CORP., 4800 Evanswood Dr., Columbus, OH 43229, Tel: 614-885-3303; Empl.: 30 **D•1303**

RYE INDS., INC., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543, Tel: 914-698-0080; Empl.: 50

SABRE COMMS. CORP., 117 Main St., Soiux City, IA 51102, Tel: 712-258-6690; FSC No.: 60348; *Sls. Mgr.:* Bailey Aalfs; *Dist. Mgr.:* Richard Krone

SABRITEC, 16631 Noyes Ave., Irvine, CA 92714, Tel: 714-549-7350, Telex: 678401; *Sls. Mgr.:* M. J. Bennett

SAFEWAY PRODUCTS, 440 Middlefield St., Middletown, CT 06457, Tel: 203-346-6601, TWX: 710-428-7225; Empl.: 241

SAFT AMERICA INC., Box 1886, Valdosta, GA 31601, Tel: 912-247-2331, Telex: 547620, TWX: 810-786-5866

SAFT AMERICA INC., Advanced Battery Sys. Div., 107 Beaver Ct., Cockeysville, MD 21030, Tel: 301-666-3200

SAFT AMERICA, INC., Elctrns. Sys. Div., 2414 W. 14th St., Tempe, AZ 85281, Tel: 602-894-6864

SAFT AMERICA, INC., Portable Battery Division, 711 Industrial Blvd., Valdosta, GA 31601, Tel: 912-247-2331, Telex: 547-620; Empl.: 1300; *Sls. Mgr.:* R. Bartmes **D•1412, 1432-1437**

Local Sales Offices & Reps

CA	San Francisco	415-462-6868
CA	Woodland Hills	818-884-6151
CO	Denver	303-740-7781
FL	Orlando	305-282-2245
IL	Chicago	815-455-5344
MA	Quincy	617-773-7980
MN	Minneapolis	612-770-0082
NY	New York City	516-249-3777
NC	Winston-Salem	919-765-6690
OH	Columbus	216-861-1877

PA	Philadelphia	215-831-9520
TX	Dallas	214-436-0757
VT	Rutland	802-773-8748

Local Distributors

AZ	Scottsdale, Electro Mktg.	602-991-0110
CA	Chatsworth, Mill Comm. Distrs., Inc.	818-998-3111
CA	Mountain View, Energy Sls.	415-969-0800
CO	Englewood, Industrial Elctrns.	303-694-9444
FL	Hialeah, Pro Battery	305-944-8800
MA	Billerica, A. W. Mayer Co., Inc.	800-225-6600
MI	Livonia, R. S. Elctrns.	313-525-1155
MN	Minneapolis, D. C. Battery Prods. Inc,	612-721-8547
MO	Maryland Heights, Ensco Distrb. Corp.	314-423-3992
NJ	Clifton, Engineered Assemblies, Inc.	201-340-0600
NY	Deer Park, TWR Tech., Inc.	516-242-4800
NC	Winston-Salem, Kirkman Elctrns.	800-334-8688, 800-672-0109
PA	Bensalem, Avex Elctrns. Corp.	800-345-1295
PA	Philadelphia, Shap Elctrns.	800-523-5248
TN	Mt. Juliet, Batteries Unlimited	617-754-8179
TX	Austin, Kent Elctrns.	512-478-8989
TX	Houston, Kent Elctrns.	713-780-7770
TX	Richardson, Kent Elctrns.	214-669-2600
TX	San Antonio, Kent Elctrns.	512-534-4848
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VA	Falls Church, Perrott Engrg. Labs, Inc.	703-532-0700
WA	Redmond, Energy Sls.	206-883-2343

SAGE LABORATORIES, INC., 3 Huron Dr., Natick, MA 01778, Tel: 617-653-0844, TWX: 710-346-0390; FSC No.: 07180; *Sls. Mgr.:* Tony Cieri

SAI TECHNLG. CO., Science Applications Inc., 4060 Sorrento Valley Blvd., San Diego, CA 92121, Tel: 619-452-9150, TWX: 756769; FSC No.: 54779; Empl.: 300

SAMARIUS, INC., 300 Seymour Ave., P.O. Box 377, Derby, CT 06418, Tel: 203-735-7405, TWX: 710-451-2495; FSC No.: 18065; Empl.: 90 .... **A•2035**

SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150, Tel: 812-944-6733, TWX: 810-540-4095; FSC No.: 55322; Empl.: 50; *Sls. Mgr.:* B. Shine; *Dist. Mgr.:* C. Roll

S & EI MFG., Box 832, Northridge, CA 91324, Tel: 818-349-4111, TWX: 910-493-1252; FSC No.: 24152; Empl.: 85

SANDERS ASSOCS., INC., DEFENSE, 95 Canal St., Nashua, NH 03061, Tel: 603-885-3833

SANDERS ASSOCS., INC., Electromagnetic, EMC Dept., 95 Canal St., Nashua, NH 03061, Tel: 603-885-3602; *Sls. Mgr.:* (EMC) R. Despathy

Local Sales Offices & Reps

MA	Scituate, New Eng. Area Reps.	617-545-6327
NJ	Princeton, Murtronic Assocs.	609-394-3737
NJ	Teaneck, Budd-Tronics Sls.	201-837-9057
NY	Guilderland, Nu-Tekeenex Mktg.	518-355-1829

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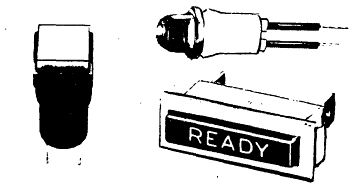

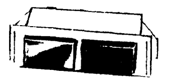

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CA	Mountain View, Westmark Assocs.	415-969-1700
CA	San Diego, CK Assocs.	619-279-0420
CO	Denver, Quorum 3 Sls. Grp.	303-696-8480
FL	Clearwater Beach, Perrott Assocs., Inc.	813-443-5214,813-443-5414
FL	Orlando, Perrott Assocs., Inc.	305-298-7748
FL	Sunrise, Perrott Assocs., Inc.	305-792-2211
GA	Norcross, Mountain Electro Prods., Inc.	404-448-5594
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IA	Marion, MSB Assocs., Inc.	319-377-6261
KS	Shawnee Mission, MSB Assocs., Inc.	913-432-2131
MA	Westwood, Mass Tech Sls.	617-329-8820
MI	Warren, DEM Elctrn. Sls.	313-575-9444
MN	Minneapolis, Components Grp. Corp.	612-374-1250
MO	St. Charles, MSB Assocs., Inc.	314-946-5577
NJ	Leonia, Peter E. Schmitt Co., Inc.	201-944-2806
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NY	Cazenovia, S. T. Woolard, Inc.	315-655-8145
NY	Endwell, Reagan Compar, Inc.	607-723-8743
OH	Rocky River, John Hill	216-331-5222
OR	Beaverton, LD Elctrns.	503-649-8556,503-649-6177
PA	Springhouse, P. W. C.	215-643-2550
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TX	Seagoville, Delta Comps.	214-287-6333
UT	Salt Lake City, Quorum 3 Sls. Grp.	801-943-9227
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VA	Forest, Beacon North	804-239-8486

WA	Snohomish, LD Elctrns.	206-568-0511
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PR	Playa Ponce, Ditributronics, Inc.	943-395-9311

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AZ	Tempe, Circuit Specialists, Inc.	602-966-2878
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CA	Chatsworth, Diplomat Elctrns.	213-700-8700
CA	Chatsworth, Integrated Elcrns., Inc./JACO	213-998-2200
CA	Chatsworth, Shelly Elctrns., Inc.	213-998-3333
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Garden Grove, Hi Rel Distr. Sls., Inc.	213-594-9571
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Kelex, Inc.	714-863-1230
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Diplomat Elctrns.	619-292-5693
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CA	Santa Clara, Pyramid Elctrns.	408-727-9810
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CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Van Nuys, Electronic Expediters	213-781-1910
CO	Denver, Ragon-Elctrns. Parts Co.	303-744-1992
CO	Englewood, Diplomat Elctrns.	303-740-8300
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CT	Norwalk, Park Distrs.	203-853-2011,212-931-1680
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FL	Miami, Electronic Equip. Co., Inc.	305-871-3500
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CA	Irvine, Bestronics, Inc.	714-261-7233
CA	Southern California, Bestronics, Inc.	213-704-5616
CA	Woodland Hills, Bestronics, Inc.	213-704-5616
CO	Denver, Lindberg Co.	303-758-9033
GA	Marietta, Rick Burns Assocs.	404-951-1181
IL	Elk Grove Vlg., John G. Twist Co.	312-593-0200
IN	South Bend, Schillinger Assocs., Inc.	219-291-6258
KS	Overland Park, EPI, Inc.	314-962-1411
MN	Bloomington, John G. Twist Co.	612-835-2120
MN	Bloomington, The John G. Twist Co.	612-835-2120
MO	St. Louis, EPI, Inc.	314-962-1411
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	Englewood, Harold Gray Assocs.	201-894-0894
NM	Albuquerque, Lindberg Co.	505-881-1006
NC	Raleigh, Rick Burns Assocs.	919-876-2224
OH	Dayton, J. C. Hofstetter	513-296-1010
OH	Medina, J. C. Hofstetter	216-241-4880
TX	Austin, Logic 1 Sls.	512-459-1297
TX	Houston, Logic 1 Sls.	713-462-0641
TX	Richardson, Logic 1 Sls.	214-234-3375
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CA	Manhattan Beach, Prime Electro Prods.	213-379-3642
CA	San Diego, Anthem Elctrns.	619-279-5200
CA	San Diego, Deco Elctrns.	619-693-1595
CA	San Jose, Anthem Elctrns.	408-946-8000
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NH	Plainstow, Coakley, Boyd & Abbett	617-444-5470
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TX	Austin, Active Comp. Technlg.	512-452-5254
TX	Houston, Active Comp. Technlg.	713-496-4000
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CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Van Nuys, R-L Assocs.	213-782-7826
FL	Maitland, D. J. Ellis & Assocs.	305-645-1101
GA	Atlanta, L & D	404-455-3483
IL	Palatine, R-Tek	991-222-1830
IN	Fort Wayne, R-Tek	219-432-8783
KS	Overland Park, Barnes-Midwest Sls.	913-341-9317
MD	Burtonsville, Eastern Instr. Corp.	301-384-8500
MN	Chanhassen, Barnes Sls. Assocs.	612-934-2907
NH	Amherst, Callahan & Tremblay, Inc.	603-883-9000
NJ	East Windsor, Micro-Lambda	609-443-3113
NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, Phase 4 Technical Rep., Inc.	516-482-1790
NY	Manlius, Quality Comps.	315-682-8885
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NC	Raleigh, L & D	919-876-5301
TX	Richardson, Vector Sls.	214-234-4291

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CO	Denver, Tele-Electric Sls., Ltd.	303-969-9239
CT	Guilford, Phil Orzell Assocs.	203-453-6488
FL	Tampa, Griffin & Assocs. Elctrn. Sls., Inc.	813-887-1945
GA	Marietta, Communication Mktg.	404-424-9097
IN	Angola, Waid Assocs.	219-833-3523
MA	Milford, Jonel Sales Assocs.	617-478-4650
MN	Burnsville, Strong & Assocs.	612-890-3168
MN	Maple Grove, R. C. Sls.	612-425-5543
MO	Kansas City, Ron Forristal	816-358-6771
NY	Mohegan Lake, Travano & De Palma Assocs.	914-245-5269, 914-968-1084
NC	Oxford, Winston Elctrn. Sls. Assocs.	919-693-1561
OH	Cleveland, Hank Miller Sls. Assocs.	216-329-3900
PA	Collegeville, Steve Linton	215-489-9473
TN	Knoxville, John Dickens	615-947-8068
TX	Corwley, David Tuggle	817-294-0850
VA	Arlington, Howard Golen Paul & Assocs.	703-525-5898

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CA	Montebello, Atlas Wire & Cable	213-723-2401
CT	Manchester, Inventory Mgt. Svs.	203-649-4415
CT	Meriden, New England Insulated Wire	203-204-8927
GA	Atlanta, Atlanta Cable Sls.	404-448-6311
MS	Hattiesburg, Wright Elctrn.	601-545-2545
NY	Brooklyn, Ceco Comm.	212-646-1617
NC	Greenville, Pair Elctrns.	919-756-8007
PA	Broomwall, Omni Cable	215-544-7766
SC	Columbia, Hesco	803-254-4575
VA	Arlington, Arlington Elctrn.	703-524-2412
VA	Leesburg, Elctrn. Wire & Cable	703-777-3551

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SCHAEVITZ ENGRG., U.S. 130, Union Ave., Pennsauken, NJ 08110, Tel: 609-662-8000, TWX: 710-892-0714; FSC No.: 93190; Empl.: 325; *Sls. Mgr.:* F. R. Pisaro

SCHAFFNER EMC, INC., 825 Lehigh Ave., Union, NJ 07083, Tel: 201-851-0644, Telex: 685-3444; FSC No.: 201-467-1330; *Sls. Mgr.:* Thomas Pate; *Dist. Mgr.:* Tom Morrone

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CA	San Jose, Cypress Elctrns.	408-945-8400
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NJ	Palmyra, Marlac Elctrns., Inc.	609-786-1991
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NC	Raleigh, Tingen Tech. Sls., Inc.	919-781-1100
TX	Arlington, Comptech Sls., Inc.	817-265-6007
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Local Distributors

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MA	Hopkington, Interface Elctrns., Inc.	617-435-6858

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IL	Elk Grove Village, Loren F. Green Assocs./Cen.	312-593-0282
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MN	Minneapolis, Loren F. Green Assocs. of Minn.	612-571-6666
OH	Centerville, Micro Sls. Corp.	513-433-8171
OH	N. Olmstead, Micro Sls. Corp.	216-734-3080
OR	Portland, Harry Levinson Co.	503-245-1902
WA	Seattle, Harry Levinson Co.	206-382-1300

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CT	Higganum, Intersell	203-528-5357
FL	Orlando, Scientific Dvcs. SE	305-841-8180
MA	Burlington, Intersell	617-273-3844
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SCHOTT CORP., 1000 Parkers Lk. Rd., Wayzata, MN 55391, Tel: 612-475-1173, TWX: 910-576-2964; FSC No.: 80023; Empl.: 325; *Sls. Mgr.:* A. Schmitt

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IL	Des Plaines, Electro-Comp. Sls.	312-577-3788
MA	Needham, Hatch Assocs.	617-444-3310

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SCHRACK NORTH AMERICA, INC.

SCHRACK NORTH AMERICA CORP., 3 Westchester Plaza, Elmsford, NY 10533, Tel: 914-592-1305, Telex: 646149; Empl.: 4; *Sls. Mgr.:* Zach Zager .... **B•1444-1446**

Local Sales Offices & Reps

AL	Athens, Effective Mktg. Force	205-233-2947
CA	Livemore, O'Rielly Elctrn. Sls.	415-443-5343
CA	Panorama City, Viking Sls.	818-788-5501
CO	Boulder, Stratford Grp.	303-530-3194
CT	Manchester, Vin-Tech	203-646-3007
FL	Tampa, J-R Controls, Inc.	813-961-9478
GA	Atlanta, Effective Mktg. Force	404-948-6023
IL	Barrington, Richard Fisk Mktg.	312-381-0653
IN	Indianapolis, C.C. Elctrns.	317-255-1508
KS	Shawnee Mission, Microtronics (K&M)	913-262-1444
MA	Framingham, Bengal Assocs.	617-877-2639
MA	Randolph, Bengal Assocs.	617-961-4120
MI	Pontiac, C.C. Elctrns., Inc.	313-338-7400
MN	Roseville, TLC Controls	612-483-2226
NJ	Paramus, Jarms Elctrn.	201-265-2032
NY	Melville, Jarms Elctrn.	516-752-0404
OH	Gallion, C.C. Elctrns., Inc.	419-468-3253
TX	Irving, Kite Elctrns. Sls. Co., Inc.	214-438-9336
OR	Portland, Pacific Elec. Sls.	503-235-3456
NY	Syracuse, PI1 Tronics	315-455-7346

Local Distributors

AK	Anchorage, Electronics Supp. Ctr.	907-274-0603
AZ	Phoenix, Capitol Elctrns.	602-252-5897
CA	Santa Monica, Distributor Specialist	213-393-9666
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Tustin, Caltronics Sls.	714-730-0350
CA	Van Nuys, Hurley Elctrns.	818-781-8410
CT	Danbury, Green Elec.	203-748-5644
CT	New Haven, Hatry Elctrns.	203-755-1181
CT	Norwalk, Delta Elctrns.	203-847-7285
CT	Norwalk, Park Distr.	203-853-2010
FL	Lakeland, AA Elec.	813-665-6941
FL	Lakeland, Switch Controls	813-644-7564
FL	Miami, B & R Elctrns.	305-255-4510
FL	Oakland Park, Zelgon, Inc.	305-565-2555
FL	Orlando, Sun Elctrns.	305-841-4650
FL	Tampa, Leader Elctrns.	813-870-3315
FL	W. Palm Beach, Dolphin Elec.	305-659-7166
HI	Honolulu, Industrial Elctrns.	808-533-6095
IL	Arlington Hgts., Lodan Elctrns.	800-323-5207
IN	Bloomington, Hoosier Elctrns.	812-332-9435
IN	Bloomington, Stansifer Radio	812-336-6339
IN	Indianapolis, Mar Elctrns.	317-875-4510
IA	Cedar Rapids, Iowa Radio Supp.	319-393-4510
KS	Salina, Electronics, Inc.	913-827-7377
KY	Mayfield, Pickens Supp.	502-247-6041
MD	Beltsville, PSI	301-937-4960
MD	Gaithersburg, Axis Elctrns.	301-840-9640
MD	Salisbury, Artcraft	301-749-6151
MA	Norwood, Emtel Elctrns.	617-769-9500
MA	Pittsfield, Cash & Carry Elec. Supp.	413-499-9500
MA	Waltham, Standard Elec. Supp.	617-890-1050
MA	Wilmington, Aved Elctrns.	617-245-7406
MA	Woburn, Abbott Elctrns.	617-935-2040
MI	Flint, Advance Whsle. Distr.	313-238-5611
MI	Troy, Empire Elctrns.	313-585-8130
MN	New Brighton, Chris Elctrns.	612-631-2647
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Brick, Electronic Entprs.	212-442-1046
NJ	E. Rutherford, AA Elec.	800-228-0131
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Plainfield, Propac	201-755-4940
NY	Bohemia, Omntec Mfg., Inc.	516-567-8685
NY	Buffalo, Summit Elctrns.	716-334-8110
NY	Commack, Choice Comps.	516-543-6060
NY	Elmsford, Ancar Elec.	914-592-7100
NY	Mt. Vernon, Janesway Elctrns.	914-699-6710
NY	Nanuet, Andrea Elec.	914-623-3447
NY	New Rochelle, Derf Elctrns.	914-235-4600
NY	Port Washington, Bradtronics	201-641-6118
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Security	315-336-0148
NY	Sodus, AED	315-483-6561
NY	Stony Brook, Bomark Elctrns.	516-689-8999
NY	W. Babylon, Septronics	516-643-4990
NY	Wheatfield, EEC	716-693-3970
NY	White Plains, Benfield Pro Shop	914-948-6650
NY	Yonkers, Kintronics	914-968-7736
NC	Knightdale, Systems Elctrns.	919-266-9908
NC	Pineville, Control Design Supps.	702-588-4410
OH	Columbus, Thompson Elec.	614-228-6191
OH	Dayton, Carver Supp.	513-461-9673
OH	Dayton, Industrial Sls. & Svc.	513-439-4131
OH	Zanesville, Thompson Radio Supp.	614-452-8473
OR	Clackamus, Amfac Elec.	503-657-3020
OR	Medford, Medford Elec. Whlsr.	503-773-6656
OR	Ontario, Interstate Elctrn. Corp.	503-889-9679
OR	Pendleton, Round Up Elctrns.	503-276-3152
OR	Portland, O-Four Controls	503-231-8058
PA	Bloomsburg, E. R. Beers	717-784-1600
PA	Philadelphia, Jan Indl.	215-922-1321
PA	Redding, R.A.M. Motor Control	215-376-7102
TX	Brownsville, Carden Inds.	512-541-3660
TX	Dallas, Rawlinson Elec. Supp.	214-741-1721
TX	Ft. Worth, Industrial Equip.	817-831-6151
TX	Garland, Industrial Equip.	214-271-5494
TX	Houston, Commercial Equip.	713-237-8682
TX	Houston, Ralph's Elctrns.	713-748-4902
TX	Hurst, Industrial Equip.	817-595-1814
UT	Provo, Central Utah Elctrns.	801-373-7522
UT	Provo, Omega Elctrns.	801-375-4664
UT	Salt Lake City, Ballard Supp.	801-972-2430
VA	Norfolk, Radio Parts Distr. Co.	804-461-8095
WA	Port Angeles, Alphase Elec.	206-452-9705
WA	Spokane, Consolidated Elctrl. Distr.	509-535-8891
WA	Tacoma, Amfac Elec.	206-383-4303

Schroff®
19" Systems for Electronics Packaging

SCHROFF INC., 170 Commerce Dr., Warwick, RI 02886, Tel: 401-732-3770, Telex: 952175; *Sls. Mgr.:* Thomas Kennedy .... **C•1080**

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe Engr.	602-949-9333
CA	Campbell, Luscombe Engr.	408-370-2020
CA	Pasadena, Luscombe Engr.	213-684-2000
CA	San Diego, Luscombe Engr.	619-295-4300
FL	Pompano Beach, EMA	305-943-3732
FL	Winter Park, EMA	305-671-6800
GA	Atlanta, CRS Elctrns.	404-396-3720
IL	Berkeley, Cadre Tech. Rep.	312-449-3900
MI	Troy, C. B. Jensen	313-643-0506
MN	Minneapolis, D. A. Case Assoc.	612-869-3700
MO	Brigeton, DY-Tronix	314-291-4777
NH	Salem, Sales Engr.	603-893-5521
NJ	Englewood, Sprung-Nussbaum	201-569-5666
NY	Central Sqare, Bastian Sls.	315-437-1482
NY	Fairport, Bastian Sls.	716-223-0237
NY	Port Crane, Bastian Sls. Agency Inc.	607-722-3421
OH	Aurora, EMA	216-562-6104
OH	Centerville, EMA	513-433-2800
PA	Huntington Valley, Omega Elctrn. Sls.	215-947-4135
TX	Austin, CMZ	512-255-1663
TX	Garland, CMZ	214-681-1414
TX	Houston, CMZ	713-771-1500

SCHROFF UK LTD., Maylands Ave., Hemel Hempstead, Herts, England HP2 4SG, Tel: 0442-40471/6, Telex: 825658; *Sls. Mgr.:* Mr. B-U Kaupisch

SCHULZ CONTROLS, INC., P.O. Box 9555, New Haven, CT 06511, Tel: 203-562-2555; Empl.: 35; *Sls. Mgr.:* Paula Calabrese; *Dist. Mgr.:* Paula Calabrese

SCHURTER, INC., 1016 Clegg Ct., Petaluma, CA 94952, Tel: 707-778-6311, Telex: 176-084; FSC No.: 61935; *Sls. Mgr.:* Bruno H. Schurter

Local Sales Offices & Reps

CA	Fullerton, Gru Assocs.	714-738-0903
CA	San Jose, Ruppert Sls. & Engrg.	408-998-8717
CO	Lakewood, Cristee-Meade Co.	303-232-0287
FL	Ft. Lauderdale, IMR, Inc.	305-741-2449
GA	Lithia Springs, Effective Mktg. Force	404-948-6023
IL	Arlington Hgts., MJ Petersen & Assoc., Ltd.	312-577-8200
IN	Noblesville, W. G. Brouillette & Assocs., Inc.	317-845-8157
MN	Minnetonka, Frank Anthony Mktg.	612-934-0773
MS	Jackson, Doby Assocs.	601-981-1138
NH	Nashua, Bell Controls	603-882-6984
NJ	Ho-Ho-Kus, D. J. Fisher Co.	201-652-0090
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NY	Fairport, TAC Sls, Inc.	716-425-1070
OH	Beachwood, Electronic Salesmasters	216-831-9555
OR	Portland, Dussault & Associates Inc.	503-641-8780
TX	Austin, OM Assocs., Inc.	512-452-1838
TX	Dallas, OM Assocs., Inc.	214-241-3876
TX	Houston, OM Assocs., Inc.	713-789-4426
WA	Seattle, Dussault & Associates Inc.	206-527-5454

Local Distributors

CA	Fremont, Fusecom, Inc.	415-657-FUSE
CA	San Jose, Dansco Comp. Sls., Inc.	408-288-9740
CA	San Jose, Quail Elctrns.	408-995-0812
IL	Elk Grove Village, Nu-Way Elctrn. Distrbs. Inc.	312-437-7120
MD	Rockville, FIC Corp.	800-638-6594
OH	Strongsville, Fuse World	216-238-1330
TX	Dallas, Fuses, Inc.	214-341-6407
WA	Redmond, Fusecom, Inc.	206-881-2442
Can	Markham, Ont., Lenbrook Elctrns.	416-777-7722

SCHWEITZER, DIV., Kimberly Clark Corp., Lee, MA 01238, Tel: 413-243-1000, TWX: 413-243-2121; Empl.: 750

SCIENCE ACCESSORIES CORP., 970 Kings Hwy. W., Southport, CT 06490, Tel: 203-255-1526, Telex: 964300 SAC SPRT; *Sls. Mgr.:* H. A. Cleveland

SCIENCE/ELCTRNS., 1224-26 McCook Ave., Dayton, OH 45404, Tel: 513-228-6011, Telex: 288-004; Empl.: 25; *Sls. Mgr.:* E. E. Pohl; *Dist. Mgr.:* J. Tanksley

SCIENTECH, INC., 5649 Arapahoe Ave., Boulder, CO 80303, Tel: 303-444-1361, 800-525-0522, TWX: 910-940-0994; Empl.: 57

SCIENTIFIC-ATLANTA, INC., P.O. Box 105600, Atlanta, GA 30348, Tel: 404-441-4000, Telex: 0542898, TWX: 810-766-4912

SPECTRAL DYNAMICS, Scientific-Atlanta, Inc., 4255 Ruffin Rd., San Diego, CA 92123-0575, Tel: 619-268-7100, TWX: 910-335-2022; Empl.: 370; *Sls. Mgr.:* Ram Waney

SCIENTIFIC-ATLANTA, INC., See Optima Enclosures

SCIENTIFIC COLUMBUS, INC., Esterline Corp., 1900 Arlingate La., Columbus, OH 43228, Tel: 614-274-7160, Telex: 245-426; Empl.: 210; *Sls. Mgr.:* Don Yore; *Dist. Mgr.:* Don Yore

SCIENTIFIC COMMUNICATIONS, INC., 3425 Kingsley Rd., Garland, TX 75041, Tel: 214-271-3685, TWX: 910-860-5172; *Sls. Mgr.:* Donald G. Luiken

SCIENTIFIC RADIATION CORP., 1201 San Antonio Rd., Mountain View, CA 94043, Tel: 415-965-0910, Telex: 345506; *Dist. Mgr.:* James A. Lazzara

SCIENTIFIC RESEARCH CORP., See TRAK Microwave Corp.

SCIENTIFIC TECHNLG., 1201 San Antonio Rd., Mountain View, CA 94043, Tel: CA 415-965-0910, 800-221-7060, Telex: 34-5506; Empl.: 50

SCITEQ ELECTRONICS, INC., 7380 Clairemont Mesa Blvd., San Diego, CA 92111, Tel: 619-292-0500, Telex: 882008; *Sls. Mgr.:* Henry Eisenson; *Dist. Mgr.:* David Norman

SCOPE, INC., 1860 Michael Faraday Dr., Reston, VA 22090, Tel: 703-471-5600, TWX: 710-883-1178; Empl.: 225; *Sls. Mgr.:* David Bess

SCOTT AVIATION, Figgie International Inc., 123 East Montecito Ave., Sierra Madre, CA 91024, Tel: 213-355-4281

SCREEN DATA CORP., 80 S. Jefferson Rd., Whippany, NJ 07981, Tel: 201-887-7713, 800-248-1212, Telex: 710-387-209; *Sls. Mgr.:* Michael A. Kling

SCREENPRINT/DOW, 271 Ballardvale St., Wilmington, MA 01887, Tel: 617-935-6395, Telex: 948227; *Sls. Mgr.:* W. F. Donovan Jr.

SEABOARD ELCTRNS., 70 Church St., New Rochelle, NY 10805, Tel: 914-235-8073, Telex: 646289; Empl.: 78; *Sls. Mgr.:* Dr. Richard Ader; *Dist. Mgr.:* Dr. R. Ader

SEACOR, INC., 123 Woodland Ave, Westwood, NJ 07675, Tel: 201-666-5600, Telex: 135-354; Empl.: 45

SEA DATA CORP., One Bridge St., Newton, MA 02158, Tel: 617-244-3216, Telex: 951107; Empl.: 40; *Sls. Mgr.:* W. Hill

SEALECTRO, 225 Hoyt St., Mamaroneck, NY 10543, Tel: 914-698-5600; Empl.: 1600; *Sls. Mgr.:* T. Lynn; *Dist. Mgr.:* N. Buonanno

SEALTRON, INC., 9705 Reading Road, Cincinnati, OH 45215, Tel: 513-733-8400, Telex: 21-4609; Empl.: 120; *Sls. Mgr.:* James Dawson

SEASTROM MFG. CO., INC., 701 Sonora Ave., Glendale, CA 91201, Tel: 213-245-9121, TWX: 910-497-2271; FSC No.: 86928; Empl.: 75

SEATTLE COMPUTER PRODUCTS, INC., 1114 Ind. Dr., Seattle, WA 98188, Tel: 206-575-1830, 800-426-8936; *Sls. Mgr.:* Max Gerdts

SECTOR MOTOR IND. INC., 999 Grand Blvd., Deer Park, NY 11729, Tel: 516-242-2300, TWX: 510-227-6075; *Sls. Mgr.:* Victor Nelson

secoinsa

digi-power

SECOINSA/DIGI POWER, 686 E. Gish Rd., San Jose, CA 95112, Tel: 408-288-5600, Telex: 910-338-0579; Empl.: 90; *Sls. Mgr.:* Ron Murphy; *Dist. Mgr.:* Ron Murphy .... **D•1830-1832**

Local Sales Offices & Reps

CA	Inglewood, Basic Sys. Corp.	213-673-4300
KS	Shawnee Mission, Panatek Tech. Sls.	913-362-3349
MD	Rockville, J-4 Computer Sys.	301-424-0700
MN	Spring Lake Park, Holmgren Assocs.	612-786-7641
NJ	Boonton, Winter Assocs.	201-334-3434
OK	Tulsa, Genzal Sls. & Assocs.	918-622-7744
OR	Portland, Power Sources Unlimited, Office 2	503-292-0918
TX	Fort Worth, El Tech Sls., Inc.	817-268-2896
VA	Front Royal, Eltron Sls., Ltd.	703-635-7201
WA	Lynwood, Power Sources Unlimited, Ofice 1	206-743-6641

SECURITY PLASTICS, INC., 14427 N.W. 60th Ave., Miami Lakes, FL 33014, Tel: 305-823-5440, Telex: 803303; Empl.: 400; *Sls. Mgr.:* J. Licht

SEEQ TECHNLG., 1849 Fortune Dr., San Jose, CA 95131, Tel: 408-942-1990, TWX: 9103382313; Empl.: 650; *Sls. Mgr.:* J. Daniel McCranie; *Dist. Mgr.:* J. Daniel McCranie

SEIKO INSTRUMENTS

SEIKO INSTRS. U.S.A., INC., 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-530-8777, TWX: 910-347-7307; *Sls. Mgr.:* John Hawkins, Lee Guio; *Dist. Mgr.:* Lee Guio, John Hawkins .... **A•1433; B•1092; D•1071**

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech	205-533-2100
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
AZ	Tucson, Fred Board Assocs.	602-299-1508
CA	Los Alamitos, Santana Sls.	714-827-9100
CA	San Diego, CK Assocs.	619-279-0420
CA	San Jose, Exis, Inc.	408-287-6680
CO	Golden, Candal, Inc.	303-233-0155
FL	Plantation, Gallagher & Assocs.	305-473-2101
GA	Norcross, Electro-Mech	404-447-6478
IL	Elk Grove Village, The John G. Twist Co., Inc.	312-593-0200
IN	Greenwood, Valentine & Assocs.	317-888-2260
IN	South Bend, Valentine & Assocs.	219-288-7070
IA	Cedar Rapids, Tech. Elctrns.	319-366-5443
KS	Overland Park, Kebco	913-541-8431
KS	Wichita, Kebco	316-733-1301
MD	Annapolis, Vince Iorio Assocs.	301-465-8150
MA	Brockton, Forsberg Sls.	617-522-6300
MI	Grosse Pointe Pk., Greiner Assoc.	313-499-0188
MN	Bloomington, Quantum Sls.	612-884-4700
MO	Maryland Hgts., Kebco	314-576-4111
NJ	Manville, DynoRep, Inc.	201-685-0135
NJ	Mt. Laurel, Comtek, Inc.	609-235-8505
NM	Albuquerque, Fred Board Assocs.	505-293-1399
NY	Kingston, R. P. Kennedy Co.	914-876-2700
NY	Rochester, R. P. Kennedy Co.	716-271-1910
NY	Rochester, R. P. Kennedy Co.	716-271-6322
NC	Raleigh, Electo-Mech	919-851-8165
OH	Wadsworth, Imtech	216-239-2202
OR	Tigard, Components West	503-684-1671
TN	Jonesboro, Electro-Mech	615-753-2964
TX	Austin, TL Mktg.	512-453-4586
TX	Dallas, TL Mktg.	214-357-1752
UT	Salt Lake City, Aspen Sls., Inc.	801-467-2401
WA	Liberty Lake, Components West	509-255-6224
WA	Redmond, Components West	206-885-5880
WI	Brookfield, John G. Twist Co., Inc.	414-782-2670
Can	Pointe Claire, Que., Tech-Trek, Ltd.	514-697-3385
Can	Rexdale, Ont., Tech-Trek, Ltd.	416-674-1717
Can	Richmond, B.C., Tech-Trek, Ltd.	604-271-3149

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Phoenix, Sterling Elctrns.	602-268-2121
CA	San Jose, Eric Elctrns.	408-262-1111
CA	Santa Ana, Pacesetter Elctrns. USA	714-777-4711
CA	Sunnyvale, Pacesetter Elctrns. USA	408-734-5470
CA	Tustin, Added Value Elctrns.	714-730-5848
CO	Denver, Diplomat Elctrns.	303-422-9229
CO	Englewood, Sterling Elctrns.	303-796-7338
CT	Wallingford, Sterling Elctrns.	203-265-9535
IL	Elmhurst, Semi-Conductor Specialists	312-279-1000
IL	Northbrook, Classic Comps.	312-272-9650
IN	Indianapolis, Classic Comps.	317-872-4777
KS	Overland Park, Sterling Elctrns.	913-236-5589
LA	Metairie, Sterling Elctrns.	504-887-7610
MD	Middletown, Current Comps.	301-473-5333
MA	Norwood, Emtel	617-769-9500
MA	Waltham, Sterling Elctrns.	617-894-6200
MN	Bloomington, Semi-Conductor Specialities	612-854-8841
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NM	Albuquerque, Sterling Elctrns.	505-884-1905
OH	Cincinnati, Schuster	513-489-1400
OH	Cleveland, Schuster	216-425-8134
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Lake Oswego, Moore Elctrns.	503-684-3100
PA	Allentown, Lehigh Elctrns. Comps.	215-433-3045
TX	Austin, Sterling Elctrns.	512-836-1341
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Sterling Elctrns.	713-627-9800
UT	Salt Lake City, Diplomat Elctrns.	801-487-8131
VA	Richmond, Sterling Elctrns.	804-226-2190
VA	Sterling, Sterling Elctrns.	703-450-2373
WA	Bellevue, Moore Elctrns., Inc.	206-644-0101
WI	New Berlin, Classic Comps.	414-986-5300
Can	Downsview, Westburne Indl. Entprs.	416-635-2950
Can	Markman, Semad Div. DEW Elctrns.	416-475-8500
Can	Montreal, Semad Div. DEW Elctrns.	514-636-4614
Can	Ottawa, Semad Div. DEW Elctrns.	613-729-6145
Can	Vancouver, Semad Div. DEW Elctrns.	604-438-2515

SEIKO INSTRUMENTS U.S.A., INC., Robotics/Automation Div., 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-530-8777; *Sls. Mgr.:* John Dudley

SEKAI ELCTRNS. OF AMER., INC., 14700 E. Firestone Blvd., Suite 122, La Mirada, CA 90638, Tel: 714-670-1854, Telex: 685521; FSC No.: 8V398; Empl.: 4; *Sls. Mgr.:* Larry Klementowski

SELCO PRODUCTS CO., SEL Sales, Inc., 7580 Stage Rd., Buena Park, CA 90621, Tel: 714-521-8673, Telex: 65-5457; Empl.: 18; *Sls. Mgr.:* Bill Wilkinson; *Dist. Mgr.:* Ray McDowell

SELEC-KEY, Microdot, 302 Roma Jean Pkwy., Streamwood, IL 60103, Tel: 312-837-7970; *Sls. Mgr.:* Charles Stelzner

SEL-REX DIV., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110, Tel: 201-667-5200, Telex: 133-320, TWX: 710-989-1423; Empl.: 250; *Sls. Mgr.:* Larry Price

SEMCO, Rte. 6, No. Windham, CT 06226, Tel: 203-423-6316; *Sls. Mgr.:* Alan Giordano

SEMICOA, 333 McCormick Ave., Costa Mesa, CA 92626, Tel: 714-979-1900, Telex: 678-315, TWX: 910-595-1961; FSC No.: 34156; Empl.: 65; *Sls. Mgr.:* Mark Ellsberry

SEMICON, 10 North Ave., Burlington, MA 01803, Tel: 617-272-9015, TWX: 710-332-1919; Empl.: 550; *Sls. Mgr.:* Tom Le Blanc; *Dist. Mgr.:* L. Le Bow

SEMICONDUCTOR CIRCUITS, 49 Range Rd., Windham, NH 03087, Tel: 603-893-2330, TWX: 710-366-0505; Empl.: 300; *Sls. Mgr.:* J. Muckenhoupt; *Dist. Mgr.:* Marc Gauthier

SPM
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SEMICONDUCTOR PACKAGING MATLS. CO. INC., 431 Fayette Ave., Mamaroneck, NY 10543, Tel: 914-698-5353, TWX: 710-566-1103 .... **C•1097**

Local Sales Offices & Reps

AZ	Tempe, Spectrum Assoc., S.W.	602-966-1788
CA	Anaheim, California Tech Svcs.	714-630-8470
CA	Santa Clara, California Tech. Svcs.	408-496-1155
CA	Tarzana, California Tech. Svcs.	213-343-3131
CT	Southington, Libby Assocs.	203-747-5601
IL	Northfield, Imex, Ltd.	312-446-8934
PA	Franconia, Scharas Assocs.	215-368-2017
WA	Bellevue, Mars	206-747-3292

SEMICONDUCTOR TECHNLG., INC., 3131 S.E. Jay St., Stuart, FL 33497, Tel: 305-283-4500, TWX: 510-953-7511; Empl.: 45

SEMIKRON, INC., 11 Executive Dr., P.O. Box 66, Hudson, NH 03051, Tel: 603-883-8102, 1-800-258-1308, Telex: 6711011; FSC No.: 58687; Empl.: 45; *Sls. Mgr.:* Frank Haase; *Dist. Mgr.:* Bruce Sessler

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher	205-882-6050
AZ	Phoenix, Trembly Assocs.	602-967-2058
CA	Downey, Trimarco	213-861-8244
CA	Redwood City, Ault Assocs.	415-367-1710
CO	Denver, Trembly Assocs.	303-233-9544
FL	Oldsmar, Boggs & Assocs.	813-855-1812
GA	Atlanta, R. W. Mitscher	404-923-3239
IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
KS	Kansas City, Harris-Hanson Co.	816-763-6200
MI	Detroit, Favco	313-644-0173
MN	Eden Prairie, Bohlig & Assocs.	612-944-8404
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NV	Las Vegas, Trembly Assocs.	702-369-8700
NH	Amherst, Eva-Tec Mktg.	603-673-4830
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Albany, Lynn Assocs.	518-459-1239
NY	Buffalo, Lynn Assocs.	716-631-0054
NC	Raleigh, R. W. Mitscher	919-848-0941
OH	Hamilton, B & J Entprs.	513-863-1353
OR	Portland, Doran Sls. Assocs.	503-357-3333
PA	Pittsburgh, Lynn Assocs.	412-468-8811
TX	Richardson, Barry Sls.	214-234-0255
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Seattle, Doran Sls. Assocs.	206-885-1885

Local Distributors

FL	Hollywood, MRO Elctrn. Distrs.	305-966-4847
GA	Atlanta, Cleveland Elec. Co.	404-696-4550
MI	Detroit, Osborne Transformer Co.	313-368-4136
MN	New Brighton, Chris Elctrns. Distrs.	612-631-2647
NJ	Roselle, Lectron Inds.	201-245-5858
NC	Gastonia, JMT Elctrns. & Controls	704-867-4401
TX	Dallas, Wilkinson Bros. Co., Inc.	214-941-9963
TX	Houston, Industrial Drives Mtce.	713-681-6942
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Radar Elec. Co., Inc.	206-282-2511

SEMTECH, 652 Mitchell Rd., Newbury Park, CA 91320, Tel: 213-628-5392, TWX: 910-336-1264; FSC No.: 14099;Multiple; Empl.: 350; *Sls. Mgr.:* John Mitchell; *Dist. Mgr.:* Will Fiske

SEMTRONICS CORP., 310 Hwy 7 74 S, P.O. Box 2248, Peachtree City, GA 30269, Tel: 404-487-6681, Telex: 8107662244; Empl.: 20; *Sls. Mgr.:* Larry Fowler

SENCORE, 3200 Sencore Dr., Sioux Falls, SD 57107, Tel: 605-339-0100, TWX: 910-660-0300; Empl.: 250 .... **D•1399**

SENSITEK CORPORATION, See Biddle Instruments

Sensitive Research

SENSITIVE RESEARCH INSTRS., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590;16034A; Empl.: 35 .... **D•1304-1306**

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CO	Commerce City, Williams Assocs.	303-289-5647
DC	Washington, Whitcomb Assocs.	202-737-0763
IL	Lincolnwood, Saffro & Assocs.	312-677-9720
KS	Shawnee Mission, Comtel - Midwest	913-722-1030
MD	Baltimore, Whitcomb Assocs.	301-889-1245
MA	Lexington, Zieco	617-861-8300
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Louis, Comtel - Midwest	314-991-5363
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mount Vernon, Elctrl. Instr. Svc.	914-699-9717
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Dayton, Comtel Instrs. Co.	513-298-7573

OH	Hilliard, Comtel Instrs. Co.	614-876-8305
OK	Tulsa, Data Mktg. Assocs.	918-438-4911
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
UT	Salt Lake City, Williams Assocs.	801-532-7701
WI	Lake Mills, Saffro & Assocs.	414-648-2605

SENSOR CORP., Box 140, Scottdale, PA 15683, Tel: 412-887-4080; Empl.: 6

SENSOR ELECTRONICS, INC., 105 Fairway Terrace, Mt. Laurel, NJ 08054, Tel: 609-778-0850; Empl.: 7; *Sls. Mgr.:* J. M. Langberg; *Dist. Mgr.:* J. M. Langberg

SENSOR SCIENTIFIC, INC., 1275 Bloomfield Ave., Fairfield, NJ 07006, Tel: 201-227-7790; *Sls. Mgr.:* Bob Brinley

SENSOR SYSTEMS, INC., 8929 Fullbright Ave., Chatsworth, CA 91311, Tel: 818-341-5366, Telex: 69-1583; *Sls. Mgr.:* E. Schneider

SENSORTEK, INC., 154 Em Huron Ave., Clifton, NJ 07013, Tel: 201-779-5577, Telex: 238790; Empl.: 26

SENSOR TECHN., 21012 Lassen St., Chatsworth, CA 91311, Tel: 213-882-4100, TWX: 910-494-4776; Empl.: 350; *Sls. Mgr.:* Robert Bryden

SENSOTEC, INC., 1200 Chesapeake Ave., Columbus, OH 43212, Tel: 614-486-7723, TWX: 810-482-1188; FSC No.: 29927; *Sls. Mgr.:* Jack Feil

SENSYM, INC., 1255 Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-744-1500, Telex: 176376, TWX: 910-339-9625; *Sls. Mgr.:* Tom Johnson; *Dist. Mgr.:* Tom Johnson

SENTRY MFG., Crystal Park, Chickasha, OK 73018, Tel: 405-224-6780, 800-654-8850, TWX: 910-830-6425; Empl.: 150; *Sls. Mgr.:* R. Stephens

SENTRY SAFES, John D. Brush Co., Inc., 900 Linden Ave., Rochester, NY 14625, Tel: 716-381-4900, TWX: 510-253-6049; Empl.: 220; *Sls. Mgr.:* Ted Brush

SEQUENTIAL INFO. SYS., 249 N. Saw Mill River Rd., Elmsford, NY 10523, Tel: 914-592-5930, TWX: 710-567-1212; Empl.: 90; *Sls. Mgr.:* Murray E. Vinarub

Local Sales Offices & Reps

AL	Jasper, Smith Lake Automation	205-221-2492
CA	Campbell, Sedillo Co.	408-374-5220
CA	Huntington Beach, Wheatcroft Engrg.	714-964-4681
CO	Westminister, RMS Sls., Inc.	303-429-1111
FL	Melbourne, Reynolds Assocs.	305-259-7000
IL	Park Ridge, Mr. V. Kitty Mid-West Mgr.	312-698-5918
MD	Baltimore, Mid States	301-583-8252
MA	Bedford, Datasource, Inc.	617-275-8460
MI	Detroit, Automatic Controls	313-533-8890
MN	Minneapolis, Busch Elctrns.	612-835-2044
MO	St. Charles, Prod. Automation	314-441-6600
NM	Albuquerque, Vermillion Co.	505-883-3668
NY	Melville, Carnes Assocs.	516-694-1600
NY	Millbrook, Mr. R. DiMarso, East Sls. Mgr	914-677-9966
NY	Moravia, Electrotech Sys.	315-497-1598
OH	Cincinnati, Murray & Assocs., Inc. (ATR)	513-574-8500
OH	Cleveland, Automatic Controls	216-631-0333
PA	King of Prussia, Freedman & Malta	215-337-9211
TX	Richardson, Spectra Sls.	214-234-3600
VA	Springfield, Mid-States Mktg.	703-569-2700
WA	Medical Lake, Calvert Controls	509-224-3601
WI	Shorewood, Werking Indl. Sls.	414-964-2225
Can	Lachine, Que., Electrodesign	514-636-4838

SERCOMP CORP., 20721 Superior St., Chatsworth, CA 91311, Tel: 818-341-1680, TWX: 4932014; Empl.: 100; *Sls. Mgr.:* John Marthens; *Dist. Mgr.:* John Marthens

SERIAL LAB PRODS., INC., 162 Cook Lane, P.O. Box 766, Marlboro, MA 01752, Tel: 617-481-1684, Telex: 955318 Attn: SERIAL LAB; Empl.: 12; *Sls. Mgr.:* R. L. Wiedeman; *Dist. Mgr.:* D. Kreck

SERMETEL, 155 Limerick Rd., Limerick, PA 19468, Tel: 215-948-5100, Telex: 84-6335, TWX: 710-637-1263; Empl.: 177; *Sls. Mgr.:* Luke McLaughlin

SERVO-INSTRS. CORP., See Valley Electromagnetics

SERVOMETER CORP., 501 Little Falls Rd., Cedar Grove, NJ 07009, Tel: 201-785-4630, Telex: 384233; FSC No.: 18469; Empl.: 105; *Sls. Mgr.:* D. Walker

SERVO-TEK PRODS. CO., 1086 Goffle Rd., Hawthorne, NJ 07506, Tel: 201-427-3100, Telex: 130273; Empl.: 60; *Sls. Mgr.:* J. Duffy .... **B•1185**

SETRA SYSTEMS, INC., 45 Nagog Park, Acton, MA 01720, Tel: 617-263-1400, Telex: 948440; FSC No.: 53367; Empl.: 85; *Sls. Mgr.:* William R. Stern ... **B•1826**

Local Sales Offices & Reps

AL	Huntsville, Burnette Techno Metrics	205-533-9073
CA	Los Altos, Qcon, Inc.	415-941-5530
CA	Los Angeles, Dynasales Co.	213-268-1175
CO	Westminster, RMS Sls.	303-429-1111
FL	Orlando, Datarep	305-843-5224
GA	Atlanta, Craft Assocs.	404-256-0420
IL	Chicago, Data Elctrns.	312-283-0300
IN	Indianapolis, Data Elctrns.	317-359-5368
LA	Metairie, Slaton & Assocs., Inc.	504-455-3855
MA	Framingham, J. M. Lancaster Co.	617-875-8893
MI	Hazel Park, Tiby Co.	313-547-3550
MN	Plymouth, Data Elctrns.	612-559-1434
MO	St. Louis, Adelphi, Inc.	314-821-1232
NJ	Cedar Grove, KLS Assocs.	201-785-4450
NY	E. Rochester, A & D Dvcs.	716-385-2778
OH	Cleveland, Tiby Co.	216-371-5335
OH	Tulsa, Inotek Corp.	918-622-8570
OR	Portland, McLaren, Inc.	503-297-2248
PA	Cheltenham, Stein Instrm.	215-379-1990
TX	Dallas, Inotek Corp.	214-243-7000
TX	Houston, Inotek Corp.	713-688-7000
WA	Bellevue, McLaren, Inc.	206-454-3400

SEVEN MOUNTAINS SCI. INC., P.O. Box 650, Boalsburg, PA 16827, Tel: 814-466-6559; Empl.: 4; *Sls. Mgr.:* Josephine Chesworth

SFE
TECHNOLOGIES

SFE TECHNOLOGIES, 1501 1st St., San Fernando, CA 91340, Tel: 213-365-9411, TWX: 910-496-1535; FSC No.: 96733; Empl.: 2000; *Sls. Mgr.:* Ron Modugno; *Dist. Mgr.:* Ron Modugno ...**A•1168-1171, 1277, 1434, 1630-1631**

Local Sales Offices & Reps

AL	Huntsville, Electronic Sls., Inc.	205-533-1735
AZ	Tucson, West-Cap Arizona	602-294-2646
CA	Milpitas, SFE Technlgs.	415-825-5133
CA	Newport Beach, SFE Technlgs.	714-953-8064
CA	San Diego, SFE Technlgs.	619-747-2789
CA	San Fernando, San Fernando Elec. Div.	818-365-9411
CO	Parker, Parker Webster	303-841-4888
CT	Stratford, Gerald Rosen Co.	203-375-5456
FL	Orlando, Perrott Assocs.	305-298-7748
GA	Norcross, Electronic Sls., Inc.	404-448-6554
IL	Downers Grove, Splon Assocs.	312-963-7011
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Shawnee Mission, Electro Dynamics	913-262-2500
LA	New Orleans, SFE Technlgs.	504-254-5070
MD	Baltimore, Micro-Comp	301-247-0400
MA	Framingham, Gerald Rosen Co.	617-879-5505
MI	Southfield, Lepofsky & Assocs.	313-569-6080
MN	Minneapolis, Stan Clothier Co.	612-944-3456
NY	Bethpage, SFE Technlgs.	212-245-7292
NY	Chester, SFE Technlgs.	914-469-9620
NC	Concord, Orchard Elctrns., Inc.	312-625-8400
OH	Dayton, SFE Technlgs.	513-434-8212
OK	Tulsa, Bonser Philhower	918-744-9964
OR	Beaverton, General Elctrns.	503-641-5288
PA	King of Prussia, SFE Technlgs.	215-265-1628
TX	Austin, Bonser Philhower	512-346-9186
TX	Richardson, Bonser Philhower	214-234-8438
UT	Salt Lake City, Parker Webster	801-266-9939
VA	Huddleston, Micro Comp	703-297-7614
Can	Willowdale, Ont., SFE Technlgs.	416-491-0993

Local Distributors

AZ	Tempe, Time Elctrns.	602-967-2000
CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	Compton, Harper S.I.D.	213-979-5090
CA	Garden Grove, National Capacitor	213-598-9611
CA	Westlake Village, Distel	805-495-9998
CO	Englewood, Time Elctrns.	303-850-7701
CT	Danbury, Diplomat Elctrns.	203-797-9674
FL	Orlando, TTI, Inc.	305-859-1000
GA	Norcross, Diplomat Elctrns.	404-449-4133
IL	Chicago, Nep Elctrns.	312-625-8400
IL	Elk Grove, Diplomat Elctrns.	312-640-1910
IA	Cedar Rapids, Bell Inds.	319-395-0730
MD	White Marsh, Radio Elec. Svc. Co.	301-529-0500
MA	New Haven, Green Shaw	203-397-0710
MN	Plymouth, Diplomat Elctrns.	612-559-2500
NJ	Audubon, Action Elctrns.	609-858-2450
NJ	Maple Shade, Zebra Elctrns.	609-779-8073
NY	Central Islip, Semi Cap	516-582-4400
NY	E. Farmingdale, Tri-Start	516-293-0400
NY	Hauppauge, Fairmont	516-231-3313
NY	Melville, Diplomat Elctrns.	516-454-6400
OH	Fairborn, Aschbacher & Assocs.	513-252-7785
OR	Portland, Time Elctrns.	503-684-3780
PA	Broomall, Time Elctrns.	215-359-1200
TX	Dallas, Diplomat Elctrns.	713-975-8447
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
WA	Redman, Time Elctrns.	206-882-1600
WI	Racine, Badger Elctrn. Parts	414-637-1256

S. F. PRODUCTS CORPORATION, P. O. Box 369, Southport, CT 06490, Tel: 203-929-6180, Telex: 220883 TAUR; Empl.: 8; *Sls. Mgr.:* Norman W. Johanson; *Dist. Mgr.:* R. S. Johanson

SL PLASTICS, Route 248, Nazareth, PA 18064, Tel: 215-759-0280; Empl.: 60; *Sls. Mgr.:* W. Tomko

SL PRINTED CIRCUITS, 827 Black Oak Ridge Rd., Wayne, NJ 07470, Tel: 201-835-2765; Empl.: 34; *Sls. Mgr.:* R. J. Puzo

SGS-ATES SEMICONDUCTOR CORP., 240 Bear Hill Rd, Waltham, MA 02154, Tel: 617-890-6688, Telex: 923495; Empl.: 9000

SGS SEMICONDUCTOR CORPORATION, 1000 E. Bell Road, Phoenix, AZ 85022, Tel: 602-867-6100, Telex: 249976,667479(Western Union), TWX: 910-950-4654; FSC No.: 7X328; Empl.: 200

SHALLCO, Box 1089, Smithfield, NC 27577, Tel: 919-934-3135, TWX: 510-939-1479; Empl.: 35; *Sls. Mgr.:* M. D. Sutton .... **B•1692-1695; D•1036-1037**

Local Sales Offices & Reps

CA	Chatsworth, WCV/RALTECH	818-700-0933
CA	Santa Clara, Fischer Assocs.	408-733-7350
IL	Northfield, Imex	312-446-8934
IA	Cedar Rapids, S & O Sls.	310-393-1845
KS	Shawnee Mission, Tech. Sls.	913-888-3330
MD	Towson, Holden Engrg. Sls.	301-823-3763
MA	Norwood, MPS Elctrn.	617-769-8700
MO	Ferguson, Tech. Sls.	314-725-5361
NY	Lynbrook, HLJ	516-599-2999
NY	Manhattan, Lothar Sanford Corp.	212-757-3881
NY	Pittsfield, D. Hurley Sls.	716-586-6159
OH	Englewood, Allen Nace Co.	513-836-0931

Local Distributors

FL	Jacksonville, Southeast Elctrns.	904-356-3007
MI	Grand Rapids, Audio Distr.	616-452-1596
OH	Cincinnati, United Radio	513-761-4030
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TN	Bristol, Broadcast Equip. & Supp.	615-878-2531
TX	Dallas, Wholesale Elctrns.	214-824-3001
Can	Montreal, Que., Braydon Electro	514-332-5650

SHALLCROSS, INC., See RCL-Shallcross

SHALLTRONIX CORP., Preston St., P.O. Box 235, Selma, NC 27576, Tel: 919-965-6346; FSC No.: 58258; *Sls. Mgr.:* Joe Deans .... **D•1307**

Local Sales Offices & Reps

TX	Arlington, Electronic Prod. Reps.	817-467-0377

SHAPE MAGNETRONICS, INC., 901 DuPage Ave., Lombard, IL 60148, Tel: 312-620-8394, TWX: 910-991-2352; *Sls. Mgr.:* J. Hilgenberg .... **D•1960-1961**

SHAPIRO SCIENTIFIC INST., 3500 E. Coast Hwy., Corona del Mar, CA 92625, Tel: 714-675-1024; Empl.: 7

SHELLY
associates

SHELLY ASSOCIATES, INC., 14281 Chambers Road, Tustin, CA 92680, Tel: 714-669-9850, Telex: 85-2263; FSC No.: 00303; Empl.: 30; *Sls. Mgr.:* Chuck Feeney; *Dist. Mgr.:*

Chuck Feeney .... **B•1093**

Local Sales Offices & Reps

AL	Mobile, Hollingsworth & Still, Inc.	800-241-5712
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Redondo Beach, Vedax, Inc.	213-540-1255
FL	Ft. Lauderdale, Hollingsworth & Still, Inc.	800-241-5712
FL	Tampa, Hollingsworth & Still, Inc.	800-241-5712
GA	Norcross, Hollingsworth & Still, Inc.	800-241-5712
IL	Chicago, Electro-Tech Mktg. Assocs.	312-676-3151
IN	Ft. Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns. Inc.	317-897-9976
LA	Covington, HBT Assocs. Inc.	504-892-4045
MA	Plainville, Enterprise Technlg.	617-695-4700
MN	Mound, Allyn Assocs.	612-472-4784
MO	Grandview, R. R. Burton & Assocs.	816-763-5385
MO	St. Louis, R. R. Burton & Assocs.	314-647-6353
NJ	Boonton, TMA	201-263-2946
NJ	Sicklerville, Brown Assocs.	609-629-2240
NY	Port Washington, TMA	516-883-2432
NC	Charlotte, Hollingsworth & Still, Inc.	800-241-5712
NC	Kernersville, Hollingsworth & Still, Inc.	800-241-5712
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns. Inc.	216-473-5050
OH	Dayton, Scott Elctrns. Inc.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
OR	Dallas, Ecco Mktg.	503-228-6401
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Austin, Milco Mktg., Inc.	713-723-5003
TX	Dallas, Milco Mktg., Inc.	214-783-2716
TX	Houston, Milco Mktg., Inc.	713-723-5003
WA	Seattle, Ecco Mktg.	206-364-0200
WI	Brookfield, Electro-Tech Mktg. Assocs.	414-785-9554

Local Distributors

CA	Anaheim, Bisco Inds. Inc.	714-635-0380
CA	San Jose, Bisco Inds. Inc.	408-946-8980
CT	Norwalk, Park Distrs. Inc.	203-853-2010
CT	Wallingford, Midstate Elctrns. Co.	203-265-9900
FL	Clearwater, Jenkins Supp. Co., Inc.	813-584-5282
IL	Franklin Park, Bisco Inds. Inc.	312-451-1230
IN	Indianapolis, Mar Elctrns., Inc.	317-875-4510
IA	Cedar Rapids, Iowa Radio Supp. Co.	319-393-4510
LA	Harvey, AFG Elctrns. Supp.	504-368-9696
MA	Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Woburn, Elctrn. Packaging Comps.	617-935-0400
NJ	Cranford, Garden State Indl. Elctrns.	201-272-6400
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Saddle Brook, Tide Elctrns.	201-794-9660
NY	Elmsford, White Plains Elctrl. Supp. Co.	914-592-9555
OH	Dayton, Televox, Inc.	513-294-4499
OH	Strongsville, Roberts Elctrns. Co., Inc.	216-238-1711
OK	Tulsa, Radio, Inc.	918-587-9123
TX	Dallas, Wilkinson Brothers Co.	214-941-9963
WI	Mequon, Lakeview Elctrns.	414-377-8250

SHIELDING TECHNOLOGY, INC., 120 Ethel Rd. West, Piscataway, NJ 08854, Tel: 201-985-8800, TWX: 710-480-6297; *Sls. Mgr.:* Mason Carter

SHINANO KENSHI CORP. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605, Tel: 818-764-4266; Empl.: 5; *Sls. Mgr.:* William F. Dowis .... **B•1187**

Local Sales Offices & Reps

CA	North Hollywood, Shinano Kenshi Corp.	818-764-4266
CA	Santa Clara, Logan Sales	408-496-0660
CO	Denver, Tech Rep Sls. Co.	303-758-7031
CT	Bloomfield, SIR Assocs.	203-243-9343
FL	Sarasota, Phoenix Comps., Inc.	813-371-1163
IL	Barrington, Richard Fisk Mktg.	312-381-0653
MA	Bedford, SIR Assocs.	617-275-5550
MI	Southfield, Fred Gehrke & Assoc.	313-559-5363
MN	Eagan, J. Jorgenson & Assoc.	612-452-9541
NJ	Hatboro, PA, Electro Rep	215-674-4421
NJ	Oxford, Malin Assocs.	201-689-7398
NC	Greenville, Ranico Representatives	615-639-7696
OK	Oklahoma City, Precision Technlg. Assocs.	405-755-3103
OR	Portland, Intertech Sls.	503-775-7885
TN	Greenville, Lamons Sales Co.	615-639-8711
TX	Austin, Precision Technlg. Assocs.	512-250-0201
TX	Richardson, Precision Technlg. Assoc.	214-234-8071

SHOGYO

SHOGYO INTL. CORP., 287 Northern Blvd., Great Neck, NY 11021, Tel: 516-466-0911, Telex: 4758024, TWX: 12218 .... **A•2037, 2270-2271; B•1094-1096; C•1506-1508, 1905; D•1038, 1376**

SHOKAI FAR EAST, LTD., 280 North Central Ave., Hartsdale, NY 10530, Tel: 914-681-0700, Telex: 22-4219; Empl.: 362; *Sls. Mgr.:* Bob Craig .... **D•1039**

SHOW 'N TELL PRODUCTS, AMG, Inc., 155 Franklin Street, Dayton, OH 45402, Tel: 513-223-8211; *Sls. Mgr.:* Jon A. Bloyd

OPTIMEM, 435 Oakmead Parkway, Sunnyvale, CA 94086, Tel: 408-737-7373, TWX: 910-339-9615; Empl.: 140; *Sls. Mgr.:* Tom Jarrett; *Dist. Mgr.:* Tom Jarrett

SHURE BROS., 222 Hartrey Ave., Evanston, IL 60204, Tel: 312-866-2200, Telex: 72-4381, TWX: 910-231-0048; *Sls. Mgr.:* R. T. Murphy

SHURITE METERS, INC., 577 Grand Ave., P.O. Box 1848, New Haven, CT 06508, Tel: 203-624-1188; Empl.: 30; *Sls. Mgr.:* Joseph V. LeBlanc; *Dist. Mgr.:* Joseph V. LeBlanc

SIDAC ENCLOSURES, Div. of Triac Electronic Systems, Inc., 87-27 Myrtle Ave., Glendale, NY 11385, Tel: 718-441-4728; Empl.: 14; *Sls. Mgr.:* Victor Botnick .... **C•1082**

SIDEREAL CORP., 9600 S.W. Barnes Rd., Portland, OR 97225, Tel: 503-297-5531, Telex: 36-0640, TWX: 910-464-6139; *Sls. Mgr.:* Jim Miller & Jeff Gretz; *Dist. Mgr.:* Joy Sakata

SIECOR CORP., Box 489, Hickory, NC 28603, Tel: 704-328-2171, Telex: 800-510, TWX: 510-934-1204; Empl.: 600; *Sls. Mgr.:* J. English

SIEMENS COMPS., INC., Optoelectronics Div., 19000 Homestead Rd., Cupertino, CA 95014, Tel: 408-257-7910, Telex: 352084, TWX: 910-338-0022; FSC No.: 50579; Empl.: 1100; *Sls. Mgr.:* Gary Durgin; *Dist. Mgr.:* Kathy Renz

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MD	Columbia, Delta III Assocs., Inc.	301-730-4700
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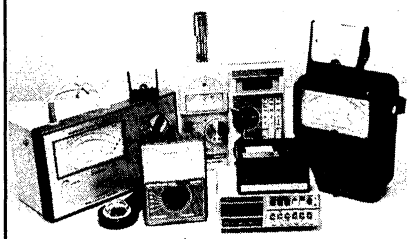

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AZ	Phoenix, Conductors & Dielectrics, Inc.	602-263-0042
CA	S. Pasadena, Deniston/JDA	213-289-2844
CA	San Francisco, Conductors & Dielectrics, Inc.	415-494-1044
FL	St. Petersburg, K-Square	813-381-1893
IL	Hanover Park, J. R. Ripley Assocs.	312-289-5365
MA	Newton Upper Falls, Anchor Engrg. Corp.	617-964-6205
MN	Minneapolis, Charles D. Atwater Assocs.	612-925-1672
NJ	Berkeley Heights, Cambridge Allen Assocs.	201-464-0203
NY	Camillus, Ontec Elctrn. Mktg. Inc.	315-672-5626
NY	Rochester, Ontec Elctrn. Mktg. Inc.	716-464-8636
NY	Wappingers Falls, Ontec Elctrn. Mktg. Inc.	914-462-7188
NC	Raleigh, Candor Co., Inc.	919-779-1855
OH	Akron, Augnat Assocs.	216-273-1211
OR	Portland, Conductors & Dielectrics, Inc.	503-242-1456
SC	Myrtle Beach, Candor Co., Inc.	803-448-8361
TX	Dallas, Southwest Elctrns. Ind.	214-690-9881
TX	Houston, Dunkel Elctrns. Assocs.	713-729-1670
VA	Blacksburg, The Candor Co., Inc.	703-953-2197
WA	Seattle, Conductors & Dielectrics, Inc.	206-282-5032
Can	Montreal, Anbak Sls. Canada, Ltd.	514-683-6554
Can	Toronto, Anbak Sls. Canada, Ltd.	416-842-6630

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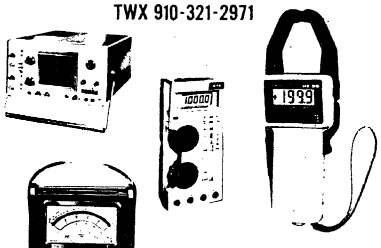

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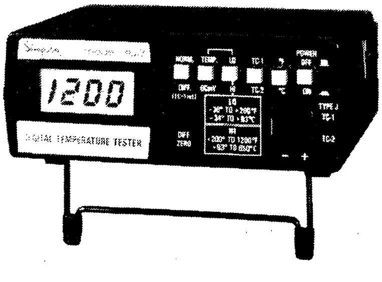

Model 383

SLEPIAN, ARTHUR, & CO., 412 Housatonic Ave., Bridgeport, CT 06608, Tel: 203-366-5294; Empl.: 5; *Sls. Mgr.:* M. Madow

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Local Sales Offices & Reps

CA	Saratoga, Testco	408-253-1900
CA	Westminster, West Elctrns. Sls.	714-739-2487
CO	Commerce City, Williams Assoc.	303-289-5647
FL	Pompano Beach, Cole-Tek Assocs.	305-781-8110
GA	Norcross, Mountain Electro Prods., Inc.	404-962-2530
MD	Glen Burnie, Macrotech Assoc.	301-437-5588
MA	Andover, Crawford Assocs.	617-470-2122
MN	Minneapolis, Loren Green Assoc. of Minn.	612-571-6666
MO	St. Charles, Microtronics	314-946-8500
NJ	Cherry Hill, Quality Comps.	609-428-6226
NJ	Englewood Cliffs, E. Glass Assocs.	212-586-8440
OH	Cleveland, Allan Scraga	216-662-6080
TX	Dallas, IBL Engrg. & Sls.	214-363-2921
WA	Bellevue, N. R. Schultz Co.	206-454-0300

Local Distributors

AL	Huntsville, Powell Elctrns.	205-529-2731
CA	Hawthorne, Radio Hardware	213-679-3381
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Patane Santa Clara	408-496-6151
CA	Torrance, Cypress Elctrns.	213-533-6005
CA	Van Nuys, Patane Avionics	818-988-4455
CT	W. Hartford, Signal Inds.	203-236-6005
FL	Ft. Lauderdale, Peerless Radio Corp.	305-973-4141
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Miami, Elctrn. Equip.	305-871-3500
IL	Des Plaines, Edmar Elctrns.	312-298-8580
KS	Wichita, Lee Prods.	316-264-2172
MD	Columbia, Powell Elctrns.	301-621-4070
NY	Buffalo, Genesee Radio & Parts	716-873-9661
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
OH	Solon, R.E.H. Elctrns.	216-264-2172
OH	Solon, Repco	216-248-8900
OK	Tulsa, Altair Co.	918-252-5781
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
VT	South Burlington, Hooker Elctrns.	802-864-0885
WA	Bellevue, Powell Elctrns.	206-641-4446

SLOAN TECHNOLOGY, 602 E. Montecito St., Santa Barbara, CA 93103, Tel: 805-963-4431, TWX: 910-334-4901; Empl.: 100; *Sls. Mgr.:* Leonard Cardoza

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Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	205-859-5562
CA	Burlingame, Carelli-EMA	415-342-5546
CA	Gardena, Ungar Sls. Assocs.	213-538-2811
CO	Denver, Walter Engrg.	303-777-5585
FL	Miami, Hollingsworth & Still	305-431-1631
FL	Orlando, Hollingsworth & Still	305-859-9423
FL	Winter Park, Hollingsworth & Still	305-678-2858
GA	Norcross, Hollingsworth & Still	404-447-1700
HI	Honolulu, Lee Gabor Co.	808-536-2457
IL	Northbrook, Wm. M. Linz Assocs.	312-498-9600
MD	Silver Spring, David S. Linz Co.	301-593-2477
MA	Scituate, K. J. Walsh & Assocs.	617-545-3145
MI	Southfield, Robert Milsk Co.	313-354-3310
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	Blue Springs, Kathrinus-Kelly-Baumhauer	816-229-0001
MO	St. Louis, Kathrinus-Kelly-Baumhauer	314-627-2400
NM	Albuquerque, C. T. Carlberg & Assocs.	505-888-3883
NY	Rochester, Warren Kaufman & Assocs.	716-266-2728
NY	Whitestone, Jack Brown Sls.	212-769-1979
NC	Kernersville, Hollingsworth & Still	919-996-4622
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OR	Beaverton, Wm. J. Purdy Co.	503-641-9373
PA	Philadelphia, David S. Linz Co.	215-379-0734
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
WA	Redmond, Wm. J. Purdy Co.	206-882-3144

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AZ	Phoenix, Parts Elctrn.	602-258-6476
AZ	Tucson, Inland Elect.	602-889-5301
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Berkeley, Al Lasher's Dealer Elect.	415-843-5915
CA	Canoga Park, Sandy's Elctrn. Supp.	213-346-8353
CA	Costa Mesa, MarVac Elctrns.	714-540-3280
CA	El Monte, Claude Michael	213-696-0141
CA	Fullerton, Orvac Elctrns.	714-871-1020
CA	Gardena, California Switch & Signal	213-770-2330
CA	Glendale, Western Elctrns.	213-246-4861
CA	Hollywood, Pacific Radio Exch.	213-462-1393
CA	Hollywood, Yale Radio	213-465-3186
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-793-1195
CA	Riverside, Electronic Supp.	714-836-7300
CA	San Diego, Shanks & Wright	714-239-0176
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Sunnyvale, Com-Kyl	408-734-9660
CO	Denver, Denver Wintronics	303-934-2406
CO	Denver, Elctrn. Parts	303-744-1992
CT	Stamford, Mar Le Co.	203-348-2645
CT	Waterbury, Suburban Supp.	203-757-1251
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Miami, ESL Elctrn. Distrs.	305-633-6973
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Pensacola, Grice Elctrns.	904-434-2481
GA	Atlanta, Ack Radio Supp.	404-351-6340
GA	Atlanta, Specialty Distrib.	404-873-2521
IL	Chicago, Newark Elctrns.	312-638-4411
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IL	Niles, Joseph Elctrns.	312-297-4200
IL	Northbrook, Classic Comps.	312-272-9650
IL	Palatine, Ohm Elctrns.	312-359-5500
IL	Peoria, Klaus Radio & Elctrns.	309-691-4840
IL	Rockford, Mid-West Associated	815-962-8036
IN	East Chicago, Acro Elctrns.	312-357-1269
IN	Ft. Wayne, Ft. Wayne Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Meunier Elect.	317-635-3511
IN	Indianapolis, Radio Distrib.	317-257-2231
IN	Terre Haute, Midwest Supp. Elec.	812-232-0187
KY	Lexington, Radio Elctrn. Equip.	606-255-6661
KY	Louisville, P.I. Burks Co.	502-589-3960
KY	Louisville, Peerless Elctrn. Equip.	502-637-7674
LA	Lafayette, Ralphs of Lafayette	318-234-4507
LA	Shreveport, Industrial Elect.	318-222-9459
MD	Baltimore, ASI Elctrns.	301-265-5100
MD	Baltimore, Radio Elctrn. Svc. Co.	301-823-0700
MD	Gaithersburg, Pioneer/Wash. Elect.	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Lynn, Land Elec. Supp.	617-592-2220
MA	Needham, You-Do-It Elctrns.	617-449-1005
MA	Newton Upper Falls, In-Stock Prods. Co.	617-964-6200
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	W. Newton, A. W. Mayer Co.	617-965-1111
MI	Ann Arbor, Wedemeyer Elect. Supp.	313-665-8611
MI	Detroit, RS Elctrns.	313-491-1012
MN	Minneapolis, Electronics Ctr.	612-371-5200
MN	Minneapolis, Stark Elctrns.	612-332-1325
MS	Jackson, Ellington Elect. Supp.	601-355-0561
MO	Kansas City, Electronic Supp. Co.	816-921-0250
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	St. Louis, Olive Indl. Elect.	314-863-7800
MO	St. Louis, Van Sickle Radio	314-621-5000
NE	Lincoln, Scott Elec. Supp.	402-466-8221
NE	Omaha, Radio Equip.	402-341-7700
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Camden, General Radio Supp.	609-964-8560
NJ	Hanover, State Elctrn. Parts	201-887-2550
NJ	Springfield, Federated Purchaser	201-376-8900
NJ	Springfield, Route Elctrns.	201-467-0166
NM	Albuquerque, Electronic Parts	505-293-6161
NM	Albuquerque, Walker Radio Co.	505-247-2288
NY	Buffalo, Summit Distrib.	716-884-3450
NY	Farmingdale, Fordham Radio	516-752-0500
NY	Hauppauge, Broadline Elctrns.	516-420-8320
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Long Island City, H. L. Dalis, Inc.	212-361-1117
NY	New York, Argil Elctrns.	212-691-8111
NY	Portchester, Wise Comps.	203-531-4880
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rome, Rome Elctrns.	315-337-5400
NY	Schenectady, Adirondack Elctrns.	518-842-8350
NC	Raleigh, Southeastern Radio Supp.	919-828-2311
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, United Radio	513-662-2610
OH	Cleveland, Pattison Supp.	216-441-3000
OH	Cleveland, Pioneer-Standard Elect.	216-587-3600
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Becker Elctrns.	513-226-1341
OH	Dayton, ESCO, Inc.	513-226-1133
OH	Dayton, Pioneer Elctrns.	513-236-9900
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Solon, Repco	216-248-8900
OH	Toledo, Warren Radio	419-248-3364
OK	Oklahoma City, Trice Whlsl. Elect.	405-524-4411
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, EOFF Elec.	503-222-9411
PA	Allentown, A. A. Peters	215-434-5237
PA	Huntingdon Valley, Shap Elctrns.	215-322-7150
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RI	Providence, Wm. Dandreta & Co.	401-861-2800
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TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Kingsport, Radio Elect. Supp.	615-247-8111
TN	Nashville, Electra Distrib.	615-329-3971
TN	Nashville, Randolph & Rice	615-255-5602
TX	Austin, Harrison Ind. Elctrns.	512-458-3555
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Dallas, KA Elect. Sls.	214-634-7870
TX	Dallas, Wallace Elctrns.	214-340-0400
TX	Dallas, Wholesale Elect. Supp.	214-824-3001
TX	Ft. Worth, Sweico	817-335-6521
TX	Houston, City Electronic Supp.	713-621-1060
TX	Houston, Electrotex	713-941-7016
TX	Houston, Harrison Ind. Elctrns.	713-652-4700
TX	Houston, Lenert Co.	713-225-1465
TX	San Antonio, Sherman Elect. Supp.	512-224-1001
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Arlington, Arlington Elctrn.	703-524-2412
VA	Portsmouth, Distributors	804-399-2446
VA	Richmond, Avec Elctrns.	804-359-6071
VA	Roanoke, Peoples Radio & TV Supp.	703-342-8933
WA	Seattle, Radar Elect.	206-282-2511
WI	Madison, Satterfield Elctrns.	608-257-4801
WI	Milwaukee, Marsh Elctrns.	414-475-6000

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SMD TECHNOLOGY SVC. CTR., A North American Philips Co., 5855 N. Glen Pk. Rd., Milwaukee, WI 53209, Tel: 800-431-4444; *Sls. Mgr.:* F. Funk

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Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Los Angeles, E.E. Strassner Co.	213-242-8823
CA	Santa Clara, Warren Assocs.	408-988-7762
CO	Denver, Lindberg Co.	303-758-9033
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
FL	Ft Lauderdale, Hollingsworth & Still	404-447-1700
FL	Miami, Hollingsworth & Still	404-447-1700
FL	Tampa, Hollingsworth & Still	404-447-1700
IL	Chicago, RMP/McBride Sls.	312-932-9090
IN	Indianapolis, Elctrn. Reps.	317-894-1414
KS	Shawnee Mission, Lowell Kangas & Assocs.	913-631-3515
TX	Dallas, J. Y. Schoonmaker	214-349-1650
MA	Needham Hgts, Coakley, Boyd & Abbett	617-444-5470
MA	Woburn, W&D Mktg.	617-935-5610
MI	Farmington Hills, R. C. Merchant	313-476-4600

MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, Lowell Kangas & Assoc.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NM	Albuquerque, Shefler-Kahn	505-296-0749
NY	Buffalo, L.D. Allen	716-837-1955
NY	N. Syracuse, L.D. Allen	315-437-8387
NY	Rochester, Warren Kaufman	716-266-2728
NY	Whitestone, Jack Brown Elctrn.	212-767-1977
OH	Richfield, Bear Mktg.	216-659-3131
OR	Portland, Weber, Dale	503-234-7671
PA	Trevose, P.S.A., Inc.	215-245-0513
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
TX	Dallas, J. Y. Schoonmaker	214-349-1650
WA	Seattle, Weber, Dale	206-623-5990

SMK ELCTRNS. CORP., U.S.A., 1901 Nancita Cir., Placentia, CA 92670, Tel: 714-996-0960, Telex: 18-3081; FSC No.: 637-7400; Empl.: 84; *Sls. Mgr.:* Charles Sochalec; *Dist. Mgr.:* Rudy Cicciarelli

SMOKE SIGNAL, 31336 Via Colinas, Westlake Vlg., CA 91362, Tel: 818-889-9340, Telex: 9104044065; Empl.: 20; *Sls. Mgr.:* Don Simonsen; *Dist. Mgr.:* Colleen Kirkpatrick

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SOHIO ENGINEERED MATERIALS CO., Unit of Sohio, P. O. Box 156, Niagara Falls, NY 14302, Tel: 716-278-2000; Empl.: 2000 ... **A•1172, 1944-1947; B•1772**

SOKOL CRYSTAL PRODS. DIV., 6050 N. 52nd Ave., Glendale, AZ 85301, Tel: 602-934-2108

SOKOL CRYSTAL PRODS., INC., 121 Water St., Mineral Point, WI 53565, Tel: 608-987-3363, Telex: 467581; FSC No.: 56187; Empl.: 150; *Sls. Mgr.:* Steven M. Sokol .... **A•1435-1437**

Local Sales Offices & Reps

CA	Pinole, Ron May	415-724-1203
FL	Clearwater, Brennan & Assocs.	813-446-5006
IL	Medinah, Wavan Assocs.	312-893-0210
IN	Fort Wayne, John Kilfoil Co.	219-436-7233
IA	Marion, Rep. Assocs.	319-373-0152
KS	Parker, S. W. Wollard Co.	913-898-6552
MA	Millis, Selmark Assocs.	617-376-2914
MN	Bloomington, V. J. Gensmer Assocs.	612-888-2492
MO	St. Louis, Abrams & Assocs.	314-569-0447
NJ	Flanders, K & R Engrg. Sls. Corp.	201-584-5235
TX	Dallas, Stevens Sls. Co.	214-350-2476
WA	Kirkland, Manon Engrg., Inc.	206-827-7449

SOLA, A Unit of General Sign., 1717 Busse Rd., Elk Grove Village, IL 60007, Tel: 312-439-2800, Telex: 280538; *Sls. Mgr.:* Fred Lemke ...... **D•1838-1839, 1964-1967**

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean, Inc.	205-830-1540
AZ	Phoenix, Zeus Elctrns., Inc.	602-263-6022
AR	Little Rock, Erickson Sls., Inc.	501-225-7379
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Pleasanton, Moulthrop Sls., Inc.	415-463-0450
CA	San Diego, Wiley Co.	619-571-2881
CT	Mystic, J.M.G., Inc.	203-599-5373
FL	Orlando, Cartwright & Bean, Inc.	305-422-4531
GA	Atlanta, Cartwright & Bean, Inc.	404-233-2939
IL	Chicago, Industrial Reps.	312-647-7755
IN	Indianapolis, Green-Wissler Sls.	317-872-9981
IA	Cedar Rapids, R. W. Kunz & Assocs.	319-396-5386
KS	Kansas City, R. W. Kunz & Assocs.	913-648-3535
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MI	Farmington Hills, R. C. Merchant	313-476-4600
MN	Minneapolis, Boerger & Assocs.	612-560-3435
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	East Orange, Willgold Sls.	201-678-7700
NY	Rochester, LMar Assocs.	716-323-1000
NC	Raleigh, Cartwright & Bean, Inc.	919-876-4130
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OH	Lakewood, Baehr, Greenleaf & Assocs.	216-221-9030
OK	Broken Arrow, Erickson Sls., Inc.	918-455-4276
TN	Knoxville, Cartwright & Bean, Inc.	615-693-7450
TX	Austin, Erickson Sls.	512-244-3068
TX	Dallas, Erickson Sls.	214-739-5833
TX	Houston, Erickson Sls.	713-266-1604
WI	Milwaukee, Industrial Reps.	414-259-0965

SOLARCON TECHNOLOGY, INC., P.O. Box 4715, Hayward, CA 94544, Tel: 415-489-3141; Empl.: 9; *Sls. Mgr.:* Rose Ferguson

Local Sales Offices & Reps

CA	Laguna Hills, Reese Riley & Assocs.	714-859-9827
CA	San Ramon, Reese Riley & Assocs.	415-961-0565
MI	Southfield, Infinity, Inc.	313-557-7230
OH	Solon, Infinity, Inc.	216-248-9377
PA	Pittsburgh, Infinity, Inc.	412-821-6389
WA	Belview, Reese Riley & Assocs.	206-462-8088

SOLAR ELCTRNS. CO., 901 N. Highland, Hollywood, CA 90038, Tel: 213-462-0806; FSC No.: 13222; Empl.: 15

SOLAREX CORP., 1335 Piccard Dr., Rockville, MD 20850, Tel: 301-948-0202, TWX: 710-828-9709; *Sls. Mgr.:* Ted Blumemstock

SOLARTRON INSTRUMENTS, Sangamo Weston, Inc., 2 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-9168, Telex: 145-487; FSC No.: 1T316; Empl.: 21; *Sls. Mgr.:* Malcolm J. Swanson

SOLATRON ENTERPRISES, 421 E. Beach Ave., Inglewood, CA 90302, Tel: 213-678-4981; Empl.: 20

SOLDER ABSORBING TECHNOLOGY (SAT), South End Bridge Circle, Agawam, MA 01001, Tel: 800-628-8862, TWX: 710-350-6466; Empl.: 8

SOLDER REMOVAL, P.O. Box 1678, Covina, CA 91722, Tel: 213-967-3681, TWX: 910-584-1820; FSC No.: 34605; *Sls. Mgr.:* Frank Hennessy; *Dist. Mgr.:* Frank Hennessy

SOLID STATE, INC., 46 Farrand St., Bloomfield, NJ 07003, Tel: 201-429-8700, TWX: 710-994-4780; Empl.: 110; *Sls. Mgr.:* T. King

SOLID STATE CIRCUITS, 3300 S. Golden, Springfield, MO 65807, Tel: 417-887-0823, TWX: 910-775-4762; Empl.: 260; *Sls. Mgr.:* Dennis Stead

SOLID STATE DEVICES, 14830 Valley View Ave., La Mirada, CA 90638, Tel: 213-921-9660, TWX: 910-583-4807; FSC No.: 30043; Empl.: 100; *Sls. Mgr.:* D. Peden

SOLID STATE ELCTRNS. CORP., 18646 Parthenia St., Northridge, CA 91324, Tel: 818-993-8257; FSC No.: 11911; Empl.: 15

SOLID STATE RELAYS, 213 Eisenhower Lane So., Lombard, IL 60148, Tel: 312-932-1660; *Sls. Mgr.:* D. E. Wienke

SOLID STATE SCIENTIFIC, 3900 Welsh Rd., Willow Grove, PA 19090, Tel: 215-657-8400, Telex: 476-1101, TWX: 510-661-7267; Empl.: 650

SOLID STATE SYSTEMS, 1990 Delk Industrial Blvd., Marietta, GA 30067, Tel: 404-952-9401; Empl.: 150; *Sls. Mgr.:* Jason Schloss; *Dist. Mgr.:* J. Schloss

SOLID STATE TESTING, INC., 56 Middlesex Tpke., Burlington, MA 01803, Tel: 617-272-0972, TWX: 710-332-1620; Empl.: 150; *Sls. Mgr.:* James Roberts; *Dist. Mgr.:* James DiGiacomo

SOLITRON DEVICES, 8808 Balboa Ave., San Diego, CA 92123, Tel: 619-278-8780, TWX: 910-335-1221; Empl.: 900

SOLITRON DEVICES, INC., Semiconductor Group, 1177 Blue Heron Rd., Riviera Beach, FL 33404, Tel: 305-848-4311, Telex: 51-3435, TWX: 510-952-7610

SOLITRON/MICROWAVE, Box 278, Port Salerno, FL 33492, Tel: 305-287-5000, TWX: 510-953-7500; FSC No.: 95077; Empl.: 300; *Sls. Mgr.:* James J. McCann

SOLTEC CORP., 11684 Pendelton St., Sun Valley, CA 91352, Tel: 818-767-0044, 800-423-2344, Telex: 494-3094; Empl.: 46; *Sls. Mgr.:* Gary A. Purser

SONIC INTERNATIONAL CORP., 2515 N.E. Riverside, Portland, OR 97211, Tel: 503-665-0187, Telex: 36-0325; Empl.: 130

Sonnenschein

SONNENSCHEIN BATTERIES INC., 300 E. Johnson Ave., P.O. Box 339, Cheshire, CT 06410, Tel: 203-271-0091, Telex: 510-100-7052; *Sls. Mgr.:* R. J. McCarthy .... **D•1438**

Local Sales Offices & Reps

AL	Huntsville, Raycom, Inc.	205-859-2017
CA	Anaheim, Impact Elctrns.	714-533-1351
CO	Golden, J. F. Hurlbut Co.	303-279-7796
CT	Manchester, G/M Assocs.	203-646-4443
IL	Park Ridge, Metcom Assocs. Corp.	312-696-1490
MA	Framingham, G/M Assocs.	617-872-4871
MI	Southfield, R. C. Merchant & Co.	313-354-4300
MI	St. Joseph, R. C. Merchant & Co.	616-983-7378
NH	Exeter, G/M Assocs.	603-778-7472
NC	Raleigh, Raycom, Inc.	919-847-8276
TX	Austin, Delta Comps.	512-458-4288
TX	Seagoville, Delta Comps.	214-287-6333
WA	Portland, Harry Levinson Co.	503-245-1902
WA	Seattle, Harry Levinson Co.	206-382-1300
WI	West Allis, Metcom Assocs. Corp.	414-476-1300

SONICOR INSTRUMENT CORP., 1365 Marconi Blvd., Copiague, NY 11726, Tel: 516-842-3344, Telex: 649494; FSC No.: 31605; *Sls. Mgr.:* Arthur Liers; *Dist. Mgr.:* Arthur Liers

SONOBOND, 200 E. Rosedale Ave., West Chester, PA 19380, Tel: 215-696-4710, Telex: 834511; Empl.: 50; *Sls. Mgr.:* John Harper

SONY CORP. OF AMERICA, Component Prods. Div., 15 Essex Road, Paramus, NJ 07652, Tel: 201-368-5000

SORENSEN CO., 676 E. Island Pond Rd., Manchester, NH 03103, Tel: 603-668-4500, Telex: 94-3459, TWX: 710-220-1339; Empl.: 850; *Sls. Mgr.:* Roy Allman

SORENSON LIGHTED CONTROLS, 75 Locust St., Hartford, CT 06114, Tel: 203-527-3092, TWX: 710-425-4093; Empl.: 100; *Sls. Mgr.:* Tom D'Allesantro .... **B•1102-1103**

Local Sales Offices & Reps

CA	Anaheim, Galaxie Sls.	714-752-1580
CA	Mt. View, Del Bucchia & Assoc.	415-965-8045
CT	Hartford, Atlantic Switch Co.	203-527-7705
FL	Lakeland, Switch Controls	813-644-7564
IL	Wheaton, Chadra-Schilke	312-653-8126
IN	Fort Wayne, Menze Sls.	219-747-5616
MA	Canton, Comtek Assoc.	617-828-2948
MI	Birmingham, Favco	313-644-0173
MN	Edina, Monroe/Hanna	612-566-1324
MO	Clayton, Mertens Co.	314-993-6600
NY	Great Neck, Pacent Eng. Co.	516-482-4678
NC	Raleigh, Rick Hadley	919-362-4099
TX	Dallas, Texaswitch	214-357-1768

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
CA	Tustin, Western Switches	714-731-4333
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CT	Hartford, Atlantic Switch Controls	203-527-7705
FL	Lakeland, Switch Controls	813-644-7564
GA	Augusta, Dixie Elctrns.	404-722-2055
IL	Wheaton, Conectrix	312-653-1460
MI	St. Clair Shores, Specialties Mfg.	313-771-2700
MN	Minneapolis, Carl Berquist	612-835-2322
NJ	Mt. Laurel, Jersey Switch	609-778-8190
NY	Woodside, Switches Unltd.	212-478-5000
NC	Charlotte, Dixie Elctrns.	704-377-5413
OH	Columbus, Ohio Switch	614-885-0319
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Dallas, Texaswitch	214-357-1768
WA	Seattle, Evergreen Mktg.	206-633-3160
EXP	NJ, Ft. Lee, Joseph Gross	201-944-3609

SOSHIN ELEC. CO., 1-18-18 Nakamagome, Ota-Ku, Tokyo, Japan, Tel: (03) 775-2111, Telex: 246-6377; Empl.: 800; *Sls. Mgr.:* N. Hiraide, Exp. & Imp. Dept.

SOUNDCOAT CO., INC., 1 Burt Dr., Deer Park, NY 11729, Tel: 516-242-2200, Telex: 12-5514; *Sls. Mgr.:* Mr. Carl Wolaver

SOUNDLIER, American Trading & Prod. Corp., 9380 Watson Ind'l. Pk., St. Louis, MO 63126, Tel: 314-962-9870, Telex: 910-760-1650; Empl.: 350; *Sls. Mgr.:* Paul Grote; *Dist. Mgr.:* Tony Dalba

SOURIAU, INC., 25158 Avenue Stanford, Valencia, CA 91355, Tel: 805-257-4830, Telex: 4720328, TWX: 910-336-1553; Empl.: 70; *Sls. Mgr.:* Richard Monstein; *Dist. Mgr.:* Alan Rubin

SOUTH AMERICAN DEV. CORP., Rte. 9, G.R.D. Box 413, Hyde Park, NY 12538, Tel: 914-229-8866, Telex: 4990035; Empl.: 80; *Sls. Mgr.:* L. Faber

SOUTHCO, INC., 210 N. Brinton Lake Rd., Concordville, PA 19331, Tel: 215-459-4000, Telex: 83-1485, TWX: 710-760-1715; *Sls. Mgr.:* R. W. Dougherty

SOUTHERN COMPUTER CORP., 3720 N. Stratford Rd. N.E., Atlanta, GA 30342, Tel: 404-231-5363, Telex: 317867; *Sls. Mgr.:* Redd N. Mann; *Dist. Mgr.:* Robert Morris

SOUTHERN ELECTRONICS, F-Dyne, 726 So. Flower St., Burbank, CA 91502, Tel: 213-845-2458, TWX: 910-498-5707; Empl.: 100; *Sls. Mgr.:* Ron Head

SOUTH SHORE METAL PRODS., 88 E Allen Blvd., Farmingdale, NY 11735, Tel: 516-249-3322; Empl.: 30; *Sls. Mgr.:* A. G. Bauer

SOUTHWEST TECH PRODS CORP., 219 W. Rhapsody, San Antonio, TX 78216, Tel: 512-344-0242; Empl.: 34

SPACE ELECTRONICS, INC., Box 2166, Meriden, CT 06450, Tel: 203-235-7755; Empl.: 16; *Sls. Mgr.:* Richard Boynton

SPACE POWER ELCTRNS., Jeffrey Lane, RD 1, Glen Gardner, NJ 08826, Tel: 201-537-2184

SP America, Inc.

SP AMERICA INC., Shin-Etsu Polymer, 1181 N. 4th St., San Jose, CA 95112, Tel: 408-947-0311, TWX: 910-338-2229; *Sls. Mgr.:* R. L. Bucholtz .... **B•1739; C•1510-1511**

Local Sales Offices & Reps

FL	Ft. Lauderdale, Tek-Rep	305-793-5334
GA	Atlanta, Tek-Rep Mktg.	404-963-1600
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
KY	Louisville, Technlg. Mktg. Corp.	502-499-7808
MA	Needham, Ray Perron & Co.	617-695-6179
MI	Plymouth, Jay Mktg. Assoc.	313-459-1200
PA	Broomall, TCA Assoc.	215-353-2022
TX	Dallas, TL Mktg.	214-357-1752

SPANTA, INC., Box 193, Franklin Lakes, NJ 07417, Tel: 201-337-0044, Telex: 13-6011; Empl.: 10; *Sls. Mgr.:* W. Phifer; *Dist. Mgr.:* W. Phifer

SPARKOMATIC, Rte. 6 & 209, Milford, PA 18337, Tel: 717-296-6444, TWX: 510-260-2682; Empl.: 300; *Sls. Mgr.:* Robert Schuler

SPATIAL DATA SYSTEMS, A DBA Systems Co., 508 S. Fairview, Goleta, CA 93117, Tel: 805-967-2383, Telex: 658-336; Empl.: 30; *Dist. Mgr.:* S. Schlosser

SPECIALIZED ELCTRN. MAGNETIC PRODS., INC., 272 Loudon Ridge Rd. Route 8, Loudon, NH 03301, Tel: (603) 267-6892; *Sls. Mgr.:* Eugene C. Avery

SPECIALTY CONNECTOR CO., 2620 Endress Place, Greenwood, IN 46142, Tel: 317-535-5353

SPECIALITY ELECTRONICS, INC., 208 E. Rutherford St., Landrum, SC 29356, Tel: 803-457-3824; Empl.: 10; *Sls. Mgr.:* Mary A. Galli

SPECO DIV., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757, Tel: 516-957-8700, 800-645-5516, Telex: 96-7754; Empl.: 33; *Sls. Mgr.:* Mel Hulkower; *Dist. Mgr.:* Stan Hulkower

SPECTRACOM, 101 Despatch Drive, East Rochester, NY 14445, Tel: 716-381-4827, Telex: 9103509587

SPECTRAGRAPHICS CORP., 10260 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-450-0611; Empl.: 100

SPECTRAL DYNAMICS DIV., Scientific-Atlanta, Box 671, San Diego, CA 92112, Tel: 619-268-7100, TWX: 910-335-2022; Empl.: 600; *Sls. Mgr.:* Robert N. Saunders

SPECTRA LUX CORP., 12840 N.E. 21 St. Pl., Bellevue, WA 98005, Tel: 206-747-0560; FSC No.: 51896; *Sls. Mgr.:* Ron Bustad

Local Sales Offices & Reps

AZ	Tempe, Cantec Sls., Inc.	602-829-0191

SPECTRAN CORP., 50 Hall Road, Sturbridge, MA 01566, Tel: 617-347-2261; FSC No.: 6V569; Empl.: 175

SPECTRAN INSTRUMENTS, INC., Box 891, La Habra, CA 90631, Tel: 213-694-3995

SPECTRA SONICS, 3750 Airport Rd., Ogden, UT 84403, Tel: 801-392-7531; Empl.: 35

SPECTRA-STRIP OPERATIONS, Ampheral Prods., 7100 Lampson Ave., Garden Grove, CA 92642-0415, Tel: 714-892-3361, TWX: 910-596-1314; Empl.: 300

SPECTRO EQUIPMENT, INC., 13821 Progress Pkwy., N. Royalton, OH 44133, Tel: 216-237-8910; Empl.: 25

SPECTROLAB, INC., 12500 Gladstone Ave., Sylmar, CA 91342, Tel: 213-365-4611, TWX: 910-496-1488; Empl.: 250

SPECTROL ELCTRNS., 17070 East Gale Ave., City of Industry, CA 91749, Tel: 818-964-6565, TWX: 910-584-1314; Empl.: 600; *Sls. Mgr.:* R. Shackelford .... **A•2039-2047**

Local Sales Offices & Reps

AL	Huntsville, Beacon Sls.	205-881-5031
AZ	Phoenix, Thom Luke Sls.	602-941-1901
CA	San Diego, Hadden Assocs.	619-565-9444
CA	Santa Clara, I2	408-988-3400
CA	Westlake Village, Astralonics	818-706-3936
CO	Denver, Spectrum Sls.	303-696-1601
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Clearwater, Beacon Sls.	813-796-2378
FL	Ft. Lauderdale, Beacon Sls.	305-491-1054
IL	Downers Grove, Momak Sls.	312-963-6400
IA	Hiawatha, Gassner & Clark	319-393-5763
KS	Shawnee Mission, Lowell-Kangas	913-631-3515
MD	Baltimore, Component Sls.	301-484-3647
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Livonia, Luebbe Sls.	313-477-3131
MN	St. Paul, Murnco	612-484-8200
MO	St. Louis, Lowell-Kangas	314-821-4050
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NY	Commack, E.R.A.	516-543-0510
NY	Liverpool, Gen Tech	315-451-3480
NY	Syracuse, L Mar	315-437-7779
NC	Raleigh, Beacon Sls.	919-787-0330
OH	Cincinnati, Luebbe Sls.	513-891-5770
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
OR	Beaverton, Eclipse Mktg.	503-642-1661
PA	Pittsburgh, R. F. Clark	412-242-9500
TX	Arlington, Pro Comp	817-640-4336
TX	Houston, Pro Comp	713-556-9622
WA	Redmond, Eclipse Mktg.	206-885-6991

SPECTRON CORP., 344 New Albany Rd., Moorestown, NJ 08057, Tel: 609-234-5700, Telex: 83-1488, TWX: 710-897-1359

SPECTRONICS CORP., 956 Brush Hollow Rd., Westbury, NY 11590, Tel: 516-333-4840, TWX: 510-222-5877; Empl.: 125; *Sls. Mgr.:* Henry K. Lee; *Dist. Mgr.:* James J. Weglarz

SPECTRONICS, DIV. HONEYWELL, See Honeywell Optoelctrns.

SPECTRUM CONTROL, INC., 8061 Avonia Rd., Fairview, PA 16415, Tel: 814-474-1571

SPECTRUM CONTROL, INC., 2185 W. 8th St., Erie, PA 16505, Tel: 814-455-0966, TWX: 510-699-6871; FSC No.: 33095;5733; Empl.: 450; *Sls. Mgr.:* R. Greer; *Dist. Mgr.:* C. Pirro .... **A•1635-1637; C•1513-1517**

Local Sales Offices & Reps

CA	Sunnyvale, Spectrum Control	408-735-9015
CA	Valencia, Spectrum Control	805-257-2280
FL	Melbourne, Spectrum Control	305-724-4900
IL	Elgin, Spectrum Control	312-888-8011
MA	Chelmsford, Spectrum Control	617-458-9079
NJ	Brielle, Spectrum Control	201-528-8420
NJ	Fairfield, Pantronics	201-575-1177
NY	New York, Landseas	212-265-8323
TX	Irving, Spectrum Control	214-251-1669
EXP	PA, Erie, Spectrum Control	814-455-0966

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
FL	Dania, Summit Distrs.	305-920-6253
IL	Chicago, Newark Elctrns.	312-784-5100
NJ	Perth Amboy, Metuchen Capacitors	201-442-0500
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Rochester, Summit Distrs.	716-334-8110
OH	Dayton, Aschbacher	513-252-7785
Intl	Australia, Rifa	03-480 1211
Intl	Denmark, E.V.J. Johanssen Elektronics	01-839022
Intl	Eng., Birmingham, Steatite Insulations	021 454-6961-2
Intl	France, Gentilly, Radio Television Franchise S.A.	664.11.01
Intl	Israel, Tel-Aviv, Landseas, Ltd.	247291-4
Intl	Japan, Tokyo, Stauffer Japan, Ltd.	Tokyo (81) 3239-0661
Intl	Netherlands, Zaandam, Bodamer Intl. BV	075-351521
Intl	Norway, H.C.A. Melbye/AS	02-106050
Intl	S. Africa, Bryanston, Taltronics Pty. Ltd.	618-2014/5
Intl	Sweden, Farsta, Traco AB	08-93-0960
Intl	Switzerland, Ebmatingen, EME, Ernst Egli	01-980-11-11
Intl	W. Germany, Ettlingen, Bodamer GmbH	(07243) 79263
Intl	W. Germany, Hamburg, Bodamer GmbH	(040) 7111091
Intl	W. Germany, Munchen, Bodamer GmbH	(089) 641801

SPECTRUM TECHNOLOGY, INC., 300 Lopez Rd., Goleta, CA 93116, Tel: 805-964-7791, TWX: 910-334-1163; FSC No.: 32464; Empl.: 100; *Sls. Mgr.:* Wm. L. Bishop .... **A•1438-1439**

Local Sales Offices & Reps

AZ	Tempe, Sedco Sls.	602-835-6281
AZ	Tucson, Sedco Sls.	602-298-1758
CA	San Jose, Frequency Control Assocs.	408-446-0200
CT	Milford, Todino Engrg. Sls.	203-874-6643
FL	Ft. Myers, Rainbow Sls.	813-332-2210
FL	Melbourne, Rainbow Sls.	305-727-3305
IL	Elgin, R.K. Elctrns.	312-695-8552
MA	Needham, Todino Engrg. Sls.	617-444-7925
NJ	Haddonfield, Mesa Tech. Assocs.	609-429-9531
NM	Albuquerque, I.M.E.C.	505-883-9010
NY	Huntington, Compar N.Y.	516-423-5660
OK	Tulsa, Ion Assocs.	918-664-0186
TX	Austin, Ion Assocs.	512-458-2108
TX	Grand Prairie, Ion Assocs.	817-640-8282
TX	Houston, Ion Assocs.	713-461-5311

Spellman
High Voltage Electronics Corporation

SPELLMAN HIGH VOLTAGE ELCTRNS. CORP., 7 Fairchild Ave., Plainview, NY 11803, Tel: 516-349-8686, TWX: 510-221-2155; Empl.: 200; *Sls. Mgr.:* Russell E. Posser .... **D•1840-1842**

Local Sales Offices & Reps

FL	Orlando, Gra-Mar, Inc.	305-894-3351
MA	Concord, Nortech Engrg. Sls.	617-259-0032
MA	Medfield, Nortech Engrg.	617-359-6063
MN	St. Paul, Knox Assocs.	612-488-5402

SPEMCO SWITCHES, 23425 Harper, Box 386, St. Clair Shores, MI 48080, Tel: 800-482-2828; Empl.: 9

SPERRY, A. W., INSTRS., P.O. Box 9300, Smithtown, NY 11787, Tel: 516-231-7050, Telex: 645104; Empl.: 40; *Sls. Mgr.:* Dennis W. Carroll

SPERRY UNIVAC, Mini-Computer Operations, Box C-19504, Irvine, CA 92713, Tel: 714-754-6900, TWX: 910-596-1358; Empl.: 500

SPIRICON, INC., 2600 North Main, Logan, UT 84321, Tel: 801-753-3729; Empl.: 5; *Sls. Mgr.:* Steve Teare

SPLIT BALL BEARING, MPB Corp., Highway 4, Lebanon, NH 03766, Tel: 603-448-3000, TWX: 710-366-1661; *Sls. Mgr.:* Lew Peterson; *Dist. Mgr.:* Jack F. Barker

SPRAGUE ELEC. CO., 481 Marshall St., No. Adams, MA 01247, Tel: 413-664-4411, Telex: 92-6415, TWX: 710-369-1360; FSC No.: 56289; Empl.: 10,500; *Dist. Mgr.:* J. J. Judge

SPRAGUE ELECTRIC COMPANY, Distribution Division, 481 Marshall St., No. Adams, MA 01247, Tel: 413-664-4481, TWX: 710-369-1363; FSC No.: 56289; *Sls. Mgr.:* J. Judge; *Dist. Mgr.:* Lyle Pirnie

SPRAGUE ELEC. CO., Integrated Circuit Div., 115 Northeast Cutoff, Worcester, MA 01606, Tel: 617-853-5000, TWX: 710-340-6304; FSC No.: 56289; Empl.: 700

SPRAGUE-GOODMAN ELCTRNS., INC., 134 Fulton Ave., Garden City Pk., NY 11040, Tel: 516-746-1385, Telex: 14-4533; FSC No.: 52769; Empl.: 80; *Sls. Mgr.:* David Taub; *Dist. Mgr.:* David Taub .... **A•1173**

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	Burlingame, W. J. Purdy Co.	415-347-7701
CA	Garden Grove, Megacap	714-891-5176
CA	Garden Grove, National Capacitor	800-854-2451
CA	Los Angeles, R.F. Assocs.	213-478-1586
CA	San Diego, R. D. Miner, Inc.	619-566-9891
CO	Denver, W. J. Purdy Co.	303-753-6800
FL	Pompano Beach, Cole-Tek	305-781-8110
GA	Smyrna, Spartech	404-446-7300
IL	Chicago, B.N.I. Elctrns.	312-775-1717
IN	Ft. Wayne, Denton Mktg., Inc.	219-627-5515
IA	Marion, M.S.B. Assocs.	319-377-6261
KS	Shawnee Mission, M.S.B. Assocs.	913-432-2131
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Southboro, KSA of New England	617-485-9432
MI	Southfield, Fred H. Gehrke & Assocs.	313-559-5363
MN	Marion, M.S.B. Assocs., Inc.	319-377-6261
MO	St. Charles, M.S.B. Assocs.	314-946-5577
NJ	Wayne, Richman Salesco - Kagan	201-694-1115
NY	Commack, Richman Salesco	516-543-5532
NY	Utica, Sweetco Assocs.	315-797-6721
OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
TX	Austin, Delta Comps.	512-458-4288
TX	Seagoville, Delta Comps.	214-287-6333
WA	Seattle, Sprague Elec. Co.	206-632-7761
WA	Vancouver, Sprague Elec. Co.	206-892-0361

Local Distributors

CA	Garden Grove, National Capacitor	714-891-5179
CA	Santa Ana, Projections Unlimited	714-641-1472
MA	Burlihgton, T.L.C.	617-273-0140
MA	Needham, Cronin Elctrns.	617-449-5000
NY	Lynbrook, Varitech Elctrns.	516-593-9300
PA	State College, ALVO Elctrns.	814-238-0505
TX	Addison, Captronics	214-980-0123
TX	Garland, J & S Elctrns.	214-487-8808
WA	Seattle, KAM Elctrns.	206-382-1300

SPRINGFIELD MOULDERS, INC., See ITT Thermotech

SPRUCE PINE MICA CO., Mtn. Laurel Dr., Spruce Pine, NC 28777, Tel: 704-765-4241; Empl.: 45; *Sls. Mgr.:* Hugh M. Wiseman

SPS SOFTWARE PRODUCTS & SERVICES, INC., 14 E. 38th Street, 14th Fl., New York, NY 10016, Tel: 212-686-3790, Telex: 852616; *Sls. Mgr.:* Dr. Alex Rainer

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SR ENGINEERING, INC., 13961 Nautilus Dr., Dept. E, Garden Grove, CA 92643, Tel: 714-554-4200, Telex: 364412INTR-871; FSC No.: 21441; *Sls. Mgr.:* Coleman W. Conrad

S S A C, Box 395, Liverpool, NY 13088, Tel: 315-622-1000, Telex: 646221, TWX: SSAC LIPL; FSC No.: 16-0985719; Empl.: 220; *Sls. Mgr.:* G. Weeks

STACKBIN CORP., Albion Road, Lincoln, RI 02865, Tel: 401-333-1600; Empl.: 75; *Sls. Mgr.:* J. J. Patterson

STACKPOLE (THE STACKPOLE CORP.), Stackpole St., St. Marys, PA 15857, Tel: 814-781-1234, Telex: 914-514, TWX: 510-693-4511; FSC No.: 78488

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STACOSWITCH, 1139 Baker St., Costa Mesa, CA 92626, Tel: 714-549-3041, TWX: 910-595-1507; FSC No.: 12522;Multiple; Empl.: 100; *Sls. Mgr.:* D. Sugg

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AL	Huntsville, 20th Century Mktg., Inc.	205-533-9281
CA	Los Altos, Recht Assocs.	415-964-6321
CO	Golden, J. F. Hurlbut Co.	303-279-7796
CT	Marion, Sands Co.	203-628-4363
FL	Orlando, EMA, Inc.	305-671-6800
GA	Stone Mountain, 20th Century Mktg., Inc.	404-292-7088
IL	Oak Brook, MSL Assocs.	312-655-8977
IN	Richmond, EMA, Inc.	513-433-2800
IA	Cedar Rapids, H. R. Brown Sls.	319-366-0635
KS	Kansas City, B-C Elctrn. Sls.	913-342-1211
MD	Silversprings, Youth & Nelson	301-598-5740
MA	Woburn, Sands Co.	617-935-7495
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
MO	St. Louis, B-C Elctrn. Sls.	314-731-1255
NJ	Wayne, G.T. Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, C.A. Robinson Co.	216-381-9049
OH	Dayton, C.A. Robinson	513-278-7969
OR	Portland, Frank Jackson Assocs.	503-292-2638
PA	Media, W. Reeves Assocs.	215-566-6709
TN	Knoxville, 20th Century Mktg., Inc.	615-690-1618
TX	Austin, Delta Comps.	512-458-4288
TX	Dallas, Delta Comp.	214-358-4288
TX	Houston, Delta Comps.	713-664-6777
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
WA	Redmond, Frank Jackson Assocs.	206-881-7277

STACO TRANSPOWER

STACO TRANSPOWER, 301 Gaddis Blvd., Dayton, OH 45403, Tel: 513-253-1191, Telex: 288-032, TWX: 810-459-1798; FSC No.: 83008; Empl.: 100; *Sls. Mgr.:* T. D. McNulty .... **A•2288**

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AZ	Scottsdale, Power Specialists	602-996-4100
CA	Buena Park, Chuck Cooper Co.	714-739-8526
CA	Los Altos, Frauman Assoc.	415-941-0660
CT	Natick, Benchmark Assoc.	617-899-3390
FL	Tampa, J R Controls	813-961-9478
GA	Atlanta, Remco	404-447-6937
IA	Cedar Rapids, Di-tronix, Inc.	319-377-8275
KY	Cinci, Tri-State Mktg.	513-761-7993
MA	Natick, Benchmark Assocs.	617-655-9333
MI	Southfield, Fred Gehrke & Assocs.	313-559-5363
MN	Arlington Hgts., Diethert-Angel	312-593-7600
MN	Minneapolis, Diethert Angel	612-546-6099
MO	Kansas City, Di-tronix, Inc.	816-356-6340
MO	St. Louis, Di-tronix, Inc.	314-291-4777
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NJ	Mountain Lakes, Levison Sls. Co. Inc.	201-334-2921
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OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Richardson, Jim D. Gray & Assocs. ...	214-699-9976
WI	Menomonee Falls, Walter M. Braun & Assocs.	414-251-8685

STAFFALL INC., 7 Woodland St., Providence, RI 02908, Tel: 401-351-8282, TWX: 710-381-6964; Empl.: 25

STAINLESS, INC., 3rd St., N. Wales, PA 19454, Tel: 215-699-4871, TWX: 510-661-8097; Empl.: 80; *Sls. Mgr.:* Jess C. Rodriguez

STANCOR/HAMILTON STANDARD CONTROLS, 131 Godfrey St., Logansport, IN 46947, Tel: 219-722-2244, TWX: 810-295-0699; FSC No.: 80089; *Sls. Mgr.:* Hubert Daubs .... **A•2289-2297; B•1447**

STANDARD CONDENSER CORP., 1065 W. Addison St., Chicago, IL 60613, Tel: 312-327-5440; FSC No.: 97419; *Sls. Mgr.:* B. P. McLean

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CT	Cheshire, Meco Co.	203-271-0026
TX	Dallas, P.J. Scanlon Co.	214-231-4661

STANDARD ENGRG., 44800 Industrial Dr., Fremont, CA 94538, Tel: 415-657-7555, TWX: 910-381-6048; Empl.: 40

STANDARD ENVIRONMENTAL SYSTEMS, INC., 383 Minnisink Rd., Totowa, NJ 07512, Tel: 201-256-2200, TWX: 710-988-5722; Empl.: 50

STANDARD GRIGSBY, INC., Gordos International Corp., 920 Rathbone Ave., Aurora, IL 60507, Tel: 312-844-4300, TWX: 910-232-3138; Empl.: 350; *Sls. Mgr.:* Lou Falco; *Dist. Mgr.:* Ed Barry .... **B•1568-1570**

Local Sales Offices & Reps

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CA	Laguna Hills, Jack Fitch & Assocs.	714-951-0196
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
NJ	Mountain Lakes, Components for Elctrns.	201-334-2921
NC	Peachland, D. P. McDonald	704-272-8747
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Casselberry, Southern Elctrn. Mktg. ...	305-831-2822
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
IA	Marion, Rep Assocs.	319-373-0152
KS	Parker, S. W. Wollard	918-898-6552
LA	Hammond, Design Mktg.	504-294-3076
MI	Ann Arbor, R. L. Rowe & Assocs.	313-995-8711
MI	Livonia, Luebbe Sls.	313-477-3131
MN	Bloomington, Murnco	612-854-4161
NY	East Northport, Comps. for Elctrncs. ..	516-266-5020
OH	Cincinnati, Luebbe Sls.	513-891-5770
OK	Tulsa, Design Mktg.	918-622-7744
OR	Aloha, Micro Sls.	513-642-1818
PA	Pittsburgh, Luebbe Sls.	412-931-0414
TX	Dallas, Design Mktg.	214-680-9767
WA	Bellevue, Micro Sls.	206-451-0568

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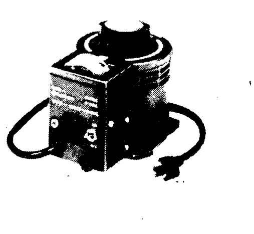

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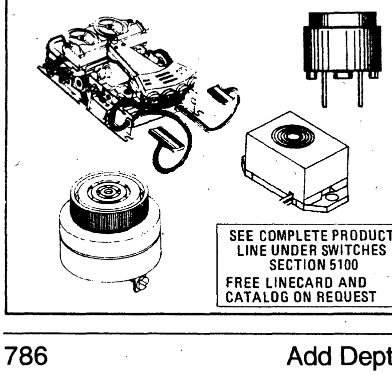

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AL	Hunstville, Rob Radkley/Mitscher Co.	205-882-6050
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CA	Los Angeles, Ellard Strassner Co.	818-242-8823
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IL	Arlington Hts, Brainard-Wilson Mktg.	312-437-2700
IN	Brownsburg, William Deem	317-852-8006
IA	W. Des Moines, Jerry Skinner/Nevco	515-225-9866
MA	Southboro, KSA of New England	617-485-9432
MI	Farmington Hills, WR Hummon	313-474-0661
MN	Bloomington, Quantum Sls.	612-884-4700
MO	N.Kansas City, Nevco, Inc.	816-421-1751
NY	Buffalo, RW Mitscher	716-633-7970
NY	Jamaica, S-J Sls.	718-291-3232
NY	Rochester, Jim Baker/Mitscher Co.	716-227-0839
NY	Utica, Doug Hendrick/Mitscher Co.	315-733-0171
NC	Raleigh, RW Mitscher Co.	919-848-0941
OH	Cincinnati, Standex	513-871-3777
OH	Dayton, JC Hofstetter	513-296-1010
OR	Portland, Components Tech.	503-292-1518
PA	Wynnewood, Metz-Benham Assoc.	215-896-7300
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TX	Arlington, Hite Electonic Sls.	817-265-2912
VA	Midlothian, Jeff Ward/Mitscher Co.	804-744-4676
WI	Waukesha, Brainard-Wilson Mktg.	414-797-7940
Can	Oakville, Anbak Sls.	416-842-6630

Local Distributors

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CA	Santa Ana, Norstan Elctrns. Inc.	714-250-4903
CT	North Haven, Elm State Elctrns. Inc	800-243-0049
IL	Crystal Lake, Sub-Sem, Inc.	815-459-4139
MA	Westford, Electronic Specialties	617-486-8495
NJ	Nutly, Vantage Comp.	201-667-1840
SC	Florence, Anco Elctrns.	803-669-3956

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Filter/Power Devices

CA	San Diego, Stanford Applied Engrg.	619-569-6959
NY	Nelville, Stanford Applied Engrg.	516-420-8027

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CT	Farmington, Stanford Applied Engrg.	203-677-6046

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STANLEY ELCTRNS., INC., 592 Oak St., Copiague, NY 11726, Tel: 516-842-8866; FSC No.: 61544; Empl.: 6; *Sls. Mgr.:* Isabel Goldberg

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NY	Great Neck, M C S Assocs.	516-487-3966
OH	Dayton, L. D. Bruno Co.	513-434-1847

STANLEY-VIDMAR, Stanley Works, 11 Grammes Rd., Allentown, PA 18103, Tel: 215-797-6600; *Sls. Mgr.:* Ernie Gitlin

STANPAT PRODS., 366 Main St., Port Washington, NY 11050, Tel: 516-883-8400; Empl.: 25

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AZ	Tucson, Shefler/Kahn Co.	602-293-7181
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CA	Pleasanton, Moulthrop Sls.	415-463-0450
CA	San Diego, Landal Minyard	619-942-1086
CA	Santa Ana, Landal Minyard	714-543-7805
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GA	Jonesboro, Wallace Elctrn. Sls.	800-334-3578
HI	Honolulu, J.C. Elctrns.	808-841-5526
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
MA	Needham, Ray Perron & Co.	617-449-6162, 800-225-4280
MN	Minneapolis, Berndt Assocs.	612-546-2021
MS	Hazelwood, Stone & Assocs.	314-895-4565
NH	Dover, Ray Perron & Co.	603-742-2321
NJ	Pennsauken, Sci-Rep	609-662-5222
NJ	Wayne, G.T. Assocs.	201-694-6040
NM	Albuquerque, Shefler-Kahn Co.	505-265-7049
NY	Rochester, Gislason Sls.	716-328-7400
NC	Kernersville, Wallace Elctrn. Sls.	919-996-2742
OH	Cincinnati, Kenneth C Hoffman Jr., Co.	513-931-1686
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TX	Houston, Barry Sls. Co.	713-784-5860
TX	Richardson, Barry Sls. Co.	214-234-0255
VA	Fairfax, Sci-Rep	703-385-0600
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Local Sales Offices & Reps

AL	Huntsville, REMCO	205-533-3763
AZ	Phoenix, MacDonald Assocs.	602-998-1848
CA	Fullerton, Groh Assocs.	714-738-7105
CA	San Diego, Groh Assocs.	619-696-0054
CA	San Jose, G. R. McKnight Co.	408-942-0880
CO	Englewood, Martec Assocs.	303-741-2704
FL	Casselberry, Southern Elctrn. Mktg.	305-831-2822
FL	Ft. Lauderdale, Southern Elec. Mktg.	305-475-3686
GA	Atlanta, REMCO	404-447-6937
IL	Elk Grove Village, Parcom, Inc.	312-338-6360

IN	Indianapolis, Midstates Mktg.	317-639-9999
IA	Cedar Rapids, Elctrn. Innovators	319-362-2217
KS	Shawnee Mission, Microtronics	913-262-1444
MD	Baltimore, Adcour	301-521-3536
MA	Sharon, Adcour	617-784-8123
MI	Southfield, Component Assocs.	313-557-3232
MN	Eden Prairie, Elctrn. Innovators	612-941-0830
MO	St. Charles, Microtronics, Inc.	314-946-8500
NJ	Sparta, Instr. & Equip.	201-729-4293
NY	Rockaway Park, Metropolitan Sls.	718-634-3100
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Bedford, A.S.A. Assocs.	216-662-6080
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WV	Spokane, Controltek	509-922-2971
Can	Markham, Lenbrook	416-477-7722
Can	Calgary, Alberta, Lenbrook	403-252-3577

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CA	Los Angeles, Elect. Switches	213-660-1301
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CA	Santa Clara, Waltronics Sls.	408-727-1200
FL	Davie, Arco Dist., Inc.	305-473-2550
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Wheeling, Hawk Elctrns.	312-459-4030
MA	Sharon, Adcour	617-784-8123
MI	Brighton, AP Sls. Co.	313-229-6550
MI	Grand Rapids, S. F. Elec. Supp., Inc.	616-459-0126
NJ	Sparta, Instr. & Equip.	201-447-3525
NJ	Sparta, Instrument & Equip.	201-729-4293
NJ	Waldwick, Production Supp. & Equip.	201-447-3525
NY	Rockaway Park, Metropolitan Sls.	212-634-3100
OH	Cincinnati, United Radio Inc.	513-761-4030
OR	Portland, United Radio Supp.	503-233-7151
TX	Channelview, R. T. Henry Elctrns.	713-452-4451
TX	Dallas, Foxfire	214-353-9543
TX	Dallas, Wholesale Elec. Supp.	214-824-3001
TX	Houston, Copper Alarm Supp. Co.	713-868-1794
WI	New Berlin, NEP Elctrns.	414-785-9100
Can	Markham, Ont., Lenbrook Elctrns.	416-477-7722

STAR PORCELAIN, 71 Muirhead Ave., Trenton, NJ 08638, Tel: 609-392-3154; Empl.: 100; *Sls. Mgr.:* Art Hobson

STAR-TRON CORP., 58 Curtis St., Providence, RI 02909, Tel: 401-274-5090, Telex: 929490; FSC No.: 32494; Empl.: 50; *Sls. Mgr.:* Anna Coski

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Local Sales Offices & Reps

AL	Huntsville, MacKay Smith & Assocs.	205-539-8000
AZ	Phoenix, Eltron	602-266-2164
CA	El Toro, Martronix	714-858-0632
CA	Mountain View, Weseloh/Swanson & Assocs.	415-961-0565
CA	San Diego, Mesa Engrg. & Sls. Assocs.	619-278-8021
CO	Denver, Elcom	303-337-2300
FL	Madeira Beach, MacKay, Smith & Assocs.	813-393-7144
FL	Orlando, MacKay, Smith & Assocs.	305-423-4353
GA	Norcross, MacKay, Smith & Assocs.	404-449-7444
IL	Northbrook, Raines & Assocs.	312-498-0890
IN	Fort Wayne, M/S Sls. & Assocs.	219-436-3023
IN	Indianapolis, M/S Sls. & Assocs.	317-257-8916
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MD	Columbia, Professional Reps.	301-992-7460
MA	Woburn, Radian Assocs.	617-933-7386
MO	St. Louis, Thomas L. Dowell & Assocs.	913-648-7373
NJ	Bellmawr, TAI Corp.	609-933-2600
NJ	Manhasset, Win-Cor Elec. Sls. Corp.	516-627-9474
NY	Syracuse, PI' Tronics	315-455-7346
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-851-5000
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
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UT	Salt Lake City, Elcom	801-485-7415
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WA	Vancouver, Halbar Assocs.	206-696-0170

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
CA	Irvine, Ryno Elctrns.	714-261-2500
CA	Mountain View, Target Elctrns.	415-961-1170
CA	San Diego, Ryno Elctrns.	619-453-8430
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IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Mar Elctrns., Inc.	317-875-4510
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NY	Buffalo, Summit Distrs.	716-884-3450
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Local Sales Offices & Reps

CA	Woodland Hill, R. H. McDonald & Assocs.	213-348-3766
IL	Lombard, RMP/McBride Corp.	312-932-9090
MA	Scituate, Jack Goss	617-545-6327
MI	Ann Arbor, Elliott Sls.	313-662-4087
MN	St. Louis Park, Lestronix	612-926-8466
NH	Hancock, Eisenbeis Sls.	603-357-4892
NY	East Northport, Levison Sls. Co.	516-266-5020
NY	Manlius, Bowser & Sapecky Assocs.	315-682-8885
NC	Cary, Tom G. Santel	919-467-7595
OK	Tulsa, Jerry Robinson & Assocs.	918-492-0390
OR	Beaverton, Quest Mkgt.	503-641-7377
PA	Colmar, Eastern Scientific Mktg.	215-822-0157
PA	Sewickley, T. H. Stewart Co.	412-741-8665
SC	Mauldin, Carl Hart	803-288-2323
TX	Houston, Cunningham Co.	713-461-4197
VA	Portsmouth, F.B.D. Sls.	804-484-3162
WA	Bellevue, Quest Mkgt.	206-747-9424

STD MICROSYSTEMS, 399 Sherman Ave., Palo Alto, CA 94306, Tel: 415-327-6800; *Sls. Mgr.:* Gary Whittaker; *Dist. Mgr.:* Gary Whittaker

STENNING INSTRMENTS, INC., 671 Enchanted Way, Pacific Palisades, CA 90272, Tel: 213-459-2930; *Sls. Mgr.:* Charles Stenning

STEP ENGINEERING, P.O. Box 61166, Sunnyvale, CA 94088, Tel: 408-733-7837, TWX: 910-339-9506; Empl.: 30; *Sls. Mgr.:* Stan Trumbull

STERLING INSTR., Div. Designatronics, Inc., 2101 Jericho Turnpike, New Hyde Pk., NY 11040, Tel: 516-328-3300, TWX: 510-223-0642; Empl.: 150

STERLING TRANSFORMER CORP., 510 Driggs Ave., Brooklyn, NY 11211, Tel: 718-782-4200; FSC No.: 97102; Empl.: 45; *Sls. Mgr.:* P. H. Odessey .... **A•2299-2303**

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Local Sales Offices & Reps

AZ	Scottsdale, Western High Tech. Mktg.	602-949-0873
CA	Cupertino, F & F Assocs., Inc.	408-446-2349
CA	San Marcos, Stettner California, Inc.	619-471-0124
CO	Aurora, Mountain View Mktg.	303-360-9641
CT	Ridgefield, Phoenix Sls. Co.	203-438-9644
FL	Orlando, Stettner Elctrns.-Florida	305-291-7756
IL	Rosemont, Stettner Central, Inc.	312-671-4208
IN	Fort Wayne, J & B Engrg. Sls.	219-483-2813
MA	Stow, Today Comp. Sls. Corp.	617-897-7500
MO	Kansas City, Delltron Co., Inc.	816-436-6445
MO	St. Louis, Delltron Co., Inc.	314-769-4779
NJ	Englewood, Sprung & Nussbaum, Inc.	201-569-5666
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NM	Albuquerque, Western High Technlg. Mktg.	505-262-2461
NY	Cazenovia, S.T. Woolard Co.	315-655-8145
OR	Beaverton, Luscombe Engrg. Co., NW	503-636-6664
TN	Chattanooga, Stettner Elctrn Sls.	615-892-0291
TX	Richardson, Lelko-Paulsen Sls. Co.	213-680-9588
UT	Murray, Mountain View Mktg.	801-264-8488
Can	Concord, Ont., Stettner Canada, LTD.	416-661-5190

Local Distributors

AZ	Phoenix, Arizona Comps.	602-269-5655
CA	Garden Grove, National Capacitor Corp.	213-598-9611
CA	San Jose, Capacitors Comps.	408-946-7676
CA	San Marcos, California Comps.	619-471-0123
CA	Sunnyvale, Capsco Sls., Inc.	408-734-3020
CA	West Covina, Component Svc., Inc.	818-960-4761
CO	Englewood, Industrial Elctrns., Inc.	303-694-9444
FL	Orlando, South-East Comps.	305-298-0321
IL	Rosemont, Central Comps.	312-671-4787
MO	St. Louis, RIC-Tronics	314-576-9816
NJ	Garfield, B & R Elctrns., Inc.	201-825-1304
NJ	Rockaway, Tonar Inds., Inc.	201-586-9000
NY	Lynbrook, Varitech Elctrns.	516-593-9300
NY	Rochester, Masline Elctrns.	716-546-5373
PA	Norristown, Century Elctrn.-Comps., Inc.	215-631-5400
PA	York, Electronic Comps. for Inds.	717-843-8971
TX	McKinney, Prime Distrb. Co.	214-231-0170
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
Can	Concord, Ont., Stettner-Canada	416-661-5190

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Refer to Computer Products, Inc., Pompano Beach, FL for sls. offices and reps. and for distrs. listings.

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Local Sales Offices & Reps

AL	Huntsville, Par Marketing, Inc.	205-837-6534
CA	Chatsworth, Western Comp. Sls.	818-882-6226
CO	Wheatridge, Manufacturers Mktg.	303-425-9569
FL	St. Petersburg, Tech-Rep Assoc., Inc.	813-577-2779
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
MD	Randallstown, Imagitron Sls. Co.	301-521-2020
MA	Lowell, Underwood Sls.	617-256-8191
MI	Southfield, R.C. Nordstrom & Co.	313-559-7373
MN	St. Paul, Northstar Motion & Control	612-770-5311
NY	Clark Mills, KLM-Garner, Inc.	315-853-6126
NY	New Hyde Park, SDP	516-328-3300
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
TX	Richardson, Zonk & Associates	214-238-7651
WA	Seattle, Northmar Inc.	206-524-5170

Local Distributors

CA	San Carlos, Logan Elctrns.	415-594-0700

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STOW LABS., INC., Kane Ind'l. Dr., Hudson, MA 01749, Tel: 617-562-9347, Telex: 94-8330; Empl.: 15

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STRAWBERRY TREE COMPUTERS, 949 Cascade Dr., Sunnyvale, CA 94087, Tel: 408-736-3083

STREET ELECTRONICS CORP., 1140 Mark Ave., Carpinteria, CA 93013, Tel: 805-684-4593; *Dist. Mgr.:* Rich Jenkins

STROBE, INC., 897 Independence Ave., Mountain View, CA 94043, Tel: 415-969-5130

STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, Tel: 213-204-0472; FSC No.: 2T043; Empl.: 3; *Sls. Mgr.:* Larry Martinek .... **C•1084-1085**

Local Sales Offices & Reps

NM	Albuquerque, Betatron	505-344-2381

STRUCTURED DESIGN, INC., 1700 Wyatt Dr. #7, Santa Clara, CA 95054, Tel: 408-988-0725, Telex: 172931; *Sls. Mgr.:* Noel C. Hendricks; *Dist. Mgr.:* Noel C. Hendricks

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Local Sales Offices & Reps

AL	Huntsville, Rep, Inc.	205-881-9270
AZ	Phoenix, Hecht, Henscher & Assocs.	602-275-4411
AR	Little Rock, Controls & Power	501-851-3048
CA	Culver City, DeAngelo, Rothman & Co.	213-827-2202
CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	San Diego, Struthers-Dunn	619-560-9922
CO	Denver, Lindberg Co.	303-758-9033
CT	Bloomfield, Zaslow Sls. Co.	203-242-7781
FL	Miami, Ludlum Assocs.	305-592-6524
FL	Orlando, Ludlum Assocs.	305-894-7761
GA	Tucker, Rep, Inc.	404-938-4358
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
IN	Indianapolis, Rockford Controls Co.	317-248-2518
IA	Bettendorf, BSI, Ltd.	319-355-5623
KS	Wichita, Avionics Engrg.	316-264-6201
LA	Lafayette, Kemp Engrg.	318-269-9452
MD	Baltimore, Struthers-Dunn, Inc.	609-589-7500
MI	Southfield, L. H. Dickelman Co.	313-353-8210
MN	Minneapolis, HMR, Inc.	612-888-2122
MO	Maryland Heights, Hitt & Assocs.	314-878-5404
NJ	Pitman, Struthers-Dunn, Inc.	609-585-7500
NJ	West Caldwell, Grimm, Siegel Assocs.	201-575-9300
NM	Albuquerque, Hecht, Henschen & Assocs., Inc.	505-821-3979
NY	Buffalo, H. C. Zang Agency	716-877-3677
NC	Charlotte, J. Rudisill Assocs.	704-377-6901
OH	Cincinnati, Struthers-Dunn	513-772-3108
OH	Strongsville, Struthers-Dunn	216-572-1333
PA	Pittsburgh, R. F. Clark Co.	412-242-9500
TX	Bedford, W. Pat Fralia Co.	817-267-3577
TX	Houston, W. Pat Fralia Co	713-772-1572
WA	Seattle, Eicher-Richards Co.	206-523-7888
Can	Scarborough, Ont., Renfrew Elec. Co., Ltd.	416-752-4611

ST-SEMICON, 415 N. College Ave., P.O. Box 609, Bloomington, IN 47402, Tel: 812-332-1435, TWX: 810-351-1384; Empl.: 100; *Sls. Mgr.:* Robert Muldoan

SUCKLE CORP., 733 Davis St., Dept. EM, Scranton, PA 18505, Tel: 717-346-3871; Empl.: 200; *Sls. Mgr.:* M. H. Brenner

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SULLINS ELCTRNS. CORP., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, Tel: 619-744-0125, TWX: 910-322-1472; Empl.: 100; *Sls. Mgr.:* Chip Bruss; *Dist. Mgr.:* Chip Bruss .... **C•1518-1521**

Local Sales Offices & Reps

AL	Decatur, Tenn Tech, Inc.	205-350-0630
AZ	Scottsdale, Harris & Croy Sls.	602-951-9121
AZ	Tucson, Harris & Croy Sls.	602-575-5109
CA	Canoga Park, K.C.P. Ent.	818-340-8086
CA	La Canada, K.C.P. Ent.	818-790-3939
CA	San Diego, Sun Harbor Mktg.	619-695-2994
CA	Sunnyvale, Schwerin & Merril, Inc.	408-735-7900
CO	Arvada, Cluff & Assocs.	303-423-9354
CT	New Canaan, Impact Sls.	203-972-1458
GA	Atlanta, Tenn Tech., Inc.	404-622-5784
IL	Elmhurst, Utronix Sls., Inc.	312-834-1100
IN	Indianapolis, Sukup & Cox	317-253-5501
IA	Marion, M-S-B Assoc.	319-377-6261
KS	Shawnee Mission, M-S-B Assoc.	913-432-2131
MD	Laurel, CSDS, Inc.	301-490-3800
MA	Canton, Impact Sls.	617-821-1500
MN	Minneapolis, RK Sls. Assocs., Inc.	612-786-5713
MO	St. Charles, M-S-B Assoc.	314-946-5577
NJ	Medford, Comp. Consultants	609-654-5300
NY	Lynbrook, HLJ Comp-Tech	516-599-2999
NC	Tenn Tech., Inc.	919-266-3610
OH	Beachwood, Elctrn. Salesmasters, Inc.	216-831-9555
OR	Portland, Electronic Mktg. Grp.	503-252-0610
TX	Austin, T.L. Mktg.	512-453-4586
TX	Dallas, T.L. Mktg.	214-357-1752
UT	Salt Lake City, Cluff & Assocs.	801-486-7297
WA	Redmond, Elctrn. Mktg. Grp.	206-882-0962
WI	Mequon, Artmor Ltd.	414-241-4040

Local Distributors

AL	Huntsville, Contact Elctrns., Inc.	205-881-9321
AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Phoenix, Camco Elctrn. Dist.	602-269-6201
AZ	Scottsdale, Comp. Tech., Inc.	602-998-1484
CA	Burbank, Atwater Elctrns.	818-841-9050
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Arvada, Denver Wintronics	303-431-7161
CO	Denver, C.S.I.D.	303-292-9594
CO	Wheatridge, Cypress Elctrns.	303-431-2622
FL	Hialeah Gardens, Baron Elctrns. Sls. Co.	305-556-1300
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Winter Park, Deanco	305-671-5100
GA	Atlanta, Ack Radio Supp.	404-351-6340
GA	Marietta, Deanco	404-429-0126
IL	Carol Stream, Lectro Comps.	800-323-2282
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Melrose Pk., Belford Elctrns.	312-865-2400
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Ft. Wayne, Graham Elctrns.	317-634-8202
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, RM Elctrns.	317-291-7110
KS	Shawnee Mission, M-S-B Assocs., Inc.	913-432-2131
MD	Gaithersburg, Axis Elctrns., Inc.	301-840-9640
MD	Gaithersburg, Deanco	301-948-5444
MD	Timonium, M x 4 Elctrns., Inc.	301-251-1192
MA	Canton, Impact Sls.	617-821-1500
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Glenmark	612-941-4825
MO	Independence, Ragon Elctrns.	816-254-3410
NJ	Audobon, Action Elctrns.	609-858-2450
NJ	Bellmawr, Mid-Atlantic Elctrns.	609-931-5303
NJ	Fairfield, Deanco	609-325-8292
NM	Albuquerque, Electronic Parts	505-293-6161
NM	Las Cruces, Electronic Parts	505-523-4578
NY	Ithaca, Deanco	607-257-4444
NY	Lynbrook, Forejay Assocs.	516-599-2999
NC	Charlotte, Southeastern Elctrns.	704-523-1122
NC	Durham, Southeastern Elctrns., Inc.	919-688-8204
NC	Fayetteville, Southeastern Elctrns., Inc.	704-523-1122
NC	Raleigh, Southeastern Elctrns., Inc.	919-828-2311
OH	Cincinnati, Schuster Electr.	513-489-1400
OH	Solon, REH Elctrns.	216-248-1636
OH	Twinsburg, Schuster Elec. Co.	216-425-8134
OR	Portland, Dunn Elctrns.	503-285-0214
RI	Warwick, Cal-Greg Comps., Inc.	401-738-6170
TN	Chattanooga, Indl. Elctrns. Dist.	615-698-3413
TN	Knoxville, Indl. Electrns.	615-573-7135
TX	Addison, Connec/Tek, Inc.	214-733-4411
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Dallas, Off the Shelf Comps.	214-247-0052
TX	Dallas, RM Elctrns.	214-869-2080
TX	Garland, J&S Elctrns.	214-487-8808
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
VA	Annadale, Arcade Elctrns., Inc.	703-256-4610
WA	Seattle, Carlyle Techn. Sls.	206-575-6750
WI	Mequon, Lake-View Elctrns.	414-377-8250
WI	Milwaukee, Industrial Elctrns. Corp.	414-276-1212
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AL	Huntsville, Electro-Mech	205-533-2100
AZ	Phoenix, MacDonald Assoc.	602-998-1848
CA	Agoura, Cal Rep	213-991-1940
CA	Sunnyvale, Sourcetronics	408-773-1931
CA	Sunnyvale, SourceTronics	408-773-1931
CA	Woodland Hills, Craig Assoc.	213-887-2444
CA	Woodland Hills, Craig Assocs.	213-887-2444
CO	Broomfield, Wescom Mktg.	303-741-4900
FL	Pompano Beach, Electrocraft	
FL	Winter Park, Electrocraft	305-628-4705
GA	Atlanta, Electro-Mech	404-447-6478
IL	Barrington, Omni Elctrns. Mktg.	312-381-9087
IL	Roselle, Omni Elctrns. Mktg.	312-351-2507
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
MD	Timonium, Heller Sales	301-252-4780
MD	Timonium, Heller Sls.	301-252-4780
MA	Braintree, R. F. Duffy	617-848-3550
MA	Braintree, R. F. Duffy & Assocs.	617-848-3550
MI	Detroit, Jack M. Thorpe	313-779-6363
MI	E. Detroit, Jack M. Thorp	317-779-6363
MN	Minneapolis, Electro Serve	612-338-3475
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MO	Hazelwood, Stone & Assoc.	314-895-4564
MO	Hazelwood, Stone & Assocs.	314-895-4564
NJ	N. Plainfield, T & K Sls.	201-755-2878
NJ	Upper Sadle River, Bob Cameron	201-825-1304
NM	Albuquerque, McDonald & Assoc.	505-883-0500
NY	Smithtown, T & K Sales	516-724-3456
NY	Smithtown, T & K Sls.	516-724-3456
NC	Raleigh, Electro-Mech	919-851-8165
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OH	Dayton, Arthur Baier Co.	513-276-4128
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TX	Richardson, Barry Sls.	214-234-0255
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SUMX CORP., Box 14864, Austin, TX 78761, Tel: 512-835-0330, Telex: 910-350-5536; Empl.: 30; *Sls. Mgr.:* Wood Bouldin

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SUN ELECTRONIC SYSTEMS, INC., 1601 NW 38th Ave., Ft. Lauderdale, FL 33311, Tel: 305-587-5577; Empl.: 10; *Sls. Mgr.:* Ralph Raymond

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SUNOL SYSTEMS, 1187 Quarry Lane, Pleasanton, CA 94586, Tel: 415-484-3322, Telex: 703175; Empl.: 43; *Sls. Mgr.:* Sam Giarmo/Brad Baucus/Virginia Wurts; *Dist. Mgr.:* Dan McKenzie

SUN RESEARCH, INC., Box 210, Old Bay Rd., New Durham, NH 03855, Tel: 603-859-7110, TWX: 510-297-4444; *Sls. Mgr.:* Harvey D. Fox

SUNRISE ELECTRONICS, INC., 524 S. Vermont Ave., Glendora, CA 91740, Tel: 818-914-1926, TWX: 910-584-3847; *Sls. Mgr.:* Richard K. Armstrong

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151 Ludlow St, Yonkers, NY 10705, Tel: 914-965-6906, Telex: 13-1584; Empl.: 112; *Sls. Mgr.:* M. Solomon, Mktg

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SUPERIOR CABLE CORP., See Siecor Corp.

SUPERIOR CARBON PRODS., INC., 9115 George Ave., Cleveland, OH 44105, Tel: 216-883-4880; Empl.: 105; *Sls. Mgr.:* Paul Merrill Kling

SUPERIOR ELEC. CO., 383 Middle St, Bristol, CT 06010, Tel: 203-582-9561, Telex: 962-446, TWX: 710-454-0682; FSC No.: 58474; Empl.: 1000; *Sls. Mgr.:* H. W. Lorenson; *Dist. Mgr.:* A. Nicholson ... **A•2304-2305; B•1192-1193; C•1523; D•1968**

Local Sales Offices & Reps

CA	Burlingame, W. J. Purdy Co.	415-347-7701
CA	Carson, Superior Elec.	213-830-7750
CA	Santa Clara, Superior Elec.	408-748-7772
CO	Denver, W. J. Purdy Co.	303-753-6800
CT	Bristol, Superior Elec.	203-582-9561
FL	Apopka, G. F. Bohman Assocs.	305-886-1882
FL	Deerfield Beach, Power Solutions	305-428-8330
FL	Ft. Lauderdale, Bredesen & Assocs.	305-566-3289
HI	Honolulu, B. F. Wittenberg Co.	808-833-1602
IL	Glen Ellyn, Superior Elec.	312-858-2960
IA	W. Des Moines, JPS Assoc. Ltd.	515-225-0607
MA	Wellesley Hills, Superior Elec.	617-237-0750
MI	Detroit, Superior Elec.	313-229-2381
NY	Rochester, R. L. Kistler, Inc.	716-436-1940
NY	Rochester, Ross Equip. Co. Inc.	716-271-5660
NY	Smithtown, Superior Elec.	516-361-9177
NC	Charlotte, Superior Elec.	704-535-7777
OH	Medina, Superior Elec.	216-725-8887
PA	Blue Bell, Superior Elec.	215-825-9123
TX	Dallas, Superior Elec.	214-350-1368
TX	Plano, B & R Elctrn. Sls. Corp.	214-985-0028
WA	Issaquah, Superior Elec.	206-392-8559
Can	Toronto, Ont., American Superior Elec. Co., Ltd.	416-255-2318

SUPERIOR FLUX & MFG. CO., 95 Alpha Pk., Cleveland, OH 44143, Tel: 216-461-3315; Empl.: 5

SUPERIOR MFG. & INSTR., 19-36 38th St, Long Island City, NY 11105, Tel: 212-932-1800, TWX: 710-582-2626; Empl.: 120; *Sls. Mgr.:* C. J. Robison

SUPERTEX, INC., 1225 Bordeaux Dr., P.O. Box 3607, Sunnyvale, CA 94088, Tel: 408-744-0100, TWX: 6839143 SUPTX; *Sls. Mgr.:* Richard Siegel

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AL	Huntsville, Macro Mktg.	205-883-9630
AZ	Scottsdale, SMS & Assocs.	602-998-0831
CA	El Toro, Supertex, Inc.	714-533-0481
CA	Glendale, Orion Sls.	818-240-3151
CA	Los Altos, Ewing-Foley	415-941-4525
CA	San Diego, Earle Assocs.	619-278-5441
CA	Tustin, Orion Sls.	714-832-9687
CO	Denver, Elcom	303-337-2300
CT	Englewood, Ed Glass Assocs.	201-592-0200
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
FL	Maitland, Dyne-A-Mark	305-831-2097
FL	Palm Bay, Dyne-A-Mark	305-727-0192
IL	Des Plaines, Janus	312-298-9330
IN	Indianapolis, Sai Mktg.	317-241-9276
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
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MI	Brighton, Sai Mktg.	313-227-1786
MN	Bloomington, Smiley-Scott Assocs.	612-888-5551
MO	St. Louis, Advanced Tech. Sls.	314-878-2921
NJ	Englewood Cliffs, Supertex, Inc.	201-947-3844
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NY	Hauppague, Calita	516-582-5432
NY	Binghamton, Gen-Tech Elctrn. Sls.	607-648-8833
NY	Liverpool, Gen-Tech Elctrn. Sls.	315-451-3480
NY	Pittsford, Gen-Tech Elctrn. Sls.	716-381-2820
NY	Pleasant Valley, Gen-Tech Elctrn. Sls.	914-635-3233
OH	Centerville, Omega Sls.	513-434-5507
OH	Centerville, Sai Mktg.	513-435-3181
OH	Shaker Heights, Sai Mktg.	216-751-3633
OR	Tigard, Electronic Comp. Sls.	503-245-2342
TX	Austin, T. L. Mktg.	512-453-4586
TX	Dallas, T. L. Mktg.	214-357-1752
TX	Fort Worth, Supertex, Inc.	817-457-5677
UT	Salt Lake City, Elcom, Inc.	801-532-7940
VA	Columbia, Delta III Assocs.	301-730-4700
VA	Midlothain, Delta III Assocs.	804-379-1816
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WI	Milwaukee, Janus	414-476-9104

SUPPORT SYSTEMS INTL. CORP., 150 South Second St, Richmond, CA 94804, Tel: 415-234-9090, TWX: 910-382-8130; Empl.: 105; *Sls. Mgr.:* Greg Richey; *Dist. Mgr.:* Greg Richey

SURGEONICS LTD., 344 Main St, Mt. Kisco, NY 10549, Tel: 914-241-3203; *Sls. Mgr.:* R. Diaz

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SWITCH CONTROLS, INC., 3815 Industry Blvd., Lakeland, FL 33803, Tel: 813-644-7564

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AZ	Phoenix, Howe & Hoew Sls.	602-264-7971
CA	San Diego, Wiley Co.	213-666-1611
CA	Santa Clara, Ross Mktg. Assoc.	408-988-8111
CO	Denver, Moss Mktg.	303-455-7205
CT	Stamford, Unesco/Genex	203-322-9308
FL	Orlando, Delmac Sls.	305-898-4688
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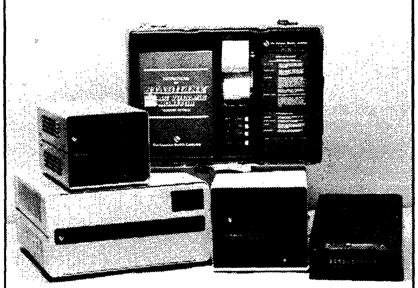

Offices
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(215) 673-6500 in PA, NJ, DE
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(301) 661-5900 in MD, VA

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(203) 773-3441 in New Haven, CT

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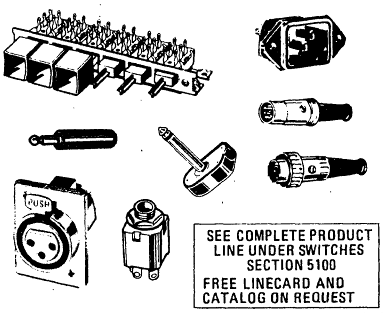

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MO	St. Louis, Thomas L. Dowell & Assoc.	314-849-4234
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NJ	Englewood Cliffs, Masin-Esco	201-569-8868
NM	Albuquerque, Moss Mktg.	505-292-7505
NY	E. Rochester, Ossmann Comp. Sls.	315-437-7052
NY	Syosset, Masin-Esco	201-569-8868
NY	Syracuse, Ossmann Comp. Sls.	716-424-4460
NY	Vestal, Ossmann Comp. Sls.	607-754-3264
NC	Raleigh, Rick Burns & Assocs.	919-876-2224
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OK	Tulsa, J. Y. Schoonmaker Co.	918-446-0373
TX	Dallas, J. Y. Schoonmaker Co.	214-349-1650
TX	Houston, J. Y. Schoonmaker Co.	713-738-2427
UT	Bountiful, Moss Mktg.	801-292-8660
WA	Bellevue, Comtec	206-453-1188

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GA	Atlanta, Rakes Engrg. & Mktg. Corp.	404-447-6937
IL	Arlington Heights, Thermek Inc.	312-577-6900
MD	Glen Burnie, Macrotech Assocs.	301-437-5588
MA	Hingham, Northeast Reps., Inc.	617-749-8700
MI	Dearborn	313-582-8754
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
NJ	Manville, Dynorep Inc.	201-685-0135
NY	Albany, H. C. Johnson Agencies, Inc.	518-459-1239
NY	Buffalo, H. C. Johnson Agencies, Inc.	716-632-7880
NY	Rochester, H. C. Johnson Agencies, Inc.	716-586-0777
NC	Raleigh, Rakes Engrg. & Mktg. Corp.	919-847-5079
OH	Dayton	513-223-6227
OR	Portland, SPS Elctrns.	503-297-6919
PA	Glenshaw, H. C. Johnson Agencies, Inc.	412-961-0414
WA	Redmond, SPS Elctrns.	206-323-4140

SYLVANIA ELECTRONIC, Box 360, Muncy, PA 17756, Tel: 717-546-3191; Empl.: 395; *Sls. Mgr.:* A. M. Serang; *Dist. Mgr.:* S. R. Sisak

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CA	Costa Mesa, Philips ECG, Inc.	714-557-3100
CA	Pleasanton, Philips ECG, Inc.	415-846-2427
FL	Clearwater, Philips ECG, Inc.	813-446-8602
GA	Atlanta, Philips ECG, Inc.	404-491-6003
IL	Buffalo Grove, Philips ECG, Inc.	312-459-1180
MD	Ellicott City, Philips ECG, Inc.	301-531-6423
MO	Kansas City, Philips ECG, Inc.	816-741-4019
NJ	Norwood, Philips ECG, Inc.	201-768-3280
NY	Seneca Falls, Philips ECG, Inc.	315-568-5432
NC	Greensboro, Philips ECG, Inc.	919-299-6204
OH	Dayton, Philips ECG, Inc.	513-890-4421
OH	Rocky River, Philips ECG, Inc.	216-331-1088
TX	Dallas, Philips ECG, Inc.	214-239-9370

Local Distributors

AL	Albertville, Electronic Part & Supp. Co.	205-878-3041
AL	Andalusia, Wholesale Elctr. Supps. Co.	205-222-5100
AL	Anniston, Radio Dist. & Sup. Co.	205-236-8654
AL	Birmingham, Forbes Distributing Co.	205-251-4104
AL	Birmingham, JLS Indl. Elctrns., Inc.	205-322-2486
AL	Decatur, Forbes Distributing Co.	205-353-4762
AL	Dothan, Carmichael Elctrns. Inc.	205-793-7066
AL	East Gadsden, Radio Dist. & Supp. Co.	205-547-1636
AL	Huntsville, Forbes Distrbg. Co.	205-533-4150
AL	Mobile, Electronic Supp. Co.	205-478-0455
AL	Mobile, Forbes Elctrn. Distrs. Inc.	205-479-4535
AL	Mobile, Specialty Distributing Co.	205-344-0450
AL	Montgomery, Forbes-Godfrey TV Elctrns. Inc.	205-263-0283
AL	Muscle Shoals, Jones Elctrns.	205-383-1241
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AK	Anchorage, Alaska Elctrn. Supp.	907-563-3774
AK	Juneau, Juneau Elctrns.	907-586-2260
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2885
AZ	Phoenix, Elctrn. Parts Co. Inc.	602-277-7281
AZ	Phoenix, Electronic Distrs.	602-955-8303
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AZ	Tucson, Elliott Elctrns., Inc.	602-884-7394
AZ	Tucson, Inland Elctrn. Supp.	602-889-5301
AR	El Dorado, Electra Inc.	501-862-4901
AR	Ft. Smith, Carlton Bates Co.	501-646-8201
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AR	Little Rock, Lavender Elctrn. Supp. Inc.	501-372-0248
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AR	Paragould, Martin Wholesale Radio Supp.	501-236-6049
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AR	Pine Bluff, David White Elctrns.	501-534-0612
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AR	Springdale, Wise Wholesale Elctrns.	501-751-4814
AR	Texarkana, Lavender Elctrns. Inc.	501-773-4631
CA	Anaheim, Ball Elctrns.	714-828-1310
CA	Berkeley, Al Lasher Elctrns.	415-843-5915
CA	Calexico, Hurley Elctrns., Inc.	714-357-3148
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CA	Dublin, Pacific Radio Supp. Inc.	415-829-5960
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CA	Huntington Park, Martin Distributing Co.	213-582-7111
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CA	Oakland, Chuck Hurley Elctrns.	415-834-9185
CA	Oceanside, Hurley Elctrns., Inc.	619-722-7694
CA	Ontario, Hurley Elctrns., Inc.	714-986-6638
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CA	Pasadena, Dow Radio, Inc.	213-681-3416
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CA	San Diego, Hurley Elctrns.	619-235-6245
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CA	Santa Maria, Electronics Parts Supermart	805-925-8604
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CA	Santa Rosa, Chuck Hurley Elctrns. Inc.	707-542-5423
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CA	Torrance, Cash Elctrns.	213-373-6333
CA	Vallejo, Associated Radio	707-552-2363
CA	Van Nuys, Hurley Elctrns., Inc.	818-781-8410
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CO	Denver, Elliott Elctrn. Supp. Inc.	303-778-0333
CO	Denver, Walker Denver Elctrns.	303-935-2401
CO	Englewood, Roth Distrbg. Co.	303-761-6531
CO	Grand Junction, Walker Grand Junction Elctrns.	303-242-4435
CO	Greeley, Walker Greeley Elctrns. Co.	303-353-3241
CO	Pueblo, Walker Pueblo Elctrns.	303-542-1924
CT	Greenwich, Wise Comps., Inc.	203-531-4880
GT	Hartford, Signal Center, Inc.	203-233-8551
CT	New London, Aikins Elctrn. Supp.	203-442-4406
CT	New London, Jan Elctrn. Supps., Inc.	203-442-4386
CT	South Windsor, Sceli Elctrns.	203-289-6853
CT	West Haven, Amerling Co.	203-934-7901
DE	Wilmington, Wholesale Elctrns.	302-656-9988
FL	Bradenton, Leader Elctrns.	813-756-9571
FL	Cocoa, Cape Elctrns.	305-636-6331
FL	Daytona Beach, C & S Elctrn. Supp. Co.	904-253-8131
FL	Ft. Lauderdale, Leader Dixie Elctrns., Inc.	305-561-2544
FL	Ft. Lauderdale, Southeastern Elctrns.	305-563-4131
FL	Ft. Lauderdale, Vance Baldwin Inc.	305-523-3461
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FL	Miami, Elctrn. Equip. Co., Inc.	305-871-3500
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FL	Miami, Southeastern Wholesalers Inc.	305-634-6591
FL	Miami, Vance Baldwin Inc.	305-769-0225
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FL	Panama City, Central Elctrn. Supp. Co.	904-785-0237
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FL	Pensacola, Forbes Elctrn. Distributing Inc.	904-944-5551
FL	Pensacola, Pensacola Elctrns.	904-478-3771
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FL	St. Petersburg, Dow Elctrns.	813-525-1131
FL	Tallahassee, Dell Elctrns. Inc.	904-224-5145
FL	Tallahassee, Fouraker Elctrns. Inc.	904-224-5101
FL	Tampa, Dow Elctrns., Inc.	813-626-5191
FL	Tampa, Leader Elctrns. Distrs.	813-870-3315
FL	Tampa, Sunex Elctrns. Supp., Inc.	813-885-4074
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FL	Venice, Ferguson Elctrns. Co.	813-493-0000
FL	W. Palm Beach, Dolphin Elctrn. Supp. Inc.	305-659-7166
FL	W. Palm Beach, Vance Baldwin Inc.	305-832-5671
GA	Albany, Specialty Distributing Co.	912-435-1711
GA	Athens, Specialty Distributing Co.	404-458-1334
GA	Atlanta, Specialty Distributing Co.	404-458-6341
GA	Atlanta, Specialty Distributing Co.	404-873-2521
GA	Atlanta, Wholesale Indl. Elctrns.	404-447-8431
GA	Augusta, Specialty Distributing Co.	404-722-1526
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GA	College Park, Specialty Distributing Co.	404-763-3828
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GA	Valdosta, Specialty Distributing Co.	912-242-4910
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HI	Honolulu, Electrical Equip. Co., Ltd.	808-533-3884
HI	Honolulu, Industrial Elctrns.	808-533-6095
HI	Honolulu, Precision Radio Ltd.	808-537-5291
ID	Boise, Kimball Elctrns.	208-342-3559
ID	Pocatello, Kimball Elctrns.	208-232-2201
IL	Alton, Ebinger Radio Co.	618-462-9783

IL	Belleville, Deltronics Distrbg. Co.	618-398-2183
IL	Benton, Lampley Radio Co.	618-435-8194
IL	Berwyn, B-B & W Inc.	312-749-1710
IL	Chicago, Alpha Elctrns.	312-561-0300
IL	Chicago, Howard Elctrn. Sls.	312-254-1777
IL	Chicago, Newark Elctrns. Corp.	312-638-4411
IL	Chicago, U. S. Electronics	312-925-4111
IL	Elgin, Mainline Supp. Co., Inc.	312-697-6746
IL	Evergreen, Beaty Elctrns. Inc.	312-423-5500
IL	Franklin Park, Richardson Elctrns.	312-456-0600
IL	Geneva, Melvin Elctrns., Inc.	312-232-8050
IL	Harrisburg, Standard Distrs.	618-252-1478
IL	Jacksonville, Baptist Elctrn. Supp. Co., Inc.	217-243-6464
IL	Joliet, Mainline Supp. Co., Inc.	815-436-3900
IL	Kankakee, S&S Elctrn. Supp. Co.	815-933-5595
IL	Mattoon, Mattoon Radio & TV Supp. Co.	217-235-5457
IL	Moline, Lofgren Distributing Co.	309-764-7436
IL	Niles, Joseph Elctrns. Inc.	312-297-4200
IL	Peoria, Warren Radio Co.	309-674-5998
IL	Quincy, Show Me Elctrns.	217-223-9880
IL	Rockford, Jay-tronics	815-965-8786
IL	Rockford, Midwest Associated	815-962-8036
IL	Salem, Laco Elctrns. Inc.	618-548-3150
IL	Springfield, Baptist Elctrn. Supp. Co., Inc.	217-753-0111
IL	Sterling, Warren Radio Co.	815-625-6253
IL	Waukegon, Chester Elctrn. Supp.	312-623-5000
IN	Angola, Lakeland Elctrn. Supp.	219-665-6311
IN	Bloomington, Stansifer Radio Co.	812-336-6339
IN	Chesterton, Chesterton Elctrn. Supp.	219-926-2109
IN	Elkhart, Warren Radio Co.	219-295-4205
IN	Evansville, Hutch & Son, Inc.	812-425-7201
IN	Evansville, Ohio Valley Sound	812-425-6173
IN	Ft. Wayne, Pembleton Elctrns.	219-426-1812
IN	Ft. Wayne, Warren Radio Co.	219-426-5344
IN	Gary, B&B Elctrn. Supp.	219-980-8200
IN	Gary, Calumet Elctrn. Supp. Inc.	219-887-4961
IN	Indianapolis, Elctrn. Svc. Parts	317-632-8586
IN	Indianapolis, Graham Elctrns. Supp. Inc.	317-634-8202
IN	Indianapolis, ROBCO Distrs., Inc.	317-788-0857
IN	Indianapolis, Warren Radio Co.	317-634-5566
IN	Jasper, Elex Mart	812-482-3535
IN	Kokomo, Television Radio Distr.	317-457-5942
IN	Logansport, Television Radio Distr., Inc.	219-753-2879
IN	Marion, J&W Elctrns. Inc.	317-662-1114
IN	Mishawaka, Television Supp., Inc.	219-255-4720
IN	Peru, Television Radio Distr., Inc.	317-472-2005
IN	Terre Haute, Mid West Supp.	812-232-0187
IN	Vincennes, Ohio Valley Sound, Inc.	812-882-3615
IA	Ames, Electronic Supp. Inc.	515-232-7020
IA	Ames, Mid-State Distrbg. Co.	515-232-2104
IA	Burlington, Union Supp. Co.	319-754-5745
IA	Burlington, Warren Radio Co.	319-752-1842
IA	Carroll, Mid-State Distrbg. Co.	712-792-2177
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
IA	Cedar Rapids, Iowa Radio Supp. Co.	319-364-6154
IA	Cedar Rapids, Mid-State Distrbg. Co.	319-365-9411
IA	Clinton, Union Supp. Co., Inc.	319-242-4572
IA	Davenport, Union Supp. Co.	319-322-3531
IA	Davenport, Warren Radio Co.	319-322-5301
IA	Des Moines, Gifford-Brown of Des Moines	515-243-1257
IA	Des Moines, Mid State Distributing Co.	515-244-7231
IA	Dubuque, Warren Radio Co.	319-582-4300
IA	Iowa City, Union Supp. Co.	319-338-6165
IA	Mason City, Mid State Distributing Co.	515-423-8012
IA	Ottumwa, Mid-State Distrbg. Co.	515-682-5407
IA	Sioux City, Molstad Dist.	712-255-8023
IA	Waterloo, Gifford-Brown, Inc.	319-234-2603
KS	Great Bend, RSC Elctrns., Inc.	316-793-3507
KS	Kansas City, Video Elctrn. Supp. Co.	913-371-5731
KS	Salina, RSC Electronics	913-823-6353
KS	Wichita, RSC Electronics	316-267-5213
KY	Ashland, Electronic Supp. Inc.	606-325-1511
KY	Bowling Green, Randolph, Hale & Meredith	602-781-1460
KY	Hopkinsville, Randolph & Hale	502-885-5357
KY	Lexington, Service Elctrn. Supp.	606-254-5786
KY	Louisville, P. I. Burks & Co.	502-589-3960
KY	Newport, Holub Dist. Co.	606-431-4211
KY	Paducah, Warren Radio Co.	502-442-4367
LA	Alexandria, Elctrn. Svc. Supp.	318-443-8483
LA	Alexandria, Ralph's Indl. Elctrns.	318-443-8483
LA	Baton Rouge, Industrial Elec. Supp., Inc.	504-357-4249
LA	Baton Rouge, Menard Elctrns.	504-355-0232
LA	Baton Rouge, Ralph's of Baton Rouge	504-344-3761
LA	Baton Rouge, Southern Radio Supp. Co., Inc.	514-355-0396
LA	Broussard, Menard Elctrns., Inc.	318-837-9204
LA	Gretna, Pelican Elctrn. Supp. Inc.	504-361-4187
LA	Harahan, United Distrs., Inc.	504-733-7920
LA	Harvey, AFG Elctrn. Supp., Inc.	504-368-9696
LA	Houma, Pelican Elctrn. Supp. Inc.	504-868-1285
LA	Lafayette, Lafayette Radio Equip.	318-234-2364
LA	Lafayette, Ralph's of Lafayette	318-234-4507
LA	Lake Charles, Ralph's of Lake Charles	318-439-2493
LA	Lake Charles, Sparton Elctrns. Supp., Inc.	318-491-9223
LA	Lake Charles, Wholesale Radio Equip.	318-439-2431
LA	Metairie, Pelican Elctrn. Supp.	504-888-4720
LA	Monroe, Martin Elctrns. Inc.	318-388-4224
LA	Monroe, Tri-State Elctrns.	218-387-9711
LA	Morgan City, Ralph's of Morgan City	504-384-9831
LA	New Iberia, Ralph's of New Iberia	318-369-9861
LA	New Orleans, Radio Parts	504-581-5959
LA	New Orleans, Southern Radio Supp. Co.	504-524-2343
LA	New Orleans, Wm. B. Allen, Inc.	504-525-8222
LA	Opelousas, Opelousas Radio Equip.	318-942-5702
LA	Shreveport, Elctrn. Supp. of Shreveport	318-227-9080
LA	Shreveport, Indl. Elctrn. Supp. Inc.	318-222-9459
LA	Shreveport, Wholesale Elec. Supp., Inc.	318-422-2063
LA	West Monroe, Brooks Supp. of La	318-323-0344
ME	Lewiston, Stark Wholesale Elctrns.	207-784-6979
ME	Portland, LAD Elctrns. Distrs.	207-772-2174
MD	Baltimore, Fairway Elctrns. of MD Inc.	301-247-8383
MD	Baltimore, Modern Elctrns.	301-282-5300
MD	Baltimore, Tritronics	301-256-4400
MD	Beltsville, Radio Elec. Svc. Co.	301-937-5890
MD	Bethesda, Empire Elec. Supp.	301-656-3300
MD	Frederic, Hankey's Radio Inc.	301-662-1381
MD	Hagerstown, Fairway Elctrns. Inc.	301-791-0200
MD	Kensington, Fairway Elctrns. Inc.	301-564-1440
MD	Towson, Baynesville Elctrns.	301-823-0082
MD	White Marsh, Radio Elec. Svc. Co.	301-529-0500
MA	Billerica, A. W. Mayer Co.	617-667-6900
MA	Boston, Tee Vee Supp. Co.	617-522-9330
MA	Brockton, Ware Radio Supp. Corp.	617-583-0810
MA	Fall River, E. A. Ross Co.	617-673-0921
MA	Lawrence, Lawrence Elctrn. Distrs.	617-683-0257
MA	Lowell, Frank P. McCartin Co.	617-454-9101
MA	New Bedford, Burns Elctrn. Supp. Co.	617-998-3344
MA	New Bedford, C. E. Beckman Co.	617-994-9674
MA	New Bedford, E. A. Ross Co.	617-673-0921
MA	Norwood, Morrison Elctrn. Supp.	617-769-7280
MA	Peabody, Tee Vee Supp. Co.	617-531-5777
MA	Quincy, Electronic Dists. Corp.	617-328-7800
MA	Springfield, Signal Electr. Ctr. of Springfield	413-739-3893
MA	Waltham, MIL Elctrns. Inc.	617-891-6730
MA	Woburn, Abbott Elctrns., Inc.	617-935-2040
MA	Woburn, Semtex	617-935-2150
MA	Worcester, Stark Wholesale Elctrns. Inc.	617-756-7136
MI	Adrian, Wedemeyer Elctrn. Supp. Co.	313-263-2925
MI	Battle Creek, Warren Radio Co.	616-965-3338
MI	Bay City, Kinde Distributing	517-892-1594
MI	Dearborn, West Side Radio	313-933-6972
MI	Detroit, Elctrn. Parts Co.	313-891-7400
MI	Detroit, S & S Elctrns.	313-521-3610
MI	Detroit, Top Radio Supp. Corp.	313-366-9088
MI	East Detroit, Electronic Parts Co.	313-773-0030
MI	Flint, Electronic Parts Specialists	313-238-7311
MI	Flint, Shand Elctrns.	313-743-8940
MI	Grand Rapids, T & W Elctrns.	616-241-3645
MI	Grand Rapids, Warren Radio Co.	616-456-5385
MI	Kalamazoo, Warren Radio Co.	616-381-4203
MI	Lansing, Wedemeyer Elctrns.	517-489-9047
MI	Livonia, Norwest Elctrns.	313-261-4551
MI	Livonia, RS Electronics	313-525-1155
MI	Madison Hgts., Warren Radio Co.	313-588-3327
MI	Muskegon, T & W Elctrns., Inc.	616-759-7666
MI	Niles, Niles Radio Supp. Co.	616-684-0550
MI	Oak Park, Remcor Elctrns., Inc.	313-541-5666
MI	Owasso, Warren Radio Co.	517-723-5239
MI	Pontiac, Joe Coomes	313-334-1526
MI	Saginaw, Ryder Distributing	517-799-2411
MI	Traverse City, Traverse City Elctrns.	616-946-5153
MN	Minneapolis, Electronic Center	612-371-5200
MN	Minneapolis, Ness Elctrns. Inc.	612-824-2646
MN	Minneapolis, Stark Elctrn. Supp. Co.	612-332-1325
MN	Rochester, Pace Elctrns. Inc.	507-288-1853
MN	St. Cloud, Team Elctrns. #4	612-251-1335
MN	St. Paul, Electronics Ctr., Inc.	612-371-5260
MN	St. Paul, Ness Elctrns.	612-224-5411
MS	Biloxi, Electronic Parts Co.	601-435-3221
MS	Columbus, Bluff City Elctrns.	601-328-6212
MS	Greenville, Tri-State Elctrns. Co.	601-335-3594
MS	Hattiesburg, N & H Elctrn. Distr. Co.	601-582-5571
MS	Jackson, Tri-State Elctrns. Co.	601-355-3431
MS	McComb, Risher Radio Supp. Co.	601-684-3731
MS	Meridian, Hooper Elctrn. Supp. Co., Inc.	601-693-2668
MS	Pascagoula, Hooper Elctrn. Supp. Co.	601-762-9383
MS	Philadelphia, Risher Whls. Co.	601-656-8802
MS	Tupelo, Bluff City Elctrns.	601-842-6832
MO	Columbia, Show-Me Elctrns.	314-449-2944
MO	Flat River, Show-Me Elctrns.	317-431-4816
MO	Jefferson City, Central Missouri Distributing Co.	314-636-3149
MO	Jefferson City, Show-Me Elctrns.	314-636-2191
MO	Joplin, Show-Me Elctrns., Inc.	417-623-1608
MO	Kansas City, Elctrn. Supp. Co.	816-931-0250
MO	Kirkville, Mid State Distrbg. Co.	816-665-5625
MO	Rolla, Show-Me Elctrns.	314-364-1515
MO	Sedelia, Show-Me Elctrns., Inc.	816-826-3044
MO	Sikeston, Baileys Elect. Supp.	314-471-6142
MO	Springfield, Mason Elect. Supp.	417-865-5542
MO	Springfield, Show-Me Elctrns.	417-869-0752
MO	St. Charles, Deltronics Distrbg. Co.	314-723-0210
MO	St. John, Ralph Toler Radio Co.	314-426-3260
MO	St. Joseph, Show-Me Elctrns., Inc.	816-233-3118
MO	St. Louis, City Refrigeration Co., Inc.	314-427-3420
MO	St. Louis, Deltronics Distributing Co.	314-725-6060
MO	St. Louis, Ebinger Elctrns.	314-353-8818
MO	St. Louis, M C Distrs., Inc.	314-231-6350
MO	St. Louis, Olive Elctrns. Inc.	314-426-4500
MO	St. Louis, Show-Me Elctrns., Inc.	314-781-7643
MT	Billings, Television & Elec. Supp. Co.	406-252-7193
MT	Great Falls, The Source Inc.	406-761-2420
MT	Havre, Northern Elctrns.	406-265-5568
MT	Kalispell, Professional Elctrns. Ctr.	406-257-4545
NE	Hastings, Meyerson Distrbg. Co.	402-463-3145
NE	Lincoln, Leuck Radio Co.	402-476-2797
NE	Norfolk, Radio Equip. Co.	402-371-2728
NE	Omaha, Meyerson Distrbg. Co.	402-342-3088
NE	Omaha, Omaha Elctrns. Co.	402-341-3440
NE	Omaha, Radio Equip. Co.	402-341-7700
NE	Scottsbluff, D&H Elctrns. Supp. Inc.	308-632-2181
NV	Las Vegas, Hurley Elctrns.	702-384-5666
NV	Reno, Bennett Elctrn. Supp. Co.	702-322-2127
NV	Reno, Nevada Elctrns.	702-329-1308
NH	Dover, American Radio Corp.	603-742-6800
NH	Manchester, Stark Wholesale Elect. of N.H. Inc.	603-688-7611
NH	Nashua, Tee Vee Supp. Co.	603-889-4171
NJ	Eatontown, Atkinson & Smith Co.	201-542-2447
NJ	Edison, William Elctrn. Supp. Inc.	201-985-3700
NJ	Hillside, Leader Elctrn. Supp. Corp.	201-354-4200
NJ	Pleasantville, Kearns Elctrn. Prods. Co.	609-646-7010
NJ	Raritan, Masters Elctrn. Supp.	201-725-3583
NJ	Trenton, Service Parts & Supp. Co.	609-393-7135
NJ	Union City, NIDISCO, Inc.	201-863-2111
NM	Albuquerque, Elctrn. Parts Co.	505-293-6161
NM	Albuquerque, Southwest Elctrns.	505-345-8611
NM	Albuquerque, US Module	505-345-7968
NM	Farmington, Walker Farmington Elctrns. Inc.	505-327-9138
NM	Hobbs, Trice Wholesale Elctrns.	505-393-5107
NM	Las Cruces, Electronic Parts, Inc.	505-523-4578
NM	Roswell, R & R Elctrn. Supp. Co.	505-622-0670
NM	Santa Fe, Sepco Inc.	505-982-1621
NY	Albany, Troy Television of Albany	518-428-7801
NY	Amherst, Standard Elctrns. Inc.	716-691-3061
NY	Binghamton, Help Elctrns.	607-729-3528
NY	Bronx, CAM Elctrns. Distr. Co., Inc.	212-893-8300
NY	Brooklyn, Alpha Elctrns., Inc.	212-633-2800
NY	Brooklyn, Mill Elctrns. Supp. Co.	212-336-4575
NY	Brooklyn, Saco Elctrns.	212-783-7288
NY	Buffalo, Genesee Radio Parts Co.	716-873-9661
NY	Buffalo, Goldcrest Elctrn. Supp.	716-885-5878
NY	Buffalo, Summit Distrbg. Co., Inc.	716-884-3450
NY	Centereach, GTE Elctrn. Supp.	516-585-8111
NY	Commack, Spartan Elctrns. Inc.	516-499-9500
NY	Corning, Corning Elctrns., Inc.	607-962-0555
NY	Cortland, Cortland Elctrn. Supp.	607-756-2523
NY	East Rockaway, Temtron Elctrns.	516-599-6400
NY	Elmira, Brady Supp. Corp.	607-733-6591
NY	Freeport, Hygrade Elctrns., Inc.	516-379-8900
NY	Hempstead, Davis Elctrns. Corp.	516-483-9200
NY	Herkimer, Herkimer Elctrns., Inc.	315-866-1680
NY	Hicksville, Elctrn. City	516-938-8330
NY	Hornell, Hornell Elctrns., Inc.	607-324-2451
NY	Horseheads, Southern Tier Elctrns. Inc.	607-734-4138
NY	Jamaica, All Parts Elctrns. Whlers., Inc.	212-291-3388
NY	Jamestown, Warren Radio Co.	716-484-1141
NY	Johnson City, Goldcrest Elctrns. Supp.	607-797-2389
NY	Johnson City, Help Elctrns.	607-729-3528
NY	Kingston, Greylock Elctrn. Distrs.	914-338-5300
NY	Lackawanna, Metromill Distrs. Inc.	716-826-2600
NY	Long Island City, Avtech Elctrns.	212-937-9200
NY	Massapequa, A&P Elctrns. Corp.	516-541-4200
NY	Middletown, Greylock Elctrns.	914-343-7900
NY	New Hyde Park, Electronic City	516-352-7145
NY	New York, Consolidated Radio Sls.	212-865-4900

NY	New York, Dale Elctrns. Corp.	212-255-3660
NY	New York, State Labs, Inc.	212-807-9400
NY	New York, United Teletronic Parts Corp.	212-569-2330
NY	Olean, Standard Elctrns. Inc.	716-372-1800
NY	Plainview, ACI Elctrns. Corp.	516-293-6630
NY	Plattsburgh, Champlain Elctrns.	518-563-2323
NY	Port Chester, Wise Comps.	914-939-3940
NY	Poughkeepsie, Greylock Elctrns.	914-452-0550
NY	Richmond Hill, Anchor Elctrns. Distr. Co.	212-846-2421
NY	Rochester, Goldcrest Elctrns. Supp.	716-546-8464
NY	Rochester, Masline Elctrns. Inc.	716-546-5373
NY	Rochester, Standard Elctrns. Inc.	716-254-7590
NY	Rochester, Summit Distrs. of Rochester	716-334-8110
NY	Rome, Rome Security Dvcs., Inc.	315-336-0148
NY	Schenectady, Goldcrest Elctrns. Supp.	518-377-6424
NY	Syracuse, Goldcrest Elctrns. Supp.	315-471-7115
NY	Syracuse, Standard Elctrns. Inc.	315-422-0421
NY	Syracuse, Stewart W. Smith, Inc.	315-422-0323
NY	Troy, Troy Television	518-235-1521
NY	Utica, Grapac Elctrns. Co.	315-732-4674
NY	Watertown, Gateway Elctrns.	315-788-7251
NC	Burlington, Womack Elc. Supp.	919-227-7486
NC	Charlotte, United Elctrns. Supp.	704-372-2650
NC	Concord, Mac Victor Elctrns.	704-786-4175
NC	Durham, Knight Elctrns.	919-682-9371
NC	Fayetteville, Brantley Elctrns.	919-868-8038
NC	Fayetteville, Eastern Radio Supp.	919-485-2161
NC	Gastonia, JMT Elctrns.	704-867-4401
NC	Goldsboro, Womack Elctrns.	919-734-3221
NC	Greensboro, Guilford Elctrns.	919-275-1385
NC	Greenville, Pair Elctrns.	919-756-2291
NC	Highpoint, Guilford Elctrns.	919-889-8024
NC	Lumberton, Knight Elctrns.	919-739-2870
NC	Raleigh, Knight Elctrns.	919-833-6417
NC	Sanford, Knight Elctrns.	919-776-4249
NC	Statesville, Mills Elctrns. Inc.	704-872-8949
NC	Wilmington, Buck's Elctrns.	919-392-4262
NC	Winston Salem, Electronic Distributing Inc.	919-723-1097
NC	Winston Salem, Kirkman Elctrns.	919-722-9131
ND	Fargo, RSC Elctrns.	701-232-8993
ND	Fargo, S/S Elctrns., Inc.	701-237-5003
OH	Akron, Akron Elctrn. Supp., Inc.	216-762-8818
OH	Akron, Main TV Supp. Co.	216-253-8161
OH	Akron, Sun Radio	216-434-2171
OH	Akron, Warren Radio Co.	216-434-6668
OH	Alliance, Glasska Elctrns.	216-823-5780
OH	Canton, Canton Elctrn. Supp.	216-454-7048
OH	Canton, Electronic Ctr. Inc.	216-456-7133
OH	Canton, Srepco Elctrn. Div.	216-455-0271
OH	Canton, Srepco Elctrn. Div.	216-445-0271
OH	Cincinnati, United Radio Inc.	513-761-4030
OH	Cleveland, Warren Radio Co.	216-888-5225
OH	Cleveland, Winteradio Elctrn. Supp. Corp.	216-621-9383
OH	Columbus, Srepco Elctrn. Div.	614-486-9483
OH	Columbus, Thompson Elctrn. Supp., Inc.	614-228-6191
OH	Columbus, Whitehead's	614-224-1186
OH	Dayton, Srepco Electrns., Pioneer Std. Electrns.	513-293-0871
OH	Dover, TV Specialties, Inc.	216-364-6678
OH	Elyria, EL-A-Co	216-323-1805
OH	Fairfield, Srepco Elctrn. Div.	513-863-4301
OH	Fremont, J & B Elctrns.	419-332-9334
OH	Lancaster, Electronic Supp. Co.	614-653-9344
OH	Lima, LRP Elctrns., Inc.	419-228-1220
OH	Lima, Warren Radio Co.	419-228-1691
OH	Lorain, Srepco Elctrn. Div.	216-277-1228
OH	Marion, Mid Ohio Elctrns. Co.	614-383-1101
OH	Newark, Turner Wilson Co.	614-323-1340
OH	Parma, Superior Elctrn. Parts Co.	216-842-7940
OH	Piqua, Srepco Elctrn. Div.	513-773-5120
OH	Portsmouth, Fullers Sound Elctrn. Supplier	614-353-0965
OH	Steubenville, World Radio & Elctrns.	614-283-2051
OH	Willowick, Euclid Radio Parts Co.	216-585-5115
OH	Youngstown, Glen Elctrns.	216-743-1119
OH	Youngstown, Ross Radio Co.	216-746-8881
OK	Ada, Trice Whls. Elctrns.	405-332-3022
OK	Ardmore, Trice Wholesale Elctrns.	405-223-8540
OK	Enid, Enid Walker Elctrns.	405-234-2218
OK	Enid, Trice Wholesale Elctrns.	405-234-6078
OK	Lawton, Trice Wholesale Elctrns.	405-355-3953
OK	Lawton, Walker Lawton Elctrns. Inc.	405-355-0603
OK	McAlester, Trice Wholesale Elctrns.	918-423-6716
OK	McAlester, Wise Whls. Elctrns.	918-423-2282
OK	Muskogee, Sooner Radio & TV Supp.	918-682-1384
OK	Muskogee, Trice Wholesale Elctrns.	918-682-2457
OK	Oklahoma City, Miller-Jackson Co.	405-235-8426
OK	Oklahoma City, Radio Supp. Co.	405-232-6127
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Oklahoma City, Trice Wholesale Elctrns.	405-232-2291
OK	Oklahoma City, Wholesale Elctrn. Supp. Co.	405-528-2391
OK	Okmulgee, Trice Whls. Elctrns.	918-756-2060
OK	Tulsa, Carlton Bates Co.	918-250-1626
OK	Tulsa, Radio, Inc.	918-587-9124
OK	Tulsa, Trice Wholesale Elctrns.	918-585-5718
OR	Pendleton, Round-Up Elctrns.	503-276-3152
OR	Portland, Radar Elec.	503-232-3404
OR	Portland, United Radio Supp., Inc.	503-233-7151
OR	Salem, JW Elctrns.	503-399-8565
PA	Allentown, A. A. Peters, Inc.	215-434-5237
PA	Allentown, Barbey Elctrns.	215-821-5551
PA	Altoona, Hollenback Radio Supp.	814-944-6171
PA	Ambridge, Television Parts Co.	412-266-7700
PA	Braddock, D & D Radio & Television Parts Co.	412-351-3600
PA	Braddock, M Leff Radio Parts Co.	412-351-5000
PA	Butler, Bacher Elctrns.	412-283-2095
PA	Carlisle, Cumberland Elctrns., Inc.	717-243-6169
PA	Clifton Heights, Lazar Elctrns.	215-284-2440
PA	Drexel Hill, Kass Elctrn. Distr.	215-449-2300
PA	Elkins Park, AG Radio Inc.	215-886-5100
PA	Erie, J. V. Duncombe Co.	814-454-5278
PA	Erie, Warren Radio Co.	814-454-5285
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Hazelton, Moyer Elctrn. Supp. Co., Inc.	717-455-3631
PA	Lancaster, Barbey Elctrns.	717-393-5637
PA	Lancaster, Cumberland Elctrns.	717-393-8304
PA	Lewiston, Cumberland Elctrns.	717-248-9631
PA	Marcus Hook, Linwood Wholesale	215-485-0777
PA	New Brighton, Television Parts Co., Inc.	412-846-3000
PA	Philadelphia, Arlen Supply Co.	215-472-3810
PA	Philadelphia, HBF Elctrns. Inc.	215-338-1100
PA	Philadelphia, JEM Elctrns.	215-743-3030
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	Pittsburgh, CRS Elctrns.	412-431-7700
PA	Pittsburgh, Graybar Elec.	412-323-0600
PA	Pittsburgh, South Hills Elctrns.	412-281-6640
PA	Pittsburgh, South Hills Elctrns.	412-341-6200
PA	Pittsburgh, Triangle Elctrn. Co.	412-441-9659
PA	Pottsville, Moyer Elctrn. Supp. Co., Inc.	717-622-7866
PA	Reading, Barbey Elctrns.	215-376-7451
PA	Scranton, Key Radio & Supp. Co.	717-342-0161
PA	St. Marys, B & R Elec. Co.	814-834-2814
PA	State College, University Elctrns.	814-238-3093
PA	Sunbury, Moyer Elctrn. Supp. Co., Inc.	717-286-6707
PA	Tarentum, Huston Elctrn. Distrs.	412-224-8002
PA	Trevose, Trevose Elctrns.	215-357-1400
PA	Uniontown, State Elctrns.	412-437-6110
PA	Wayne, Peak Elctrns. Corp.	215-293-9000
PA	West Chester, West Chester Elec. Supp. Co.	215-696-7500
PA	Wilkes-Barre, Wallco Inc. Elctrn. Dist.	717-823-6181
PA	York, Cumberland Elctrns.	717-848-1511
RI	Providence, A&J Distrs. Inc.	401-421-0991
RI	Providence, Hope Elctrn. Supp.	401-521-5600
RI	Providence, William Dandreta & Co.	401-861-2800
RI	Woonsocket, Lectronic Supp. Co.	401-762-0131
SC	Charleston, Wholesale Indl. Elctrns.	803-747-9672
SC	Charleston, Wholesale Indl. Elctrns., Inc.	803-723-3626
SC	Columbia, Hesco Inc.	803-254-4575
SC	Columbia, Wholesale Indl. Elctrns.	803-256-0746
SC	Florence, J&M Supply Co.	803-662-7281
SC	Greenville, Sawyer Elctrns.	803-235-0438
SC	Greenville, Wholesale Indl. Elctrns.	803-235-8334
SC	Taylors, Cantrell Wholesale	803-268-1194
SD	Watertown, Burghardt Supp. Co.	605-886-5754
TN	Chattanooga, Specialty Distributing Co.	615-267-9460
TN	Columbia, Randolph & Williams	615-388-7566
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Dyersburg, Warren Radio	901-285-3850
TN	Jackson, Bluff City Elctrns.	901-424-0236
TN	Jackson, Lavender Elctrns. Inc.	901-422-6585
TN	Johnson City, L & S Elctrns.	615-926-3021
TN	Knoxville, Bondurant Bros. Co.	615-573-9151
TN	Knoxville, Roden Electrical Supp. Co.	615-546-8755
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Memphis, Frank G. Uffer Co.	901-725-6743
TN	Memphis, Warren Radio	901-274-2460
TN	Morristown, L & S Elctrns.	615-581-7983
TN	Nashville, Bluff City Elctrns.	615-242-8000
TN	Nashville, Curreys Inc.	615-242-4221
TN	Nashville, Randolph & Rice	615-255-5602
TN	Paris, Lavender Elctrns., Inc.	901-642-7354
TN	Tullahoma, Randolph Vandergriff Inc.	615-455-4531
TX	Abilene, R & R Elctrn. Supp. Co.	915-677-2974
TX	Amarillo, R & R Elctrn. Supp. Co.	806-374-2866
TX	Amarillo, Trice Wholesale Elctrns.	806-372-5668
TX	Austin, C&M Elctrns. Inc.	512-451-6595
TX	Austin, Harrison Equip. Co.	512-458-3555
TX	Austin, Wholesale Elctrn. Supp. Co.	512-478-9568
TX	Beaumont, Buddy's Wholesale Elctrn. Inc.	713-842-5019
TX	Beaumont, Covington Distr.	713-835-5392
TX	Borger, Trice Wholesale Elctrns.	806-274-5281
TX	Brownsville, Rio Radio Supp., Inc.	512-423-1959
TX	Bryan, Mid-State Elctrns.	713-822-0884
TX	Carrollton, Curtis Mathes Corp.	214-484-4941
TX	Corpus Christi, Elctrn. Suppliers Inc.	512-993-1303
TX	Corpus Christi, Leader Elctrn. Supp. Co.	512-884-5527
TX	Dallas, Banner TV Supp.	214-943-9742
TX	Dallas, Harrison Equip. Co., Inc.	214-239-2750
TX	Dallas, R & R Elctrn. Supp. Co.	214-742-1431
TX	Dallas, United Distr. of Texas, Inc.	214-631-3980
TX	Dallas, Wallace Elctrns. Co., Inc.	214-340-0400
TX	Dallas, Wholesale Elect. Supp. Co.	214-824-3001
TX	Denison, Denison Radio Supp.	214-465-2336
TX	El Paso, Midland Specialty Co.	915-533-9555
TX	El Paso, R & R Elctrn. Supp. Co.	915-566-9693
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Ft. Worth, Apollo Whls. Elctrns.	817-877-5854
TX	Ft. Worth, Wholesale Elctrn. Supp.	817-336-0461
TX	Greenville, Lavender Elctrns. Inc.	817-335-9515
TX	Harlingen, Elctrn. Suppliers, Inc.	512-423-5895
TX	Harlingen, Rio Radio Supp., Inc.	512-423-1959
TX	Houston, Angie Elctrn. Supp. Co.	713-659-8386
TX	Houston, Electronic Comps. Distrs.	713-528-1543
TX	Houston, Harrison Equip. Co.	713-652-4750
TX	Houston, Houston Wholesale	713-644-8320
TX	Houston, L & O Elctrn. Supp.	713-862-7454
TX	Houston, Lenert Co.	713-225-1465
TX	Houston, Ralph's Indl. Elctrns.	713-641-0267
TX	Irving, Apollo Whls. Elctrns., Inc.	214-399-8195
TX	Laredo, Guarantee Radio Supp. Co.	512-723-6913
TX	Longview, Texas Indl. Elctrn. Supp.	214-793-0919
TX	Longview, Wholesale Elctrn. Supp.	214-757-3961
TX	Lubbock, R & R Elctrns. Supp. Co.	806-765-7727
TX	Lubbock, Trice Wholesale Elctrns.	806-747-2888
TX	McAllen, Richards Elctrns.	512-682-6337
TX	McAllen, Rio Radio Supp. Inc.	512-682-5224
TX	Midland, Trice Wholesale Elctrns.	915-563-0666
TX	Odessa, R & R Elctrn. Supp. Co.	915-332-9166
TX	Paris, Lavender Elctrns. Inc.	214-785-1711
TX	Pasadena, Angie Elctrn. Supp.	713-473-4428
TX	Port Arthur, Diehl Radio & TV Supp.	713-985-8888
TX	Richardson, Martin Whls., Inc.	214-231-1826
TX	Richardson, Trice Wholesale Elctrns.	214-690-4646
TX	San Antonio, M-Tronics Inc.	512-736-2481
TX	San Antonio, Sherman Elctrns.	512-224-1001
TX	Sherman, Lavender Elctrns. Inc.	214-892-9155
TX	Sherman, Trice Wholesale Elctrns.	214-893-7421
TX	Stafford, Harrison Equip. Co.	713-879-2600
TX	Temple, L & M Wholesale Elctrns.	817-778-7679
TX	Texarkana, Carlton-Bates Co. of Texarkana	214-792-6923
TX	Texas City, Elctrn. Supp. Co.	713-945-4401
TX	Tyler, East Texas Elctrn. Inc.	214-593-8253
TX	Tyler, Lavender Elctrns. Inc.	214-597-6315
TX	Victoria, Lavender Elctrns. Inc.	512-575-4738
TX	Waco, L & M Wholesale Elect.	817-754-4644
TX	Wichita Falls, R & R Elctrns. Supp. Co.	817-322-0731
TX	Wichita Falls, Trice Wholesale Elctrns.	817-322-2151
TX	Wichita Falls, Wholesale Elect. Supp. Co.	817-723-8106
UT	Provo, Central Utah Elctrns.	801-373-7522
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
VT	Burlington, Greylock Elctrns.	802-863-3100
VT	Burlington, Vermont Appliance Co.	802-864-9831
VT	Rutland, Rutland Elctrn.	802-775-4690
VT	White River Jct., Vermont Appliance	802-295-3143
VA	Alexandria, Certified Elctrns.	703-548-5115
VA	Arlington, Arlington Elctrn. Wholesale	703-524-2412
VA	Charlottesville, Graves Elctrns.	804-296-0125
VA	Charlottesville, Virginia Radio Supp. Co., Inc.	804-296-4184
VA	Danville, State Elctrns., Inc.	804-793-5131
VA	Lynchburg, State Elctrns., Inc.	804-845-5983
VA	Martinsville, State Elctrns., Inc.	703-638-2327
VA	Norfolk, Radio Parts Dist. Co.	804-461-8095
VA	Portsmouth, Distrs. Inc.	804-399-2446
VA	Richmond, Banner Elctrns. Inc.	804-321-7255
VA	Staunton, Southern Elec. Corp.	703-886-6218
WA	Bellingham, Seattle Radio Supp.	206-734-3400
WA	Everett, JW Electronics	206-258-4339
WA	Seattle, Electronic Supp. Co.	206-632-2222
WA	Seattle, Pearl Elctrns.	206-622-6200
WA	Seattle, Radar Elec.	206-282-2511
WA	Seattle, Westlake Elctrn. Supp.	206-622-6600
WA	Spokane, Amfac Elec. Supp.	509-534-0611
WA	Spokane, JW Elctrns., Inc.	509-535-5800
WA	Spokane, Radar Elec., Inc.	206-282-2511
WA	Tacoma, C & G Elctrns.	206-272-3181
WA	Tumwater, JW Elctrns.	206-943-1071

WA	Yakima, JW Electronics	509-575-1234
WV	Beckley, Halley Elctrns.	304-253-2561
WV	Bluefield, Mason-Dixon Distrs.	304-325-8106
WV	Charleston, Elctrn. Materials	304-344-3577
WV	Fairmont, State Elctrns.	304-366-4520
WV	Huntington, Electronic Supp., Inc.	304-523-6443
WV	Morgantown, Electro Distributing Co.	304-296-5637
WV	Morgantown, State Elctrns.	304-292-1641
WI	Appleton, Appleton Radio	414-734-5767
WI	Eau Claire, Indianhead Elctrns.	715-834-3606
WI	Fond du Lac, Fedco Elctrns. Inc.	414-922-6490
WI	Green Bay, G. M. Popkey Co.	414-437-5445
WI	Kenosha, Chester Elctrn. Supp.	414-658-4616
WI	Madison, G. M. Popkey Co.	608-257-2266
WI	Madison, Superior Elctrn. Parts Co.	608-257-1477
WI	Milwaukee, G. M. Popkey Co.	414-444-4730
WI	Onalaska, Stark Elctrn. Supp. Co.	608-783-0800
WI	Racine, Superior Racine, Inc.	414-632-5142
WI	Wausau, G. M. Popkey Co.	715-845-4255
WY	Casper, Walker Casper Elctrn. Co.	307-237-1943

SYLVANIA MINIATURE LIGHTING, GTE Corporation, W. Main St., Hillsboro, NH 03244, Tel: 603-464-5533, TWX: 710-366-0387; FSC No.: 88204; Empl.: 1000; *Sls. Mgr.:* Tom Izbicki; *Dist. Mgr.:* Tom Izbicki .... **B•1109-1111**

Local Sales Offices & Reps

AL	Huntsville, R. O. Whitesell	205-883-5110
AZ	Scottsdale, Bill Earl & Assocs.	602-994-3813
AR	Little Rock, Erickson Sls.	501-225-7379
CA	Laguna Hills, English/Damco	714-837-3801
CA	Sunnyvale, W.W. Posey Co.	408-746-0771
CO	Arvada, Cluff & Assocs.	303-425-6604
CT	No. Haven, Coakley, Boyd & Abbett	800-225-8402
FL	Brandon, Hutto, Hawkins, Peregoy	305-831-2474
FL	Clearwater, Hutto, Hawkins, Peregoy	813-797-4447
FL	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
FL	Pompano Beach, Hutto, Hawkins, Peregoy	305-971-5750
GA	Atlanta, Millar Elctrns.	404-261-6160
IL	Chicago, I.R.I.	312-647-7755
IN	Ft. Wayne, R.O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R.O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell	317-457-9127
IA	Cedar Rapids, R. W. Kunz	319-396-5386
KS	Prairie Village, R.W. Kunz	913-648-3535
KY	Louisville, R.O. Whitesell & Assocs.	502-426-7696
LA	Chalmette, Erickson Sls.	504-271-1976
LA	Covington, Cartwright & Bean	504-892-1780
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MI	Grand Rapids, R.O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell	313-559-5454
MI	St. Joseph, R.O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, Stoss & Assocs.	612-925-2757
MS	Jackson, Cartwright & Bean	601-981-1170
MO	St. Louis, R.W. Kunz	314-966-4977
NJ	Long Valley, Paul A. Sweeney	201-852-1434
NY	Rochester, Electra Sls.	716-461-5252
NY	Syracuse, Electra Sls.	315-463-1248
NC	Raleigh, Millar Elctrns.	919-787-9585
OH	Cincinnati, R.O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R.O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R.O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R.O. Whitesell & Assocs.	513-298-9546
OR	Tigard, Electronic Sources Inc.	503-684-0040
PA	Pittsburgh, R.O. Whitesell & Assocs.	412-963-6161
PA	Trevose, P.S.A. Inc.	215-245-0513
TN	Knoxville, R. O. Whitesell	615-694-9476
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Austin, Erickson Sls.	512-244-3068
TX	Dallas, Erickson Sales	214-739-5833
TX	Houston, Erickson Sales	713-266-1604
UT	Salt Lake City, Cluff & Assocs.	801-486-7297
WA	Bellevue, Electronic Sources Inc.	206-451-3500
WI	Milwaukee, F.C. DuBois & Assocs.	414-774-3100

SYLVANIA PARTS, 816 Lexington Ave., Warren, PA 16365, Tel: 814-723-2000, 800-221-3333; Empl.: 1880; *Sls. Mgr.:* R. F. Scalise

G.T.E. GOV'T SYS. CORP., Comm. Sys. Div., 77 A St., Needham Hgts., MA 02194, Tel: 617-449-2000, Telex: 92-2497; Empl.: 4000; *Sls. Mgr.:* Ken Tong

SYMBEX CORP., 72 Corwin Dr., Box 938, Painesville, OH 44077, Tel: 216-354-0925, TWX: 810-425-2256; Empl.: 130 .... **C•1528-1529**

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Sls.	205-533-1735
AZ	Tempe, Elctrn. Dev. and Sls.	602-438-1547
CA	Anaheim, West Rep.	714-527-2822
CA	Chico, Symbex Corp.	916-893-5010
CA	San Diego, Westrep, Inc.	619-566-6580
CA	Santa Clara, Westrep, Inc.	408-988-8833
CO	Littleton, Lange Sls., Inc.	303-795-3600
FL	Ft. Lauderdale, Interface Dynamics	305-565-5075
FL	Plant City, Interface Dynamics	813-754-1329
GA	Norcross, Elctrn. Sls.	404-448-6554
IL	Crystal Lake, Symbex Corp.	815-455-3362
IN	Angola, Waid & Assocs.	219-833-3522
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
MA	Canton, Symbex Corp.	617-828-8114
MI	Franklin Village, I.E. Hampton & Assocs.	313-851-0820
MI	St. Joseph, I.E. Hampton & Assocs.	616-983-0862
MN	Chanhassen, Parker Shoap & Assocs.	612-934-8127
MN	Minneapolis, Parler, Shoap & Assocs.	612-755-6904
MO	Blue Springs, Kathrinus Kelly Baumhauer	816-229-0001
MO	St. Louis, Kathrinus Kelly Baumhauer	314-647-2400
NJ	Commack, Axelrod, Busch, Sullivan	201-871-0020
NJ	Englewood, Axelrod, Busch, Sullivan Assoc.	201-871-0020
NJ	Medford, Champion Elctrn. Sls.	609-983-0932
NJ	Sayreville, Axelrod, Busch, Sullivan	201-871-0020
NY	Bainbridge, R. W. Mitscher	607-967-7192
NY	Buffalo, R.W. Mitscher Co.	716-633-7970
NY	Lindenhurst, Axelrod, Busch, Sullivan	212-594-4090
NY	North Syracuse, R.W. Mitscher Co.	315-458-1321
NY	Pittsford, R.W. Mitscher Co.	716-586-4012
NY	Red Hook, R. W. Mitscher Co., Inc.	914-758-8375
NY	Rochester, R. W. Mitscher Co., Inc.	716-227-0839
NC	Cary, Elctrn. Sls.	919-467-8486
OH	Columbus, Norm Case Assocs.	614-863-5686
OH	Painesville, Symbex Corp.	216-354-0925
OH	Rocky River, Norm Case Assocs.	216-333-0400
OR	Falls City, Ecco Mktg.	503-787-3509
PA	Southampton, Symbex Corp.	215-322-8040
TX	Houston, Symbex Corp.	713-776-8468
UT	Salt Lake City, Lange Sls., Inc.	801-487-0843
WA	Seattle, Ecco Mktg.	206-364-0200
WI	Colgate, Rep. 1 & Assoc.	414-628-4016

Local Distributors

AZ	Phoenix, Arizona Comps.	602-269-5655
CT	Danbury, Pilgrim Elctrns	203-792-7274
MA	Danvers, Criterion	617-777-4725
MA	Middleboro, Glynn Elctrns.	617-947-4262
OK	Tulsa, Combined Tech. Comps.	918-665-3002
WI	Madison, Schrenk Sls.	608-255-7400
WI	Milwaukee, Marsh Elctrns.	414-475-6000

SYMBICON, 89 Route 101A, Amherst, NH 03031, Tel: 603-673-8898, Telex: 953059; *Sls. Mgr.:* S. Harrington; *Dist. Mgr.:* W. Ferrier

SYM-TEK SYS., INC., 3912 Calle Fortunada, San Diego, CA 92123, Tel: 619-569-6800, Telex: 249036; Empl.: 325; *Sls. Mgr.:* John Robinson

Local Sales Offices & Reps

AZ	Phoenix, Scientific Dvs.	602-957-0401
CA	Huntington Beach, Scientific Dvcs.	714-840-3501
CA	San Diego, Scientific Dvcs.	619-268-9635
CA	San Jose, Scientific Dvs.	408-554-0455
CO	Broomfield, Scientific Dvcs.	303-469-5145
FL	Longwood, Richard Schoonover, Inc.	305-788-3344
GA	Marietta, MoRe	404-992-5172
MA	E. Longmeadow, System Sls.	413-525-3679
MA	Hudson, System Sls.	617-562-9777
NM	Albuquerque, Scientific Dvcs.	505-883-3668
NY	Valley Stream, Levison Sls.	516-266-5020
OH	Brecksville, WRR Assocs.	216-526-2023
TX	Richardson, Sym-Tek Sls.	214-680-3004
UT	W. Valley City, Scientific Dvcs.	801-966-0105
WA	Marysville, Scientific Dvcs.	206-653-6031
Can	Montreal, Interfax Sys., Inc.	514-336-0392

SYMTRON CORP., 2415 E. Charleston Rd., Mountain View, CA 94043, Tel: 415-965-4500, TWX: 910-379-5002; Empl.: 350; *Sls. Mgr.:* Don Atkins

SYNEKTRON CORPORATION, 12000 S. W. Garden Place, Portland, OR 97223, Tel: 503-684-3090, Telex: 517441; Empl.: 72

SYNERGETICS INTL., INC., 6565 Odell Pl., P.O. Box E, Boulder, CO 80306-1236, Tel: 303-530-2020; *Sls. Mgr.:* Mike Sharkey

SYNERTEK, 3001 Stender Way, Santa Clara, CA 95051

SYNTEL DIV., Tegam, Inc., 7230 North Ridge Rd., Madison, OH 44057, Tel: 216-428-7505; Empl.: 15

SYNTEST CORP., 40 Locke Dr., Marlboro, MA 01752, Tel: 617-481-7827, TWX: 710-390-7659; *Sls. Mgr.:* Curtis P. Hoffman .... **D•1073**

Local Sales Offices & Reps

CA	Encino, King Engrg.	818-981-8677
CA	Fullerton, King Engrg.	714-525-6782
CT	Hamden, Digital Sls.	203-248-3641
IL	Arlington Heights, Coombs Assocs.	312-439-9810
MD	Silver Spring, Source Assoc.	301-725-5330
MA	Waltham, Digital Assocs.	617-899-4300
NY	Canandaigua, Burt Mamula	716-394-5560
NY	White Plains, Cane Tech. Sls.	914-694-9240
PA	Newtown Square, SWR Assoc	215-356-8550
TX	Waller, Vital Process Sys.	713-463-6811

SYNTRONIC INSTRUMENTS, INC., 100 Industrial Rd., Addison, IL 60101, Tel: 312-543-6444, TWX: 910-651-2191; FSC No.: 99409; Empl.: 175; *Sls. Mgr.:* Paul Evans

SYRACUSE ELCTRNS., P.O. Box 4770, Syracuse, NY 13221, Tel: 315-488-4911, Telex: 937-232; Empl.: 150

SYSCON INTL., INC., 1108 So. High St., So. Bend, IN 46618-1096, Tel: 219-232-3900, 800-348-2993, TWX: 810-299-2523; Empl.: 40; *Sls. Mgr.:* Les Barney

SYSTEK, 1023 N. Kellogg St., Kennewick, WA 99336, Tel: 509-735-1200; Empl.: 5

SYSTEMS DATA, INC., 2830 Copley Road, P.O. Box 4297, Akron, OH 44321, Tel: 216-666-0085; Empl.: 12; *Sls. Mgr.:* John C. Hall

SYSTEMS FURNITURE CO., 2727 Maricopa St., Torrance, CA 90503, Tel: 213-533-1212, TWX: 910-349-7518; *Sls. Mgr.:* Rick Labowitz

SYSTEMS PLUS, 1120 San Antonio Rd., Palo Alto, CA 94303, Tel: 415-969-7047, TWX: 910-373-2096; Empl.: 35

SYSTEMS RESCH. LABS., INC., 2800 Indian Ripple Rd., Dayton, OH 45440, Tel: 513-426-6000, TWX: 810-450-2621; FSC No.: 14590; Empl.: 1000

SYSTONICS, INC., Box 121, Winchester, MA 01890, Tel: 617-729-4439; Empl.: 11

SYSTRON-DONNER INERTIAL DIV., 2700 Systron Dr., Concord, CA 94518, Tel: 415-682-6161, TWX: 910-481-9478; Empl.: 416

SYSTRON-DONNER INSTR. DIV., 2727 Systron Dr., Concord, CA 94518, Tel: 415-676-5000, Telex: 171996, TWX: 910-481-9472; FSC No.: 52542; Empl.: 1400; *Sls. Mgr.:* Howard W. Mette

SYSTRON-DONNER MICROWAVE DIV., 14844 Oxnard St., Van Nuys, CA 91409, Tel: 818-786-1760, TWX: 910-495-1786; Empl.: 160; *Sls. Mgr.:* Tim A. Meehan

SYT, 1220 Barranca, El Paso, TX 79935, Tel: 915-593-1234; Empl.: 70; *Sls. Mgr.:* Larry Crum; *Dist. Mgr.:* John Sullivan

SYTEK, INC., 1225 Charleston Rd., Mountain View, CA 94043, Tel: 415-966-7300; *Sls. Mgr.:* Rhonda St. James

TAB BOOKS, Monterey & Pinola Aves., Blue Ridge Summit, PA 17214, Tel: 717-794-2191, Telex: 820562; Empl.: 175; *Sls. Mgr.:* Kevin Moran

TACHTRONIC INSTRUMENTS, INC., New Ulm, MN 56073, Tel: 507-354-3105

TADIRAN BATTERIES, See Plainview Elctrns.

TAFA, INC., Dow Rd, Box 1157, Bow, NH 03301-1157, Tel: 603-224-9585, Telex: 94-3424; Empl.: 50; *Sls. Mgr.:* Bob Unger; *Dist. Mgr.:* Leon Grant

TA INSTR. CASE CO., 4625 Alger St., Los Angeles, CA 90039, Tel: 818-242-8855, TWX: 910-497-4780; Empl.: 60; *Sls. Mgr.:* Jackie Garrison; *Dist. Mgr.:* Jackie Garrison .... **C•1087**

Local Sales Offices & Reps

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CA	San Diego, L.L. Stoakes, Inc.	619-452-1600
CO	Littleton, Omega Ltd.	303-798-7040
CT	Hartford, Sturgeon Co.	203-249-7800

FL	Orlando, Oem Mktg. Corp.	305-299-1000
FL	Walton Beach, BJR Mfg. Reps.	904-863-3315
IL	Chicago, Aktron Corp.	312-658-3538
IN	Fort Wayne, Aktron	219-747-3650
IA	Davenport, Ensco Rep., Inc. Iowa	319-386-6600
KS	Overland Park, Ensco Rep. - Kansas	913-381-7557
KS	Wichita, Ensco Rep. - Wichita	316-683-1070
KS	Wichita, Ensco Wichita	316-683-1070
MD	Rockville, Datek	301-294-0744
MA	Needham, Sturgeon Co.	617-444-6603
MO	Markland Hgts., Ensco Rep., Inc.	314-423-3935
NJ	Ridgewood, Balloou, Inc.	201-444-6990
NM	Albuquerque, C.T. Carlberg & Assocs.	505-888-3883
NY	Great Neck, F. & F. Metro, Inc.	516-482-4080
NY	New York, Ballou	212-964-4640
NY	Rochester, Gislason Sls.	716-328-7400
OR	Aloha, Caruso & Northcutt	503-646-4973
PA	Blue Bell, Macron Dynamics	215-628-8000
TX	Arlington, Bell Comps.	817-461-5303
TX	El Paso, C.T. Carlberg & Assocs.	505-888-3883
WA	Bellevue, Caruso & Northcutt	206-454-9699
Intl	IS, Bnei Brak, Mono Elctrns.	011-44955-3606
Intl	ST, Wick, Osprey Elctrns.	011-44955-3606
Can	Ontario, Avotronics	416-475-2024
Can	Quebec, Avotronics	514-697-2135

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TAKEDA RIKEN CO., LTD., NS Bldg. 14th,4-1,Nishi-Shinjuku 2-Chome,Shinjuku-ku, Tokyo 160, Tokyo 176, Japan, Tel: 03-342-7500, Telex: 232-4914 Takeda J; Empl.: 1200; *Sls. Mgr.:* Hiroshi Yasui

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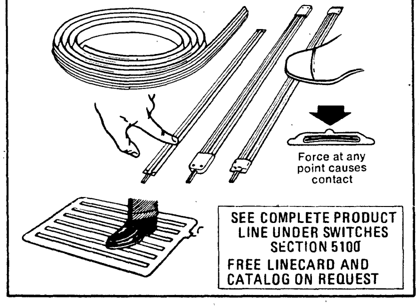
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TANSITOR ELCTRNS., West Rd., Bennington, VT 05201, Tel: 802-442-5473, TWX: 710-360-1782; FSC No.: 05079; Empl.: 200; *Sls. Mgr.:* Tom Moore; *Dist. Mgr.:* Tom Moore

TAPE CONCEPTS, INC., P. O. Box 815, 110 E. Vistula St., Bristol, IN 46507, Tel: 219-848-5234 .... **D•1035**

TAPECON, INC., 10 Latta Rd., Rochester, NY 14612, Tel: 716-621-8400; Empl.: 80

TAPESWITCH CORP. OF AMERICA, 100 Schmitt Blvd., Farmingdale, NY 11735, Tel: 516-694-6312, Telex: 14-4611; Empl.: 100 .... **B•1699**

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TASKER SYSTEMS, 20131 Sunburst St., Chatsworth, CA 91311, Tel: 213-341-3010, TWX: 910-494-1214; FSC No.: 09017; Empl.: 250; *Sls. Mgr.:* Gary B. Etzler

TAUBER ELCTRNS. INC., 4901 Morena Blvd., Bldg. 314, San Diego, CA 92117, Tel: 619-274-7242; Empl.: 16; *Dist. Mgr.:* Doug Bennett .... **D•1439**

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AL	Huntsville, Macro-Marketing	205-883-9630
AZ	Phoenix, MacDonald & Assocs.	602-998-1848
CA	Fullerton, Myco Sls.	714-546-9113
CA	Northridge, Myco Sls.	818-886-7101
CA	San Jose, Tom Haskins	415-964-0329
CA	Sunnyvale, Tom Haskins	415-964-0329
IL	Wheeling, Ed Joyner & Co.	312-520-1200
NV	Reno, Connie Dunning	702-849-0722
OK	Tulsa, Cunningham Comps. Corp.	918-492-0390
OR	Portland, Frank Jackson Assocs.	503-292-2638
TX	Dallas, Cunningham Comps. Corp.	214-233-4303
TX	Houston, Cunningham Comps. Corp.	713-451-4197
WA	Redmond, Frank Jackson Assocs.	206-881-7277

TAURUS COMPUTER PRODUCTS, INC., 1755 Woodward Dr., Ottawa, ON, Canada K2COPQ, Tel: 613-226-5361, Telex: 053-3577; Empl.: 17; *Sls. Mgr.:* Bill Ormerod; *Dist. Mgr.:* Bill Ormerod

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FL	Clearwater, Brennan Assocs.	813-446-5006

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TAYLOR ELECTRONICS, INC., 401 West Orion, Tempe, AZ 85283, Tel: 602-838-4523; Empl.: 25; *Sls. Mgr.:* Sharon F. Hansen .... **D•1848**

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CA	Sunnyvale, Qualtech Assocs.	408-732-4800
MA	Westwood, Modtek	617-461-0620
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PA	King of Prussia, KSI	215-783-6400

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MD	Silver Spring, Carwithen Assocs.	301-589-9040
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TX	Richardson, McCoy Assocs. Co.	214-238-1017

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FL	St. Petersburg, Tech. Rep. Assocs.	813-577-2779
ID	Meridian, Intermountain Techn.	208-888-5708
IL	Palatine, Technology Sls.	312-991-6600
IN	Indianapolis, TDK Corp. of Amer.	317-872-0370
MA	Westwood, Comp. Rep. Assocs.	617-329-3454
MN	Bloomington, Smiley-Scott Assocs.	612-888-5551
NJ	Mount Laurel, Comtek, Inc.	609-235-8505
NY	East Syracuse, Nycom, Inc.	315-437-8343
NY	Port Washington, TDK Corp. of Amer.	516-625-0100, Ext. 2300
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Cincinnati, Luebbe Sls. Co.	512-871-4211
TN	Knoxville, Insul-Reps	615-691-7586
TX	Richardson, Logic I Sls.	214-234-0765
WA	Seattle, Harry Levinson Co.	206-285-5622

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TEAC CORP. OF AMERICA, Indl. Prod. Div., 7733 Telegraph Rd., Montebello, CA 90640, Tel: 213-726-0303, Telex: 67-7014; Empl.: 200; *Sls. Mgr.:* Al Astor; *Dist. Mgr.:* Al Astor

TEC, 2727 N. Fairview, Box 5646, Tuscon, AZ 85703, Tel: 602-792-2230, TWX: 910-952-1377; Empl.: 600; *Sls. Mgr.:* Barry Hamilton; *Dist. Mgr.:* Barry Hamilton

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CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	San Jose, O'Donnell Assocs.	408-263-6500
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Castle Rock, Romulus	303-688-5127
CT	Cheshire, Scientific Comps.	203-272-2963
FL	Clearwater Beach, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assocs.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-482-6909
GA	Norcross, Interep Assocs.	404-449-8680
IL	Arlington Heights, MSI	312-956-1000
IN	Fort Wayne, Robert O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, Robert O. Whitesell & Assocs.	317-359-9283

IN	Kokomo, Robert O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, E. C. S.	612-933-2594
KS	Olathe, SPS Assocs.	913-764-4460
KY	Louisville, Robert O. Whitesell & Assocs.	502-426-7696
MD	Baltimore, Burgin-Kren Assocs.	301-265-8500
MA	Walpole, JEF Components	617-668-6695
MI	Detroit, Rathsburg Assocs.	313-882-1717
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, SPS	913-764-4460
NM	Albuquerque, Sys. Sls. of Arizona Inc.	505-881-8877
NY	Canandaigua, Bensman/Upstate Assocs.	716-396-2498
NY	Johnson City, Bensman/Upstate Assoc.	607-722-2242
NC	Raleigh, J & B Sls.	919-772-3546
OH	Cincinnati, Robert O. Whitesell Assocs.	513-521-2290
OH	Cleveland, Robert O. Whitesell & Assocs.	216-447-9020
OH	Columbus, Robert O. Whitesell & Assocs.	614-888-9396
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WI	Wauwatosa, Larsen Assocs.	414-258-0529

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AZ	Tempe, Bell Inds.	602-966-7800
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Hayward, Electro Comp. Distrs.	415-783-5800
CA	Irvine, Integrated Elctrns.	714-540-5600
CA	San Jose, Rose Elctrns. Dist.	408-263-2934
CA	Santee, Mouser Elctrns.	619-449-2220
CO	Lakewood, Active Comp. Technlg.	303-233-4431
CO	Wheatridge, Bell Inds.	303-424-1985
CT	East Haven, JV Elctrns.	203-469-2321
CT	Hamden, Almo Elctrns.	203-288-6556
FL	Longwood, Intertec Distr.	305-834-7777
IL	Elk Grove, RM Elctrns.	312-364-6622
IL	Hoffman Estates, Inter Comp	312-843-2040
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IN	Ft. Wayne, Graham Elctrns.	219-423-3422
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IN	Indianapolis, RM Elctrns.	317-247-9701
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MA	Woburn, ACI Elctrns.	617-935-7230
MI	Farmington Hills, Advent Elctrns.	313-477-1650
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NY	Buffalo, Summit Distrs.	716-884-3450
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NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Simcona Elctrns.	716-328-3230
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NC	Greensboro, Hammond Elctrns.	919-275-6391
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OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Columbus, Graham Elctrns.	614-895-1590
OH	Dayton, Stotts Friedman	513-298-5555
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PA	Enola, Almo Elctrns.	717-732-3681
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PA	Montgomeryville, Pyttronic Inds.	215-643-2850
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WA	Seattle, Radar Elec. Co.	206-282-2511
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TECH-ETCH, INC., 45 Aldrin Rd., Plymouth, MA 02360, Tel: 617-747-0300; Empl.: 280; *Sls. Mgr.:* P. A. Thomas

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IL	Glenview, Crimson Engrg. Co.	312-470-0024
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NY	Huntington Station, Haner Assocs.	516-242-7855
NY	Pittsford, Net Sls.	716-467-4538
OH	Cincinnati, Patco	513-931-3311
PA	Pittsburgh, VerHill Assocs.	412-241-5202
TX	Dallas, Southwest Elctrns.	214-690-9881
TX	Houston, Southwest Elctrns.	713-729-1670
WA	Seattle, SPS Elctrns.	206-323-4140

Local Distributors

CA	Granada Hills, C & W Comps. Sls.	818-368-4032
CA	Palo Alto, Mollard Mktg.	415-961-0456
NJ	Garfield, Bob Cameron Assocs.	201-470-0700
NY	Huntington Station, Haner Assocs., Inc.	516-242-7855

TECHLAND SYSTEMS, INC., 25 Waterside Plaza, New York, NY 10010, Tel: 212-684-7788, Telex: 961-134

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TECHNIC, INC., Box 965, Providence, RI 02901, Tel: 401-781-6100, Telex: 927514; Empl.: 125; *Sls. Mgr.:* A. A. Amtos

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TECHNICAL COMMUNICATIONS CORPORATION, 100 Domino Drive, Concord, MA 01742, Tel: 617-862-6035, Telex: 923407

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CA	Santa Clara, E. J. Brookes Co.	408-988-1201
IL	Elmhurst, Technical Materials	312-832-1263
IN	Carmel, Larry Woodling Co.	317-844-7365
SC	Greenville, B & B Sls.	803-297-1200

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TECHNICAL RESEARCH & MFG., INC., R.F.D. #10, Manchester, NH 03103, Tel: 603-627-6000, TWX: 710-220-6765; Empl.: 25; *Sls. Mgr.:* A. Marin

TECHNIPOWER, A PENRIL CO., P.O. Box 222, Commerce Pk., Danbury, CT 06810, Tel: 203-748-7001, TWX: 710-456-9280; FSC No.: 13850; Empl.: 135; *Sls. Mgr.:* Ivan Bourgoin (Variac); *Dist. Mgr.:* James McCarty .... **A•2306; D•1850**

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MA	Sudbury, Technipower	617-443-7347
MN	Burnsville, Electromec Sls., Inc.	612-894-8200
MO	St. Louis, Rothkopf & Assocs.	314-961-4485
NY	Pennsauken, Ar-Jay Tech.	609-663-4260
TX	Richardson, Scientific Sls. Co.	214-231-6541
Can	Guelph, Ont., Victrix, Ltd.	518-836-1480

Local Distributors

CA	Hollywood, Yale Radio Elctrn.	213-465-3186, 800-421-4144
CA	Los Angeles, Cal-State Elctrns.	213-933-8187
CA	Oakland, N. A. D'Arcy	415-638-7773
CA	Santa Ana, Action Elctrns.	714-547-5169
IL	Chicago, Delta Tech. Prods. Co.	312-478-1134
MA	Woburn, Abbott Elctrns. Co.	617-935-2040
MI	Dearborn, Indl. Temperature & Control	313-278-2210
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MO	St. Louis, Olive Elctrns., Inc.	314-426-4500
NY	Albany, Adirondack Elctrns., Inc.	518-456-0203
NY	Farmingdale, Midway Indl. Elctrns.	516-293-6800
NC	Charlotte, Jenkins Elec. Co.	704-392-7371
OH	Dayton, Esco Inc.	513-226-1133
OK	Tulsa, Inotek	918-627-1500
PA	Philadelphia, PEI/Genesis	215-568-7400
TX	Dallas, Inotek	214-243-7000
TX	Houston, Inotek	713-688-4494
Can	Guelph, Ont., Victrix, Ltd.	519-836-1480

TECHNIQUES, INC., 235 Jackson St., Englewood, NJ 07631, Tel: 201-569-5900; Empl.: 60

TECHNISERV INC., 1560 Teaneck Rd., Teaneck, NJ 07666, Tel: 201-837-0032; *Sls. Mgr.:* L. G. Mansoor

TECHNI-TOOL, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462, Tel: 215-825-4990, Telex: 834-763; Empl.: 40

Technitrol, Inc.

TECHNITROL, 1952 E. Allegheny, Philadelphia, PA 19134, Tel: 215-426-9105, Telex: 834245; FSC No.: 90095; Empl.: 350; *Sls. Mgr.:* G. Shilling ...**A•1458, 1574-1579, 2307; B•1002, 1010**

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Phoenix, Integrated Sys. & Dev. Sls.	602-971-6250
CA	San Rafael, Wright Assocs.	415-457-9940
CA	Torrance, Detomasi & Grupp, Inc.	213-327-1775
CO	Castle Rock, Romulus Elctrns., Ltd.	303-688-5127
GA	Norcross, Dixie Tech. Mktg.	404-447-6832
IL	Wauconda, Cudahy Sls.	312-526-2484
IA	Des Moines, The Beams Co.	515-255-1148
MD	Baltimore, Callas Elctrns.	301-744-7711
MA	Newton, Normell Assoc.	617-969-5478
NM	Albuquerque, Syntech	505-266-7951
NY	Fairport, TAC Assoc.	716-425-1070
NY	Jericho, J. Square Mktg.	516-935-3200
NY	Syracuse, Tac Sls.	315-637-9861
OH	Galion, Retronics	419-468-4568
PA	Easton, The Kendon Co.	215-253-3100
PA	Pittsburgh, Robert Kneip	412-823-0169
TX	Austin, Elctrns. Mktg. Assoc.	512-837-0893
TX	Grapevine, Elctrns. Mktg. Assoc.	817-481-7502
TX	Houston, Elctrns. Mktg. Assoc.	713-498-8120
WA	Redmond, General Technlg., Inc.	206-881-6456

TECHNO-COMPONENTS CORP., 7803 Lemona, Van Nuys, CA 91405, Tel: 818-781-1642, TWX: 910-495-2015; FSC No.: 17826;Multiple; Empl.: 135; *Sls. Mgr.:* Vivian Meranda

TECHNOLOGY DYNAMICS, 91 E. Carver Ave., Westwood, NJ 07675, Tel: 201-664-7636 .... **D•1851**

Local Sales Offices & Reps

CA	Sunnyvale, Sourcetronics, Inc.	408-988-8801
CA	West Lake Village, Powerdyne Assocs.	818-991-0632
CO	Aurora, Butler Tech. Sls.	303-343-3787
FL	Orlando, Gramar, Inc.	305-894-3351
MD	Hagerston, Stinson Assocs., Inc.	301-790-1193
VA	Reston, Stinson Assocs., Inc.	703-620-0088

TECHNOLOGY PRODS., INC., 8900 Eton Ave., Canoga Park, CA 91304, Tel: 213-998-8555; FSC No.: 8K984; *Sls. Mgr.:* N. Lerman

TECHNO VATION, INC., 14 Crandall Ave., Pompton Lakes, NJ 07442, Tel: 201-839-0740; Empl.: 10; *Sls. Mgr.:* Fredric S. Miller

TECH SPRAY, INC., Box 949, Amarillo, TX 79105, Tel: 806-372-8523, Telex: 738450; Empl.: 40; *Sls. Mgr.:* R. G. Russell; *Dist. Mgr.:* Jack Swanson

TCI

TECHTROL CYCLONETICS, INC., 815 Market St., New Cumberland, PA 17070, Tel: 717-774-2746, TWX: 510-650-7003; FSC No.: 58792; Empl.: 25; *Sls. Mgr.:* Robert Nemeth .... **A•1446-1449**

Local Sales Offices & Reps

CA	Mountain View, Dimes Grp.	415-493-1885
CA	San Jose, MC Assocs.	408-446-4100
CA	Signal Hill, Thorson Co.	213-595-0361
MD	Ellicott City, Nelson Elctrns. Inc.	301-747-7887
NY	Brooklyn, Pensky Assocs.	212-763-4936
PA	Philadelphia, Eastern Instrmn.	215-245-6660
TX	Dallas, Airep Elctrns.	214-349-4360

TECKNIT®

TECKNIT (EASTERN FACILITY), 129 Dermody St., Cranford, NJ 07016, Tel: 201-272-5500, Telex: 6853079 TCKNT, TWX: 710-996-5961; FSC No.: 07700; Empl.: 300; *Sls. Mgr.:* Thomas McCreery .... **C•1530-1535, 1730-1737**

Local Sales Offices & Reps

AZ	Tempe, Tempe Assocs.	602-829-1901
CA	Granada Hills, C & W Comp. Sls.	818-368-4032
CA	San Diego, Cerco	619-450-1754
CA	Santa Barbara, Tecknit (Western Facility)	809-963-5811
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Denver, Tecknit Mid-West	303-733-8645
FL	Altamonte Springs, Lawrence Assocs.	305-339-3855
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
FL	Maitland, EIR, Inc.	305-660-9600
FL	N. Lauderdale, EIR, Inc.	305-975-8718
FL	West Melbourne, Lawrence Assocs.	305-724-8294
IL	Arlington Hgts., Diethert/Angel	312-593-7600
IL	Chicago, Industrial Reps.	312-647-7755
IA	Davenport, Ensco-Rep, Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep, Inc.	316-683-1070
MD	Rockville, Mechtronics	301-340-2130
MA	Wallingford, Com-Sale	203-269-7964
MI	Lavonia, Lowell-Wendt Mktg. Co.	313-464-2722
MN	Eden Prairie, Elctrn. Innovators, Inc.	612-941-0830
MN	St. Paul, Repco	612-642-2828
MO	Maryland Heights, Ensco-Rep, Inc.	314-423-3935
NH	Hudson, EMC Sales	603-889-5751
NJ	N. Plainfield, Brady Co.	201-753-7988
NJ	Union, Meridian Entprs.	201-687-6220
OH	Columbus, McFadden Sls.	614-459-1280
OH	Dayton, Jay Engrg.	513-253-2151
OH	N. Royalton, Jay Engrg.	216-237-4235
TX	Austin, P. J. Scanlon & Co.	512-255-2664
TX	Dallas, P. J. Scanlon & Co.	214-231-4661
TX	Houston, P. J. Scanlon & Co.	713-663-7779
WA	Bellevue, Quest Mktg.	206-747-9424

TECMAR, INC., 6225 Cochran Rd., Solon, OH 44139, Tel: 216-349-0600; Empl.: 600; *Sls. Mgr.:* Tim Mahoney

TECNETICS, Box 910, Boulder, CO 80306, Tel: 303-442-3837, TWX: 910-940-3246; Empl.: 225; *Sls. Mgr.:* V.L. Garrison

TECO CORP., Bay Rd., P. O. Box A, Winnisquam, NH 03289, Tel: 603-524-1998; Empl.: 80-100; *Sls. Mgr.:* Sandra Murphy

TECOM INDS., 9324 Topanga Canyon Blvd., Chatsworth, CA 91311, Tel: 818-341-4010, Telex: 69 8476; FSC No.: 59850001; Empl.: 107; *Sls. Mgr.:* Philip R. Poutre'

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CA	Mountain View, Disman - Bakner	415-969-3010
CO	Colorado Springs, J. Smith & Assocs.	303-597-5343
FL	Ft. Lauderdale, The Snow Co.	305-563-2448
FL	Melbourne, Barkman Assocs.	305-254-1863
IL	Northfield, Feller Assocs.	312-446-8065
IA	Cedar Rapids, Feller Assocs.	319-364-0566
MD	Rockville, CLC Assocs.	301-340-1175
MD	Severna Pk., Delmarva Engrg.	301-647-8007
MA	Topsfield, R. F. Assocs.	617-887-9762
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NY	Hartsdale, Spectrum Sls.	914-472-8600
NY	Skaneateles, Robtron, Inc.	315-685-5731
OH	Dayton, GVT Assocs.	513-253-1356
PA	Lafayette Hill, M. Lader Co.	215-825-3177
TX	Arlington, John Houston Assocs.	817-265-2931
TX	San Antonio, John Casey	512-492-8154
WA	Bellevue, Thorson Co. Northwest	206-455-9180
Can	Ottawa, Ont., Gigatron Assocs.	613-225-4090

TECRON INDUSTRIAL PRODS., Crown Intl., Inc., 1718 W. Mishawaka Rd., Elkhart, IN 46517, Tel: 219-294-8300, Telex: 810-294-2160; Empl.: 335; *Sls. Mgr.:* Howard King .... **D•1018-1021, 1310-1311**

Local Sales Offices & Reps

CA	Milpitas, IFM Inc.	408-945-5920
CA	Thousand Oaks, HTEC	805-492-2889
CT	Woodbridge, Electronic Marketing Assoc.	203-397-1461
IL	Chicago, Berndt Assocs.	312-283-0713
IA	Cedar Rapids, MAI Assocs.	319-396-8030
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
MN	St. Paul, Timewave Technlgy., Inc.	612-451-7575
NJ	Wayne, Ramapo, Inc.	201-839-6767
NY	Syracuse, Labtronics Inc.	315-455-7314
OH	Brecksville, Audio Mktg. Assoc.	216-526-2426
TX	Longview, Audex	214-758-9392
WA	Bellevue, Showalter Instrs., Inc.	206-746-7970

TECSTOR, INC., 16161 Gothard Street, Huntington Beach, CA 92647, Tel: 714-842-0077, TWX: 856305; Empl.: 100; *Sls. Mgr.:* Nancy Moren/Robert Whitegiver

TED CORP., 11415 Johnson Dr., Shawnee Mission, KS 66203, Tel: 913-631-6211; FSC No.: 05209; Empl.: 48

TEDEA USA

TEDEA USA, 7800 Deering Ave., Canoga Park, CA 91304, Tel: 818-884-8818, Telex: 67-3382, TWX: 910-494-1951; Empl.: 10; *Sls. Mgr.:* Tony Smalarz .... **B•1827**

Local Sales Offices & Reps

AZ	Tempe, Trembly Assocs.	505-266-8616
CA	Carlsbad, Elotek Sys.	714-438-4856
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CO	Littleton, Rado Elctrns.	303-794-4279
GA	Atlanta, Physimetrics	404-955-0155
KS	Shawnee Mission, Tech. Sls. Assocs.	913-888-3330
MA	Lexington, Jodan Technology	617-862-2354
MI	Trenton, I & C Sls.	313-671-1320
MN	Minneapolis, CMI	612-566-6930
MO	St. Louis, Tech. Sls. Assocs.	314-725-5361
NV	Las Vegas, Trembly Assocs.	702-739-6816
NJ	Hillsdale, C B Assocs.	201-664-6230
NM	Albuquerque, Trembly Assocs.	505-266-8616
OH	Cincinnati, I & C Sls.	513-772-3101
OR	Boring, Westerberg & Assocs.	503-667-8048
PA	Bethayres, Control Instr. Sls.	215-676-1808
UT	Bountiful, Rado Elctrns.	801-292-3248
WA	Bellevue, Westerberg & Assocs.	206-453-8881
Can	Rexdale, ON, SRP Control Sys. Ltd.	416-746-0117

TEGAM, 7230 N. Ridge Rd., Madison, OH 44057, Tel: 216-428-7505; Empl.: 25

TEGAL SCIENTIFIC, INC., Box 5905, Concord, CA 94524, Tel: 415-827-1054; *Sls. Mgr.:* L. Rigali

TEKA PRODS., 45 Salem, Providence, RI 02907, Tel: 401-785-4110, TWX: 710-582-4946; Empl.: 89; *Sls. Mgr.:* John Robertson; *Dist. Mgr.:* John Robertson

TEK-COM CORPORATION, 1887 O'Toole Avenue, C103, San Jose, CA 95131, Tel: 408-263-7400, Telex: 171617; Empl.: 23; *Sls. Mgr.:* Becki Huntington; *Dist. Mgr.:* Ms. Kimberly Swensen

TEKNATIONAL INDS., INC., 430 S. Clinton Ave., Rochester, NY 14620, Tel: 716-232-1291; FSC No.: 24227; Empl.: 15; *Sls. Mgr.:* J. D. Hochheimer

TEKTITE CORP., 4756 Platt Rd., Ann Arbor, MI 48104, Tel: 313-971-9379; *Sls. Mgr.:* Jose Padilla

TEKTONE SOUND & SIGNAL, 1331 S. Killian Dr., Lake Park, FL 33403, Tel: 305-844-2383, Telex: 51-3438; FSC No.: 59-1500771; Empl.: 50; *Sls. Mgr.:* Carlos Mira; *Dist. Mgr.:* Carlos Mira

TEKTRONIX, INC., P. O. Box 500, Y3-314, Beaverton, OR 97077, Tel: 800-547-1512, Oregon only 800-452-1877, TWX: 910-467-8708; FSC No.: 80009; Empl.: 20000

TELAUTOGRAPH, 8700 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-3690, TWX: 910-328-6117; Empl.: 300

TELCOM INC., 8027 Leesburg Pike, Vienna, VA 22180, Tel: 703-893-7700, Telex: 89-2321

TELCO PRODUCTS CO., 44 Sea Cliff, Glen Cove, NY 11542, Tel: 516-759-0300; Empl.: 34

TELEBYTE TECHNOLOGY, INC., Remark Datacom Div., 270 East Pulaski Road, Greenlawn, NY 11740, Tel: 516-423-3232, TWX: 510-226-0449; Empl.: 40; *Sls. Mgr.:* Curt DeForest

TELECOMMUNICATIONS DEVICES, 2320 Wisconsin Ave., Downers Grove, IL 60515, Tel: 312-971-3460, TWX: 910-695-3222; Empl.: 45; *Sls. Mgr.:* Joel Peterson; *Dist. Mgr.:* Theresa Kanaga

TELECOMMUNICATIONS TECHNIQUES CORP., 444 N. Frederick Ave., Gaithersburg, MD 20877, Tel: 301-258-5011, Telex: 908736; Empl.: 100; *Sls. Mgr.:* John Farrell

TELECTRO SYS., 96-18 43rd Ave., Corona, NY 11368, Tel: 212-651-8900; Empl.: 75; *Sls. Mgr.:* H. Sussman

TELEDYNE AEROSPACE SYS., 1007 E. 10th St., Fairmont, MN 56031, Tel: 507-235-3355, 507-235-9712, TWX: 910-565-2120; FSC No.: 24600; Empl.: 150; *Sls. Mgr.:* Robert L. Johnson

TELEDYNE ANSONIA, One Riverside Dr., Ansonia, CT 06401, Tel: 203-735-9311, Telex: 963408; *Sls. Mgr.:* Frank J. Stvebbe

TELEDYNE CAMERA SYS., 131 N. Fifth Ave., Arcadia, CA 91006, Tel: 818-359-6691, Telex: 675-423; FSC No.: 14440; Empl.: 96; *Sls. Mgr.:* Roy Larson

TELEDYNE-CRYSTALONICS, 147 Sherman St., Cambridge, MA 02140, Tel: 617-491-1670, TWX: 710-320-1196; FSC No.: 12498;Multiple; Empl.: 185; *Sls. Mgr.:* A. H. Pauk; *Dist. Mgr.:* W. J. Kilgarriff

TELEDYNE/GEOTECH, 3401 Shiloh Rd., Garland, TX 75041, Tel: 214-271-2561, Telex: 73-2394; FSC No.: 99019; Empl.: 440

TELEDYNE GURLEY, 514 Fulton St. P.O. Box 88, Troy, NY 12181, Tel: 518-272-6300, TWX: 710-443-8156; *Sls. Mgr.:* G. S. Gordon

Local Sales Offices & Reps

CA	Los Altos, Servo Data	415-964-1325
CA	Montebello, Tucul Engrg.	213-728-7397
CO	Longmont, Piper Sls.	303-443-5337
CT	Hamden, JBL Assocs.	203-281-3161
FL	Melbourne, R-Rep Co.	305-725-6993
IL	Berkeley, Cadre Tech. Reps.	312-449-3900
IN	Indianapolis, Ron Schafer & Assocs.	317-848-2702
MD	Columbia, Stein Instr.	301-596-3748
MA	Holbrook, McLellan Assocs.	617-767-4771
MI	Livonia, Lowell-Wendt Mktg.	313-464-2722
MN	St. Paul, Northstar Motion & Control	612-770-5311
NJ	Union, Friedman Assocs.	201-964-6200
NY	Buffalo, Good Comps.	716-634-4400
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-854-5939
OK	Tulsa, Spectra Sls.	918-633-7188
OR	Portland, Tech. Comp.	503-292-1518
PA	Cheltenham, Stein Instr.	215-379-1990
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600
UT	Salt Lake City, Piper Sls.	801-466-9336
Can	Ottawa, Ont., Intrade	613-727-1272

TELEDYNE INET, 2750 W. Lomita Blvd., Torrance, CA 90509, Tel: 213-325-5040, Telex: 67-7228; Empl.: 600

TELEDYNE KINETICS, Div. of Teledyne, Inc., 410 S. Cedros Ave., Solana Beach, CA 92075, Tel: 619-755-1181, TWX: 910-322-1135; Empl.: 110; *Sls. Mgr.:* John Schuler

TELEDYNE MECCA, Box 36393, Houston, TX 77236, Tel: 713-772-2811, TWX: 913-881-7039; Empl.: 75; *Sls. Mgr.:* J. M. Barrow

TELEDYNE MICROELECTRONICS, 12964 Panama St., Los Angeles, CA 90066, Tel: 213-822-8229, 213-870-9831, TWX: 910-343-7436; FSC No.: 16170; Empl.: 1500; *Sls. Mgr.:* W. Kennedy

TELEDYNE MICRONETICS, 7155 Mission Gorge Rd., San Diego, CA 92120, Tel: 619-583-3525, TWX: 910-335-2085; Empl.: 120; *Sls. Mgr.:* S. Amarillas

TELEDYNE MICROWAVE, 1290 Terra Bella Ave., Mountain View, CA 94043, Tel: 415-968-2211, TWX: 910-379-6939; FSC No.: 24022; Empl.: 325

TELEDYNE PHILBRICK, Allied Dr. Rte 128, Dedham, MA 02026, Tel: 617-329-1600, TWX: 710-348-6726; Empl.: 250

TELEDYNE RELAYS, 12525 Daphne Ave., Hawthorne, CA 90250, Tel: 213-777-0077, TWX: 910-321-4610; *Sls. Mgr.:* Tom Garland

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	Saratoga, Teledyne Relays	408-996-9944
CO	Denver, Quorum 3	303-696-8480
CT	Stratford, G. Rosen Co.	203-375-5456
FL	Clearwater, Hutto, Hawkins & Peregoy	813-797-4447
FL	Maitland, Hutto, Hawkins & Peregoy	305-831-2474
FL	Pompano Beach, Hutto, Hawkins & Peregoy	305-971-5750
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Glen Ellyn, Teledyne Relays	312-858-1090
IN	Kokomo, Schillinger Asso.	317-452-4057
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Olathe, C-Tron	913-829-0073
MD	Towson, Arbotek Assocs.	301-825-0775
MA	Framingham, G. Rosen Co.	617-879-5505
MN	Minneapolis, S. Clothier Co.	612-944-3456
MO	St. Louis, Rothkoph & Assocs.	314-961-4485
NJ	Cranford, Teledyne Relays	201-272-0020
NM	Albuquerque, Reptronix	505-292-1718
NY	Mount Vernon, Friedman-Smith Elctrns.	914-664-4866
NY	Syracuse, I.A. Hotze Co.	315-479-6641
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
OH	Medina, J.C. Hofstetter Co.	216-241-4880
OR	Beaverton, B & P Sls.	503-641-3486
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Pennsauken, Vantage Sls.	609-663-6660
TX	Austin, Kruvand Assocs.	512-441-6777
TX	Dallas, Kruvand Asso.	214-437-3355
TX	Houston, Kruvand Asso.	713-780-9710
UT	Sandy, Quorum 3	801-943-9227
WA	Bellevue, B & P Asso.	206-454-6571
Can	Calgary, Alb., Deskin Sls.	403-466-2106
Can	Edmonton, Alb., Deskin Sls.	403-466-2106
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Ottawa, Ont., Deskin Sls.	613-729-1099
Can	Richmond, B.C., Deskin Sls.	604-273-4963
Can	St. Laurent, Que., Deskin Sls.	514-331-2860
Can	Transcona, Man., Deskin Sls.	403-466-2106

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Wyle	602-249-2232
AZ	Tempe, Time-Arizona	602-967-2000
CA	Anaheim, Time-Anaheim	714-937-0911
CA	Chatsworth, Time	818-998-7200
CA	El Segundo, Wyle Dist. Grp.	213-322-8100
CA	Irvine, Wyle Dist. Grp.	714-863-9953
CA	Rancho Cordova, Wyle	916-638-5282
CA	San Diego, Time	619-586-1331
CA	San Diego, Wyle Dist. Grp.	619-565-9171
CA	Santa Clara, Wyle Dist. Grp.	408-727-2500
CA	Sunnyvale, Time-N. Cal.	408-734-9888
CA	Torrance, Time-West	213-320-0880
CO	Englewood, Time-Colorado	303-850-7701
CO	Thornton, Wyle Dist. Grp.	303-457-9953
CT	Cheshire, Time	203-271-3200
CT	Orange, Milgray/Conn.	203-795-0711
FL	Altamonte Springs, Pioneer Elctrns.	305-834-9090
FL	Dania, Summit	305-920-6253
FL	Deerfield Beach, Pioneer	305-428-8877
FL	Ft. Lauderdale, Time-Florida	305-974-4800
FL	Winter Pk., Milgray/Fla.	305-647-5747
GA	Atlanta, Electro-Air-Georgia	404-351-3545
GA	Atlanta, Milgray	404-393-9666
GA	Norcross, Pioneer	404-448-1711
IL	Bensenville, Milgray	312-350-0490
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IN	Indianapolis, Pioneer/Indianapolis	317-849-7300
KS	Overland Pk., Milgray/Kansas City	913-236-8800
MD	Columbia, Time-Maryland	301-964-3090
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MD	Rockville, Milgray/Wash.	301-468-6400
MA	Burlington, Milgray/New England	617-272-6800
MA	Woburn, Time-New England	617-935-8080
MI	Livonia, Pioneer/Mich.	313-525-1800
MN	Bloomington, Time	612-944-9192
MN	Minnetonka, Pioneer	612-935-5444
MO	St. Louis, Time-Mid West	314-391-6444
NJ	Marlton, Milgray/Delaware Valley	609-983-5010
NY	Buffalo, Summit Dist.	716-887-2800
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Time-NY	516-273-0100
NY	Pittsford, Milgray	716-385-9330
NY	Rochester, Summit Dist.	716-334-8110
NC	Charlotte, Pioneer	704-527-8188
OH	Cleveland, Milgray/Cleveland	216-447-1520
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Hillsboro, Wyle Dist. Grp.	503-640-6000
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	King of Prussia, Time-Mid Atlantic	215-337-0900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Austin, Pioneer	512-835-4000
TX	Austin, Wyle	512-834-9957
TX	Dallas, Electro-Air-Southwest	214-385-0566
TX	Dallas, Milgray	214-248-1603
TX	Dallas, Pioneer Std.	214-386-7300
TX	Houston, Pioneer Elctrns.	713-988-5555
TX	Houston, Wyle	713-879-9953
TX	Richardson, Wyle-Dallas	214-235-9953
UT	Salt Lake City, Wyle Dist. Grp.	801-974-9953
WA	Bellevue, Electro-Air-Northwest	206-641-3640
WA	Bellevue, Wyle Dist. Grp.	206-453-8300
Can	Calgary, Alb., Deskin Sls.	403-466-2106
Can	Edmonton, Alb., Deskin Sls.	403-466-2106
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Ottawa, Ont., Deskin Sls.	613-729-1099
Can	Richmond, B.C., Deskin Sls.	604-273-4963
Can	St. Laurent, Que., Deskin Sls.	514-331-2860
Can	Transcona, Man., Deskin Sls.	403-466-2106

TELEDYNE ROTOLITE, 150 Mt. Bethel Rd., Warren, NJ 07060, Tel: 201-647-1040, TWX: 710-986-3017; *Sls. Mgr.:* J. F. Stickel

TELEDYNE SEMICONDUCTOR, 1300 Terra Bella Ave., PO Box 7267, Mountain View, CA 94039-7267, Tel: 415-968-9241, TWX: 910-379-6494; FSC No.: 15818; Empl.: 2000; *Sls. Mgr.:* Ralph Granchelli

TELEDYNE SOLID STATE PRODUCTS, 12525 Daphne Ave., Hawthorne, CA 90250, Tel: 213-777-0077, TWX: 910-321-4610; *Sls. Mgr.:* Tom Garland

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	Saratoga, Teledyne Relays	408-996-9944
CO	Denver, Quorum 3	303-696-8480
CT	Stratford, G. Rosen Co.	203-375-5456
FL	Clearwater, Hutto, Hawkins & Peregoy	813-797-4447
FL	Maitland, Hutto, Hawkins & Peregoy	305-831-2474
FL	Pompano Beach, Hutto, Hawkins & Peregoy	305-971-5750
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Glen Ellyn, Teledyne Relays	312-858-1090
IN	Kokomo, Schillinger Assocs.	317-452-4057
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Olathe, C-Tron	913-829-0073
MD	Towson, Arbotek Assocs.	301-825-0775
MA	Framingham, G. Rosen Co.	617-879-5505
MN	Minneapolis, S. Clothier Co.	612-944-3456
MO	St. Louis, RothKopf & Assocs.	314-961-4485
NJ	Cranford, Teledyne Relays	201-272-0020
NM	Albuquerque, Reptronix	505-292-1718
NY	Mount Vernon, Friedman-Smith Elctrns.	914-664-4866
NY	Syracuse, I. A. Hotze Co.	315-479-6641
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, B & P Sls.	503-641-3486
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Pennsauken, Vantage Sls.	609-663-6660
TX	Austin, Kruvand Assocs.	512-441-6777
TX	Dallas, Kruvand Assocs.	214-437-3355
TX	Houston, Kruvand Assocs.	713-780-9710
UT	Sandy, Quorum 3	801-943-9227
WA	Bellevue, B & P Assocs.	206-454-6571
Can	Calgary, Alb., Deskin Sls.	403-466-2106
Can	Edmonton, Alb., Deskin Sls.	403-466-2106
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Ottawa, Ont., Deskin Sls.	613-729-1099
Can	Richmond, B.C., Deskin Sls.	604-273-4963
Can	St. Laurent, Que., Deskin Sls.	514-331-2860
Can	Transcona, Man., Deskin Sls.	403-466-2106

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Wyle	602-249-2232
AZ	Tempe, Time/Arizona	602-967-2000
CA	Anaheim, Time/Anaheim	714-937-0911
CA	Chatsworth, Time/Chatsworth	818-998-7200
CA	El Segundo, Wyle Dist. Grp.	213-322-8100
CA	Irvine, Wyle Dist. Co.	714-863-9953
CA	Rancho Cordova, Wyle	916-638-5282
CA	San Diego, Time/San Diego	619-586-1331
CA	San Diego, Wyle Dist. Grp.	619-565-9171
CA	Santa Clara, Wyle Dist. Grp.	408-727-2500
CA	Sunnyvale, Time/N. Cal.	408-734-9888
CA	Torrance, Time/West	213-320-0880
CO	Englewood, Time/Colorado	303-850-7701
CO	Thornton, Wyle Dist. Grp.	303-457-9953
CT	Cheshire, Time/Connecticut	203-271-3200
CT	Orange, Milgray/Conn.	203-795-0711
FL	Altamonte Springs, Pioneer Elctrns.	305-834-9090
FL	Dania, Summit	305-920-6253
FL	Deerfield Beach, Pioneer/Florida	305-428-8877
FL	Ft. Lauderdale, Time/Florida	305-974-4800
FL	Winter Pk., Milgray/Fla.	305-647-5747
GA	Atlanta, Electro-Air/Georgia	404-351-3545
GA	Atlanta, Milgray	404-393-9666
GA	Norcross, Pioneer	404-448-1711
IL	Bensenville, Milgray/Chicago	312-350-0490
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IN	Indianapolis, Pioneer/Indianapolis	317-849-7300
KS	Overland Pk., Milgray/Kansas City	913-236-8800
MD	Columbia, Time/Maryland	301-964-3090
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MD	Rockville, Milgray/Wash.	301-468-6400
MA	Burlington, Milgray/New England	617-272-6800
MA	Woburn, Time/New England	617-935-8080
MI	Livonia, Pioneer/Mich.	313-525-1800
MN	Bloomington, Time/Minnesota	612-944-9192
MN	Minnetonka, Pioneer	612-935-5444
MO	St. Louis, Time/Mid-West	314-391-6444
NJ	Marlton, Milgray/Delaware Valley	609-983-5010
NY	Buffalo, Summit Dist.	716-887-2800
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Haupauge, Time/NY	516-273-0100
NY	Pittsford, Milgray	716-385-9330
NY	Rochester, Summit Dist.	716-334-8110
NC	Charlotte, Pioneer	704-527-8188
OH	Cleveland, Milgray/Cleveland	216-447-1520
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Hillsboro, Wyle Dist. Grp.	503-640-6000
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	King of Prussia, Time/Mid Atlantic	215-337-0900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Austin, Pioneer	512-835-4000
TX	Austin, Wyle/Austin	512-834-9957
TX	Dallas, Electro-Air-Southwest	214-385-0566
TX	Dallas, Milgray/Dallas	214-248-1603
TX	Dallas, Pioneer Std.	214-386-7300
TX	Houston, Pioneer Elctrns.	713-988-5555
TX	Houston, Wyle/Houston	713-879-9953
TX	Richardson, Wyle/Dallas	214-235-9953
UT	Salt Lake City, Wyle Dist. Grp.	801-974-9953
WA	Bellevue, Electro-Air/Northwest	206-641-3640
WA	Bellevue, Wyle Dist. Grp.	206-453-8300
Can	Calgary, Alb., Deskin Sls.	403-466-2106
Can	Edmonton, Alb., Deskin Sls.	403-466-2106
Can	Markham, Ont., Deskin Sls.	416-475-1412
Can	Ottawa, Ont., Deskin Sls.	613-729-1099
Can	Richmond, B.C., Deskin Sls.	604-273-4963
Can	St.Laurent,Que., Deskin Sls.	514-331-2860
Can	Transcona, Man., Deskin Sls.	403-466-2106

TELEDYNE WESTERN WIRE & CABLE, 2425 E. 30th St., Los Angeles, CA 90051, Tel: 213-587-7103, Telex: 67-7110; Empl.: 250; *Sls. Mgr.:* W. Drolet, Jr.; *Dist. Mgr.:* M. Ibrahim

TELEFACE CORP., 111 Rivington St., New York, NY 10002, Tel: 212-477-6802, Telex: 125126; Empl.: 4; *Sls. Mgr.:* Richard W. Gans

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Telemecanique

TELEMECANIQUE, INC., Allied Control Products, 100 Relay Rd., Plantsville, CT 06479, Tel: 203-621-6771; FSC No.: 5945; Empl.: 1200; *Sls. Mgr.:* Mark Freyermuth **B•1450-1459**

Local Sales Offices & Reps

AZ	Tempe, Delta Elctrns. Sls. Corp.	602-244-1601
CA	Cerritos, El-Com, Inc.	213-404-2961

CA	Milpitas, Maxim Elec. Sls.	408-946-6001
CO	Denver, Electronic Sls., Inc.	303-771-6300
CT	Clinton, Selmark Assocs., Inc.	203-573-9088
FL	Melbourne, Raycom, Inc.	305-259-7988
FL	Melbourne Beach, Raycom, Inc.	305-725-4558
FL	Orlando, Raycom, Inc.	305-859-5504
FL	Plantation, Raycom, Inc.	305-741-6690
FL	Wellborn, Raycom, Inc.	904-963-5023
GA	Atlanta, Electro-Rep Assocs.	404-320-1134
IL	Chicago, Industrial Reps., Inc.	312-647-7755
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
MD	Columbia, Delta III Assocs., Inc.	301-730-4700
MA	Millis, Selmark Assocs., Inc.	617-376-2914
MI	Livonia, Electronic Salesmasters, Inc.	313-421-2520
MN	Minneapolis, Giefer Sls.	612-884-2395
NH	Hopkinton, Selmark Assocs., Inc.	603-746-3299
NJ	Medford, Component Consultants	609-654-5300
NJ	Oakland, CRG Grp., Inc.	201-337-8149
NY	Marcellus, Noeth-Honsinger Assocs.	315-673-1052
NY	Pittsford, Noeth-Honsinger Assocs.	716-586-9002
NC	Charlotte, Electro-Rep Assocs.	704-527-2530
OH	Beachwood, Electronic Salesmasters, Inc.	216-831-9555
OR	Aloha, Huntley Assocs.	503-649-5388
PA	Champhill, Process Engrg. Co.	717-761-5083
PA	Pittsburgh, Process Engrg. Co.	412-561-5050
TX	Austin, Delta Comps., Inc.	512-458-4288
TX	El Paso, Alexander Entprs.	915-591-3142
TX	Seagoville, Delta Comps., Inc.	214-287-6333
VA	Midlothian, Delta III Assocs., Inc.	804-379-1816
WA	Everett, Huntley Assocs.	206-353-1833
WI	Milwaukee, Industrial Reps., Inc.	414-259-0965
Can	Don Mills, R. D. Assocs.	416-444-0959

Local Distributors

AL	Birmingham, Newark Elctrns.	205-942-4044
AL	Huntsville, Newark Elctrns.	205-837-9091
AZ	Pheonix, Newark Elctrns.	602-957-0085
AZ	Phoenix, Newark Elctrns.	602-957-0085
AZ	Tempe, AnJon Elctrns.	602-894-1332
AZ	Tempe, Newark Elctrns.	602-968-7441
AZ	Tucson, Newark Elctrns.	602-628-7891
AR	Little Rock, Newark Elctrns.	501-225-8130
CA	Buena Park, Control Design	714-521-5040
CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Chula Vista, Newark Elctrns.	619-585-1023
CA	Corona, Inter-Conn Elctrns.	714-735-8200
CA	Covina, Newark Elctrns.	213-339-9027
CA	Foster City, Newark Elctrns.	415-572-8300
CA	Hayward, KEA Elctrns.	415-887-2900
CA	Hayward, Newark Elctrns.	415-632-7522
CA	Inglewood, Newark Elctrns.	213-671-7066
CA	Long Beach, Newark Elctrns.	213-427-7408
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Monrovia, Erik-A Elctrns.	818-574-1020
CA	Orange, Newark Elctrns.	714-634-8224
CA	Reseda, Newark Elctrns.	213-344-2686
CA	Riverside, Newark Elctrns.	714-784-1101
CA	Sacramento, Newark Elctrns.	916-971-9555
CA	San Carlos, Control Design	415-952-4808
CA	San Diego, Newark Elctrns.	619-272-9480
CA	San Jose, Newark Elctrns.	408-995-6255
CA	San Jose, Newark Elctrns.	408-554-1616
CA	San Mateo, Newark Elctrns.	415-571-5300
CA	Sunnyvale, Newark Elctrns.	408-720-8755
CA	Torrance, Newark Elctrns.	213-212-6161
CA	Tustin, Newark Elctrns.	714-549-3004
CO	Arvada, Newark Elctrns.	303-423-7941
CO	Colorado Springs, Newark Elctrns.	303-576-2644
CO	Denver, Newark Elctrns.	303-757-3351
CO	Denver, Newark Elctrns.	303-373-4540
CO	Englewood, Electronic Sls.	303-771-6300
CT	Bloomfield, Newark Elctrns.	203-243-1731
CT	East Hartford, R & S Elctrn. Distrs.	203-528-9901
CT	East Haven, J V Elctrns.	203-469-2321
CA	Orange, Newark Elctrns.	714-634-8224
CT	Stamford, Bond Elctrns.	203-348-2663
FL	Altamonte Springs, Control Design	305-788-3220
FL	Clearwater, Newark Elctrns.	813-443-0661
FL	Cocoa, Newark Elctrns.	305-631-2017
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
FL	Ft, Lauderdale, Peerless Radio	305-973-4141
FL	Ft. Walton Beach, Newark Elctrns.	904-862-2157
FL	Jacksonville, Newark Elctrns.	904-399-5041
FL	Orlando, Newark Elctrns.	305-896-8350
FL	Tampa, Newark Elctrns.	813-872-5618
GA	Fayetteville, Frankland, Inc.	404-461-4026
GA	Forest Park, Newark Elctrns.	404-366-4050
GA	Norcros, Newark Elctrns.	404-448-1300
GA	Savannah, Newark Elctrns.	912-355-0457
HI	Pearl City, Newark Elctrns.	808-456-5933
ID	Boise, Newark Elctrns.	208-342-4311
ID	Pocatello, Kimball Elctrns.	208-232-2201
ID	Spirit Lake, A-I Elctrn. Supp.	208-623-3111
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Downers Grove, Newark Elctrns.	312-969-9440
IL	Genoa, Control Design	815-784-6515
IL	Hickory Hills, Newark Elctrns.	312-430-4370
IL	Hillside, Newark Elctrns.	312-544-8340
IL	Mt. Prospect, Newark Elctrns.	312-259-9090
IL	Northbrook, Newark Elctrns.	312-480-1300
IL	Oak Park, Newark Elctrns.	312-524-1800
IL	Rockford, Newark Elctrns.	815-229-0225
IL	Schaumburg, Newark Elctrns.	312-843-0700
IL	Springfield, Newark Elctrns.	217-787-9972
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Ft. Wayne, Newark Elctrns.	219-484-0766
IN	Indianapolis, Control Design	317-788-4559
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Newark Elctrns.	317-872-7070
IN	Indianapolis, Newark Elctrns.	317-926-7050
IN	Merrillville, Newark Elctrns.	312-768-5059
IA	Bettendorf, Newark Elctrns.	319-359-3711
IA	Cedar Rapids, Newark Elctrns.	319-362-1171
IA	Des Moines, Newark Elctrns.	515-278-0670
KS	Overland Park, Newark Elctrns.	913-341-1121
KS	Wichita, Newark Elctrns.	316-267-8755
KS	Wichita, RSC, Inc.	316-267-5213
KY	Louisville, Newark Elctrns.	502-423-0280
LA	Metarie, Newark Elctrns.	504-838-9771
LA	New Orleans, Newark Elctrns.	504-364-1031
MD	Beltsville, Newark Elctrns.	301-937-9540
MD	Cheverly, Newark Elctrns.	301-773-1333
MD	Columbia, Aztech Elctrns.	301-995-1760
MD	Ellicott City, Newark Elctrns.	301-461-2300
MD	Gaithersburg, Axis Elctrns.	301-840-9640
MA	Methuen, Newark Elctrns.	617-688-1837
MA	Newton, Greene-Shaw	617-969-8900
MA	Sharon, Newark Elctrns.	617-784-4061
MA	Springfield, Newark Elctrns.	413-785-5851
MA	Waltham, Newark Elctrns.	617-894-8050
MA	Wilmington, J V Elctrns. of Boston	617-657-6523
MA	Woburn, Newark Elctrns.	617-935-8350
MA	Worcester, Newark Elctrns.	617-757-4515
MI	Grand Rapids, Newark Elctrns.	616-241-6681
MI	Oak Park, Newark Elctrns.	313-968-2950
MI	Oak Park, Newark Elctrns.	313-967-0600
MI	Saginaw, Newark Elctrns.	517-799-0480
MN	Burnsville, Newark Elctrns.	612-890-7362
MO	Crestwood, Newark Elctrns.	314-821-7466
CT	East Haven, J V Elctrns.	203-469-2321
MN	Minneapolis, Control Design	612-721-1628
MN	Minneapolis, Newark Elctrns.	612-331-6350
NH	Nashua, Newark Elctrns.	603-883-9010
MO	St. Louis, Newark Elctrns.	314-521-5066
NJ	Bordentown, Newark Elctrns.	609-298-4450
NJ	Edison, Newark Elctrns.	201-572-2103
MO	Independence, Newark Elctrns.	816-478-0561
MN	Minneapolis, Industrial Comps.	612-831-2666
MO	St. Louis, Control Design	314-426-3150
MO	St. Louis, Interstate Industrial	314-423-4322
MN	Crystal, Newark Elctrns.	612-561-7541
NE	Omaha, Newark Elctrns.	402-392-1221
MO	Blue Springs, Newark Elctrns.	816-228-3170
NJ	Fairfield, Newark Elctrns.	201-882-0300
MS	Jackson, Newark Elctrns.	601-956-3834
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Medford, Component Consultants	609-654-5300
NJ	Pennsauken, Newark Elctrns.	609-663-9490
NJ	Springfield, Newark Elctrns.	201-376-9500
MN	St. Paul, Newark Elctrns.	612-631-2683
NM	Albuquerque, International Elctrns.	505-345-8127
NM	Albuquerque, Newark Elctrns.	505-883-6181
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Buffalo, Newark Elctrns.	716-892-4321
NY	Buffalo, Summit Distrbg.	716-884-3450
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Sherburn Elctrns.	516-231-4300
NY	Latham, Newark Elctrns.	518-783-0983
NY	Newburgh, Newark Elctrns.	914-564-2700
NY	Rochester, Newark Elctrns.	716-427-8220
NY	Rochester, Summit Distrbg.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NY	Syracuse, Newark Elctrns.	315-437-6611
NY	Valley Stream, Newark Elctrns.	516-825-6200
NC	Charlotte, Control Design	704-588-4410
NC	Charlotte, Newark Elctrns.	704-535-5650
NC	Greensboro, Newark Elctrns.	919-292-7240
NC	Raleigh, Newark Elctrns.	919-781-7677
NC	Winston Salem, Kirkman Elctrns.	919-722-9131
OH	Akron, Akron Elctrns.	216-762-8818
OH	Akron, Newark Elctrns.	216-374-9987
OH	Bedford Heights, Newark Elctrns.	216-439-4383
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cincinnati, Newark Elctrns.	513-771-9700
OH	Cleveland, Newark Elctrns.	216-391-9330
OH	Columbus, Newark Elctrns.	614-481-8141
OH	Columbus, Newark Elctrns.	614-451-0002
OH	Dayton, Newark Elctrns.	513-294-8980
OH	Dayton, Stotts Friedman	513-298-5555
OH	North Canton, Newark Elctrns.	216-497-7713
OH	Solon, Target Elctrns.	216-248-7930
OH	Toledo, Newark Elctrns.	419-866-0404
OH	Warrensville Heights, Newark Elctrns.	216-587-1700
OH	Wickliffe, Gateway Megatech	216-944-5801
OH	Youngstown, Newark Elctrns.	216-793-6134
OK	Oklahoma City, Electro Entprs.	405-427-6591
OK	Oklahoma City, Newark Elctrns.	405-495-5000
OK	Tulsa, Newark Elctrns.	918-832-7004
OR	Portland, Carlyle Tech. Sls.	503-244-1375
OR	Portland, Newark Elctrns.	503-257-0741
PA	Allentown, Federated Purchaser	215-437-4481
PA	Allentown, Newark Elctrns.	215-434-7171
PA	Cornwells Heights, Newark Elctrns.	215-245-7300
PA	Erie, Newark Elctrns.	814-453-5726
PA	Erie, Wettekin Elctrns.	814-838-9184
PA	Johnstown, Bird Elec. & Supp.	814-535-3574
PA	King of Prussia, Newark Elctrns.	215-265-0933
PA	Malvern, Control Design	215-296-0150
PA	Malvern, Newark Elctrns.	215-296-5522
PA	McKees Rocks, Newark Elctrns.	412-331-2400
PA	McKeesport, Barno Radio	412-751-5966
PA	North Versailles, Newark Elctrns.	412-824-8504
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	Pittsburgh, Newark Elctrns.	412-367-2790
RI	Warwick, Newark Elctrns.	401-738-4010
SC	Greenville, Newark Elctrns.	803-288-9610
TN	Knoxville, Newark Elctrns.	615-588-6493
TN	Memphis, Newark Elctrns.	901-365-8060
TN	Nashville, Electra Distrbg. Co.	615-329-3971
TN	Nashville, Newark Elctrns.	615-883-2482
TX	Dallas, Control Design	214-358-1441
TX	Dallas, Newark Elctrns.	214-340-3585
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Dallas, Trevino Sls.	214-357-5446
TX	El Paso, International Elctrns.	915-598-3406
TX	El Paso, Midland Specialty	915-533-9555
TX	El Paso, Newark Elctrns.	915-778-5322
TX	Ft. Worth, Newark Elctrns.	817-589-1295
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Geophysical Supp.	713-666-4100
TX	Houston, Newark Elctrns.	713-782-4800
TX	Houston, Newark Elctrns.	713-688-6846
TX	Houston, Sterling Elctrns.	713-623-6600
TX	Pasadena, Newark Elctrns.	713-477-0286
TX	San Antonio, Newark Elctrns.	512-349-2641
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
UT	Salt Lake City, Newark Elctrns.	801-484-8611
VA	Arlington, Newark Elctrns.	703-522-0880
VA	Richmond, Newark Elctrns.	804-282-5671
VA	Virginia Beach, Newark Elctrns.	804-499-0719
WA	Bellevue, Newark Elctrns.	206-641-9809
WA	Bellevue, Newark Elctrns.	206-641-4676
WA	Bellevue, Newark Elctrns.	206-641-9900
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WA	Spokane, Newark Elctrns.	509-922-5007
WV	Charleston, Newark Elctrns.	304-345-6505
WI	Green Bay, Newark Elctrns.	414-494-1400
WI	Madison, Newark Elctrns.	608-221-4738
WI	Milwaukee, Newark Elctrns.	414-463-1000
WI	Milwaukee, Newark Elctrns.	414-351-6031
WI	New Berlin, Control Design	414-784-1015
Can	Downsview, Ont., Future Elctrns.	416-638-4771
Can	Ottawa, Ont., Future Elctrns.	613-820-9471
Can	Pointe Claire, Que., Future Elctrns.	514-694-7710
Can	Vancouver, B.C., Future Elctrns.	604-438-5545

TELEMET, 185 Dixon Ave., Amityville, NY 11701, Tel: 516-842-2300, TWX: 510-227-9850; Empl.: 60

TELEPACIFIC ELECTRONICS CO., INC., 772 N. Twin Oaks Valley Road, San Marcos, CA 92069, Tel: 619-744-4415; Empl.: 25; *Sls. Mgr.:* Vernon P. Cooke

TELEPHONICS, 770 Park Ave., Huntington, NY 11743, Tel: 516-549-6000, Telex: 96-7815, TWX: 510-226-6983; Empl.: 800; *Sls. Mgr.:* R. H. Collopy

TELERAM COMMUNICATIONS, 2 Corporate Park Dr., White Plains, NY 10604, Tel: 914-694-9270, Telex: 64-6658; Empl.: 50; *Sls. Mgr.:* R. R. Ansell

TELESENSORY SPEECH SYS., Telesensory Sys., Inc., 3408 Hillview Ave., Palo Alto, CA 94304, Tel: 415-856-8255, Telex: 348352; *Sls. Mgr.:* David Giblon

TELESIS LABORATORY, Box 1972, Chillocothe, OH 45601, Tel: 614-642-5000, Telex: 24-5451; Empl.: 22; *Sls. Mgr.:* John Robertson

TELETERMINAL CORP., Greenland, NH 03840, Tel: 603-431-1200; Empl.: 13

TELETYPE, 5555 Touhy Ave., Skokie, IL 60076, Tel: 312-982-2000, Telex: 25-4051, TWX: 910-223-3611; FSC No.: 5815; Empl.: 6,000; *Sls. Mgr.:* D. M. Printz

TELEVIDEO SYS., INC., 1170 Morse Ave., Sunnyvale, CA 94086, Tel: 408-745-7760, TWX: 910-338-7633; *Sls. Mgr.:* Steve Tatum (VDT Div.)

TELEVISION EQUIP. ASSOCS., Box 393, So. Salem, NY 10590-0393, Tel: 914-763-8893, TWX: 710-575-2600; Empl.: 10

TELEVISION MICROTIME, INC., 1280 Blue Hills Ave., Bloomfield, CT 06002, Tel: 203-242-4242, TWX: 710-425-2390; Empl.: 80

TEL LABS, INC., 154 Harvey Rd., PO Box 375, Londonderry, NH 03053, Tel: 603-625-8994, TWX: 710-220-1844; FSC No.: 94322;Multiple; Empl.: 180 .... **A•1952-1953**

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Sls.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	La Mirada, Select Elec.	714-739-8891
CA	Mountain View, Serra Assocs.	415-964-4300
CO	Aurora, Sage Sls.	303-750-3501
FL	Clearwater, Beacon Elec. Sls.	813-796-2378
FL	Ft. Lauderdale, Beacon Elec. Sls.	305-491-1054
FL	Maitland, Beacon Elec. Sls.	305-647-3498
FL	Melbourne, Beacon Elec. Sls.	305-724-8010
GA	Atlanta, Beacon Elec. Sls.	404-256-9640
IL	Downers Grove, Richmar Elec. Corp.	312-968-0118
IN	West Lafayette, Richmar Elec. Corp.	317-846-6383
MD	Randallstown, Precision Mktg.	301-521-5353
MA	Topsfield, RFC Assocs.	617-887-8545
NJ	Clifton, Ossmann	201-778-8888
NY	Rochester, Ossmann Comps.	716-424-4460
NY	Syracuse, Ossmann Comps.	315-455-6611
NC	Greensboro, Beacon Elec. Sls.	919-275-9997
NC	Raleigh, Beacon Elec. Sls.	919-787-0330
OH	Akron, Augnat Assocs.	216-535-4396
OH	Dayton, Augnat Assocs.	513-298-1507
OK	Tulsa, ION Assocs.	918-664-0186
OR	Aloha, Caruso & Northcutt	503-624-1606
PA	Ardmore, Precision Mktg.	215-649-6301
PA	Pittsburgh, Augnat Assocs.	412-281-8283
TN	Johnson City, Beacon Elec. Sls.	615-282-2421
TX	Austin, ION Assocs.	512-458-2108
TX	Grand Prairie, ION Assocs.	214-647-8225
TX	Houston, ION Assocs.	713-681-6266
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Butler, Richmar Elec. Corp.	414-781-1730

TELONIC/BERKELEY, 2825 Laguna Canyon Rd., Laguna Beach, CA 92652, Tel: 714-494-9401, Telex: 182720; FSC No.: 04423; Empl.: 75; *Sls. Mgr.:* H. Elmes

TELPAR, INC., 4137 Billy Mitchell Rd., P.O. Box 796, Addison, TX 75001, Tel: 214-233-6631, Telex: 73-2561; Empl.: 28; *Sls. Mgr.:* Wm. Konrad .... **D•1075**

TELTONE, 10801-120 Ave. NE, Kirkland, WA 98033, Tel: 206-827-9626, TWX: 910-449-2862; Empl.: 450; *Sls. Mgr.:* D. E. Johnson; *Dist. Mgr.:* Mike Arndt

TEMESCAL, 2850 Seventh St., Berkeley, CA 94710, Tel: 415-841-5720, TWX: 910-366-7366; Empl.: 300

TEMPIL DIV., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080, Tel: 201-757-8300, Telex: 138-662; Empl.: 38; *Sls. Mgr.:* A. P. Jeanguenin

TEMPO INSTRUMENT, INC., 87 Modular Ave., Commack, NY 11725, Tel: 516-864-3700, TWX: 510-226-3787; FSC No.: 07031; Empl.: 205

TEMPOSONICS, MTS Sys. Corp., 111 East Ames Ct., Plainview, NY 11803, Tel: 516-349-1950, TWX: 510-226-3787; *Sls. Mgr.:* W. Brenner

TEMPTRONIC, 55 Chapel St., Newton, MA 02158, Tel: 617-969-2501, Telex: 200-119 TEMP UR; Empl.: 100+; *Sls. Mgr.:* Frank Healy

TENCOR INSTR., 2400 Charleston Road, Mountain View, CA 94043, Tel: 415-969-6767; *Sls. Mgr.:* Barry Hart

TENNELEC, 601 Turnpike, Oak Ridge, TN 37830, Tel: 615-483-8405, TWX: 810-572-1018; Empl.: 80

TENNEY ENGRG., 109 Springfield Rd., Union, NJ 07083, Tel: 201-686-7870, TWX: 710-985-4725; Empl.: 204; *Sls. Mgr.:* Jerome Perlstein .... **D•1173**

Local Sales Offices & Reps

AL	Huntsville, Equipment Sales Co., Inc.	205-536-5399
AZ	Phoenix, Jayson Co.	602-867-1964
CA	Sunnyvale, Tenney Engrg., Inc.	408-745-6232
CA	Van Nuys, Environment Assocs.	818-997-3791
CO	Englewood, Tenney Engrg.	303-798-0955
CT	Hamden, Equip. Sls.	203-281-4578
FL	Altamonte Springs, Equip. Sls.	305-339-2972
FL	Delray Beach, Equip. Sls.	305-243-0709
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Lowell, Equip. Sls. Co.	617-459-7000
MI	Warren, Dietrich & Assoc.	313-751-4990
MO	Blue Springs, Tenney Engrg., Inc.	816-229-7667
NJ	Mt. Laurel, Tan-Mar, Inc.	609-235-4345
NJ	Union, Tenney Engrg., Inc.	201-686-7870
NY	Fayetteville, M. P. Andrews	315-637-3144
NC	Raleigh, Equip. Sls.	919-872-8376
OH	Cleveland, Dietrich & Assocs.	216-781-1855
OH	Dayton, Dietrich & Assoc.	513-223-6042
PA	Pittsburgh, Dietrich & Assoc.	412-892-2992
TX	Austin, Carey, McMahill & Zerbe Co.	512-255-1663
TX	Garland, Carey, McMahill & Zerbe Co.	214-681-1414
TX	Houston, Carey, McMahill & Zerbe Co.	713-771-1500
WI	New Berlin, Marsland Assocs., Inc.	414-786-6611

TENOR, 17020 W. Rogers Dr., New Berlin, WI 53151, Tel: 414-782-3800, Telex: 26-706; Empl.: 30; *Sls. Mgr.:* P. Yoblin; *Dist. Mgr.:* P. Yoblin

TENSOLITE, Old Post Rd., Rte. 9A, Buchanan, NY 10511, Tel: 914-737-5600, TWX: 710-573-2341; Empl.: 300; *Sls. Mgr.:* David Yellin

TENSOR, Box 14843, Austin, TX 78761, Tel: 512-251-4131, Telex: ITT 4940124; Empl.: 15

TEN-TEC, INC., Industrial Park, Sevierville, TN 37862, Tel: 615-453-7172, Telex: 261337 ACTAUR; Empl.: 110; *Sls. Mgr.:* Joe Redwine

TEPRO OF FLORIDA, 2608 Enterprise Rd., Clearwater, FL 33575, Tel: 813-796-1044; FSC No.: 15915; Empl.: 97; *Sls. Mgr.:* Roger C. Mayo; *Dist. Mgr.:* Beverly Mayer

Local Sales Offices & Reps

CA	Burbank, MODCO	818-848-2215
CA	San Mateo, Melvin Sls.	415-349-7445
FL	Clearwater, Tepro of Florida	813-796-1044
IL	Glencoe, Howard Benjamin	312-835-0150
MA	Hopkinton, Berkshire Elctrns.	617-435-9356
NY	Great Neck, Pacent Engrg.	516-482-4678
OH	Cleveland, Components, Inc.	216-243-9200
TX	Dallas, Elctrn. Prods. Reps.	214-341-2666

TERADO, 1068 Raymond Ave., St. Paul, MN 55108, Tel: 612-646-2868; Empl.: 17; *Sls. Mgr.:* Don Munson; *Dist. Mgr.:* Fred Munson

TERADYNE, INC., 183 Essex St., Boston, MA 02111, Tel: 617-482-2700, TWX: 710-321-1055; Empl.: 3200; *Sls. Mgr.:* D. O'Connell

TERADYNE CONNECTION SYS., 44 Simon St., Nashua, NH 03060, Tel: 603-889-5156, TWX: 710-228-1431; FSC No.: 31413; Empl.: 1,400; *Sls. Mgr.:* D. Murphy

TERMINAL DATA CORP., 15733 Crabbs Branch Way, Rockville, MD 20855, Tel: 301-921-8282; Empl.: 12

TERMINAL SYS., See A & B Technical Services

TERRA TECHNLG. CORP., 3860 148th Ave. N.E., Redmond, WA 98052, Tel: 206-883-7300, Telex: 15-2070; *Sls. Mgr.:* Irl Davis

TEST & MEASUREMENT SYSTEMS, INC., 349 Cobalt Way, Ste. 301, Sunnyvale, CA 94086, Tel: 408-720-8877, Telex: 297584 TEAM UR; *Sls. Mgr.:* Bill Nicklin

TESTLINE, See Fairchild Test Sys. Grp., Testline Instrs.

TESTOTERM, P.O. Box 111509, Nashville, TN 37211, Tel: 615-834-5082, Telex: 55-5112

TEST PROBES, INC., Box 2113, La Jolla, CA 92038, Tel: 619-459-4197, Telex: 697192; *Sls. Mgr.:* Hal Wardein; *Dist. Mgr.:* Hal Wardein

TESTRONICS, 1810-102 N. Glenville Dr., Richardson, TX 75081, Tel: 214-238-8378, Telex: 469602; Empl.: 21

TETRAGENICS, Box 1338, Butte, MT 59701, Tel: 406-782-8606; Empl.: 40; *Sls. Mgr.:* Jack Dunn

TETTEX INSTRUMENTS, INC., P.O. Box 281, Fairview Village, PA 19409-0281, Tel: 215-539-6050, Telex: 753-899 TETTEX; Empl.: 100; *Sls. Mgr.:* Charles Prievys .... **D•1312**

TEXAS INSTRS., INC., Box 225012-MS-84, Dallas, TX 75265, Tel: 214-995-6611, TWX: 910-867-4702; Empl.: 85,000

TEXAS INSTRS., Data Sys. Group, P. O. Box 809063, Dallas, TX 75380-9063, Tel: 1-800-527-3500, Telex: 73324 TEXINS DAL, TWX: 910-867-4702; Empl.: 80,696

TEXAS INSTRS., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703, Tel: 617-699-3800, Telex: 92-7708, TWX: 710-346-0566

TEXAS INSTRUMENTS OPTOELECTRONICS, P.O. Box 225012 MS12, Dallas, TX 75265, Tel: 214-995-3821, Telex: 910-867-4702; Empl.: 89,000 world wide; *Sls. Mgr.:* Glenn Snyder; *Dist. Mgr.:* Rudy Profaizer .... **B•1216-1219**

Local Sales Offices & Reps

AL	Huntsville	205-837-7530
AZ	Phoenix	602-995-1007
CA	Irvine	714-660-1200
CA	Sacramento	916-929-1521
CA	San Diego	619-278-9601
CA	Santa Clara	408-980-9000
CA	Torrance	213-217-7010
CA	Woodland Hills	213-704-7759
CO	Aurora	303-368-8000
CT	Wallingford	203-269-0074
FL	Ft. Lauderdale	305-973-8502
FL	Maitland	305-660-4600
FL	Tampa	813-870-6420
GA	Norcross	404-662-7900
IL	Arlington Heights	312-640-2925
IN	Ft. Wayne	219-424-5174
IN	Indianapolis	317-248-8555
IA	Cedar Rapids	319-395-9550
MD	Baltimore	301-944-8600
MA	Walthman	617-895-9100
MI	Farmington Hills	313-553-1500
MN	Eden Prairie	612-828-9300
MO	Kansas City	816-523-2500
MO	St. Louis	314-569-7600
NJ	Iselin	201-750-1050
NM	Albuquerque	505-345-2555
NY	East Syracuse	315-483-9291
NY	Endicott	607-754-3900
NY	Melville	516-454-6600
NY	Pittsford	716-385-6770
NY	Poughkeepsie	914-473-2900
NC	Charlotte	704-527-0930
NC	Raleigh	919-876-2725
OH	Beachwood	216-464-6100
OH	Dayton	513-258-3877
OK	Tulsa	918-250-0633
OR	Beaverton	503-643-6758
PA	Coraopolis	412-771-8550
PA	Ft. Washington	215-643-6450
TX	Austin	512-250-7655
TX	Houston	713-778-6592
TX	Richardson	214-680-5082
TX	San Antonio	512-496-1779
UT	Murray	801-266-8972
VA	Fairfax	703-849-1400
WA	Redmond	206-881-3080
WI	Brookfield	414-785-7140
PR	Hato Ray	809-753-8700
Can	Neapean, Ont.	613-726-1970
Can	Richmond Hill, Ont.	416-884-9181
Can	St. Laurent, Que.	514-334-3635

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-837-6955
AL	Huntsville, Kierulff Elctrns.	205-883-6070
AL	Huntsville, Marshall Elctrns.	205-881-9235
AZ	Phoenix, Kierulff Elctrns.	602-437-0750
AZ	Phoenix, Wyle Elctrns.	602-249-2232
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Marshall Elctrns.	602-968-6181
CA	Anaheim, R.V. Weatherford Elctrns.	714-634-9600
CA	Canoga Park, Marshall Elctrns.	213-999-5001
CA	Chatsworth, Arrow Elctrns.	818-701-7500
CA	Commerce, Kierulff Elctrns.	213-725-0325
CA	Cypruss, Kierulff Elctrns.	714-220-6300
CA	El Segundo, Wyle Elctrns.	213-322-8100
CA	Elmonte, Marshall Elctrns.	818-442-7204
CA	Glendale, R.V. Weatherford Elctrns.	213-849-3451
CA	Hayward, Arrow Elctrns.	415-487-4600
CA	Irvine, Marshall Elctrns.	714-660-0951
CA	Irvine, Wyle Elctrns.	714-863-9953
CA	Sacramento, Arrow Elctrns.	916-925-7456
CA	Sacramento, Wyle Elctrns.	916-638-5282
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Kierulff Elctrns.	619-278-2112
CA	San Diego, Marshall Elctrns.	619-578-9600
CA	San Diego, Wyle Elctrns.	619-565-9171
CA	San Jose, Kierulff Elctrns.	408-971-2600
CA	Santa Barbara, R.V. Weatherford Elctrns.	805-965-8551
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Marshall Elctrns.	408-732-1100
CA	Tustin, Arrow Elctrns.	714-838-5422
CA	Tustin, Kierulff Elctrns.	714-731-5711
CO	Denver, Arrow Elctrns.	303-696-1111
CO	Englewood, Kierulff Elctrns.	303-790-4444
CO	Thornton, Wyle Elctrns.	303-457-9953
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	Orange, Milgray Elctrns.	203-795-0714
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Kierulff Elctrns.	203-265-1115
CT	Wallingford, Marshall Elctrns.	203-265-3822
FL	Ft. Lauderdale, Arrow Elctrns.	305-429-8200
FL	Ft. Lauderdale, Diplomat Elctrns.	305-974-8700
FL	Ft. Lauderdale, Kierulff Elctrns.	305-486-4004
FL	Orlando, Arrow Elctrns.	305-725-1480
FL	Orlando, Milgray Elctrns.	305-647-5747
FL	Tampa, Arrow Elctrns.	813-576-8995
FL	Tampa, Diplomat Elctrns.	813-443-4514
FL	Tampa, Kierulff Elctrns.	813-576-1966
GA	Atlanta, Kierulff Elctrns.	404-447-5252
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Marshall Elctrns.	404-923-5750
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Chicago, Arrow Elctrns.	312-397-3440
IL	Chicago, Newark Elctrns.	312-784-5100
IL	Itasca, Kierulff Elctrns.	312-250-0500
IL	Schaumburg, Marshall Elctrns.	312-490-0155
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Lenexa, Marshall Elctrns.	913-492-3121
KS	Wichita, LComp	316-265-9507
MD	Columbia, Arrow Elctrns.	301-995-0003
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Linthicum, Kierulff Elctrns.	301-636-5800
MD	Rockville, Milgram Elctrns.	301-793-3993
MA	Billerica, Kierulff Elctrns.	617-667-8331
MA	Burlington, Marshall Elctrns.	617-272-8200
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Diplomat Elctrns.	617-935-6611
MA	Woburn, Time Elctrns.	617-935-8080
MI	Detroit, Arrow Elctrns.	313-971-8220
MI	Detroit, Marshall Elctrns.	313-525-5850
MI	Detroit, Newark Elctrns.	313-967-0600
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Minneapolis, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Marshall Elctrns.	612-559-2211
MO	Kansas City, LComp	816-221-2400
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Kierulff Elctrns.	314-739-0855
NH	Manchester, Arrow Elctrns.	603-668-6968
NM	Albuquerque, Milgram Elctrns.	609-983-5010
NJ	Camden, General Radio	215-922-7037
NJ	Camden, General Radio	609-964-8560
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Kierulff Elctrns.	201-575-6750
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Marlton, Arrow Elctrns.	215-928-1800
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Mt. Laurel, Kierulff Elctrns.	609-235-1444
NJ	Mt. Laurel, Marshall Elctrns.	609-234-9100
NJ	Totawa, Diplomat Elctrns.	201-785-1830
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, International Elctrns.	505-345-8127
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Jaco	516-273-5500
NY	Hauppauge, Marshall Elctrns.	516-272-2053
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Marshall Elctrns.	716-235-7620
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Syracuse, Arrow Elctrns.	315-652-1000
NY	Syracuse, Diplomat Elctrns.	315-652-5000
NY	Syracuse, Marshall Elctrns.	607-754-1570
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Kieroff Elctrns.	919-872-8410
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cleveland, Arrow Elctrns.	216-248-3990
OH	Cleveland, Kierulff Elctrns.	216-587-6558
OH	Cleveland, Marshall Elctrns.	216-248-1788
OH	Columbus, Graham Elctrns.	614-895-1590
OH	Dayton, Arrow Elctrns.	513-435-5563
OH	Dayton, Esco	513-226-1133
OH	Dayton, Kierulff Elctrns.	513-439-0045
OH	Dayton, Marshall Elctrns.	513-236-8088
OK	Tulsa, Arrow Elctrns.	918-665-7700
OK	Tulsa, Kierulff Elctrns.	918-252-7537
OR	Beaverton, Marshall Elctrns.	503-644-5050
OR	Hillsboro, Wyle Elctrns.	503-640-6000
OR	Portland, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Kierulff Elctrns.	512-835-2090
TX	Austin, Marshall Elctrns.	512-458-5654
TX	Austin, Wyle Elctrns.	512-834-9957
TX	Dallas, Arrow Elctrns.	214-380-6464
TX	Dallas, International Elctrns.	214-233-9323
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, Marshall Elctrns.	214-233-5200
TX	Dallas, Wyle Elctrns.	214-235-9953
TX	El Paso, International Elctrns.	915-598-3406
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Harrison Equip.	713-879-2600
TX	Houston, Kierulff Elctrns.	713-530-7030
TX	Houston, Marshall Elctrns.	713-789-6600
TX	Houston, Wyle Elctrns.	713-879-9953
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
UT	Salt Lake City, Wyle Elctrns.	801-974-9953
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Marshall Elctrns.	206-747-9100
WA	Bellevue, Wyle Elctrns.	206-453-8300
WA	Kent, Kierulff Elctrns.	206-575-4420
WI	Oak Creek, Arrow Elctrns.	414-764-6600
WI	Wakesha, Kierulff Elctrns.	414-784-8160
Can	Calgary, Alb., Future Elctrns.	403-259-6408
Can	Calgary, Alb., Varah Elctrns.	403-230-1235
Can	Edmonton, Alb, Future Elctrns.	403-438-2858
Can	Montreal, Que., CESCO	613-226-6903
Can	Montreal, Que., Future Elctrns.	514-694-7710
Can	Montreal, Que., ITT Comps.	514-735-1177
Can	Ottawa, Ont., CESCO	613-226-6903
Can	Ottawa, Ont., Future Elctrns.	613-820-8313
Can	Ottawa, Ont., ITT Comps.	613-226-7406
Can	Ottawa, Ont., Varah Elctrns.	613-726-8884
Can	Quebec City, Que., CESCO	418-687-4231
Can	Toronto, Ont., CESCO	416-661-0220
Can	Toronto, Ont., Future Elctrns.	416-638-4771
Can	Toronto, Ont., ITT Comps.	416-630-7971
Can	Toronto, Ont., Varah Elctrns.	416-516-9311
Can	Vancouver, B.C., Future Elctrns.	604-438-5545
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TEXET SEMICONDUCTORS, 301 Texet Dr., Allen, TX 75002, Tel: 214-727-1111, TWX: 203943 TEXET UR; *Sls. Mgr.:* Kent Paris; *Dist. Mgr.:* Bill Bamsch

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IL	Elk Grove Village, The John G. Twist Co.	312-593-0200
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NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, MOS Assocs.	516-487-3966
NY	Manlius, Quality Comps.	315-682-8885
NC	Cary, Electronic Sls., Inc.	919-467-8486
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OH	Columbus, Luebbe Sls. Co.	614-431-0474
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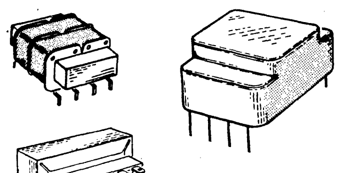

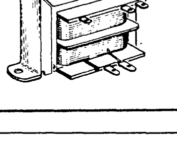

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CT	Clinton, Selmark Assocs.	203-573-9088
CT	Hamden, MacArthur & Co.	203-281-5847
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBS Elctrns.	305-831-5380
GA	Norcross, 20th Century Mktg.	404-466-1999
IL	Berkeley, Cadre Tech. Reps.	312-449-3900
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CA	Hawthorne, Radio Hardware	213-679-3381
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CA	San Jose, RFI Elctrns.	408-298-5400
CT	E. Hartford, E.J. Stephens	203-568-1927
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Orlando, Cablematic	305-293-5729
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MD	Hanover, Vertex Elctrns.	301-796-5000
MA	Burlington, QPL Elctrns.	617-229-2424
NJ	Passaic, Seacoast Elc. Supp.	201-779-5151
NY	Farmingdale, Vertex Elctrns.	516-293-9880
NY	Freeport, Mil-Spec Wire & Cable	516-546-5454
NY	Port Washington, Restart Elctrns.	516-883-3500
NY	Rochester, Simcona Elctrns.	716-328-3230
PA	Folcroft, Delphi Elctrns.	215-534-3900
PA	Montgomeryville, Pyttronics Inds.	215-643-2850
TX	Garland, Vonn Wire & Cable	214-494-0355

TIME ZERO CORP., 103 Cental Ave., Clifton, NJ 07011, Tel: 201-340-0400

TITAN TECHNOLOGIES, INC., 310 W. Ann, Ann Arbor, MI 48104, Tel: 313-662-8542, Telex: 757689; *Sls. Mgr.:* Don Carone

TITAN TRANSFORMER CO., 134 Coolidge Ave., Watertown, MA 02172, Tel: 617-923-1200

TITCHENER, E. H., & CO., 1 Titchener Pl., Binghamton, NY 13902, Tel: 607-772-1161, TWX: 510-252-1985; Empl.: 235

TL INDUSTRIES, INC., 2541 Tracy Road, Toledo, OH 43619, Tel: 1-419-666-8144, Telex: 286-431; *Sls. Mgr.:* Mark Lorenz

TMC SYSTEMS (ARIZ.) INC., See Dale Electronics, Inc.

TNR TECHNICAL, INC., Saft & Gates Batteries, 45 Jefryn Blvd. West, Deer Park, NY 11735, Tel: 516-242-4800; Empl.: 35; *Sls. Mgr.:* Wayne Thaw

TOBE DEUTSCHMANN LABS., INC., 550 Turnpike St., Canton, MA 02021, Tel: 617-828-3366, Telex: 92-4427; FSC No.: 21966; Empl.: 40; *Sls. Mgr.:* T. Deutschumann, Jr.

TOCOS AMERICA, INC., Tokyo Cosmos Electric Co., Ltd., Ste. 565 Arlington Center, Golf Rd., Arlington Heights, IL 60005, Tel: 312-310-8641, TWX: 910-997-0078; Empl.: 2,000; *Sls. Mgr.:* Masaji Matsunami

TODD PRODUCTS
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TODD PRODS. CORP., 50 Emjay Blvd., Brentwood, NY 11717, Tel: 516-231-3366, TWX: 510-227-4905; Empl.: 250; *Sls. Mgr.:* R. Schlote .... **D•1854-1855**

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-882-6050
AZ	Scottsdale, Thorson Desert States	602-998-2444
CA	Los Alamito, Santana Sls.	213-431-3533, 714-827-9100
CA	Sunnyvale, Todd Prods. Corp.	408-732-0512
CO	Wheat Ridge, Waugaman Assocs., Inc.	303-423-1020
CT	Weston, Northeast Reps.	203-866-6030
FL	Alamonte Springs, R.W. Mitscher Co.	305-788-6844
FL	Boca Raton, R.W. Mitscher Co.	305-368-3841
GA	Lawrenceville, R. W. Mitscher Co.	404-923-3239
IL	Arlington Heights, Coombs Assocs.	312-439-9810
IN	Indianapolis, E. T. Kaul Assocs.	317-888-6187
IA	Cedar Rapids, Coombs Assocs.	319-362-4116
MA	Hingham, Northeast Reps.	617-749-8700
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MN	Minneapolis, R. K. Sales Assocs.	612-786-5713
MO	St. Louis, AME Sls.	314-965-1779
NH	Nashau, Todd Prods. Corp.	603-881-3175
NH	Nashua, Northeast Reps.	603-880-8199
NJ	Pennsauken, Scientific Reps.	609-662-5222
NJ	Ridgefield, Rical Assocs.	201-945-5250
NM	Albuquerque, Thorsen Desert States, Inc.	505-293-8555
NY	Charlotte, R. W. Mitscher Co.	704-598-8644
NY	E. Syracuse, Nycom	315-437-8343
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
OH	Dayton, Thompson & Assocs., Inc.	513-435-7733
PA	Mars, Thompson & Assocs., Inc.	412-776-6495
TN	Johnson City, R. W. Mitscher Co.	615-929-7258
TX	Austin, J. Clay Co.	512-346-7340
TX	Dallas, J. Clay Co.	214-350-1281
UT	Salt Lake City, Waugaman Assocs., Inc.	801-261-0802
VA	Fairfax, Scientific Assocs., Inc.	703-385-0600
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, Coombs Assocs.	414-351-6123

TODD SYSTEMS, INC., 50 Ash St., Yonkers, NY 10701, Tel: 914-963-3400; Empl.: 45; *Sls. Mgr.:* S. Edwards .... **A•2314-2317**

Local Distributors

AL	Mobile, Athenian, Inc.	205-432-2985
CA	San Francisco, Aris Corp.	415-550-8605
CA	San Francisco, Delray Distr.	415-777-4405
CT	Norwalk, Park Distr.	203-853-2010
FL	Miami, Gay Mar, Inc.	305-371-0765
GA	Macon, Giga Corp.	912-745-2897
IL	Chicago, Irv Wolfson Co.	312-267-7828
LA	New Orleans, Trestman Supp.	504-561-8590
MD	Bethesda, Albee Sls.	301-897-8088
NJ	Newark, Cotrapex, Inc.	201-589-1416
NJ	Newark, Pinto Trading	201-344-7748
NY	Long Island City, H. L. Dalis, Inc.	212-361-1100
NY	New York, Gelb Sls.	212-475-7940
NY	New York, Rosetta Elec.	212-233-9088
OH	Dayton, K. Elctrns.	513-426-1877
PA	Philadelphia, H & Z Sls.	215-912-2500
TX	Houston, Cross & Co.	713-673-3100
TX	Houston, Western Sls.	713-869-6671
VA	Fall Church, Arya Corp.	703-845-0800
WA	Seattle, ForeigN Elctrns.	206-682-2761
EXP	NY, New York, Able Intl., Ltd.	212-696-5300

TOHOKU METAL INDS., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan, Tel: Tokyo 03-402-6161, Telex: 242 2695 TOKIN J; Empl.: 2000; *Sls. Mgr.:* H. Ishihara; *Dist. Mgr.:* T. Ikeda

TOKO AMERICA, INC., 1250 Feehanville Dr., Mt. Prospect., IL 60056, Tel: 312-297-0070, Telex: 230-724372; *Sls. Mgr.:* Mark Saito ..... **A•1279, 1581, 1643; D•1856, 1989**

Local Sales Offices & Reps

AL	Madison, Kathy Leverock	205-837-9350
CA	Cupertino, Toko America, Inc.	408-996-7575
IL	Chicago, Esco Assocs.	312-763-0800
IL	Skokie, Toko America, Inc.	312-674-3640
IL	Skokie, Ultech Assocs.	312-674-3820
NY	White Plains, Toko America, Inc.	914-694-5618

TOKYO ELEC. CO., LTD., 1-1 Nishiki-Cho, Kanda, Chiyoda-Ku, Tokyo, 101, Japan, Tel: (03) 292-1011, Telex: 0222-3575, TWX: S

TOLEDO SCALE, Reliance Electric, P. O. Box 99502, Cleveland, OH 44199, Tel: 800-245-4501, in OH 800-245-4497

TOPAZ ELECTRONICS, 9192 Topaz Way, San Diego, CA 92123-1164, Tel: 619-279-0831, TWX: 910-335-1526; FSC No.: 06049; Empl.: 450; *Sls. Mgr.:* Ruxton Tucker; *Dist. Mgr.:* Chuck Roberts

TOPFLIGHT, 160 East 9th Ave., York, PA 17404, Tel: 800-233-9386, TWX: 510-657-4849; Empl.: 250; *Sls. Mgr.:* James Danser

TORAD COIL CO., INC., 283 Linden Rd., Wayne, NJ 07470, Tel: 201-835-6195; *Sls. Mgr.:* Dan Gupta

TORELCO, INC., 14 Paine Ave., P.O. Box 108, Irvington, NJ 07111, Tel: 201-374-8641; Empl.: 20; *Sls. Mgr.:* Stewart H. Cook

Toroid

TOROID CORP. OF MARYLAND, 6000 Laurel-Bowie Rd., Bowie, MD 20715-4037, Tel: 301-464-2100, TWX: 710-826-0414; *Sls. Mgr.:* Marshall Sorenson ..... **A•2318-2319**

Local Sales Offices & Reps

CA	Seal Beach, Texel	213-596-9411
IL	Wheeling, Ed Joyner & Co.	312-520-1200
PA	Hatboro, Electro Rep Engrg.	215-674-4421

TOROTEL PRODUCTS INC.

TOROTEL PRODS. INC., 13402 S. 71 Hwy., Grandview, MO 64030, Tel: 816-761-6314, TWX: 910-777-7037; Empl.: 275; *Sls. Mgr.:* H. Foland ..... **A•1280-1295, 2320-2325**

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
AL	Westlake, OH, JN Bailey & Assocs.	216-892-1513
AZ	Tempe, Gassner & Clark Co.	602-968-9037
CA	Aurora, Hi Tech. Assocs.	303-696-7403
CA	Redwood City, Hickey Ind. Sls.	415-368-3849
CA	San Diego, California Elctrn. Mktg.	619-692-3551
CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
FL	Orlando, Perrott Assocs.	305-298-7748
GA	Atlanta, L & D, Inc.	404-395-7079
IL	Schaumburg, Gassner & Clark Co.	312-882-8608
IA	Hiawatha, Gassner & Clark Co.	319-393-5763
MD	Towson, Dickison Sls. Co.	301-823-0923
MA	Weston, John Goode Assocs.	617-235-3900
NY	Manhasset, Win-Cor Elctrns.	516-627-9474
NY	Syracuse, Rep, Tech, Inc.	315-437-2845
NC	Greensboro, L & D, Inc.	919-292-3201
NC	Raleigh, L & D, Inc.	919-876-5301
OH	New Lebanon, J. N. Bailey & Assocs.	513-687-1325
OH	Westlake, J. N. Bailey & Assocs.	216-892-1513
PA	Birchrunville, Jadelectronic Assocs.	215-296-3800
PA	Philadelphia, Jadelectronic Assocs.	215-455-0664
TN	Seymour, L & D, Inc.	615-577-1549
TX	Austin, Oeler & Menelaides	512-453-0275
TX	Dallas, Oeler & Menelaides	214-361-8876
TX	Houston, Oeler & Menelaides	713-772-0730

TOROTRON CORP., 519 South Fifth Ave., Mt. Vernon, NY 10550, Tel: 914-664-2050; Empl.: 14; *Sls. Mgr.:* Lee Abramson ..... **D•1315**

TORQ CORP., 32 W. Monroe St., Bedford, OH 44146, Tel: 216-232-4100; Empl.: 135

TORRINGTON CO., 59 Field St., Torrington, CT 06790, Tel: 203-482-9511

TORWICO ELECTRONICS INC.

TORWICO ELCTRNS. INC., 410 Oberlin Ave. South, Lakewood, NJ 08701, Tel: 201-364-1800, TWX: 710-723-8343; Empl.: 240 ..... **A•2328-2329**

Local Sales Offices & Reps

CA	El Cajon, KCE Corp.	619-588-1198
CA	Menlo Park, Long and Assocs.	415-327-1300
FL	Orlando, Gra-Mar	305-894-3351
IN	Noblesville, Patco & Assocs.	317-877-5986
IA	Davenport, Ensco Rep	319-386-6600
KS	Overland Park, Ensco Rep	913-381-7557
KS	Wichita, Ensco Rep	316-683-1070
MD	Riderwood, W. S. Warrington & Assoc.	301-823-8759
MA	Hingham, N.E. Reps.	617-749-8700
MO	Maryland Heights, Ensco Rep	314-423-3935
NJ	Marlton, BGR Assocs.	609-983-1020
NY	Albany, Lynn Assocs.	518-459-1239
NY	Buffalo, Lynn Assocs.	716-631-0054
NY	Great Neck, Trionic	516-466-2300
OH	Copley, Eljay Assoc.	216-666-3774
OR	Portland, Abacus Sls.	503-777-8111
PA	Pittsburgh, Lynn Assocs.	412-341-5155
TX	Irving, Kite Elctrns. Sls. Co.	214-438-9336

TOSHIBA CORPORATION, See General Products Corp.

TOUCH TECHNOLOGY, INC., 107 Gibralter Street, Annapolis, MD 21401, Tel: 301-269-6181; Empl.: 19

TOWNSEND INDUSTRIES, 51 Carl Rd., Orange, CT 06477, Tel: 203-795-0241, TWX: 710-465-1898; *Sls. Mgr.:* Charles Dorsa

TOYO COMM. EQUIP. CO., LTD., No. 8 Mori Bldg., 20-4, Nichi-Shimbashi, 3-Chome Minato-Ku, Tokyo, Japan 105, Tel: 03-459-7320/03-459-7310, Telex: 02423115 Toyocoj.; Empl.: 1800; *Sls. Mgr.:* T. Nagai/S. Nakagome

TRACEWELL ENCLOSURES, 7032 Worthington Galena Rd., Columbus, OH 43085, Tel: 614-846-6175, 800-848-4525; Empl.: 30 ..... **C•1092-1093**

TRA-CON, INC., 55 North St., Medford, MA 02155, Tel: 617-391-5550; Empl.: 55

TRACOR INSTRUMENTS, 6500 Tracor La., Bldg. 27, Austin, TX 78725, Tel: 512-929-2051, TWX: 910-874-1366; Empl.: 9100; *Sls. Mgr.:* William R. Murphy; *Dist. Mgr.:* Will Hoover

TRACOR PAKTRONICS, 2441 Northeast Pkwy., Ft. Worth, TX 76106, Tel: 817-625-2311, Telex: 758-273; Empl.: 10; *Sls. Mgr.:* Harold Whittenton

TRAK MICROWAVE CORP., 4726 Eisenhower Blvd., Dept. E5, Tampa, FL 33614, Tel: 813-884-1411, Telex: 52-827, TWX: 810-876-9140; FSC No.: 12855; *Sls. Mgr.:* Toby Gant ..... **A•1782-1783**

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Phoenix, J. Smith Assocs.	602-267-0981
CA	Malibu, RL Comps.	213-456-9021
CA	Mountain View, Disman Bakner	415-969-3010
CO	Colorado Springs, J. Smith Assocs.	303-597-5343
CO	Greely, W. H. Howard Assocs.	303-426-3499
FL	Melbourne, Jerry Williams, Inc.	305-259-7700
GA	Atlanta, Magaro & Assocs.	404-451-8862
IL	Franklin Park, Dekotech	312-455-5100
IN	Ft. Wayne, TX Sls. Indiana	219-489-4447
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MD	Columbia, M. Lader Co.	301-730-1550
MD	Conowingo, M. Lader Co.	301-378-3449
MA	Andover, Bee Assoc.	617-475-2124
MN	Minneapolis, Deerland Distrs.	612-331-6433
NJ	Belford, Ascor Elctrns.	201-787-6011
NM	Albuquerque, J. Smith Assocs.	505-265-3406
NY	Liverpool, R&D Assocs.	315-457-0100
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NC	Raleigh, M. Lader Co.	919-848-3231
PA	Lafayette Hill, M. Lader Co.	215-825-3177
TX	Dallas, Cain & Co.	214-247-3901
UT	Salt Lake City, Effective Sls.	801-266-9617
WA	Seattle, Datacom Assocs.	206-285-2525

TRAK MICROWAVE, Western Division, 735 Palomar Ave, Dept. E-5, Sunnyvale, CA 94086, Tel: 408-735-9660, TWX: 910-339-9309; FSC No.: 29111; *Sls. Mgr.:* Thomas L. Roberts ..... **A•1782-1783**

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Malibu, RL Comps.	213-456-9021
CA	Mountain View, Disman-Bakner	415-969-3010
CO	Colorado Springs, J. Smith Assocs.	303-597-5343
FL	Melbourne, Jerry Williams, Inc.	305-259-7700
GA	Altanta, Magaro & Assocs.	404-451-8862
IL	Franklin Park, Dekotech, Inc.	312-455-5100
IN	Ft. Wayne, TX Sls. Indiana	219-489-4447
IA	Cedar Rapids, J. R. Sls. Engrg.	319-393-2232
MD	Conowingo, M. Lader Co.	301-378-3449
MA	Andover, Bee Assocs.	617-475-2124
MN	Minneapolis, Deerland Dists., Inc.	612-331-6433
NM	Albuquerque, J. Smith Assocs.	505-265-3406
NY	Hartsdale, Spectrum Sls.	914-472-8600
NY	Liverpool, R&D Assocs.	315-457-0100
NC	Raleigh, M. Lader Co.	919-848-3231
PA	Lafayette Hill, M. Lader Co.	215-825-3177
TX	Dallas, Cain & Co.	214-247-3901
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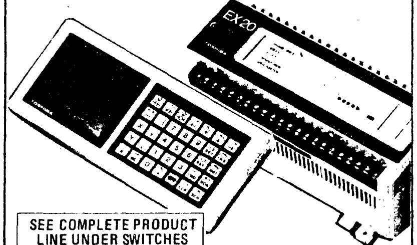

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Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Phoenix, J. Smith Assocs.	602-267-0981
CA	Mountain View, Disman-Bakner	415-969-3010
CA	San Diego, L L Stoakes, Inc.	619-452-1600
CO	Greely, W. H. Howard Assocs.	303-426-3499
FL	Sarasota, Bass Assocs.	813-922-9538
GA	Atlanta, Magaro & Assocs.	404-451-8862
IN	Ft. Wayne, TX Sales	219-489-4447
MD	Annapolis, Blackwood Assocs.	301-261-1904
MA	Cochituate, High-Tech Sls., Inc.	617-653-3838
NM	Albuquerque, J. Smith Assocs.	505-265-3406
NC	Greensboro, Magaro & Assocs.	919-294-4783
PA	Huntingdon Valley, Rabal Assocs.	215-947-4825
TX	Arlington, J. T. Houston Assocs.	817-265-2931
WA	Bellevue, Tasco, Inc.	206-453-1414

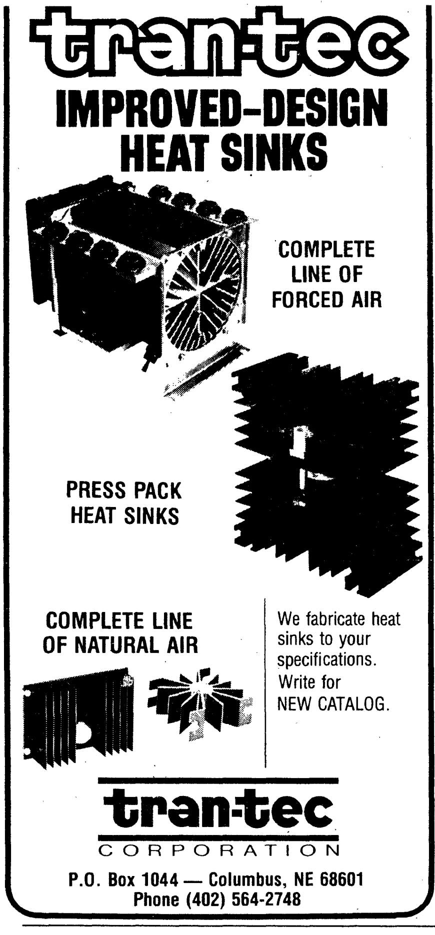
TRANSAMERICA DELAVAL, Gems Sensors Div., Cowles Rd, Plainville, CT 06062-9990, Tel: 203-677-1311, Telex: 99-306; Empl.: 203; *Sls. Mgr.:* M. W. Brown; *Dist. Mgr.:* M. W. Brown

TRANS AMERICAN TRANSFORMER, 142 Peconic Ave., Medford, NY 11763, Tel: 516-654-1880; Empl.: 23

TRANSCO PRODUCTS, INC., 4241 Glencoe Ave., Marina del Rey, CA 90295, Tel: 213-822-0800, Telex: 65-2448, TWX: 910-343-6469; FSC No.: 82152; Empl.: 400; *Sls. Mgr.:* T. G. Katter

Local Sales Offices & Reps

CA	Marina del Rey, Michael Robinson	213-822-0800
CA	San Jose, Jon Walker	408-244-6150
CA	San Juan Capistrano, Bruce Toffelmier	714-643-0506
MD	Ellicott City, VPI, Inc.	301-461-2525
MO	Ellisville, Hi Grant Wilson	314-227-0737
NY	Bayside, R. L Diamond Inc.	212-423-7330
TX	Richardson, Ronald B. Patton	214-669-1951
WA	Bellevue, Poggi Assocs., Inc.	206-454-2026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Local Sales Offices & Reps

CA	Huntington Beach, Transducer Sys.	714-840-5357
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CT	Washington, Tri-Com Assocs.	203-563-2241
FL	Indian Rocks Beach, PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs., Inc.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MA	Burlington, Tri-Com Assocs.	617-272-8163
MI	Mt. Clemens, O'Hara Assocs.	313-791-7140
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Cherrry Hill, Markey Instrmn.	609-667-3809
NJ	Hillsdale, CB Assocs., Inc.	201-644-6230
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NY	Whitney Point, TAE-REP, Inc.	607-692-3705
OH	Dayton, RIXAN Assocs.	513-278-4216
OH	Stow, Rixan Assocs., Inc.	216-686-2909
TX	Lewisville, Electric Control Assocs.	214-221-3143
WI	New Berlin, Marsland Assocs., Inc.	414-786-6611

TRANSDUCER SYSTEMS, INC., 1510 Delp Dr., Kulpsville, PA 19443, Tel: 215-256-4611, Telex: 846078; Empl.: 310

Local Sales Offices & Reps

CA	Santa Clara, Nelson Elctrn. Sls.	408-980-1950
IN	Indianapolis, Electro Dev. Engrg.	317-547-5274
MI	Madison Heights, L. C. Nyman & Co.	313-543-6520
MN	Mendota, GII Sls.	612-454-3086

TRANSDUKTOR, INC., See Ulveco, Inc.

TRANSENE, Rte. 1, Rowley, MA 01969, Tel: 617-948-2501; Empl.: 21; *Sls. Mgr.:* J. Doucette

TRANSFORMATION ELCTRNS. CORP., 170 Wilbur Pl., Bohemia, NY 11716, Tel: 516-563-1117, TWX: 510-222-0972; *Sls. Mgr.:* David Baum .... **D•1857**

Local Sales Offices & Reps

CA	Pasadena, EMI	818-795-7193
CA	Sunnyvale, Schwerin & Merrill	408-735-7900
CO	Englewood, Elctrn. Comp. Sys.	303-781-5904
FL	Longwood, Boetto Corp.	305-331-1771
GA	Norcross, New South Mktg. Ltd.	404-887-7254
KS	Kansas City, BC Elctrns.	913-342-1211
MD	Pikesville, Imagitron Sls. Co.	800-638-3592
MA	Wakefield, Kentronics	617-246-0245
NY	New York, Livera-Polk	516-759-9300
TX	Arlington, Hite Elctrn. Sls. Co.	817-861-8627
WA	Bellevue, Elctrn. Mktg. Grp.	206-882-0962

TRANSFORMER & COIL PRODUCTS, TRW Electronic Assemblies Division, 150 Varick St., New York, NY 10013, Tel: 212-255-3500, TWX: 710-581-2722; Empl.: 325; *Sls. Mgr.:* A. Profeta

TRANSFORMER DESIGN, INC., 78th & Clinton, Milwaukee, WI 53223, Tel: 414-358-5300

TRANSICOIL, INC., Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990, Tel: 215-277-1300, TWX: 510-660-0132; FSC No.: 82686; Empl.: 220; *Sls. Mgr.:* P. Schoenacker

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Local Sales Offices & Reps

CA	Costa Mesa, FLW Inc.	714-751-7512
CA	Los Altos, Cain-White Co.	415-948-6533
GA	Atlanta, Magaro & Assocs.	404-252-6609
IL	Elmhurst, Scott Assocs.	312-279-5681
MD	Ellicott City, Dyna-Rep Co.	301-992-4350
MA	Lexington, E. F. Delfino, Inc.	617-862-1118
NJ	Ridgewood, Hansen Assocs.	201-652-7055
NY	North Syracuse, Advance Components	315-699-2671
OH	Medina, McShane Inc.	216-725-4568
OR	Hillsboro, Controlek Sls.	503-640-8444
PA	Fort Washington, GCM Inc.	215-646-7535
TX	Lewisville, J. Hughes Co.	817-430-1683
VA	Alexandria, Dyna-Rep Co.	703-354-1222
EXP	NY, New York, Singer Prods.	212-432-1400

TRANSKINETIC SYS., 110 Shawmut Rd., Canton, MA 02021, Tel: 617-828-3000; Empl.: 7

TRANSMAGNETICS, 210 Adams Blvd., Farmingdale, NY 11735, Tel: 516-293-3100, TWX: 510-224-6420; FSC No.: 17755; Empl.: 40; *Sls. Mgr.:* Fred Haber ... **D•1162-1163**

Local Sales Offices & Reps

TX	Bellaire, Seaton Corp.	713-731-2649
TX	Carrollton, Seaton Corp.	214-380-0414

TRANSMET CORP., 4290 Perimeter Dr., Columbus, OH 43228, Tel: 614-276-5522, 800-245-5253, TWX: 810-482-1016; *Sls. Mgr.:* Ronald A. Crossman; *Dist. Mgr.:* Robert M. Simon

TRANS-MET ENGRG., 601 S. Palm St., La Habra, CA 90631, Tel: 213-691-2266; Empl.: 25; *Sls. Mgr.:* Robert J. Powers

TRAN-SPECTRA, INC., Rte. 1-Box 27A, Greenfield, TN 38230, Tel: 901-235-2218; Empl.: 25; *Sls. Mgr.:* D. Cole

TRANS-TECH, 12 Meem Ave., Gaithersburg, MD 20760, Tel: 301-948-3800, Telex: 898-303, TWX: 710-828-0549; FSC No.: 14591; Empl.: 74; *Sls. Mgr.:* Blair W. Stiles; *Dist. Mgr.:* Blair W. Stiles

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TRAN-TEC, Box 1044, Columbus, NE 68601, Tel: 402-564-2748; Empl.: 46; *Sls. Mgr.:* Cliff Schroeder

Local Sales Offices & Reps

CA	Redwood City, Woodworth Co.	415-365-0252
CA	Tustin, Sierra-Pacific Engrg. Co.	714-731-3411
CO	Golden, Pierce-Robbins Assocs.	303-399-6618
FL	Winter Park, Russell Assocs.	813-526-1134
GA	Atlanta, Russell Assocs.	404-225-8422
IN	Indianapolis, Scott Elctrns, Inc.	317-897-9976
IA	Cedar Rapids, Ard Sls. Co.	319-366-8733
MD	Bel Air, Russell Assocs.	301-879-9180
MA	Wakefield, H.C. Jappe Co.	617-245-9359
NJ	Fair Haven, Russell Assocs.	201-747-0600
NY	Bay Shore, Russell Assocs.	516-666-6500
NY	Cazenovia, Naylor Elec. Co.	315-655-8174
OH	Cleveland, D. Steffen & Assocs.	216-461-8333
TX	Dallas, Russell Assocs.	214-699-0383
WA	Bellevue, Russell Assocs.	206-455-3694

TRAN-TROL CO., 2525 N. Alvernon Way, C-6, Tucson, AZ 85712, Tel: 602-795-8008

TRENDATA/STANDARD MEMORIES, 3400 W. Segerstrom, Santa Ana, CA 92704, Tel: 714-540-3605, TWX: 910-595-1596; Empl.: 200; *Sls. Mgr.:* M.S. Efron

TRENT, INC., 201 Leverington Ave., Philadelphia, PA 19127, Tel: 215-482-5000; Empl.: 55

TRIAC ELECTRONIC SYSTEMS, INC., 87-27 Myrtle Ave., Glendale, NY 11385, Tel: 718-441-4759, TWX: 221500 ASAS ATT TRIAC; Empl.: 35; *Sls. Mgr.:* Victor Botnick .... **D•1132-1133**

TRIAD POWER SYSTEMS, 10362 Miller Road, Dallas, TX 75238, Tel: 214-341-8700; FSC No.: 214-341-1804; *Sls. Mgr.:* Jack Conn

TRIAD-UTRAD
Standard Products

TRIAD-UTRAD, 1124 E. Franklin St., Huntington, IN 46750, Tel: 219-356-6500, TWX: 810-333-1532; Empl.: 750; *Dist. Mgr.:* Dave N. Miller ...... **A•2330-2337; D•1970-1971**

Local Sales Offices & Reps

AK	Anchorage, H.J. Lang & Assocs.	907-279-5741
AZ	Phoenix, Steve Fisher Assocs.	602-247-7865

AR	Little Rock, J. Y. Schoonmaker Co.	501-375-2168
CA	Chino, Tracy Elec. Sls.	714-591-4736
CA	Santa Clara, Logan Sls.	408-496-0660
CO	Denver, West Inc.	303-692-0131
FL	Maitland, Hutto-Hawkins-Peregoy	305-831-2474
GA	Atlanta, Effective Mktg. Force	404-948-6023
HI	Honolulu, Hawaii Elctrn. Svc.	808-845-8207
IL	Wilmette, J. Wasserman Assocs.	312-256-3566
KS	Overland Park, T.L. Dowell, Inc.	913-648-7373
LA	Little Rock, J. Y. Schoonmaker	501-375-2168
MA	Framingham, Bay Colony	617-620-0607
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO	St. Louis, T.L. Dowell, Inc.	314-849-4234
NJ	Medford, Champion Elctrn. Sls.	609-654-0475
NY	Rochester, Marchese, Marsey, Barden	716-544-4300
NY	Rockville Centre, Schmitt Indl. Mktg.	516-486-3510
OH	Cincinnati, F.E. Kahsar Sls.	513-922-3133
OH	Hudson, F.E. Kahsar Sls.	216-650-1089
OR	Portland, J. J. Backer Co.	503-297-3777
OR	Salem, J. J. Backer Co.	503-362-0717
TX	Dallas, J. Y. Schoonmaker Co.	214-349-1650
WA	Seattle, J. J. Backer Co.	206-285-1300
EXP	Westbury, N.Y., Minthorne Int'l.	516-546-4700

Local Distributors

AL	Birmingham, Forbes Distrbg.	205-251-4104
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2885
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Riverside, Electronic Supp.	714-683-7300
CO	Denver, Integrated Elctrns.	303-534-6121
FL	Ft. Lauderdale, Peerless Radio Corp. of Fla.	305-973-4141
GA	Atlanta, Ack Radio Supp.	404-351-6340
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns.	312-638-4411
IN	Lafayette, CWY Elctrns.	317-448-1611
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KY	Louisville, P. I. Burks Co.	502-589-3960
LA	New Orleans, William B. Allen Co.	504-525-8222
MD	Rockville, Capitol Radio Whls.	301-881-2270
MA	Burlington, Marshall Wilshire Elctrns.	617-272-8200
MA	Wilmington, Cronin Elctrns.	617-449-0500
MI	Grand Rapids, S-F Elctrns.	616-459-0216
MI	Livonia, R. S. Elctrns.	313-525-1155
MN	St. Paul, Gopher Elctrns.	612-483-4450
MO	St. Louis, Olive Indl. Elctrn.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp. Corp.	402-466-8221
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Camden, General Radio Supp.	215-922-7037
NJ	Springfield, Route Elctrns.	201-379-7710
NM	Albuquerque, Electronic Parts Co.	505-293-6161
NY	Hauppauge, Broadline Elctrn. Distr.	516-231-4100
NY	Rochester, Simcona	716-328-3230
NY	Rockville Centre, Midway Indl. Elctrns.	516-764-2400
NY	Rome, Rome Elctrns.	315-337-5400
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Pioneer Std. Elctrns.	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Combined Tech.	918-582-8242
OR	Portland, United Radio Supp.	503-233-5346
PA	Philadelphia, Almo Elctrns.	215-698-4000
RI	Warwick, W. H. Edwards Elctrns.	401-781-8000
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Memphis, Bluff City Elctrns.	901-345-9500
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UT	Provo, Omega Elctrns.	801-375-4664
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WI	New Berlin, RM/Wisconsin	414-784-4420

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TRIDAK, 1120 Federal Rd., Brookfield, CT 06804, Tel: 203-775-1287, TWX: 710-456-1372; Empl.: 20; *Sls. Mgr.:* F. C. Herot

TRI-DATA CORP., 505 E Middlefield Rd., Mountain View, CA 94043, Tel: 415-969-3700, Telex: 910-379-6978; Empl.: 173

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TRILOG, 17391 Murphy Ave., Irvine, CA 92714, Tel: 714-549-4079, TWX: 910-595-2798; Empl.: 35; *Sls. Mgr.:* Jack Rice

TRIMM, INC., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048, Tel: 312-362-3700; Empl.: 90; *Dist. Mgr.:* H. Lewis

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TRINETICS

TRINETICS INC., 55807 Currant Rd., Mishawaka, IN 46545-4899, Tel: 219-259-8535; Empl.: 100; *Sls. Mgr.:* T. J. Dawson

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CA	Pasadena, Western Comp.	818-791-9794
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IN	Ft. Wayne, Walter W. Bieberich	219-432-2537
IN	New Albany, Walter W. Bieberich	812-945-3187
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MA	Hopkinton, Berkshire Elctrns.	617-435-9356
MI	Sturgis, Kesler Assocs.	616-651-7619
MO	St. Louis, Hill & Co.	314-432-1136
NH	Gonic, Berkshire Elctrns.	603-335-1897
NJ	Burlington, V.D.E. Elctrn. Sls.	609-387-9331
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OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
OH	Cleveland, Stegman Blaine Mktg.	216-871-0520
OH	Vandalia, Stegman Blaine Mktg.	513-890-7975
PA	Philadelphia, V.D.E. Elctrn. Sls.	215-524-0591

TRIO LABS., 80 Dupont St., Plainview, NY 11803, Tel: 516-349-0400, TWX: 510-221-1861; FSC No.: 00638; Empl.: 60; *Sls. Mgr.:* John Crawford

TRIO-TECH INTL., 2040 N. Lincoln St., Burbank, CA 91504, Tel: 818-846-9200, Telex: 194811; Empl.: 266; *Sls. Mgr.:* Ted Mezo

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Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
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CA	Costa Mesa, Berman-Gravley, Inc.	714-549-2122
CO	Aurora, R & R Instrmn.	303-364-8325
CO	Denver, IW Strong & Assocs.	303-292-6900
FL	Lighthouse Pt., Jack Krutek & Assocs.	305-941-6544
FL	Maitland, Jack Krutek & Assocs.	305-628-4837
GA	Atlanta, Millar Elctrns.	404-261-6160
IL	Berkeley, G. Petitt Co.	312-449-8000
IN	Ft. Wayne, W. Bieberich	219-432-2537
IN	New Albany, W. Bieberich	812-945-3187
KS	Olathe, SPS Assocs., Ltd.	913-764-4460
MD	Baltimore, Sunshine Sci. Inst.	301-661-5900
MI	Grosse Point Woods, A & D Elctrn. Sls.	313-884-1956
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NY	Hauppauge, Masin Esco	516-273-3500
NY	Rochester, Marchese, Marsey & Barden	716-544-4300
NC	Charlotte, Brownell-Electro, Inc.	704-597-1270
NC	Raleigh, Millar Elctrns.	919-787-9564
OH	Centerville, Dolfuss-Root	513-433-6776
OH	Strongsville, Dolfuss-Root	216-238-0300
OR	Portland, J.J. Backer	503-297-8744
PA	Bridgeville, Dolfuss-Root	412-221-4420
PA	Trevose, PSA	215-245-0513
RI	Lincoln, Adams-McGregor	401-726-1300
RI	West Warwick, Adams McGregor, Inc.	401-821-1320
TX	Dallas, Elcom Mktg. Inc.	214-241-2166
WA	Seattle, J.J. Backer	206-285-1300

Local Distributors

AL	Birmingham, Brownell-Electro	205-323-4761
AL	Mobile, Brownell-Electro	205-479-8581
AZ	Phoenix, Metermaster Div.	602-437-1425

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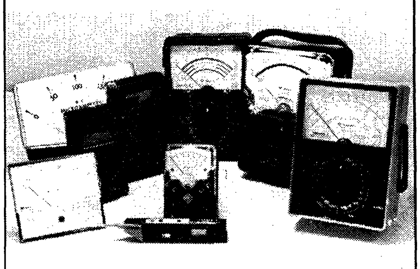

Offices

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(301) 621-5077 in Wash., DC Area

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CA	Glendale, Western Elctrn. Supp.	213-245-1226
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CA	San Diego, Metermaster Div.	619-560-4841
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CT	Middletown, E. I. L. Instr.	203-346-6646
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FL	Orlando, Brownell-Electro	305-843-6770
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GA	Atlanta, Process Meas. Control	404-696-7481
HI	Honolulu, Kems, Inc.	808-845-6402
IL	Bridge View, E.I.L. Instrs.	312-430-2292
IL	Countryside, Pacific Indicator	312-352-3500
IL	Elk Grove Village, Meter-Makers	312-439-5050
IL	Elk Grove Village, Metermaster	312-593-8650
IN	Evansville, Electro-Lab Svcs.	812-423-5211
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
KS	Overland Park, Brooks Elec.	913-648-3131
KY	Louisville, E. I. L. Instr.	502-454-3432
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MD	Gaithersburg, Pioneer/Instrmn.	301-921-0660
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MD	Sparks, E.I.L.	301-771-4800
MA	Burlington, E. I. L. Instr.	617-272-9450
MA	Waltham, Calibron	617-894-6440
MI	Ferndale, Ram Meter	313-697-6911
MN	Minneapolis, Instr. Control	612-871-2514
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NJ	Belleville, Marshall Inst.	201-751-1190
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NY	Clarence, Trott Elctrns.	716-634-8500
NY	L.I.C., Metermod Instr.	212-726-4850
NC	Charlotte, Brownell-Electro	704-597-1270
NC	Raleigh, Brownell-Electro, Inc.	919-876-6524
NC	Raleigh, Meter-Meterics, Div. of I.T.R.	919-872-5456
NC	Raleigh, Speed Instr. Div. Owen-Barbot	919-876-4919
OH	Cleveland, Pioneer/Instrmn.	216-587-3600
OH	Cleveland, Weschler Elec.	216-238-2550
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Tri-State Instr.	918-836-0286
PA	Philadelphia, Sunshine Sci.	215-673-5600
PA	Pittsburgh, CAM/RPC	412-963-1885
PA	Pittsburgh, E.I.L.	412-731-5230
TN	Knoxville, Brownell-Electro	615-966-3441
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TN	Memphis, Instrument Repair Svc.	901-278-0762
TN	Nashville, Brownell-Electro	615-889-8230
TX	Beaumont, Straughn Elec.	409-838-4563
TX	Dallas, Ultra Instr.	214-357-0297
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TX	Houston, Meters & Instrs.	713-644-1631
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TRI-STAR ELCTRNS., INC., 362 Main Street #2, Venice, CA 90291, Tel: 213-823-5779, Telex: 182058 Tristarel Vnce, TWX: 910-343-7448; FSC No.: 5935, 5999, 5120, 5280; *Sls. Mgr.:* Tom Magdalik

TRITON MFG. CO., P.O. Box 361, East Haddam, CT 06423, Tel: 203-838-4666, Telex: 955439; FSC No.: 54195; *Sls. Mgr.:* Jack Spangler

TRI-TRONICS CO. INC., 13420 Wright Cir., Tampa, FL 33624, Tel: 813-855-4453; Empl.: 27; *Sls. Mgr.:* Robert A. Warner

TRIVEX, 3180 Redhill Ave., Costa Mesa, CA 92626, Tel: 714-546-7781, TWX: 910-595-2589; Empl.: 180; *Sls. Mgr.:* R. Martin

TRO DYNE CORP., 900 Corporate Dr., Mahwah, NJ 07430, Tel: 201-529-1800, TWX: 710-988-2138; FSC No.: 17346; Empl.: 55; *Sls. Mgr.:* T. Mazzaccaro

TROMPETER ELECTRONICS, INC., 8936 Comanche, Chatsworth, CA 91311, Tel: 818-882-1020, TWX: 910-494-1210; FSC No.: 14949; Empl.: 110; *Sls. Mgr.:* Paul Cox; *Dist. Mgr.:* Hap Gladish

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AL	Huntsville, Currie, Peak and Frazier	205-536-1506
AZ	Phoenix, Aztec Entprs.	602-944-9185
CA	Los Angeles, Knight Co.	213-670-2833
CA	San Diego, Knight Co.	619-571-7903
CA	Santa Clara, DC Elctrns.	408-980-1199
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IN	Indianapolis, Engrg. Prods. Assoc.	317-894-7156
IA	Iowa City, Engineering Prods. Assoc.	319-354-5344
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Lowell, Underwood Sls.	617-256-8191
MN	Edina, Engineering Prods. Assoc.	612-835-9022
NJ	Elmwood Park, L & M Assoc. Eng. Rep.	201-797-0441
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	New York, L & M Assocs. Eng. Rep.	212-243-6155
NY	Rochester, T A E Reps.	716-586-8710
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NC	Raleigh, Currie, Peak & Frazier	919-787-0808
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WA	Lynnwood, Blum & Assocs.	206-775-6656

TRUE DATA, 17092 Pullman St. #B, Irvine, CA 92714, Tel: 714-979-4842, TWX: 910-595-1917; Empl.: 37

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TRW CAPACITOR DIV., 301 West "O" St., Ogallala, NE 69153, Tel: 308-284-3611, TWX: 910-620-0321; *Sls. Mgr.:* Dennis Lienemann .... **A•1179-1185**

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CA	Los Angeles, ISDS	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	Orange County, Hamilton	714-641-4100
CA	Sacramento, Hamilton Avnet	916-925-2216
CA	San Diego, Hamilton Avnet	619-571-7510
CA	San Diego, ISDS	619-571-1544
CA	San Francisco, Hamilton Avnet	408-743-3355
CA	San Gabriel, Hamilton Avnet	714-989-4602
CA	Santa Ana, ISDS	714-973-2162
CA	Woodland Hills, ISDS	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Melbourne, Hamilton Avnet	305-725-2700
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KS	Wichita, Hamilton Avnet	800-532-6720
KY	Lexington, Hamilton Avnet	800-543-4783
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MD	Baltimore, Hamilton Avnet	301-995-3500
MD	Columbia, TRW/ECG	301-964-9110
MA	Boston, Hamilton Avnet	617-273-7500
MA	Westborough, TRW/ECG	617-870-0745
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, John G. Macke Co.	314-432-2830
NE	Panama, Norris Stricker	402-788-2700
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, Hamilton Avnet	513-433-0610
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Tigard, TRW/ECG	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, Hamilton Avnet	800-321-6890
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, Hamilton Avnet	512-837-8911
TX	Austin, Technlg. Sls. Co.	512-346-9940
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, TRW/ECG	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WV	Huntington, Hamilton Avnet	800-543-4783
WI	Brookfield, TRW/ECG	414-784-7773
EXP	NY, New York, Hamilton Avnet	516-997-6868
Can	Calgary,Alb., Hamilton Avnet	403-230-3586
Can	Montreal, Que., Hamilton Avnet	514-335-1000
Can	Ottawa, Ont., Hamilton Avnet	613-226-1700
Can	Vancouver, B.C., Hamilton Avnet	604-272-4242

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Hamilton Avnet	205-837-7210
AZ	Phoenix, Hall-Mark Elctrns.	602-437-1200
AZ	Phoenix, Hamilton Avnet	602-231-5100
AZ	Phoenix, R. V. Weatherford Co.	602-272-7144
AZ	Tempe, Arrow Elctrns.	602-968-4800
CA	Chatsworth, Arrow Elctrns.	818-701-7500
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Glendale, R. V. Weatherford Co.	213-849-3451
CA	Los Angeles, Avnet	213-558-2345
CA	Los Angeles, Hamilton	213-558-2121
CA	Orange County, Avnet	714-754-6111
CA	San Fernando Valley, Avnet	818-700-2600
CA	San Fernando Valley, Hamilton	818-700-6500
CA	San Jose, Hall-Mark Elctrns.	408-946-0900
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Thousand Oaks, Bell Inds.	805-499-6821
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Denver, Hamilton Avnet	303-779-9998
CO	Denver, R. V. Weatherford Co.	303-428-6900
CT	Danbury, Hamilton Avnet	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Miami, Hamilton Avnet	305-971-2900
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Orlando, Hamilton Avnet	305-628-3888
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Pompano Beach, Hall-Mark Elctrns.	305-971-9280
FL	St. Petersburg, Hamilton Avnet	813-576-3930
GA	Atlanta, Hamilton Avnet	404-447-7507
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Bensenville, Hall-Mark Elctrns.	312-860-2678
IL	Champaign, Hamilton Avnet	800-625-8654
IL	Chicago, Hamilton Avnet	312-860-7700
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Hamilton Avnet	317-844-9333
IA	Cedar Rapids, Hamilton Avnet	319-362-4757
KS	Kansas City, Hamilton Avnet	913-888-8900
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
KY	Louisville, Hamilton Avnet	800-428-6012
MD	Columbia, Arrow Elctrns.	301-995-0003
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MA	Billerica, Hall-Mark Elctrns.	617-935-9777
MA	Norwood, Gerber Radio Supp. Co.	617-769-6000
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Detroit, Hamilton Avnet	313-522-4700
MI	Grand Rapids, Hamilton Avnet	616-243-8805
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Hamilton Avnet	612-932-0600
MO	Maryland Hgts., Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Hamilton Avnet	314-344-1200
NE	Lincoln/Omaha, Hamilton Avnet	800-255-6702
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton Avnet	609-424-0100
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton Avnet	201-575-3390
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Hamilton Avnet	505-765-1500
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Long Island, Hamilton Avnet	516-231-9800
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Arrow Elctrns.	716-427-0300
NY	Rochester, Hamilton Avnet	716-475-9130
NY	Syracuse, Hamilton Avnet	315-437-2641
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton Avnet	919-878-0810
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cleveland, Hamilton Avnet	216-831-3500
OH	Columbus, Elctrn. Mktg.	614-299-4161
OH	Columbus, Hamilton Avnet	614-882-7004
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Westerville, Hall-Mark Elctrns.	614-891-4555

OR	Portland, Arrow Elctrns.	503-684-1690
OR	Portland, Hamilton Avnet	503-635-8831
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Hamilton Avnet	215-831-1300
PA	Philadelphia, Phila. Elctrn.	215-568-7400
SC	Columbia, Hamilton Avnet	800-334-1579
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Carrollton, Arrow Elctrns.	214-380-6464
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Hamilton Avnet	214-659-4111
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Hamilton Avnet	713-780-1771
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Hamilton Avnet	801-972-2800
WA	Seattle, Hamilton Avnet	206-453-5844
WA	Seattle, R. V. Weatherford Co.	206-575-1340
WV	Charleston, Hamilton Avnet	800-543-4783
WI	Milwaukee, Hamilton Avnet	414-784-4510
WI	New Berlin, Hall-Mark Elctrns.	414-797-7844
WI	Oak Creek, Arrow Elctrns.	414-764-6600
EXP	Los Angeles, Hamilton Avnet	213-558-2441
Can	Toronto, Hamilton Avnet	416-677-7432

TRW/CINCH-GRAPHIK, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744, Tel: 213-333-1201, TWX: 910-584-1861; *Sls. Mgr.:* James Kirby

TRW CONNECTOR DIV., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, Tel: 312-981-6000, TWX: 910-222-1796; *Sls. Mgr.:* B. Walthall; *Dist. Mgr.:* Jim Hartranft Jr. .... **B•1126-1127; C•1536-1565**

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Fort Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MA	Framingham, TRW/ECG	617-620-0625
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, J. G. Macke Co.	314-432-2830
NM	El Paso, Straube Assocs.	915-594-8259
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Tigard, TRW/ECG	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, TRW/ECG	512-345-2331
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, TRW/ECG	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Kierulff Elctrns.	602-243-4101
AZ	Phoenix, R. V. Weatherford Co.	602-272-7144
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
AR	Ft. Smith, Carlton Bates Co.	501-646-8201
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Anaheim, R. V. Weatherford Co.	714-634-9600
CA	Costa Mesa, Avnet Elctrns.	714-754-6088
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Hallmark Elctrns.	213-643-9101
CA	Glendale, R. V. Weatherford Co.	213-849-3451
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	Los Angeles, Newark Elctrns.	213-671-7066
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	Palo Alto, Kierulff Elctrns.	415-968-6292
CA	Pomona, R. V. Weatherford Co.	714-623-1261
CA	Riverside, Elctrn. Supp.	714-787-9220
CA	Sacramento, Hamilton/Avnet Elctrns.	916-920-3150
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Diego, Kierulff Elctrns.	619-278-2112
CA	San Diego, R. V. Weatherford Co.	619-695-1700
CA	San Francisco, Zack Radio Supp.	415-626-1444
CA	San Jose, Hall-Mark Elctrns.	408-946-0900
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Santa Clara, Wyle Dist. Grp.	408-727-2500
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Tustin, Kierulff Elctrns.	714-731-5711
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Denver, Kierulff Elctrns.	303-371-6500
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-779-9998
CO	Englewood, R. V. Weatherford Co.	303-770-9762
CO	Thornton, Wyle Dist. Grp.	303-457-WYLE
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Kierulff Elctrns.	305-463-4940
FL	Largo, Lodan Elctrns.	813-586-2851
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
FL	St. Petersburg, Kierulff	813-576-1966
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
GA	Norcross, Kierulff Elctrns.	404-447-5252
HI	Honolulu, Precision Radio Ltd.	808-537-5291
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7780
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Bell Elctrns.	312-982-9210
IL	Chicago, Electronic Connector	312-767-2200
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Itasca, Kierulff Elctrns.	312-250-0500
IL	La Salle, Klaus Radio	815-223-7400
IL	Palatine, Ohm Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IL	Quincy, Klaus Radio	217-223-7560
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Ft. Wayne, Graham Elctrn.	219-423-3422
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Pioneer/Ind.	317-849-7300
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
IA	Cedar Rapids, DEECO, Inc.	319-365-7551
IA	Eldridge, Klaus Radio	319-285-8484
KS	Lenexa, Hall-Mark Elect.	913-888-4747
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
LA	Baton Rouge, Indl. Elctrn. Supp.	504-926-0513
LA	Lafayette, Ralph's of Lafayette	318-234-4507
LA	Shreveport, Indl. Elctrn. Supp.	318-222-9459
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Baltimore, Hall-Mark Elctrns.	301-796-9300
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MD	Columbia, Powell Elctrn.	301-621-4070
MD	Gaithersburg, Pioneer/Washington	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Billerica, Kierulff Elctrns.	617-935-5134
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Radio Supp.	617-329-2400
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hall-Mark Elctrns.	617-935-9777
MA	Woburn, Hamilton/Avnet Elctrns.	617-935-9700
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Ann Arbor, Wedemeyer Elec. Supp.	313-665-8611
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Livonia, R.S. Elect. Corp.	313-525-1155
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Bloomington, Hall-Mark Elect.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Hgts., Hall-Mark Elect.	314-291-5350
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NE	Omaha, Scott Elctrn. Supp.	402-734-6750
NH	Manchester, Arrow Elect.	603-668-6968
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-0880
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Fairfield, Kierulff Elctrns.	201-575-6750
NJ	Hanover, State Elec. Parts Corp.	201-887-2550
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Binghamton, Pioneer Elctrns.	607-748-8211
NY	East Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Melville, Hamilton/Avnet Elctrns.	516-454-6060
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Ronkonkoma, Conco Elctrns. Corp.	516-467-8200
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NC	Cary, Powell Elctrns.	919-467-1212
NC	Greensboro, Kierulff Elctrns.	919-852-9440
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hall-Mark Elect.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns.	919-829-8030
NC	Winston-Salem, Arrow Elect.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hughes Peters, Inc.	513-351-2000
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Cleveland, Newark Elctrns.	216-447-8860
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Columbus, Hughes Peters, Inc.	614-294-5351
OH	Dayton, Hamilton/Avnet Elctrns.	513-433-6010
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Highland Hgts., Hall-Mark Elctrns.	216-473-2907
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Oklahoma City, Trice Wholesale Elctrns.	405-524-4411
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8157
OR	Portland, Kierulff Elctrns.	503-641-9150
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
PA	Wayne, Peak Elect.	215-293-9000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hall-Mark Elect.	512-258-8848
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Intl. Elctrns.	214-233-9323
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, R. V. Weatherford Co.	214-980-1110
TX	El Paso, Intl. Elctrns.	915-778-9761
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, R. V. Weatherford Co.	713-688-7406
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
TX	Richardson, Fisher Brownell	214-235-3177
TX	Stafford, Arrow Elctrns.	713-491-4100
TX	Stafford, Harrison Equip.	713-879-2729
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-4300
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WA	Bellevue, Wyle Dist. Grp.	206-453-8300
WA	Seattle, R. V. Weatherford Co.	206-243-6340
WA	Tukwila, Kierulff Elctrns.	206-575-4420
WI	Milwaukee, Elctrn. Expeditors	414-228-8100

WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Arrow Elctrn.	414-764-6600
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000

TRW CYLINDRICAL CONNECTOR DIV., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, Tel: 612-537-1010, TWX: 910-576-2748; *Sls. Mgr.:* Gene Schmidt; *Dist. Mgr.:* Gene Schmidt .... **C•1566**

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, ISDS	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MA	Framingham, TRW/ECG	617-620-0625
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, J. G. Macke Co.	314-432-2830
NY	Rochester, TRW/ECG	716-424-2830
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, TRW/ECG	512-345-2331
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, Straube Assocs.	915-594-8259
TX	El Paso, TRW/ECG	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

CA	Brea, Aeroflite	714-773-4251
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CO	Denver, Arrow Elctrns.	303-758-2100
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Chicago, Electronic Connector	312-767-2200
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
MD	Baltimore, Arrow Elctrns.	301-247-5200
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Edina, Arrow Elctrns.	612-830-1800
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Ronkonkoma, Conco	516-467-8200
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, Arrow Elctrns.	216-248-3990
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark	214-341-1147
TX	Houston, Hall-Mark	713-781-6100
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	Madison, Arrow Elctrns.	608-273-4977
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TRW, Dynalco Controls Div., 5200 NW 37th, P.O. Box 8187, Ft. Lauderdale, FL 33310, Tel: 305-739-4300, Telex: 514833; Empl.: 125; *Sls. Mgr.:* Kurlin Wilson; *Dist. Mgr.:* Joe Stephens

TRW ELECTRONIC COMPONENTS GRP., 2525 E. El Segundo Blvd., El Segundo, CA 90245, Tel: 213-536-0600

TRW FIBER OPTIC PRODS., CONNECTOR DIV., TRW Elctrn. Comps. Grp., 401 N. Broad St., Philadelphia, PA 19108, Tel: 215-922-8900, TWX: 710-670-2286; *Sls. Mgr.:* Harry Saleker

TRW LSI PRODUCTS, PO Box 2472, La Jolla, CA 92038, Tel: 619-457-1000, Telex: 697957, TWX: 910-335-1571; Empl.: 400; *Sls. Mgr.:* Doug Turnage; *Dist. Mgr.:* Ron Courtois

TRW MICROWAVE, 825 Stewart Dr., Sunnyvale, CA 94086, Tel: 408-732-0880, TWX: 910-339-9207; FSC No.: 21847; Empl.: 600; *Sls. Mgr.:* R. J. Roy

TRW MOTOR DIVISION, Industrial/Commerical Products, Napierfield Road, Postal Route 6, Box M-30A, Dothan, AL 36303, Tel: 205-983-3542, Telex: 810-744-1000; *Sls. Mgr.:* Dave Hall .... **B•1194**

TRW MOTOR DIV. (MILITARY), 2275 Stanley Ave., Dayton, OH 45404, Tel: 513-228-3171, Telex: 288-224, TWX: 810-459-1642; Empl.: 580; *Sls. Mgr.:* Bill Pelfrey; *Dist. Mgr.:* Tom Coyle .... **B•1195**

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, Integrated Sls.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, Integrated Sls.	619-571-1544
CA	Santa Ana, Integrated Sls.	714-973-2162
CA	Woodland Hills, Integrated Sls.	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MD	Baltimore, TRW/ECG	301 964-9110
MA	Framingham, TRW/ECG	617-620-0625
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, John G. Macke Co.	314-432-2830
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW	919-852-4676
OH	Cincinnati, R.O. Whitesell	513-521-2290
OH	Cleveland, R.O. Whitesell	216-447-9020
OH	Columbus, R.O. Whitesell	614-888-9396
OH	Dayton, R.O. Whitesell	513-298-9546
OR	Tigard, N. R. Schultz Co.	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, Technlg. Sls.	512-346-9940
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, TRW/ECG	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Hallmark Elctrns.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AZ	Phoenix, Hallmark Elctrns.	602-243-6601
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Fisher Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
CA	Alhambra, Fisher Brownell	213-289-0255
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, Avnet Elctrns.	213-700-2600
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Culver City, Hamilton/Avnet Elctrns.	213-558-2252
CA	El Segundo, Hallmark Elctrns.	213-643-9101
CA	Sacramento, Hamilton/Avnet Elctrns.	916-925-2216
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Fisher Brownell	619-560-8545
CA	San Diego, Hallmark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Jose, Hallmark Elctrns.	408-946-2575
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Hallmark Elctrns.	408-773-9990
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Englewood, Hallmark Elctrns.	303-790-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-740-1000
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Hallmark Elctrns.	813-530-4543
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hallmark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Orlando, Hallmark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
FL	Winter Park, Hamilton/Avnet Elctrns.	305-628-3888
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hallmark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
IL	Bensenville, Hallmark Elctrns.	312-860-3800
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7700
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Carmel, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Pioneer/Indiana	317-849-7300
KS	Lenexa, Hallmark Elctrns.	913-888-4747
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Bethesda, Arrow Elctrns.	301-564-3000
MD	Columbia, Hallmark Elctrns.	301 988-9800
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hallmark Elctrns.	617-935-9777
MA	Woburn, Hamilton/Avnet Elctrns.	617-273-7500
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan	313-525-1800
MN	Bloomington, Hallmark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Heights, Hallmark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-688-6968
NJ	Cherry Hill, Hallmark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hallmark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Hamilton/Avnet Elctrns.	516-434-7421
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-427-0300
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Ronkonkoma, Hallmark Elctrns.	516-737-0600
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hallmark Elctrns.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns.	919-878-0819
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hallmark Elctrns.	513-563-2980
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Hamilton/Avnet Elctrns.	513-433-0610
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Solon, Hallmark Elctrns.	216-349-4632
OH	Westerville, Hallmark Elctrns.	614-891-4555
OK	Tulsa, Hallmark Elctrns.	918-665-3200
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8157
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300

TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hallmark Elctrns.	512-258-8848
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hallmark Elctrns.	713-781-6100
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
TX	Richardson, Fisher Brownell	214-235-3177
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Arrow Elctrns.	414-764-6600
WI	Oak Creek, Hallmark Elctrns.	414-761-3000

TRW

TRW OPTOELECTRONICS DIV., 1207 Tappan Circle, Carrollton, TX 75006, Tel: 214-323-2200, TWX: 910-860-5958; Empl.: 2200; *Sls. Mgr.:* Ron Komatz; *Dist. Mgr.:* Robert Linker .... **A•2094; B•1221-1223**

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AK	Dallas, TRW/ECG	214-248-8000
AZ	Scottsdale, TRW/ECG	602-994-0441
AZ	Scottsdale, TRW/Phoenix	602-994-0441
CA	Los Angeles, Integrated Sys. & Device Sls.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, Integrated Sys. & Device Sls.	619-571-1544
CA	Santa Ana, Integrated Sys. & Device Sls.	714-973-2162
CA	Woodland Hills, Integrated Sys. & Device Sls.	818-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
DE	Richmond, TRW/ECG	804-288-8334
DC	Richmond, TRW/ECG	804-288-8334
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
ID	Boise, N.R. Schultz/Idaho	801-263-2640
IL	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
IL	Chicago, TRW/ECG	312-693-7730
IL	St. Louis, John G. Macke Co.	314-432-2830
IN	Ft. Wayne, Robert O. Whitesell	219-432-5591
IN	Indianapolis, Robert O. Whitesell	317-359-9238
IN	Kokomo, Robert O. Whitesell	317-457-9127
IA	Cedar Rapids, C. H. Horne & Assocs.	319-393-8703
KS	DeSoto, MIDTEC Assocs.	913-441-6565
KY	Louisville, Robert O. Whitesell	502-426-7696
LA	Dallas, TRW/ECG	214-248-8000
ME	Framingham, TRW/ECG	617-620-0625
MD	Columbia, TRW/ECG	301-964-9110
MA	Framingham, TRW/ECG	617-870-0745
MA	Maynard, Byrne Assoc.	617-897-3131
MI	Farmington Hills, TRW/ECG	313-478-7210
MI	Grand Rapids, Robert O. Whitesell	616-942-5420
MI	Southfield, Robert O. Whitesell	313-559-5454
MI	St. Joseph, Robert O. Whitesell	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MS	Norcross, TRW/ECG	404-447-6154
MO	DeSoto, MIDTEC Assoc.	913-441-6565
MO	St. Louis, John G. Macke Co.	314-432-2830
MT	Salt Lake City, Straube Assoc.	801-263-2640
NE	DeSoto, MIDTEC Assoc.	913-441-6565
NV	Scottsdale, TRW/ECG	602-994-0441
NH	Framingham, TRW/ECG	617-870-0745
NJ	Bala Cynwyd, TRW/ECG	215-667-3400
NJ	Rowayton, TRW/ECG	203-853-4466
NM	Albuquerque, S.W. Sales	505-883-1388
NY	Fairport, TRW/ECG	716-425-3775
NY	Rowayton, TRW/ECG	203-853-4466
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, TRW/ECG	513-521-2290
OH	Cleveland, Robert O. Whitesell	216-447-9020
OH	Columbus, Robert O. Whitesell	614-888-9396
OH	Dayton, Robert O. Whitesell	513-298-9546
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburg, Robert O. Whitesell	412-963-6161
RI	Westborough, TRW/ECG	617-870-0745
SC	Greensboro, TRW/ECG	919-852-4676
SD	Minneapolis, TRW/ECG	612-854-6616
TN	Knoxville, Robert O. Whitesell	615-694-9476
TX	Austin, Technology Sls. Co.	512-346-9940
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, S.W. Sls.	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VT	Westborough, TRW/ECG	617-870-0745
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WV	Dayton, Robert O. Whitesell	513-298-9546
WI	Brookfield, TRW/ECG	414-784-7773
WY	Salt Lake City, Straube Assocs.	801-263-2640
WY	Westminster, Straube Assocs.	303-426-0890
Intl	Rio Piedras, Electronics Sls. Assocs.	809-769-2911
Can	Carleton Place, ONT, Renmark Elctrns. Ltd.	613-257-1490
Can	Toronto, ONT, Renmark Elctrns. Ltd.	416-494-5445

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Hall-Mark Elctrns	205-837-8700
AL	Huntsville, Hamilton-Avnet	205-837-7210
AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Hall-Mark Elctrns.	602-437-1200
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Fisher/Brownell	602-967-1464
AZ	Tempe, Hamilton-Avnet	602-231-5100
CA	Alhambra, Fisher/Brownell	818-289-0255
CA	Anaheim, Pacesetter Elctrns.	714-777-4711
CA	Chatsworth, Arrow Elctrns.	818-701-7500
CA	Chatsworth, Avnet Elctrns.	818-700-2600
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	818-558-2121
CA	El Segundo, Hall-Mark Elctrns.	213-643-9101
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Sacramento, Hamilton-Avnet	916-925-2216
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Fisher/Brownell	619-560-8545
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton-Avnet	619-571-7510
CA	San Jose, Hall-Mark Elctrns.	408-946-0900
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton-Avnet	408-743-3355
CA	Sunnyvale, Pacesetter Elctrns.	408-734-5470
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CO	Englewood, Hamilton-Avnet	303-740-1000
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Hamilton-Avnet	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Altamonte Spring, Pioneer Elctrns.	305-834-9090
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Deerfield Beach, Pioneer Elctrns.	305-428-8877
FL	Orlando, Chip Supp. Co.	305-298-7100
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Winter Park, Hamilton-Avnet	305-628-3888
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton-Avnet	404-447-7507
GA	Norcross, Pioneer Elctrns.	404-448-1711
IL	Bensenville, Hall-Mark Elctrns.	312-806-3800
IL	Bensenville, Hamilton-Avnet	312-860-7700
IL	Elk Grove Vlg., Pioneer Elctrns.	312-437-9680
IL	Elk Grove Vlg., R M Elctrns.	312-364-6122
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Carmel, Hamilton-Avnet	317-844-9333
IN	Indianapolis, Pioneer Elctrns.	317-849-7300
IN	Indianapolis, R M Elctrns.	317-291-7110
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
KS	Overland Park, Hamilton-Avnet	913-888-8900
MD	Columbia, Arrow Elctrns.	301-995-0003
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MD	Columbia, Hamilton-Avnet	301-995-3500
MD	Gaithersburg, Pioneer Elctrns.	301-921-0660
MA	Billerica, Hall-Mark Elctrns.	617-667-0902
MA	Newton, Greene-Shaw Elctrns.	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hamilton-Avnet	617-935-9700
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Hamilton-Avnet	616-243-8805
MI	Livonia, Hamilton-Avnet	313-522-4700
MI	Livonia, Pioneer Elctrns.	313-525-1800
MI	Wyoming, R M Elctrns.	616-531-9300
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Hamilton-Avnet	612-932-0600
MN	Minnetonka, Pioneer Elctrns.	612-935-5444
MO	Earth City, Hamilton-Avnet	314-344-1200
MO	Maryland Hts., Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton-Avnet	609-424-0100
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Hamilton-Avnet	201-575-3390
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Hamilton-Avnet	505-765-1500
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Hamilton-Avnet	516-231-9800
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Melville, Arrow Elctrns.	516-694-6800
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Hamilton-Avnet	716-475-9130
NY	Rochester, Rochester Radio Supp.	716-454-7800
NC	Charlotte, Pioneer Elctrns.	704-527-8188
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton-Avnet	919-878-0819
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cleveland, Hamilton-Avnet	216-831-3500
OH	Cleveland, Pioneer Elctrns.	216-587-3600
OH	Dayton, Hamilton-Avnet	513-439-6700
OH	Dayton, Pioneer Elctrns.	513-237-9900
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Quality Comps.	918-664-8812
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Hamilton-Avnet	503-635-8157
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Pioneer Elctrns.	412-782-2300
TX	Addison, Quality Comps.	214-733-4300
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hamilton-Avnet	512-837-8911
TX	Austin, Pioneer Elctrns.	512-835-4000
TX	Austin, Quality Comps.	512-835-0220
TX	Dallas, Hall-Mark Elctrns.	214-553-4300
TX	Dallas, Intl. Elctrns.	214-233-9323
TX	Dallas, Pioneer Elctrns.	214-386-7300
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Hamilton-Avnet	713-780-1771
TX	Houston, Pioneer Elctrns.	713-988-5555
TX	Irving, Hamilton-Avnet	214-659-4111
TX	Richardson, Fisher/Brown	214-235-3177
TX	Sugarland, Quality Comps.	713-240-2255
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton-Avnet	801-972-2800
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Arrow Elctrns.	206-653-4800
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, Hamilton-Avnet	206-643-3950
WI	New Berlin, Classic Comps.	414-786-5300
WI	New Berlin, Hall-Mark Elctrns.	414-797-7844
WI	New Berlin, Hamilton-Avnet	414-784-4510
WI	Oak Creek, Arrow Elctrns.	414-764-6600
Can	Calgary, Future Elctrns.	403-259-6408
Can	Calgary, Alberta, Hamilton-Avnet	403-230-3586
Can	Edmonton, Future Elctrns.	403-486-0974
Can	Mississauga, Ontario, Hamilton-Avnet	416-677-7432
Can	Nepean, Ontario, Hamilton-Avnet	613-226-1700
Can	Ottawa, Future Elctrns.	613-820-8313
Can	Pointe Clair, Quebec, Future Elctrns.	514-694-7710
Can	St. Laurent, Quebec, Hamilton-Avnet	514-331-6443
Can	Toronto, Future Elctrns.	416-663-5563
Can	Vancouver, Future Elctrns.	604-438-5545
Can	Willowdale, Ontario, Electrosonic	416-494-1555

TRW

TRW RESISTIVE PRODUCTS DIV., TRW Electronic Components Grp., 401 N. Broad St., Philadelphia, PA 19108, Tel: 215-923-8230, TWX: 710-670-3370; Empl.: 600; *Dist. Mgr.:* Hugh Bolen .... **A•1954-1957**

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, TRW/ECG	213-535-6175
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, TRW/ECG	619-279-3990

CA	Santa Ana, TRW/ECG	714-550-1101
CA	Woodland Hills, TRW/ECG	818-703-1771
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MD	Columbia, TRW/ECG	301-964-9110
MA	Westborough, TRW/ECG	617-870-0745
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, Jack Macke Co.	314-432-2830
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Portland, TRW/ECG	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, Technlg. Sls. Co.	512-345-2331
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, S. W. Sales	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-1996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Tempe, Arrow Electronics	602-968-4800
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Fisher Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet	602-231-5100
CA	Alhambra, Fisher Brownell	818-289-0255
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, Avnet Elctrns.	818-700-2600
CA	Chatsworth, Hamilton Electro Sls.	818-700-6500
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls.	712-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	Gardena, Bell Inds.	213-515-1800
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Hayward, Arrow Elctrns.	415-487-4600
CA	Ontario, Hamilton/Avnet	714-989-4602
CA	Sacramento, Arrow Electronics	916-925-7456
CA	Sacramento, Hamilton/Avnet	916-925-2216
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Fisher Brownell	619-560-8545
CA	San Diego, Hamilton/Avnet	619-571-7510
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton/Avnet	408-743-3355
CA	Tustin, Arrow Electronics	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Englewood, Hamilton/Avnet	303-779-9998
CT	Danbury, Hamilton/Avnet	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
CT	Wallingford, Midan Elctrns.	203-265-2077
FL	Clearwater, Arrow Elctrns.	813-576-8995
FL	Deerfield Beach, Arrow Elctrns.	305-429-8200
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Tampa, Impala Elctrns.	813-885-4747
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hamilton/Avnet	404-447-7507
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Bell Inds.	312-640-1910
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Carmel, Hamilton/Avnet	317-844-9333
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Arrow Elctrns.	319-395-7203
IA	Cedar Rapids, Deeco	319-365-7551
IA	Cedar Rapids, Hamilton/Avnet	319-362-4757
KS	Overland Park, Arrow Electrns.	913-642-0592
KS	Overland Park, Hamilton/Avnet	913-888-8900
MD	Columbia, Arrow Elctrns.	301-995-0003
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Wilmington, R.C. Components	617-273-1860
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hamilton/Avnet	617-273-7500
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, R.S. Elctrns.	313-525-1155
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MO	Earth City, Hamilton/Avnet	314-344-1200
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NH	Manchester, Hamilton/Avnet	603-624-9400
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NJ	Hanover, State Elctrns.	201-887-2550
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Mountainside, Enox Resistors	201-654-7600
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NM	Albuquerque, Intl. Elctrns.	915-778-9761
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Hamilton/Avnet	516-231-9800
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Hamilton/Avnet	716-475-9130
NY	Rochester, Rochester Radio	716-454-7800
NC	Charlotte, Elctrn. Mktg. Corp.	704-394-6195
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hamilton/Avnet	919-878-0819
NC	Raleigh, Resco/Raleigh	919-781-5700
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Columbus, Arrow Elctrns.	614-885-8362
OH	Columbus, Electronic Mktg.	614-299-4161
OH	Dayton, Arrow Elctrns.	513-435-5563
OH	Dayton, Bell Inds.	513-434-8231
OH	Dayton, Elctrn. Mktg. Corp.	513-439-4711
OH	Dayton, Hamilton/Avnet	513-439-6700
OH	Highland Hgts, Elctrn. Mktg. Corp.	216-442-3441
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Westerville, Hamilton/Avnet	614-882-7004
OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Lake Oswego, Hamilton/Avnet	503-635-8157
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Pittsburgh, Hamilton/Avnet	412-281-4150
PA	Wayne, Peak Elctrns.	215-293-9000
TX	Austin, Arrow Elctrns	512-835-4180
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Carrollton, Arrow Elctrns.	214-380-6464
TX	Dallas, Intl. Elctrns.	214-233-9323
TX	El Paso, Intl. Elctrns.	915-778-9761
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Irving, Hamilton/Avnet	214-659-4100
TX	Richardson, Fisher Brownell	214-235-3177
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Arrow Elctrns.	801-972-0404
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Hamilton/Avnet	206-643-3950
WA	Bellevue, Priebe Elctrns.	206-821-4695
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet	414-784-4510
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TRW, RF Devices Div., 14520 Aviation Blvd., Lawndale, CA 90260, Tel: 213-536-0888, TWX: 910-325-6206; Empl.: 1000; *Dist. Mgr.:* G. Vegvari

TRW UTC TRANSFORMERS, See TRW Inductive Products Div.

TS PRODUCTS, INC., 12455 Branford St., Bldg. 22, Arleta, CA 91331, Tel: 818-896-6676; Empl.: 20; *Sls. Mgr.:* Jon Thomasson; *Dist. Mgr.:* Jon Thomasson .... **D•1990**

Local Sales Offices & Reps

CA	Los Angeles, TS Products, Inc.	818-896-6676
CA	San Marino, Motion Control, Inc.	818-796-0189

TTE

TTE, INC., 11650 W. Olympic Blvd., Los Angeles, CA 90064, Tel: 213-478-8224; FSC No.: 07766; *Sls. Mgr.:* S. J. Sodaro .... **A•1644-1655**

Local Sales Offices & Reps

CA	Culver City, Sodaro	213-478-7733

TTS-TELECOM TERMINAL SYSTEMS, 621 Hindry Ave, Inglewood, CA 90301, Tel: 213-641-8111, Telex: 182405, TWX: 3715831; Empl.: 18; *Sls. Mgr.:* L. Winters

TUCKER ELCTRNS., Box 461966, Garland, TX 75046, Tel: 214-348-8800, 800-527-4642, Telex: 79-1726; Empl.: 51; *Sls. Mgr.:* Clay Aclin

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TURNER DESIGNS, 2247 Old Middlefield Way, Mountain View, CA 94043-2489, Tel: 415-965-9800; Empl.: 16; *Sls. Mgr.:* John Griffin

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Grp.	714-897-0319
CA	Santa Clara, MANCO	408-496-6611
CO	Wheat Ridge, Active Component Tech.	303-422-9229
MD	Baltimore, Rep-Tron, Inc.	301-799-7490
MA	North Reading, Martindale Assocs.	617-942-0514
NY	Fayetteville, Martin P. Andrews	315-637-5291
TX	Addison, Active Component Tech.	214-980-1888
TX	Austin, Active Component Tech.	512-452-5254

TUSONIX

TUSONIX, INC., 7741 N. Business Park Drive, P. O. Box 37144, Tucson, AZ 85740-7144, Tel: 602-744-0400, Telex: 102-299640, TWX: 310-299640; FSC No.: 59660; Empl.: 800; *Sls. Mgr.:* Robert H. Jones; *Dist. Mgr.:* John H. Ohlrich .... **A•1187-1193, 1656-1657**

Local Sales Offices & Reps

AZ	Tucson, Tusonix, Inc.	602-744-0400
CA	N. Hollywood, Tusonix, Inc.	213-509-0449
CA	Redwood City, James S. Heaton Co.	415-367-9000
FL	Winter Park, Tusonix	305-647-2936
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MA	Andover, Richard Purinton, Inc.	617-475-7055
NY	Webster, Tusonix, Inc.	716-671-4073
NC	Greensboro, Tusonix, Inc.	919-292-4286
OR	Portland, Tusonix, Inc.	503-297-1555
TX	Ft. Worth, P.T.I.	817-831-0441

Local Distributors

FL	Ft. Lauderdale, Newark Elctrns.	350-587-2372
IL	Chicago, Newark Elctrns.	312-638-4411
MD	Beltsville, Resco	301-937-9100
MD	White Marsh, Resco	301-529-0500
MN	Minneapolis, Newark Elctrns.	612-331-6350
NY	Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
NY	Melville, Arrow Elctrns.	516-694-6800
NC	Raleigh, Resco	919-781-5700

TUSTIN ELCTRNS. CO., 1431 E. Saint Andrews Pl., Santa Ana, CA 92705, Tel: 714-549-0391; FSC No.: 7025-0010; *Sls. Mgr.:* Saul Tunkelrott

TWP, INC., 2133 4th St., Berkeley, CA 94710, Tel: 415-548-4434, Telex: 171-267; Empl.: 10; *Sls. Mgr.:* R. Moreno

TYCO INSTR. DIV., See Data Instrs.

TYTON CORP., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223, Tel: 414-355-1130, TWX: 910-262-3094; *Sls. Mgr.:* Tom Bednar

UBER GRAFIC INSTRS., Box 4, Palo Alto, CA 94302, Tel: 415-327-4732; Empl.: 2

UCCEL CORPORATION, UCCEL Tower Exchange Park, Dallas, TX 75235, Tel: 214-353-7100, TWX: 910-861-4990; Empl.: 1381 (U.S.) 644 (Foreign)

UCE, INC., 24 Fitch St., Norwalk, CT 06855, Tel: 203-838-7509; Empl.: 20; *Sls. Mgr.:* Richard Eicher

Local Sales Offices & Reps

CA	Fullerton, Electronic Comp. Mkt.	714-879-9460
CA	Mountain View, Leddy Assocs.	415-969-6313
CO	Denver, Butler Tech. Sls.	303-343-3787
IA	Cedar Rapids, Coombs Assocs.	319-362-4116
TX	Richardson, Eagle Mktg.	214-238-5383

UID SWITCHES INC., Sub. of ITW, 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, Telex: 4330130, TWX: 910-221-0275; Empl.: 250; *Sls. Mgr.:* A. Steiner; *Dist. Mgr.:* A. Steiner

ULTRA CARBON, Box X-924, Bay City, MI 48707, Tel: 517-894-2911, TWX: 810-265-1222; Empl.: 200; *Sls. Mgr.:* R. J. Anthony

ULTRAPAR, 90 Liberty Corner Road, Warren, NJ 07060-6709, Tel: 201-647-6650; Empl.: 1; *Sls. Mgr.:* Chris Parkinson

Local Sales Offices & Reps

CT	Northford, Indeco	203-484-0093
GA	Norcross, Alup America	404-446-3614
PA	Wallingford, Eled	215-566-7595
RI	Smithfield, Alcom	401-232-0119

ULTRONIX, INC., P.O. Box 1090, Grand Junction, CO 81502, Tel: 303-242-0810, TWX: 910-929-6965; FSC No.: 05347; Empl.: 260; *Sls. Mgr.:* Gerald Krebill; *Dist. Mgr.:* Gerald Krebill .... **A•1958-1965**

Local Sales Offices & Reps

AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-566-6580
CA	Santa Clara, Westrep	408-988-8833
CO	Denver, West Inc.	303-773-8180
IL	Elk Grove Village, Parcom	312-228-6360
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Parker, S. W. Wollard Co.	913-898-6552
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MN	Minneapolis, S. Clothier Co.	612-944-3456
MO	St. Louis, Abrams & Assoc.	314-569-0447
NJ	Cherry Hill, Danco Corp.	609-424-5590
NM	Albuquerque, West, Inc.	505-822-8901
NY	Jericho, J-Square Mktg.	516-935-3200
NY	Rochester, Apex Assocs.	716-254-6050
TX	Austin, O. M. Sls.	512-452-1838
TX	Houston, O. M. Sls.	713-789-4426
TX	Richardson, O. M. Sls.	214-690-6746
EXP	CT, Stamford, Dage Corp.	203-324-3123

Local Distributors

CA	North Hollywood, T.T.I., Inc.	213-982-0201
CA	San Fernando, Petell Electronics	213-365-3984
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, T.T.I-2	305-859-1000
FL	Tampa, Impala Elctrns.	813-885-4747
MD	Columbia, Azteck Elctrns.	301-995-1760
MA	Burlington, TLC Elctrns.	617-273-0140
MA	Woburn, T.T.I., Inc.	617-938-8800
NY	Farmingdale, SAI, Inc.	516-293-2710
OH	Dayton, Electro-Line	513-461-5683
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Fort Worth, T.T.I., Inc.	800-433-7092
WA	Kent, Shannon Ltd.	206-763-0545

ULVAC NORTH AMERICA, P.O. Box 799, 105 York Street, Kennebunk, ME 04043, Tel: 207-985-2973, Telex: 94-4344, TWX: 510-299-0007; Empl.: 35; *Sls. Mgr.:* Susan Zilaro; *Dist. Mgr.:* Harold Baum

®

ULVECO, INC., 323 Vintage Park Drive, Foster City, CA 94404, Tel: 415-574-1100, TWX: 856446 ULVECO .... **A•2338-2339**

Local Sales Offices & Reps

CA	Foster City, Ulveco, Inc.	415-574-1100
CT	Avon, Ulveco, Inc.	203-678-7711
MI	Detroit, CMP	313-477-7700
NJ	Cherry Hill, Power2	609-424-6737
NY	Rochester, KLM Garner	716-381-8350
NY	Rochester, Ulveco, Inc.	716-381-4673
NY	Syracuse, KLM Garner	315-458-6214
OH	Cleveland, CMP	216-779-5100
OH	Dayton, CMP	513-836-0951
PA	Pittsburgh, CMP	412-372-4415
Can	Toronto, Ont., Stetron Intl.	416-475-6202

UNARCO-ROHN, See UNR-Rohn

UNDERWRITERS SAFETY DEVICE, Allied Amphenol Prods., 7300 W. Wilson Ave., Chicago, IL 60656, Tel: 312-867-4600, TWX: 910-221-3474; Empl.: 200; *Sls. Mgr.:* J. A. VanCura; *Dist. Mgr.:* R. S. Heyne

UNGAR, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005, Tel: 213-774-5950, Telex: 4720750 Eldon; FSC No.: 78976; Empl.: 140; *Sls. Mgr.:* George Mellevold

UNHOLTZ-DICKIE CORP., 6 Brookside Dr., Wallingford, CT 06492, Tel: 203-265-3929, Telex: 643802; Empl.: 49

UNIBOX, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, Tel: 714-686-1400; *Sls. Mgr.:* Roger Orton

UNICO, 3725 Nicholson Rd., Franksville, WI 53126-0505, Tel: 414-886-5678, TWX: 910-271-2385; Empl.: 175; *Sls. Mgr.:* Eric Hogse

UNICORN ENGRG. CO., Membrane Keyboard Div., 6201 Harwood Ave., Oakland, CA 94618, Tel: 415-428-1626; *Sls. Mgr.:* Steve Gensler

UNICORP, 291 Cleveland St., Orange, NJ 07050, Tel: 201-674-1700; FSC No.: 04729; Empl.: 82; *Sls. Mgr.:* B. Levine .... **C•1696**

Local Sales Offices & Reps

AL	Tuscumbia, MSC Corp.	205-383-6850
CA	South Gate, James E. Fitch	213-563-2336
IL	Palatine, Claeson Assocs.	312-359-7230
MA	Shrewsbury, Nordstrom Assocs.	617-842-8646
MI	Farmington, Amtech Rep.	313-474-8300
MN	Bloomington, Termatech	612-854-2001
OH	Centerville, EMA, Inc.	513-433-2800
PA	Media, The Balwin Co.	215-565-6044

UNIDOT, INC., 602 Park Point Dr., Golden, CO 80401, Tel: 303-526-9263, Telex: RCA-296621

UNILATOR TECHNICAL CERAMICS INC., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028-8770, Tel: 213-463-5618, TWX: 910 321-2903; *Sls. Mgr.:* Norman R. Sutherland

UNIMAX SWITCH CORP., Ives Rd., Wallingford, CT 06492, Tel: 203-269-8701, Telex: 96-3485, TWX: 710-476-1397; FSC No.: 80207; Empl.: 300; *Dist. Mgr.:* Neil Gould .... **B•1702**

Local Sales Offices & Reps

AZ	Phoenix, Mercury Engrg. Sls., Inc.	602-244-0123
CA	Brea, MASCO	714-529-0866
CA	Los Altos, Ewing-Foley	415-941-4525
CA	Los Angeles, MASCO	213-295-7781
CO	Englewood, CompuTech Mktg.	303-773-2981
CT	Ansonia, Zaslow Sls.	203-735-9581
CT	Bloomfield, Zaslow Sls.	203-242-7781
FL	Tampa, J. R. Controls	813-961-9478
IL	Lisle, Wasson-Gallagher	312-963-5954
IN	Ft. Wayne, O. H. Bromberg & Assocs.	219-744-1636
KY	Louisville, O. H. Bromberg & Assocs.	502-245-8916
MD	Silver Spring, L. G. White & Co.	301-434-1555
MD	Silver Spring, NKA, Inc.	301-585-6141
MA	Norton, Zaslow Sls.	617-285-3992
MA	Westboro, Zaslow Sls.	617-393-8150
MI	Grosse Pointe Park, Greiner Assocs.	313-499-0188
MN	Minneapolis, Jos-Co. Sls. Engrg.	612-861-3343
MO	St. Louis, Hill & Co.	314-432-1136
NH	Londonderry, Zaslow Sls.	603-432-8907
NJ	West Caldwell, Grimm, Siegel Assocs.	201-575-9300
NY	E. Syracuse, Nycom	315-437-8343
NY	Williamsville, Nycom	
NC	Winston-Salem, L. G. White & Co.	919-725-3612
OH	Cincinnati, O. H. Bromberg & Assocs.	513-771-9333
OH	Dayton, O. H. Bromberg & Assocs.	513-434-8788
OH	Medina, J. C. Hofstetter Co.	216-241-4880
PA	Edgemont, White-Whiddett	215-353-6343
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
SC	Greenville, L. G. White & Co.	803-271-0630
SC	Greenville, Sunbelt Sls.	803-877-0771
TN	Taft, Sunbelt Sls.	615-425-6164
TX	Bedford, W. Pat Fralia Co.	817-267-3577
VA	Richmond, L. G. White & Co.	804-740-7093
WA	Mercer Island, J. H. Andersen	206-232-0484

Local Distributors

AL	Decatur, Forbes Distr. Co.	205-353-4762
AL	Montgomery, Southern Controls	205-277-5030
AK	Anchorage, Alaska Elctrns.	907-563-3774
AZ	Phoenix, Continental Light & Supp.	602-263-6000
AZ	Phoenix, Electro Comps.	602-258-2665
AZ	Tempe, Electronic Supp.	602-258-4769
AR	Fort Smith, Southern Elec.	501-646-5500
CA	Belmont, Arndt Elctrns.	415-592-6718
CA	Belmont, Lo Dan Elctrns.	415-592-4600
CA	Covina, Selecta Switch	213-915-3409, 213-967-4123
CA	Fountain Valley, Components Ctr.	213-582-0667
CA	Gardena, California Switch & Signal	213-538-9830
CA	Inglewood, Newark Elctrns.	213-671-7066
CA	Los Angeles, Master Distrs.	213-829-4656
CA	Riverside, Electronic Supp.	714-683-7300
CA	Sacramento, Dunlap Elctrns.	916-442-5801
CA	San Diego, Electronic Supp.	619-693-8222
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Monica, Master Distrs.	213-452-1229, 213-829-4656
CA	Torrance, Cypress Elctrns.	213-533-6005
CA	Van Nuys, Pacific Switch	213-873-4802
CO	Denver, Fistell's Elec. Supp.	303-629-1312
CO	Denver, Newark Elctrns.	303-757-3351
CO	Wheat Ridge, Cypress	303-431-2622
CT	East Haven, J.V. Elctrns.	203-469-2321
CT	Hartford, Atlantic Switch Controls	203-525-6907
CT	Taftville, Atlantic Switch	203-887-1639
CT	Wallingford, Sager Elect.	203-265-4600
FL	Hialeah, Atlas Elec. Supp.	305-885-8941
FL	Lakeland, Switch Controls	813-644-7564
FL	Largo, Lodan Elctrns.	813-586-2851
FL	Miami, Electronic Equip.	305-871-3500
GA	Macon, Quality Bearing Co.	912-746-5655
IL	Arlington Hgts., Lo Dan Elctrns.	312-398-5311
IL	Carol Stream, Connectrix	312-653-1460, 800-323-9431
IL	Carol Stream, Lectro Comps.	312-690-0520
IL	Chicago, Newark Elctrns.	312-638-4411
IA	West Des Moines, Ramco	515-225-6933
KS	Emporia, Emporia Elec., Inc.	316-342-2965
KY	Louisville, Main Elect. Equip.	502-587-6511
LA	Harvey, AFG Elctrns.	504-368-9696
LA	New Orleans, William B. Allen Supp.	504-525-8222
ME	Portland, Rockingham Elect. Supp.	207-772-4614
MA	Hingham, Sager Elec. Supp.	617-749-6700
MI	Battlecreek, Great Lakes Elctrns.	616-731-4156
MI	Oak Park, Newark Elctrns.	313-967-0600
MI	St. Claire Shores, Specialties Mfg. Co.	313-771-2700
MN	Hopkins, Joel Co.	612-935-6202
MN	Minneapolis, Newark Elctrns.	612-331-6350
MO	Maryland Hgts., Western Extralite	314-432-4560
NH	Nashua, Atlantic Switch	603-732-8500
NH	Salem, Sager Elec.	603-898-1348
NJ	Audubon, Universal Elctrn. Supp.	215-627-4646, 609-547-3430
NJ	Fair Lawn, Relay Specialities	201-797-3313
NJ	Mt. Laurel, Jerseyswitch	609-778-8190
NJ	Paterson, Feldman Bros. Elec. Supp.	201-742-7330
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Geneva, Gersh	315-789-4505
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Sodus, AED Distrs.	315-483-6561
NY	Woodside, Switches Unltd.	212-478-5000
NC	Charlotte, Dixie Elctrns.	704-377-4348
NC	Winston-Salem, Kirkman Elect.	919-722-9131
OH	Cincinnati, Cartessa Corp.	513-385-7700
OH	Cincinnati, Institutional Svc. Parts	513-242-3139
OH	Cincinnati, Rilco	513-474-5400
OH	Columbus, Ohio Switch	614-885-0319
OH	Valley View, Trexon Elctrns.	216-447-1050
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Johnstone	503-231-4833
PA	Allentown, Lehigh Elctrns.	215-433-3045
PA	Drexel Hill, Kass Elctrn. Dist.	215-789-7700
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Pittsburgh, Alder-tronics	412-821-5565
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Dallas, Texaswitch	214-357-1768
TX	Dallas, Watson Elec. Supp. Co.	214-742-8441
TX	Dallas, Wilkinson Bros.	214-941-9963
TX	El Paso, Ideal Indl. Elctrn. Supp.	915-779-6647
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Newark Elctrns.	713-782-4800
TX	San Antonia, Purvis Bearing	512-299-1010
TX	Waco, Hargis Co.	817-754-5667
TX	Waco, Purvis Bearing	817-753-6477
VA	Alexandria, Techn. Distrs.	703-971-8979
VA	Roanoke, Peoples Elctrn. Supp.	703-342-8933
WI	Mequon, Taylor Elec.	414-241-4321
Can	Burlington, Ont., Motion Controls	416-637-9369
Can	Vancouver, B.C., Canadian Dynamics	604-872-8106

EVEREADY ENERGIZER®

UNION CARBIDE CORPORATION

UNION CARBIDE CORPORATION, Battery Prods. Div., 39 Old Ridgebury Road, Danbury, CT 06817-0001, Tel: 203-794-7548 .... **D•1440-1441**

Local Sales Offices & Reps

CA	San Francisco	415-875-2800
CT	Danbury, Military & Govt. App. Only	203-794-7547
GA	Norcross	404-446-2400
IL	Itasca	312-773-3444
NJ	Saddle Brook	201-845-5400
OH	Middleburg Hgts.	216-826-4444
TX	Dallas	214-241-9100

UNION CARBIDE CORP., ELCTRNS. DIV., Component Dept., Box 5928, Greenville, SC 29606, Tel: 803-963-6348, Telex: 57-0496, TWX: 810-287-2536; FSC No.: 31433; *Sls. Mgr.:* Robert Taylor; *Dist. Mgr.:* Dan Manly .... **A•1106-1107**

Refer to Kemet, Union Carbide Corp., Elctrns. Div. for sales office information and for distributor listings.

UNION CARBIDE CORPORATION, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123, Tel: 619-279-4500, Telex: 695-465; Empl.: 125; *Sls. Mgr.:* J. J. Beeman

UNION ETCHANTS INTL., INC., 8-10 Green St., Bldg. G, Woburn, MA 01801, Tel: 617-935-8878

UNIQ DIGITAL TECHNOLOGIES, 28 S. Water Street, Batavia, IL 60510, Tel: 312-879-1008, Telex: 721467; Empl.: 50

UNIQUE OPTICAL CO., Diversified Optical Corp., P.O. Box 585, Farmingdale, NY 11735, Tel: 516-420-0288, TWX: 510-224-6598; Empl.: 20

UNITED CHEMI-CON

UNITED CHEMI-CON INC., 9801 W. Higgins Rd., Rosemont, IL 60018, Tel: 312-696-2000, Telex: 28-3557, TWX: 910-253-2964; Empl.: 50; *Sls. Mgr.:* Dick Keats; *Dist. Mgr.:* Peter Ishu .... **A•1194-1197**

Local Sales Offices & Reps

NJ	Medford, Jack McCoy, Inc.	609-953-0770
AL	Huntsville, R. D. Whitesell	205-883-5110
CA	Culver City, DeAngelo, Rothman Co.	213-827-2202
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs. Mountain States, Inc.	303-426-0890
CT	Connecticut, John E. Boeing	203-723-2355
FL	Altamonte Springs, Semtronic Assocs., Inc.	305-831-8233
FL	Clearwater, Semtronic Assocs., Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs., Inc.	305-731-2484
GA	Norcross, Twentieth Century	404-446-1999
ID	Boise, Cascade Comps., Inc.	208-343-9886
IL	Chicago, M. Gottlieb Assocs.	312-775-1151
IL	Elk Grove Village, John G. Twist Co.	312-593-0200
IN	Fort Wayne, R. O. Whitesell	219-432-5591
IN	Indianapolis, M. Gottlieb Assocs.	314-846-5788
IN	Indianapolis, R. O. Whitesell	317-359-9283
IN	Kokomo, M. Gottlieb Assocs.	317-455-0444
IN	Kokomo, R. O. Whitesell	317-457-9127
KS	Shawnee Mission, Lowell Kangas & Assocs., Inc.	913-631-3515
KY	Louisville, R. D. Whitesell	502-426-7696
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Lexington, John E. Boeing Co., Inc.	617-862-2500
MI	Grand Rapids, R. O. Whitesell	616-942-5420
MI	Southfield, M. Gottlieb Assocs.	313-569-5501
MI	Southfield, R. O. Whitesell	313-559-5454
MI	St. Joseph, R. O. Whitesell	616-983-7337
MN	Bloomington, Twist Co.	612-835-2120
NM	Albuquerque, Straube Assocs. Mountain States, Inc.	303-426-0890
NY	Jamaica, S-J Assocs., Inc.	212-291-3232
NY	New York, Caravan Sls., Corp.	212-734-5800
NY	Pittsford, Franklin Sls. Corp.	716-248-8251
NC	Greensboro, Caravan Sls.	919-294-1500
NC	Raleigh, Tingen Tech Sls., Inc.	919-878-4440
OH	Cincinnati, Makin Assoc.	513-871-2424
OH	Columbus, Makin Assoc.	513-871-2424
OK	Tulsa, ION Assocs., Inc.	918-664-0186
OR	Portland, Earl & Brown	503-245-2283
PA	Dowington, Jack McCoy Inc.	215-363-0350
PA	Pittsburgh, R. O. Whitesell	412-963-6161
TN	Knoxville, M. Gottlieb Assocs.	615-966-1314
TN	Knoxville, R. O. Whitesell	615-694-9476
TX	Austin, ION Assocs., Inc.	512-331-7251
TX	Grand Prairie, ION Assocs., Inc.	214-647-8225
TX	Houston, ION Assocs., Inc.	713-977-4354
UT	Salt Lake City, Straube Assocs. Mountain States, Inc.	801-263-2640
WA	Seattle, Earl & Brown	206-284-1121
WI	Brookfield, Twist Co.	414-782-2670
Can	Oakville, Ont., Haltronics, Ltd.	416-844-2121

Local Distributors

AL	Huntsville, Contact Elctrn. Inc.	205-881-9321
AZ	Tempe, Bell Inds.	602-966-7800
CA	Chatsworth, QC Comps.	818-700-2622
CA	Garden Grove, National Capacitor Corp.	714-892-7749
CA	San Diego, Bell Inds.	619-268-1277
CA	Santa Ana, Nesco	714-541-6181
CA	Santa Ana, Projections Unltd., Inc.	714-621-2323
CA	Van Nuys, Nesco	818-781-0505
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Pawcatuck, Glynn Elctrns.	203-599-5373
FL	Fort Lauderdale, Hammond Elctrns., Inc.	305-973-7103
FL	Tampa, Reptron Elctrns.	813-855-4656, 813-441-2893
GA	Norcross, Hammond Elctrns., Inc.	404-869-2080
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Elk Grove, RM Elctrns.	312-449-1996
IL	Northbrook, Classic Comps. Supp., Inc.	312-272-9650
IN	Indianapolis, Classic Comps.	317-872-4777
IN	Indianapolis, RM Electronics	317-291-7110
IA	Arlington Hgts., Reptron Elctrns.	312-593-7070
MA	Burlington, TLC Elctrns.	617-273-0140/0141
MA	Hopkinton, Interface Elctrns. Corp.	617-435-6858
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Westford, Electronic's Specialties	617-486-8495
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Lavonia, Reptron	313-525-2700
MN	Hopkins, Joel Co.	612-935-6202
NH	Salem, Glynn Elctrns.	603-893-8313
NJ	Clifton, J-Mar Elctrns., Inc.	201-772-6400
NM	Albuquerque, Bell Ind.	505-292-2700
NY	Glen Cove, Jacques Ebert Assocs.	516-671-6123
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Ronkonkoma, Prime Comps.	516-737-1730
NC	Greensboro, Hammond Elctrns., Inc.	919-275-6391
OH	Worthington, Reptron	614-436-6675
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Moore Elctrns.	503-684-3100
PA	Exton, VSH	215-363-2250
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	York, E.C.I.	717-846-5334
SC	Greenville, Hammond Elctrns., Inc.	803-233-4121
TX	Austin, Captronics, Inc.	512-459-4328
TX	Austin, Kent Elctrns.	512-834-1900
TX	Dallas, Captronics, Inc.	214-340-3592
TX	Fort Worth, Patco Supp. Co.	817-429-8596
TX	Houston, Kent Elctrns.	713-780-7770
TX	Richardson, Jaco Elctrns.	214-235-9575
TX	Richardson, Kent Elctrns.	214-669-2600
WA	Bellevue, Bell Inds.	206-747-1515
WI	New Berlin, Classic Comps. Supp., Inc.	414-786-5300
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	New Berlin, RM Elctrns.	414-784-4420
Can	Pointe Claire, Future Elctrns.	514-694-7710
Can	Willowdale, Electro Sonic, Inc.	416-494-1616

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UNITED ELEC. CONTROLS, 85 School St., Watertown, MA 02172, Tel: 617-WA6-1000, Telex: 92 2445; Empl.: 420; *Dist. Mgr.:* Jim Dever

UNITED FOAM PLASTICS, 172 E. Main St., Georgetown, MA 01833, Tel: 617-352-2200, TWX: 710-347-0315; FSC No.: 55900; Empl.: 163

.... **A•1988**

UNITED SOLDER WRAP INC., 2608 Electronic La., Ste 509, Dallas, TX 75220, Tel: 214-350-4978, Telex: 79-1535; Empl.: 80; *Sls. Mgr.:* Perry L. Gross

UNITED STATES CRYSTAL CORP., 3605 McCart St., Fort Worth, TX 76110, Tel: 817-921-3014, TWX: 910-893-4084; FSC No.: 52847; Empl.: 75; *Sls. Mgr.:* Jan Henderson

UNITED STATES SOFTWARE CORP., 5470 N.W. Innisbrook Place, Portland, OR 97229, Tel: 503-645-5043, TWX: 4993875 U S SOFTWARE; *Sls. Mgr.:* Donald L. Dunstan

UNITED STATES TESTING CO., INC., 1415 Park Ave., Hoboken, NJ 07030, Tel: 800-631-3096, 201-792-2400, Telex: 126493, TWX: 219504; FSC No.: 93282; *Sls. Mgr.:* R. Donohue

UNITED TECHNOLOGIES AUTOMOTIVE, 1230 Sabine St., Huntington, IN 46750, Tel: 219-356-2700, Telex: 23-2461, TWX: 810-332-1519; Empl.: 465; *Sls. Mgr.:* R. Michael Gibson

UNITED WIRE & CABLE, 425 Shrewsbury St., Worcester, MA 01604, Tel: 617-757-3872, TWX: 710-340-0635; FSC No.: 51348; Empl.: 10; *Sls. Mgr.:* T. P. Andrews

UNIT INDS., 1140 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-4161; Empl.: 40

UNITRACK DIV., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, Tel: 215-692-0800, TWX: 510-663-0000; Empl.: 25 .... **C•1094**

Local Sales Offices & Reps

AZ	Phoenix, Finn-Pat Co.	602-954-0301
CA	Agoura, Robert A. Borden	818-991-1940
CA	San Jose, Ruby Sls.	408-224-0881
CO	Aurora, Delltron Co.	303-373-0300
FL	Coral Springs, H.A., Inc.	305-752-7520
GA	Atlanta, Magaro & Assocs.	404-451-8862
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
IN	Ft. Wayne, Aktron Corp.	219-747-3650
MA	Northboro, Henik Assocs.	617-393-3127
MI	Kentwood, C.A. Geer Co.	616-534-9449
MN	St. Paul, Countrymen Assocs.	612-645-9151
MO	Blue Springs, Chesco	816-229-1404
NJ	Clinton, Churchill Assocs.	201-735-8971
NY	Larchmont, Hingston Walsh Assocs., Inc.	914-834-5781
NY	Syracuse, Lenard Co.	315-479-9191
OH	Akron, Augnat Assocs.	216-273-1211
PA	Norristown, Rivco January	215-631-1414
TX	Wylie, Air Quip/Robleyco	214-442-3573
MD	Timmonium, Eastern Comps.	301-561-5811
Can	Guelph, Ont., Hammond Mfg. Co., Ltd.	519-822-2960

Local Distributors

CA	Cerritos, El-Com	213-404-2961
CO	Denver, Integrated Elctrns.	303-534-6121
GA	Atlanta, Trans Southern	404-451-4425
MA	Northboro, Papi Supp.	617-393-3127
MA	Winchester, Rush Inds.	617-729-5800
MI	Grand Rapids, S-F Elctrn. Supp. Co.	616-459-0216
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Dayton, Televox, Inc.	513-294-4499
OH	Warren, Rem Elctrns. Supp. Co., Inc.	216-373-1300
PA	Erie, Rem Elctrns. Supp. Co., Inc.	814-453-5625
TX	Wylie, Air Quip/Robleyco	214-442-3573
Can	Guelph, Ont., Hammonds Mfg. Co., Ltd.	519-822-2960

UNITRODE CORP., 5 Forbes Rd., Lexington, MA 02173, Tel: 617-861-6540, Telex: 95-1064, TWX: 710-326-6509; Empl.: 2,000; *Sls. Mgr.:* Frederick Myers; *Dist. Mgr.:* John Flannery .... **A•1697-1699**

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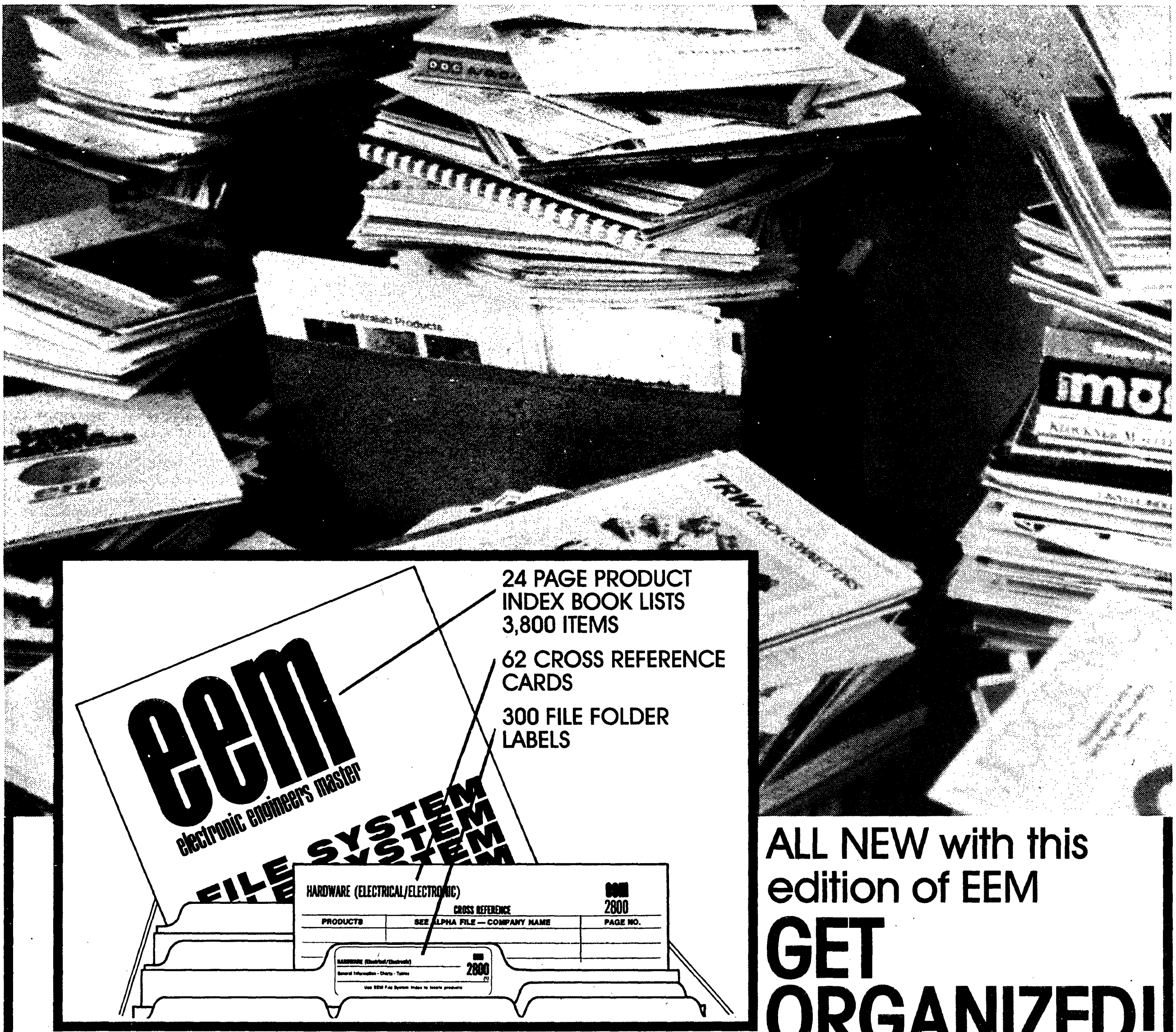
AZ	Phoenix, Compass Mktg. & Sls., Inc.	609-996-0635
AZ	Tucson, Compass Mktg. & Sls., Inc.	602-293-1220
CA	Irvine, Centaur Corp.	714-261-2123
CA	San Diego, Centaur Corp.	619-571-7871
CA	San Jose, Unitrode Corp.	408-294-4210
CA	Santa Ana, Unitrode Corp.	714-261-1546
CA	Santa Clara, I2, Inc.	408-988-3400
CA	Tarzana, Unitrode Corp.	818-705-8085
CA	Woodland Hills, Centaur Corp.	818-704-1655
CO	Denver, Component Sls. Co.	303-779-8060
CO	Littleton, Unitrode Corp.	303-972-2693
CT	Yalesville, Kanan Assocs.	203-265-2404
FL	Clearwater, Delmac Sls., Inc.	813-447-5192
FL	Orlando, Delmac Sls., Inc.	305-898-4688
FL	Palm Bay, Delmac Sls., Inc.	305-724-8377
FL	Talmarac, Delmac Sls., Inc.	305-726-1330
FL	Tampa, Unitrode Corp.	813-932-5807
IL	Arlington Heights, Unitrode Corp.	312-394-5240
IL	Elk Grove Village, Oasis Sls. Corp.	312-640-1850
IN	Carmel, Shamrock Assocs.	317-848-5265
IA	Davenport, Rush & West Assocs.	319-326-3091
KS	Olathe, Rush & West Assocs.	913-764-2700
MD	Columbia, Unitrode Corp.	301-995-0994
MD	Severna Park, New Era Sls., Inc.	301-544-4100
MA	Maynard, Byrne Assocs.	617-897-3131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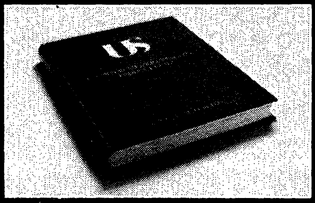

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NY	New Hartford, Reagan/Compar Albany, Inc.	315-732-3775
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OR	Salem, Jas J. Backer Co.	503-362-0717
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TX	Dallas, Unitrode Corp.	214-231-8700
TX	Houston, Sundance Sls., Inc.	713-772-4988
UT	Salt Lake City, Component Sls., Inc.	801-268-8440
WA	Seattle, Jas J. Backer Co.	206-285-1300
WI	Brookfield, Oasis Sls. Corp.	414-782-6660
Can	Concord, Ont., Kaytronics, Ltd.	416-669-2262
Can	Kanata, Ont., Kaytronics, Ltd.	613-592-6606
Can	Quebec, Kaytronics, Ltd.	514-367-0101
Can	Surrey, Kaytronics, Ltd.	604-581-7611

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CA	Sunland, Unitron (Jim Crevier)	818-352-7348
GA	Byron, Unitron (Joe Joiner)	912-956-2866

UNITRONIX CORP., 197 Meister Ave., Somerville, NJ 08876, Tel: 201-231-9400, Telex: 833184; Empl.: 35; *Sls. Mgr.:* Frank Zimmer; *Dist. Mgr.:* Joseph Murawski

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UNIVERSAL CAPACITORS, See TRW/Capacitor Div.

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UNIVERSAL INSTRS., P.O. Box 825, Binghamton, NY 13902, Tel: 607-775-1102, TWX: 510-252-1990; FSC No.: 607-775-5272; Empl.: 2200

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UNIVERSAL MFG. CO., INC., 1168 Grove St., Irvington, NJ 07111, Tel: 201-374-9800, TWX: 710-995-4647; Empl.: 70; *Sls. Mgr.:* M. Mayer

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MN	Minneapolis, R.J. Sls.	612-866-3661
NM	Albuquerque, Fry Gates Co.	505-262-1525
PA	Audubon, Holmes Assocs.	215-666-0636

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UPSYSTEMS, INC., 7801 E. Compton Blvd., Paramount, CA 90723, Tel: 213-634-0621, TWX: 910-346-7814; FSC No.: 3698; *Sls. Mgr.:* Dick Williams .... **D•1973**

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U.S. INSTR. RENTALS, 2988 Campus Dr., San Mateo, CA 94403, Tel: 415-572-6600, Telex: 34 301 USIR SMT; Empl.: 300; *Dist. Mgr.:* Randy Steyer .... **D•1322-1323**

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CA	Burbank, U.S. Instr. Rentals	213-849-5861
CA	San Diego, U.S. Instr. Rentals	619-231-3990
CA	San Mateo, U.S. Instr. Rentals	415-579-0911
CA	Santa Ana, U.S. Instr. Rentals	714-641-9101
CO	Denver, U.S. Instr. Rentals	303-790-0523
CT	Watertown, U.S. Instr Rentals	1-800-526-7563
FL	Orlando, U.S. Instr. Rentals	305-352-0923
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U.S. TERMINALS, 7502 Camargo Rd., Cincinnati, OH 45243, Tel: 513-561-8145, TWX: 810-461-2290; FSC No.: 12615; *Sls. Mgr.:* G.L. Stepp

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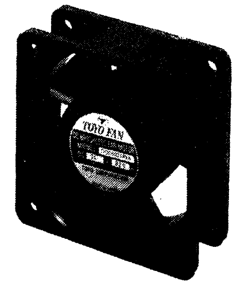
CA	San Gabriel, U.S. Toyo Fan Corp.	213-287-5297
CA	Santa Clara, U.S. Toyo Fan Corp.	408-984-2618
CO	Denver, Troy Sls./Wintronics	303-934-2406
FL	Clearwater, WMM Assocs.	813-442-3913
GA	Marietta, Par Mktg.	404-953-4168
IL	Elk Grove, Martec Assocs.	312-956-8090
KS	DeSoto, Midtec Assocs.	913-441-6565
MA	Westboro, Tech. Mktg. Svcs. Co.	617-366-6655
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Florissant, Midtec Assocs.	314-837-5200
NH	Windham, Tech. Mktg. Svcs. Co.	603-434-2716
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Cooperstown, Fitzelle Assocs.	607-547-9333
NY	Glen Head, Livera-Polk Assocs.	516-759-9300



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OH	Cleveland, Alpha Distr. Corp.	216-526-3716
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NY	Commack, Richman Sls.	516-543-5532
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VALPEY-FISHER, 75 South St, Hopkinton, MA 01748, Tel: 617-435-6831, Telex: 94-8332; Empl.: 160; *Sls. Mgr.:* Donald Elliott

VALTEC, Sub. of U.S. Philips, See ITT Electro-Optical Products

VAMISTOR CORP., 115 Industrial Pk., Sevierville, TN 37862, Tel: 615-453-0001; Telex: 810-570-4931; Empl.: 49; *Sls. Mgr.:* George Hebner; *Dist. Mgr.:* George Hebner .... **A•1967**

Local Distributors

CA	San Fernando, Petell Elctrns., Inc.	818-365-9841
MD	Timonium, Zebra Elctrns., Inc.	
MA	Needham, Cronin Elctrns., Inc.	617-449-5000
NY	Bohemia, Justin Elctrns.	516-589-4000
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hauppauge, Jaco Elctrns.	800-645-5112
NY	Valley Stream, L & S Elctrns., Inc.	516-561-2474

VANGUARD ELCTRNS. CO., 1480 W. 178th St., Gardena, CA 90248, Tel: 213-323-4100, TWX: 910-346-7067; FSC No.: 03550; Empl.: 250; *Sls. Mgr.:* T. A. Crawford; *Dist. Mgr.:* T. A. Crawford

VANGUARD RELAY CORP., 225 Cortland St., Lindenhurst, NY 11757, Tel: 516-226-5000; *Sls. Mgr.:* B. S. Gilman

VANN INSTRUMENTS, 1200 Schofield La., Farmington, NM 87401, Tel: 505-326-7557; *Sls. Mgr.:* Michael E. Vann

VARIAN ASSOCS., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, TWX: 910-373-1731; Empl.: 1500

VARIAN ASSOCS., Instr. Grp., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, TWX: 910-373-1731

varian

VARIAN ASSOCIATES, INC., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, Telex: 910-373-1731; Empl.: 16,000; *Sls. Mgr.:* Dominic Ruggieri

Local Sales Offices & Reps

CA	Covina, Varian Electron Dvc. Grp.	213-967-3834
AL	Huntsville, Varian Electron Dvc. Grp.	205-837-9225
CA	Palo Alto, Varian Assocs. Image Tube Div.	415-493-1800
CA	Palo Alto, Varian Assocs. Microwave Tube Div.	415-493-4000
CA	Palo Alto, Varian Electron Dvc. Grp.	415-424-6400
CA	San Carlos, Varian Assocs., Electron Dvc. Grp.	415-592-1221
CA	Santa Clara, Varian Assoc, Solid State Microwave Div.	408-988-1331
CA	Santa Clara, Varian Electron Dvc. Grp.	408-496-6273
FL	Clearwater, Varian Electron Dvc. Grp.	813-446-8513
GA	Warner Robins, Varian Electron Dvc. Grp.	912-922-2202
IL	Park Ridge, Varian Electron Dvc. Grp.	312-825-6686
IN	Bloomington, Varian Electron Dvc. Grp.	812-334-9900
MD	Linthicum, Varian Electron Dvc. Grp.	301-850-5010
MA	Beverly, Varian Assocs., Beverly Div.	617-922-6000
MA	Burlington, Varian Electron Dvc. Grp.	617-272-8532
NJ	Cranford, Varian Electron Dvc. Grp.	201-276-9050
NJ	Moorestown, Varian Electron Dvc. Grp.	609-235-6800
OH	Dayton, Varian Electron Dvc. Grp.	513-258-3930
TX	Dallas, Varian Electron Dvc. Grp.	214-235-2385
UT	Salt Lake City, Varian EIMAC Salt Lake City	801-972-5000
VA	Arlington, Varian Electron Dvc. Grp.	703-522-8002

varian

VARIAN CANADA, INC., Microwave Div., 45 River Drive, Georgetown, ON, Canada L7G2J4, Tel: 416-877-0161, Telex: 069-7502, TWX: 610-492-2641; *Sls. Mgr.:* George C. Plhak .... **D•1859-1862**

Local Distributors

AL	Huntsville, Varian Assocs.	205-837-9225
CA	Los Angeles, Varian Assocs.	818-967-3834
CA	Sacramento, Varian Assocs.	916-331-5552
CA	San Francisco, Varian Assocs.	415-424-6400
FL	Clearwater, Varian Assocs.	813-446-8513
GA	Warner Robins, Varian Assocs.	912-922-2202
IL	Chicago, Varian Assocs.	312-825-6686
IN	Bloomington, Varian Assocs.	812-334-9900
MD	Limthicum, Varian Assocs.	301-850-5010
MA	Boston, Varian Assocs.	617-272-8532
NJ	Cranford, Vairan Assocs.	201-276-9050
NY	Syracuse, Varian Assocs.	315-455-2810
OH	Dayton, Varian Assocs.	513-258-3930
PA	Philadelphia, Varian Assocs.	609-235-6800
TX	Dallas, Varian Assocs.	214-235-2385
Can	Ottawa, Varian Assocs.	613-725-9285

VARIAN DATA MACHINES, See Sperry Univac, Mini-Comp. Opers.

VARITRONIX, See VL Electronics

VARO, INC., Electron Devices Div., 2203 W. Walnut St., Garland, TX 75040, Tel: 214-272-3561, TWX: 910-860-5093; FSC No.: 27777;Multiple; Empl.: 250; *Sls. Mgr.:* Lon Hodge

VARO SEMICONDUCTOR, INC., 2800 W. Kingsley Dr., Garland, TX 75046, Tel: 214-271-8511, TWX: 910-860-5178; Empl.: 550; *Sls. Mgr.:* Charlie Merz; *Dist. Mgr.:* Mike Hawkins .... **A•2095**

Local Sales Offices & Reps

AL	Huntsville, Rep, Inc.	205-881-9270
AZ	Scottsdale, SMS & Assocs.	602-998-0831
CA	Los Angeles, Corcoran Assocs.	213-823-4589
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Parker, Technology Mktg. Assocs.	303-841-3435
CT	North Haven, Comp Rep Assocs.	203-269-1145
FL	Orlando, OEM Mktg. Corp.	305-299-1000
GA	Tucker, Rep, Inc.	404-938-4358
IL	Northbrook, D. Dolin Sales Co.	312-498-6770
IN	Frankfort, C-S Electronic Sls.	317-659-1874
IA	Cedar Rapids, D. Dolin Sls. Co.	319-395-9094
KS	Overland Park, Electri-Rep	913-649-2168
MD	Towson, DG Representatives	301-583-1360
MA	Westwood, Comp Rep Assocs.	617-329-3454
MI	Farmington, Amtech Reps.	313-474-8300
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, Electri-Rep	314-878-8209
NY	Franklin Square, Cooper-Simon & Co.	516-489-0404
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NC	Charlotte, Rep, Inc.	704-563-5554
NC	Raleigh, Rep, Inc.	919-851-3007
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OK	Tulsa, Ammon & Rizos Co.	918-663-8788
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Feasterville, Knowles Assocs.	215-322-7100
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
TN	Jefferson City, Rep, Inc.	615-475-4105
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-644-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Technology Mktg. Assocs.	801-483-1009
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Tech. Sls.	509-922-7600
WI	Milwaukee, D. Dolin Sales Co.	414-482-1111

Local Distributors

AL	Huntsville, Resistacap	205-883-4270
AZ	Tempe, Anthem Elctrns.	602-966-6600
AZ	Tempe, Bell Inds.	602-966-7800
CA	Chatsworth, Anthem Elctrns.	818-700-1000
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Hayward, Allied Elctrns.	415-487-5250
CA	San Diego, Anthem Elctrns.	619-453-9005
CA	San Diego, Bell Inds.	619-268-1277
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Thousand Oaks, Bell Inds.	805-499-6821
CA	Tustin, Anthem Elctrns.	714-730-8000
CO	Denver, Integrated	303-292-6121
CO	Wheat Ridge, Bell Inds.	303-424-1985
CT	Cheshire, Time Elctrns.	203-271-3200
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Winterpark, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
IL	Bensonville, Milgray Elctrns.	312-350-0490
IL	Chicago, Bell Inds.	312-982-9210
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elk Grove Village, Pioneer Std.	312-437-9680
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer	317-849-7300
IA	Cedar Rapids, Deeco	319-365-7551
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Woburn, Time Elctrns.	617-935-8080
MI	Livonia, Pioneer	313-525-1800
MN	Minnetonka, Pioneer Std.	612-935-5444
MO	St. Louis, Time Elctrns.	314-391-6444
NJ	Marlton, Milgray Elctrns.	609-983-5010
NM	Albuquerque, Bell Inds.	505-292-2700

NY	Buffalo, Summit Distrs.	716-887-2800
NY	Farmingdale, Milgray Elctrns.	516-391-3000
NY	Pittsford, Milgray Elctrns.	716-385-9330
NY	Rochester, Summit Distrs.	716-334-8110
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Cleveland, Pioneer Std.	216-587-3600
OH	Dayton, Pioneer Std.	513-236-9900
OH	Dayton, Stotts Friedman	513-298-5555
OK	Tulsa, Altair	918-252-5781
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Pittsburgh, Pioneer Std.	412-782-2300
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Dallas, Pioneer Std.	214-386-7300
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
TX	San Antonio, Sherman Elctrns.	512-224-1004
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Standard Supp.	801-486-3371
WA	Bellevue, Bell Inds.	206-747-1515
WA	Seattle, Priebe Elctrns.	206-821-4695
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Waukesha, Bell Inds.	414-547-8879

VARTA BATTERIES, INC., 300 Executive Blvd., Elmsford, NY 10523, Tel: 914-592-2500, Telex: 996-548; *Sls. Mgr.:* Dominick Isola .... **D•1442**

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	404-446-1999
CA	Norwalk, Ed Rivers Assocs.	213-868-1471
CO	Denver, Moss Mktg.	303-455-7205
FL	Fern Park, EIR, Inc.	305-660-9600
KS	Shawnee Mission, Microtronics	913-262-1444
MI	Brighton, Elctronic Sources	313-227-3598
NY	Glen Head, Livera-Polk	201-377-3239
PA	Broomall, TCA Assocs.	215-353-2022
WA	Bellevue, Gene Stout Assocs.	503-649-9074
Can	Mississauga, Ont., Nikon Power Battery Corp.	

Local Distributors

CA	La Mirada, Energy Devices	213-921-8775
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	Van Nuys, Nesco, Inc.	818-781-0505
GA	Atlanta, Falcon Batteries	404-953-3500
IL	Downers Grove, Telecommunications Dvcs.	312-971-3460
IL	Morton Grove, Power Pak	312-966-6000
MA	Sharon, Adcour	617-784-8123
NJ	Clifton, Engineered Assemblies	201-772-6400
NY	Commack, Brentronics	516-499-5155
TX	Stafford, Southwest Elctrns.	713-491-4900

VECTOR CABLE CO., 555 Industrial Rd., Sugarland, TX 77478, Tel: 713-240-9196

VECTOR ELECTRONIC CO., INC., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, Tel: 818-365-9661, TWX: 910-496-1539; FSC No.: 82893; Empl.: 140; *Sls. Mgr.:* F. L. Hill ....**C•1095, 1098, 1102-1103; D•1103-1104**

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AZ	Phoenix, Dalis Elctrns.	602-275-2626
CA	Buena Park, RPS, Inc.	714-521-5230
CA	Canoga Pk., Sandy's Elec. Supp.	818-346-8353
CA	Chatsworth, Priority I Elctrns.	818-709-5464
CA	Inglewood, Newark Elctrns. Co.	213-671-7066
CA	Mountain View, Abacus Elctrns. Co.	415-961-1500
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-793-1195
CA	Pasadena, Empire Elctrns. Distr.	213-681-2711
CA	Riverside, Elctrn. Supp.	714-787-9220
CA	San Diego, RPS Elctrns.	619-292-5611
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CO	Denver, Electronic Parts-Ragon	303-744-3601
CO	Denver, Newark-Denver Elctrn. Supp.	303-757-3351
CT	Wallingford, Sager Elec.	203-265-4600
FL	Ft. Lauderdale, Powell-Florida Elctrns.	305-972-4300
FL	Miami, Elctrn. Equip.	305-871-3500
GA	Atlanta, Jack Spears Elctrns.	404-237-4531
IL	Chicago, Newark Elctrns. Corp.	312-638-4411
IL	Elgin, Allied Elctrn. Corp.	312-697-8200
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Palatine, Ohm/Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Indianapolis, Graham Elctrn. Supp.	317-634-8202
MD	Baltimore, A S I Elctrns.	301-265-5100
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Lynn, Land Elctrn. Supp.	617-592-2220
MA	Needham, Cronin Elctrns.	617-449-0500
MA	Norwood, Gerber Elctrns.	617-329-2400
MI	Ann Arbor, Wedemeyer Elctrn. Supp.	313-665-8611
MI	Livonia, RS Elctrns.	313-525-1155
MI	Oak Park, Newark - Detroit Elctrns.	313-967-0600
MN	St. Paul, Gopher Elctrns. Co.	612-483-3322
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp. Corp.	402-466-8221
NJ	Camden, General Radio Supp.	609-964-8560
NJ	E. Hanover, State Elctrn. Parts Corp.	201-887-2550
NJ	Kenilworth, Federated Purchaser	201-272-0505
NM	Albuquerque, Elctrn. Parts Co.	505-293-6161
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Broadline Elctrn. Dist.	516-231-4100
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Lynbrook, Peerless Radio Dist.	516-593-2121
NY	Rochester, Rochester Radio Supp. Co.	716-454-7800
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrns. Supp.	216-762-8818
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Hughes Peters Co.	614-294-5351
OH	Dayton, Stotts Friedman Co.	513-298-5555
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Almac Elctrns.	503-629-8090
PA	Drexel Hill, Kass Elctrn. Distr.	215-449-2300
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Pittsburgh, CAM/RPC	412-782-3770
TN	Memphis, Bluff City Distrb. Co.	901-345-9500
TX	Dallas, Harrison Equip.	214-239-2750
TX	Dallas, Whls. Elctrn. Supp.	214-824-3001
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Fort Worth, Whls. Elctrn. Supp.	817-336-0461
TX	Garland, Newark-Dallas Elctrns. Corp.	214-494-5911
WA	Seattle, Almac Elctrns.	206-643-9992
WA	Seattle, Radar Electric Co.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
EXP	CA, Los Angeles, Trans-World Trade	213-476-8406

VECTROL, Division of Westinghouse Elec. Corp., 110 Douglas Rd, Oldsmar, FL 33557, Tel: 813-855-4621, Telex: 803784; Empl.: 120; *Sls. Mgr.:* G. Lierman

VECTRONICS MICROWAVE CORP., 276 Lincoln Blvd., Middlesex, NJ 08846, Tel: 201-356-2377, Telex: 833560; FSC No.: 32846; *Sls. Mgr.:* John G. Vogler

VECTRON LABS., 166 Glover Ave., Norwalk, CT 06850, Tel: 203-853-4433, TWX: 710-468-3796; FSC No.: 27802; Empl.: 325; *Sls. Mgr.:* Larry Jawitz .... **A•1450-1454**

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Glendale, Fetty/Schoenduve	602-241-9009
CA	El Segundo, Fetty/Schoenduve	213-322-4991
CA	Mountain View, Fetty/Schoenduve	415-962-8330
CA	San Diego, Fetty/Schoenduve	619-292-5136
CO	Parker, Techn. Mktg. Assocs.	303-841-3435
CT	Cheshire, Meco	800-225-3409
FL	Melbourne, Saber Assocs.	800-432-6288
FL	Pensacola, Saber Assocs.	800-327-0853
GA	Norcross, Saber Assocs.	800-327-0853
IL	Bannockburn, Heth, Inc.	312-295-8440
IN	Indianapolis, Ihrig Assocs.	317-783-7630
KS	OLATHE, C-Tron, Inc.	913-829-0073
AR	Hot Springs, Automation Supp.	501-767-5444
MA	Reading, Meco	617-944-6660
MI	Detroit, R. P. Urban Assocs.	313-535-2355
MI	Grand Rapids, R. P. Urban Assocs.	616-245-0511
MN	Burnsville, Allied Comp. Reps.	612-435-7876
KS	Olathe, C-Tron	913-829-0073
NJ	Woodcliff Lake, J. Freid & Assocs.	201-391-6792
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NY	Great Neck, F & F Metro	516-482-4080
NY	Syracuse, Rep Tech	315-437-2845
NC	Clayton, Saber Assocs.	800-327-0853
OH	Englewood, A. Nace Co.	513-836-0931
OH	Richfield, A. Nace Co.	216-659-7178
PA	Allison Park, A. Nace Co.	412-487-1217
PA	Newtown Sq., SWR Assocs.	215-356-8550
TX	Dallas, Texas Avionics	214-363-6324
UT	Salt Lake City, Techn. Mktg. Assocs.	801-483-1009
VA	Springfield, Tech-Reps	703-569-6868
WA	Seattle, Datacom	206-285-2525
Can	Montreal, Ont., Soquelec, Ltd.	514-482-6427
Can	Nepean, Que., Soquelec, Ltd.	613-226-1696

VEECO INSTRS. INC., 370 San Aleso Ave., Sunnyvale, CA 94086, Tel: 408-733-3700, TWX: 910-339-9263; Empl.: 95; *Sls. Mgr.:* T. McKee

VEECO INSTRUMENTS INC., Terminal Dr., Plainview, NY 11803, Tel: 516-349-8300; *Sls. Mgr.:* Tony Carrozzo

VEEDER-ROOT, 70 Sargeant St., Hartford, CT 06102, Tel: 203-527-7201, Telex: 9-9219; Empl.: 1200; *Sls. Mgr.:* J. R. Garrison; *Dist. Mgr.:* K. Boyle

VEETRONIX, INC., Sub. Reach Electronics, Box 480, Lexington, NE 68850, Tel: 308-324-4600; Empl.: 25; *Sls. Mgr.:* Robert M. Wallace .... **B•1703**

Local Sales Offices & Reps

CA	Arcadia, Van Gott & Assocs., Inc.	213-445-9728
CA	San Jose, Ruby Sls.	408-224-0881

VEGA PRECISION LABS., 800 Follin La., Vienna, VA 22180, Tel: 703-938-6300, Telex: 89-2521; Empl.: 350; *Sls. Mgr.:* W. E. Kinsley

VELONEX, 560 Robert Ave., Santa Clara, CA 95050, Tel: 408-727-7370, Telex: 756562; Empl.: 60; *Sls. Mgr.:* Customer Service .... **D•1324-1325, 1383**

VELONEX, 560 Robert Ave., Santa Clara, CA 95050, Tel: 408-727-7370, Telex: 756562; Empl.: 45

VEMALINE PRODS. DIV., P.O. Box 6267, Providence, RI 02940, Tel: 401-739-7600, Telex: 927573; FSC No.: 08730; Empl.: 35; *Sls. Mgr.:* Paul Vamvaketis; *Dist. Mgr.:* Paul Vamvaketis

VENABLE INDUSTRIES, INC., 3555 Lomita Blvd., Torrance, CA 90505, Tel: 213-539-2522, Telex: 752421; Empl.: 20; *Sls. Mgr.:* Wayne H. Tuttle; *Dist. Mgr.:* Shelley Scott

VENT-RAK DIV., P.O. Box 39100, Indianapolis, IN 46239-9632, Tel: 317-897-7000, Telex: 27-2169; Empl.: 61; *Sls. Mgr.:* Glenn Feest .... **C•1064-1065**

Local Sales Offices & Reps

AZ	Phoenix, Synder Eng.	602-279-2010
CA	Fullerton, Groh Assocs.	714-738-7105
CA	Mountain View, G. C. Woempner Co.	415-964-5454
CO	Boulder, R. F. Mayo Assocs.	303-499-2155
CT	North Haven, Coakley, Boyd & Abbett	203-481-2828
FL	Maitland, J. Krutek & Assocs.	305-628-4837
FL	North Miami, J. Krutek & Assocs.	305-941-6544
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MO	St. Louis, Lowell-Kangas & Assocs.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, H. G. Richter	201-233-4615
NY	Fayetteville, H. G. Richter	315-637-6713
OH	Cleveland, Electronic Comp., Inc.	216-261-4103
OH	Miamisburg, Electronic Comp., Inc.	513-866-3340
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monteiro & Assocs.	215-345-5855
TX	Austin, Advance Tech. Sls.	512-440-7677
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford & Assocs.	206-866-2001
EXP	IN, Indianapolis, General Devices Co.	317-897-7000

VENUS SCIENTIFIC, INC., 399 Smith St., Farmingdale, NY 11735, Tel: 516-293-4100, TWX: 510-224-6492; Empl.: 450; *Sls. Mgr.:* Mike Maletta .... **D•1863**

Local Sales Offices & Reps

AZ	Scottsdale, Venus Scientific Inc.	602-991-9684
MA	Norwood, MPS Electronics Inc.	617-769-8700

VERBATIM CORP., 323 Soquel Way, Sunnyvale, CA 94086, Tel: 408-245-4400, Telex: 940-692, TWX: 910-339-9381; Empl.: 1800; *Sls. Mgr.:* S.P. Cochran; *Dist. Mgr.:* Earl Liebich

VERMONT AUTOMATION CO., INC., 18 Morse Dr., Essex Junction, VT 05452, Tel: 802-879-7571; Empl.: 7; *Sls. Mgr.:* J. Littlefield

VERMONT PRECISION RESISTOR, Codeco Corp. of Vermont, Box 1170, Stowe, VT 05672, Tel: 802-253-8567; Empl.: 8

VERMONT RESCH. CORP., Precision Pk., N. Springfield, VT 05150, Tel: 802-886-2256, TWX: 710-363-6533; Empl.: 175; *Sls. Mgr.:* Richard Simmons

VERNAY LABORATORIES, INC., S. College St., Yellow Springs, OH 45387, Tel: 513-767-7261; Empl.: 600; *Sls. Mgr.:* Alex Le Pera

VERNITECH
DIVISION

VERNITECH, 300 Marcus Blvd., Deer Pk., NY 11729, Tel: 516-586-5100, TWX: 510-227-6079; FSC No.: 30223; Empl.: 300; *Sls. Mgr.:* S. Wexler .... **A•2048-2049; B•1011, 1196-1197, 1830-1831; D•1991**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-883-9260
AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Parker, Techn. Mktg. Assocs.	303-841-3435
CT	Cheshire, Selmark Assocs.	203-272-8764
FL	Orlando, E.P.M. Corp.	305-425-6149
GA	Atlanta, Remco	404-447-6937
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
IA	Cedar Rapids, Dytronix	319-377-8275
MD	Baltimore, R.P. Luce & Co.	301-752-8200
MA	Millis, Selmark Assocs.	617-376-2914
MA	Norwell, Bordewieck Eng. Sls.	617-659-4915
MN	St. Paul, Vikeland Sls.	612-645-4747
MO	Bridgeton, Dytronix	314-731-5799
MO	Independence, Dytronix	816-373-6600
NH	Concord, Selmark Assocs.	603-623-5774
NM	Albuquerque, Technology Mktg.	505-265-5661
NY	Endicott, Tech-Mark	607-748-7473
NY	Melville, Comtronic Engrg. Sls.	516-249-0505
NY	Pittsford, Net Sls. Co.	716-467-4538
NC	Raleigh, Remco	919-847-5079
OH	Dayton, George Lessis	513-294-1551
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Dayton, Rixan Assocs.	513-278-4216
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, Halbar Assocs.	503-226-0451
PA	Philadelphia, R.P. Luce & Co.	215-884-8365
TX	Bellaire, Seaton Corp.	713-731-2649
TX	Dallas, Seaton Corp.	214-380-0414
UT	Sandy, TMA, Inc.	801-254-6410
VA	Powhatan, R.P. Luce & Co.	804-598-4804
WA	Redmond, Halbar Assocs.	206-882-0990
WA	Seattle, G.M. Gillette & Assocs.	206-284-3344
WA	Vancouver, Halbar Assocs.	206-696-0170

VERNITRON CORP., Control Comps. Div., 1601 Precision Park La., San Diego, CA 92073, Tel: 619-428-5581, TWX: 910-322-1862; FSC No.: 10112; *Sls. Mgr.:* S. J. Rado .... **B•1199-1202**

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	818-246-8263
CA	Santa Clara, Comtronics	408-773-9800
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Orlando, Mackay Smith & Assocs.	305-423-4353
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
MA	Burlington, Kitchen & Kutchin	617-229-2660
MN	Minneapolis, SMC	612-545-3618
NJ	Cherry Hill, Lanson Assocs.	609-424-4670
NJ	Harrington Park, Metro Tech. Sls.	201-768-8495
NY	Fairport, NET Sls.	716-467-4538
NY	Jericho, Metro Tech. Sls.	516-935-3330
OH	Dayton, Rixan Assocs.	513-222-0011
TX	Dallas, Norcom, Inc.	214-386-4888
TX	Houston, Norcom, Inc.	713-778-0392
VA	Fredericksburg, Vernitron	703-752-4499

VERNITRON ELEC. COMPS., See Beau Prods. Div.

VERNITRON PIEZOELECTRIC DIV., 232 Forbes Rd., Bedford, OH 44146-5478, Tel: 216-232-8600, TWX: 810-427-2274; Empl.: 120; *Sls. Mgr.:* William K. Dorn .... **A•1455**

Local Sales Offices & Reps

CA	Fullerton, GRU Assocs.	714-738-0903

VERSALOGIC, 87070 Dukhobar Rd., Eugene, OR 97402, Tel: 503-485-8575

VERTEX INDS., INC., Vertel Div., P.O. Box 1123, 23 Carol St., Clifton, NJ 07014, Tel: 201-472-1331, TWX: 710-989-7021; Empl.: 85; *Sls. Mgr.:* Ron Byer

Local Sales Offices & Reps

AL	Huntsville, Electrn. Mfgrs. Agts.	205-830-4030
CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
FL	Melbourne, Reynolds & Assocs.	305-259-7000
IL	Elk GRove Village, Quad Data, Inc.	312-228-1722
KS	Shawnee Mission, Panatek	913-362-3349
NJ	Haddonfield, G.L. Williams Assocs.	609-428-6060
NY	New York, Daner Hayes, Inc.	201-889-4515
TX	Dallas, IBL Engrg. & Sls.	214-363-2921
WA	Seattle, SJI Corp.	206-763-8981
Can	Lachine, Quebec, Electrodesign Ltd.	514-636-4838

VERTOX CO., 9252 Garden Grove Blvd. #22, Garden Grove, CA 92644, Tel: 714-530-4541, Telex: 678401 TAB IRIN; FSC No.: 53688; Empl.: 12; *Sls. Mgr.:* Steve Hacker; *Dist. Mgr.:* Steve Hacker

VESTA TECHNOLOGY, INC., 7100 W. 44th Ave. Ste. 101, Wheat Ridge, CO 80033, Tel: 303-759-4988; Empl.: 10

VIABLE SYSTEMS INC., Box 438, Needham, MA 02192, Tel: 617-449-4570; Empl.: 15

VIA WEST INC., 534 N. Stone Ave., Tucson, AZ 85705, Tel: 602-623-5716, Telex: 165025; Empl.: 25; *Sls. Mgr.:* David C. Troupe

VIBRAC, 1 Columbia Dr., Amherst, NH 03031, Tel: 603-882-6777, Telex: 312698 VIBRAC; Empl.: 50; *Sls. Mgr.:* R. Searle

VIBRA-METRICS, 1014 Sherman Ave., Hamden, CT 06514, Tel: 203-288-6158, 1-800-352-2001, TWX: 710-465-0169; Empl.: 25 .... **B•1832**

Local Sales Offices & Reps

CA	Long Beach, Saber Enterprises	213-595-5646
CA	Mountain View, Saber Enterprises	415-968-0427
CA	San Diego, Saber Enterprises	619-271-1523
CT	North Haven, International Sls.	203-288-1638
FL	Ft. Lauderdale, Elctrn. Devices & Controls	305-974-2500
IL	Chicago, Comtel-Midwest	312-539-4838
IN	Indianapolis, Comtel Corp.	317-253-1681
IA	Cedar Rapids, Comtel Corp.	319-377-9434
KS	Shawnee Mission, Comtel Corp.	913-722-1030
MI	Southfield, Comtel Instrs.	313-358-2505
MN	Wayzata, Comtel Corp.	612-476-1551
MO	St. Louis, Comtel Corp.	314-428-5508
NH	Chester, Compline	603-887-3515
NJ	Basking Ridge, Blejwas Assocs.	201-221-1440
NY	Baldwinsville, Oshex Assocs., Inc.	315-635-6027
NC	Raleigh, Lee-Carolinas	919-848-8818
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573
OH	Hilliard, Comtel Instrs.	614-876-8305
PA	Pittsburgh, Comtel Instrs.	412-922-5720
TN	Knoxville, Mace Instr. Co.	615-938-3773
TX	Houston, Techsas, Inc.	713-578-3750
UT	West American Fork, Highland Tech. Mktg.	801-756-3744
WI	New Berlin, Comtel Corp.	414-544-6042
Can	Montreal, Que., Predictive Mtce.	514-374-8720
Can	N. Vancouver, B.C., Interworld Elctrns.	604-984-4171

VIBRATION INSTRS. CO., 1614 Orangethorpe Way, Anaheim, CA 92801, Tel: 714-879-6085, Telex: 692433; FSC No.: 32102; Empl.: 21; *Sls. Mgr.:* L. Rothberg

VIBRO-METER CORP., 1 Progress Rd., Billerica, MA 01822-5058, Tel: 617-663-7600, Telex: 948145, TWX: 710-320-1872; FSC No.: 617-667-1944; Empl.: 50; *Sls. Mgr.:* Carl Nicolino

VICKERS INST., INC., Vickers Instruments, P.O. Box 99, Malden, MA 02148, Tel: 617-324-0350, Telex: 949913; Empl.: 20; *Sls. Mgr.:* Phill Truckle

VICLAN, 7373A Engineers Rd., San Diego, CA 92138, Tel: 619-292-1411, TWX: 910-335-1264; FSC No.: 51959; Empl.: 250; *Sls. Mgr.:* Bob Goodman

VICOM SYSTEMS, INC., 2520 Junction Avenue, San Jose, CA 95134, Tel: 408-946-5660, Telex: 171-603; Empl.: 85; *Sls. Mgr.:* R. P. LaJeunesse

VICON INDUSTRIES, INC., 525 Broad Hollow Rd., Melville, NY 11747, Tel: 516-293-2200, Telex: 144581; Empl.: 500; *Sls. Mgr.:* Ronald Klein

VICTOREEN, INC., Component Div., 10101 Woodland Ave., Cleveland, OH 44104, Tel: 216-795-8200, TWX: 810-421-8287 .... **A•1968-1971**

Local Sales Offices & Reps

CA	Santa Cruz, Brenda Costa	408-438-2110
MD	Gaithersburg, Axis Elctrns.	800-368-2815
MA	Boston, Com Serve, Inc.	617-862-3080
OH	Cleveland, Pruitt Energy Sources	216-566-1545
WA	Edmonds, EDCO Sls.	206-776-8922
WA	Edmonton, Edco Sls.	206-776-8922

Local Distributors

MD	Gaithersburg, Axis Elctrns.	800-368-2815
MA	Boston, Com Serve, Inc.	617-969-4905
OH	Cleveland, Pruitt Energy Sources	216-566-1545
WA	Edmonton, Edco Sls. Inc.	206-776-8922

VICTOR ELEC. WIRE & CABLE, 618 Main St., W. Warwick, RI 02893, Tel: 401-821-1700, SALES 401-821-7800, Telex: 952122, TWX: 710-382-1534; Empl.: 900; *Sls. Mgr.:* E. M. Colasanto

VICTOR WIRE & CABLE CORP., 3601 Holdrege Ave., Los Angeles, CA 90016, Tel: 213-870-9933; Empl.: 30

VICTORY ENGRG. CORP., Victory Rd., Springfield, NJ 07081, Tel: 201-379-5900, TWX: 710-983-4430; Empl.: 300; *Sls. Mgr.:* J. Bacek

VIDAIRE ELECTRONICS MFG. CORP., P. O. Box 788, Freeport, NY 11520, Tel: 516-623-6696; Empl.: 20

VIDCO, 8323 S.W. Cirrus Drive, Beaverton, OR 97005, Tel: 503-641-1804; Empl.: 8; *Sls. Mgr.:* Bradley Cohen

VIDEO AUTOMATION SYSTEMS, Upper Shad Rd., Pound Ridge, NY 10576, Tel: 914-764-4613; Empl.: 5

VIDEO LOGIC CORP., 597 No. Mathilda Ave., Sunnyvale, CA 94086, Tel: 408-245-8622, Telex: 35-7400

VIDEO MONITORS, INC., 3833 N. White Ave., Eau Claire, WI 54703, Tel: 715-834-7785; *Sls. Mgr.:* J. Carpentier

VIDEX INC., 1105 NW Circle Blvd., Corvallis, OR 97330, Tel: 503-758-0521, Telex: 469570

VIKING CASES, 10480 Oak St. N.E., St. Petersburg, FL 33702, Tel: 813-577-1216; *Sls. Mgr.:* Robert D. Stemler

VIKING CONNECTORS, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, Tel: 818-341-4330, TWX: 910-494-2094; FSC No.: 05574; Empl.: 500; *Sls. Mgr.:* Bob Ploudre

VIKING ELECTRONICS, Industrial St., Hudson, WI 54016, Tel: 715-386-8861; Empl.: 24; *Sls. Mgr.:* Bill Wiese

Viking Labs/Honeywell

VIKING LABS/HONEYWELL, Operation of Test Instruments Div. of Honeywell, Inc., 440 Bernardo Ave., Mountain View, CA 94043, Tel: 415-969-5500, TWX: 910-379-6555; Empl.: 140; *Sls. Mgr.:* Jack Eagan, Prod. Reliability; *Dist. Mgr.:* M. J. Marchman, Comp. Test .... **B•1013; D•1327**

Local Sales Offices & Reps

CA	Irvine, Centaur Corp.	714-556-5420
FL	Orlando, Donato & Assocs.	
FL	Palm harbor, Donato & Assocs.	
FL	Tampa, Donato & Assocs.	
MD	Baltimore, Stemler Assocs.	301-944-8262

VILLARREAL ELECTRONICS, Box 43A, RD 2, South Rd., Millbrook, NY 12545, Tel: 914-677-3447

V.I.P. INDS., INC., 246 Knickerbocker Ave., Paterson, NJ 07503, Tel: 201-345-5800; Empl.: 30; *Sls. Mgr.:* John M. Sonatore

VIRGINIA PANEL, 1400 New Hope Rd., Waynesboro, VA 22980, Tel: 703-949-8376, TWX: 710-839-0406; Empl.: 225; *Sls. Mgr.:* Jeff Stowers

VIRGINIA PLASTICS CO., P.O. Box 4577, Roanoke, VA 24015-0577, Tel: 703-985-3811, TWX: 710-870-0440; FSC No.: 59608; Empl.: 120; *Sls. Mgr.:* Charles Bogese; *Dist. Mgr.:* Carl Bump .... **C•1567-1569, 1909-1911**

Local Sales Offices & Reps

AZ	Tempe, General Comps. Grp.	602-829-8124
CA	Granada Hills, C&W Comps.	213-368-4032
CA	San Jose, Pitts Sls. Assocs.	408-252-6177
CO	Parker, Mikro Sls. Co.	303-841-4131
CT	Middletown, Gerber Sls.	204-346-3000
FL	Altamonte Springs, APM Assocs.	305-869-6831
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Merritt Island, APM Assocs.	305-453-4322
FL	Tampa, APM Assocs.	813-886-2457
GA	Stone Mountain, H & H Mktg.	404-296-9830
IL	Palatine, Claeson Assocs.	312-359-7230
MD	Silver Spring, Carwithen Assocs.	301-589-9040
MA	Monson, Gerber Sls.	413-267-5051
MA	Waltham, Gerber Sls.	617-890-3334
MN	Minneapolis, Northstar Comps.	612-553-1888
NJ	Haworth, Kay Sls.	201-384-3261
NY	Syracuse, Canavan-Scanlon Assocs.	315-437-1271
OH	Worthington, Roc Assocs., Inc.	614-885-1057
PA	Southampton, Campbell Assocs.	215-322-6630
TX	Dallas, MGR Elctrns., Inc.	214-238-5246
TX	El Paso, El Paso Elctrn. Comps.	919-593-8481
TX	Houston, AID Elctrns.	713-955-6204

Local Distributors

MN	Minneapolis, K & H Elctrn. Distrbg.	800-328-8515

VIRTIS CO., Rte. 208, Gardiner, NY 12525, Tel: 914-255-5000, Telex: 926474; Empl.: 92; *Sls. Mgr.:* J. D. Schmidt

VISHAY
...to be precise®

VISHAY RESISTIVE SYS. GRP., 63 Lincoln Hwy., Malvern, PA 19355, Tel: 215-644-1300, TWX: 510-668-8944; Empl.: 500; *Dist. Mgr.:* Iris Demeritt .... **A•1972-1985, 2051-2053**

Local Sales Offices & Reps

AL	Huntsville, REMCO	205-533-3763
AZ	Phoenix, Howe & Howe	602-264-7971
CA	Cupertino, Vishay Resistive Sys. Grp.	408-730-1292
CA	Fullerton, Vishay Resistive Sys. Grp.	714-738-1581
CO	Englewood, Comps. Sls. Inc.	303-779-8060
CT	Wallingford, Comp Rep Assocs.	203-269-1145
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.	305-731-2484
GA	Atlanta, REMCO	404-447-6937
ID	Boise, N. R. Schultz Co.	208-377-8686
IL	Rolling Meadows, Eagle Tech. Sls.	312-991-0700
IN	Carmel, Shamrock Elctrn. Sls.	317-848-5265
KS	Shawnee Misson, Technical Sls. Assocs.	913-888-3330
MD	Lutherville, J. A. Dougherty Sls. Co.	301-321-7890
MA	Westwood, Comp Rep Assocs.	617-329-3454
MI	Bloomfield Hills, Enco Mktg.	313-642-0203
MN	St. Paul, Proud Inds.	612-646-9428
MO	Ferguson, Technical Sls. Assocs.	314-725-5361
NJ	Flanders, K & R Engrg. Sls. Co.	201-584-5235
NM	Albuquerque, Compass Mktg. & Sls.	505-888-0800
NY	E. Syracuse, L-Mar Assocs.	315-437-7779
NY	Rochester, L-Mar Assocs.	716-323-1000
NC	Raleigh, REMCO	919-847-5079
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc.	513-433-2800
OR	Beaverton, N. R. Schultz Co.	503-643-1644
PA	Malvern, Vishay Resistive Sys. Grp.	215-644-1300
TX	Houston, Vishay Resistive Sys. Grp.	713-550-0568
UT	Salt Lake City, Component Sls., Inc.	801-268-8440
WA	Bellevue, N. R. Schultz Co.	206-454-0300
WI	Brookfield, Oasis Sls. Corp.	414-782-6660
EXP	Mayaguez, Comp Rep Assocs.	809-832-9529

Local Distributors

AZ	Phoenix, TTI, Inc.	602-966-1616
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Passive Comps., Inc.	818-341-1745
CA	Chatsworth, Shelley Elctrns., Inc.	213-998-3333
CA	Irvine, Hi-Rel Elctrns.	714-768-6656
CA	Los Alamitos, Semi-Dice, Inc.	213-594-4631
CA	San Diego, Shelley Elctrns., Inc.	619-453-7133
CA	San Fernando, Petel Elctrns., Inc.	818-365-9841
CA	San Jose, Shelley Elctrns., Inc.	408-942-9111
CA	San Jose, TTI, Inc.	408-943-9155
CA	Santa Clara, Semi-Dice, Inc.	408-980-9777
CO	Boulder, Shelley Elctrns., Inc.	303-442-2718
FL	Orlando, TTI, Inc.	305-859-1000
FL	Tampa, Impala Elctrns., Inc.	813-885-4747, 800-237-7777
FL	Tampa, Shelley Elctrns.	813-884-0946
GA	Norcross, TTI, Inc.	404-662-0911
ID	Spirit Lake, A-I Elctrns.	208-623-3111
IL	Palatine, Ohm Elctrns.	312-359-5500
MD	Beltsville, RESCO/Washington	301-937-9100
MD	Whitemarsh, RESCO/Baltimore	301-529-0500, 800-638-1242
MA	Canton, Semi-Dice, Inc.	617-821-0070
MA	Framingham, Cavalier Comps., Inc.	617-875-2000
MA	Woburn, TTI, Inc.	617-938-8800
NJ	Fairfield, CHPS, Inc.	201-882-0997
NJ	Flanders, VKR Svcs., Inc.	201-584-5235, 800-631-9362
NY	Bohemia, Justin Elctrns., Inc.	516-589-4000
NY	Bohemia, Shelley Elctrns.	516-567-7751
NY	Bohemia, TTI, Inc.	516-567-1500
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
NY	Hauppauge, Mast Distrs., Inc.	516-273-4422
OH	Cleveland, Specialized & Comps. Sls.	216-464-0404
OH	Dayton, Micro Mil Div.	513-434-8231
PA	Royersford, Hybrid Service Lab	215-948-6880
TX	Carrollton, Ohm Elctrns.	214-620-2230
TX	Fort Worth, TTI, Inc.	817-831-0441
TX	Houston, Texas Comp., Inc.	713-468-3882
WA	Kirkland, Priebe Elctrns.	206-821-4695

VISHAY-MANN SYSTEM, See Vishay Resistive Systems Group

VISHAY ANGSTROHM, 1 Precision Pl., Hagerstown, MD 21740, Tel: 301-739-8722, TWX: 710-853-6834; FSC No.: 17745; Empl.: 250; *Sls. Mgr.:* John Kinnaw; *Dist. Mgr.:* Jeff Reed

VISIONARY ELECTRONICS, 141 Parker Avenue, San Francisco, CA 94118, Tel: 415-751-8811

VISION ENGRG., INC., 570 Danbury Rd., New Milford, CT 06776, Tel: 203-355-3776, Telex: 643769; Empl.: 15; *Sls. Mgr.:* S. Phillips

VISTAR CORP., 13740 McCormick Dr., Tampa, FL 33625, Tel: 813-855-6611, Telex: 522434; Empl.: 20; *Sls. Mgr.:* Ron Rooks

VISUAL COMMUNICATIONS CO., INC., P.O. Box 986, El Segundo, CA 90245, Tel: 213-822-4727; Empl.: 9; *Sls. Mgr.:* J. Savage .... **B•1113-1115**

Local Sales Offices & Reps

AL	Huntsville, Remco	205-553-3763
AZ	Phoenix, Bob Anderson Co.	602-266-2070
CA	Mountain View, Westech Sls.	415-961-1422
CA	San Diego, Harvey King, Inc.	619-566-5252
CA	Torrance, Assoc Reps.	213-328-6708
FL	Boca Raton, Beacon Elctrns.	305-392-3500
GA	Atlanta, Remco	404-447-6937
IL	Elmhurst, Utronix Sls.	312-834-1100
MA	Sharon, Adcour	617-784-8123
MI	Jenison, R. C. Nordstrom & Co.	616-457-5762
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
MN	Eden Prairie, Bohlig & Assocs.	612-944-8404
NY	New York, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
NC	Raleigh, Remco	919-847-5079
OH	Worthington, Dynel Co.	513-434-6467
OK	Tulsa, J. B. Guenther	918-587-3801
OR	Portland, Electronic Mktg. Grp.	206-882-0962
PA	Penndel, Rayco Sls.	215-757-1899
TX	Austin, J. B. Guenther	512-472-3825
TX	Dallas, J. B. Guenther	214-691-8500
TX	Houston, J. B. Guenther	713-974-0383
VA	Fairfax, Beacon No.	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Redmond, Elctrn. Mktg. Grp.	206-882-0962
EXP	CT, Litchfield, Intrade	203-567-5901

Local Distributors

AL	Huntsville, Component Distr.	205-883-7501
AZ	Tempe, Anjon Entprs.	602-894-1332
AR	Little Rock, Component Distr.	501-227-6278
CA	Costa Mesa, Orange County Comps.	714-979-3597
CA	Los Angeles, Electric Switch	213-660-1310
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, WBC Electro Supp.	213-328-6871
CO	Englewood, Industrial Elctrns. Inc.	303-694-9444
FL	Ft. Lauderdale, Component Distr.	305-971-4950
GA	Norcross, Component Distrs.	404-441-3320
MA	Lynn, Land Elctrn. Supp.	617-592-2220
MI	Grand Rapids, S. F. Elctrns. Supp.	616-459-0216
MN	New Brighton, Chris Elctrn. Distr.	612-631-2647
NJ	Bellmawr, Midatlantic Elctrns.	609-931-5303
NY	Elmsford, Ancar Elctrn. Supp.	914-592-7100
NY	Plainview, Plainview Elctrns.	516-249-6677
NC	Raleigh, Component Distr.	919-834-9465
OH	Aurora, IPD	216-562-8113
OH	Centerville, IPD	513-435-2086
TX	Houston, Force Elctrns.	713-772-8483
TX	Irving, Force Elctrns.	214-438-5700
VA	Falls Church, Component Distr.	703-241-8227
WA	Redmond, Paccom	206-883-9200
EXP	CT, Litchfield, Intrade	203-567-5901

VISUAL INFO. INSTITUTE, Box 33, Xenia, OH 45385, Tel: 513-376-4361, Telex: 501031 VIS INFO INST; FSC No.: 27432; Empl.: 45

Local Sales Offices & Reps

CA	San Diego, DRF Assocs.	619-292-9431
CA	San Diego, Perspective Meas.	619-259-8000
CA	San Jose, Fox Marketing	408-984-2221
CO	Bailey, Scientific Sys.	303-838-4615
MA	Clemsford, Meritron Corp.	617-250-1774
NC	High Point, EME, Inc.	919-869-3335
VA	Williamsburg, EME IV, Inc.	804-253-0171

VITEK ELCTRNS., 4 Gladys Ct., Edison, NJ 08817, Tel: 201-287-3200; *Sls. Mgr.:* Joe Griffin

VITRAMON N.A., P. O. Box 544, Bridgeport, CT 06601, Tel: 203-268-6261, TWX: 710-450-3640; Empl.: 606; *Sls. Mgr.:* Paul Davis; *Dist. Mgr.:* S. Judt

VIZ TEST EQUIPMENT, Div. VIZ Mfg., 335 E. Price St., Philadelphia, PA 19144, Tel: 215-844-2626, TWX: 710-670-2626; Empl.: 430 .... **D•1864**

Local Sales Offices & Reps

CA	Laguna Hills, English/Damco Sls. Assocs.	714-837-3801
CA	Sunnyvale, W. W. Posey	408-746-0771
CO	Denver, Mountain Reps.	303-623-0972
FL	Ft. Lauderdale, Unirep, Inc.	305-587-7481
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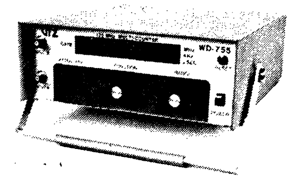

Model WD-755

IL	Park Ridge, Bob Burns & Assocs.	312-775-1233
IN	Zionsville, Midwest Reps. & Assocs.	317-844-4555
MD	Monrovia, K & D Sls.	301-865-5262
MA	Milford, Jonel Sls.	617-478-4650
MI	Ferndale, Hilltronics	313-398-5556
MN	White Bear Lake, Yore Co.	612-770-9760
MO	Raytown, Marty Taraski Sls. Co.	816-358-1442
NJ	Fort Lee, TMC Sls. Corp.	201-944-8340
NY	Grand Island, L. J. McTaggart Assocs.	716-773-9222
OH	Cincinnati, John O. Olson Co.	513-574-7711
OR	Portland, Joseph V. Belusko	503-222-4279
PA	Philadelphia, Instrumentation Spec.	215-742-0898
PA	Pittsburgh, John O. Olson Co.	412-341-8391
TX	Dallas, Crockett Sls. Co.	214-350-3377

VL ELECTRONICS, 2775 Glendower Ave., Los Angeles, CA 90027, Tel: 213-661-8883, Telex: 821554; FSC No.: 95-3896380; Empl.: 6; *Sls. Mgr.:* Christopher Sieh; *Dist. Mgr.:* Christopher Sieh .... **B•1117**

Local Sales Offices & Reps

CA	Los Angeles, KT Elctrns.	714-432-8465
CO	Denver, Andale	303-693-4331
MA	Framington, Bay Colony Reps	617-620-0607

VLSI TECHNOLOGY, INC., 1101 McKay Dr., San Jose, CA 95131, Tel: 408-942-1810, Telex: 278807; Empl.: 450; *Sls. Mgr.:* Ronald C. Kasper

VOICE IDENTIFICATION, Box 714, Somerville, NJ 08876, Tel: 201-526-3408; Empl.: 7

VOICE MACHINE COMMS., INC., KTI, 1000 S. Grand Ave., Santa Ana, CA 92705, Tel: 714-541-0454; *Sls. Mgr.:* Rod Runge; *Dist. Mgr.:* Rod Runge

VOLITION SYSTEMS, P.O. Box 99628, San Diego, CA 92109, Tel: 619-270-6800, Telex: 695241 COMEX SDG; Empl.: 7

VOLTAGE MULTIPLIERS, INC., 8711 W. Roosevelt Ave., Visalia, CA 93291, Tel: 209-651-1402, Telex: 530484; FSC No.: 60211; Empl.: 70; *Sls. Mgr.:* Ken Haag .... **A•2097**

VOLTAMPERE CORP., 146 Horton Ave., Lynbrook, NY 11563, Tel: 516-887-9443; FSC No.: 64196; Empl.: 30; *Sls. Mgr.:* Jesse Stitzer

VOLTARC TUBES, 176 Linwood Ave., Fairfield, CT 06430, Tel: 203-255-2633, Telex: 96-4337; Empl.: 180; *Sls. Mgr.:* Albert H. Katz

VOLTEX, 3460 Great Neck Rd., Amityville, NY 11701, Tel: 516-842-2772; Empl.: 55; *Sls. Mgr.:* S. Vogel ... **D•1865**

Local Sales Offices & Reps

NJ	Oxford, Malin Assocs.	201-689-7398

VOLTRONICS, West St., P.O. Box 476, E. Hanover, NJ 07936, Tel: 201-887-1517, TWX: 710-986-8253; FSC No.: 18736;Multiple; Empl.: 70; *Sls. Mgr.:* Richard J. Newman

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Glendale, Fetty/Schoenduve, Inc.	602-241-9009
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	El Segundo, Fetty/Schoenduve, Inc.	213-322-4991
CA	Mountain View, Fetty/Schoenduve, Inc.	415-962-8330
CA	San Diego, Fetty/Schoenduve, Inc.	619-292-5136
CO	Boulder, Herb Bass Assocs.	303-530-7509
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Palatine, R-Tek Central	312-991-4404
IA	Cedar Rapids, Howard R. Brown Sls.	319-366-0635
KS	Parker, S. W. Wollard Co.	913-898-6552
MD	Mt. Airy, Beacon North	703-591-1300
MD	Randallstown, Beacon North	703-591-1300
MA	Malden, JK Assocs.	617-321-2922
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	St. Louis, Harold Abrams & Assocs.	314-569-0447
NY	Melville, RF Elctrn. Sls. Grp.	516-420-8890
NY	Utica, B. D. Hummel Co.	315-736-7821
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Chesterland, K-T/DEPCO	216-729-3588
PA	Newton Square, SWR Assocs.	215-353-6711
PA	Pittsburgh, K-T/DEPCO	412-367-1011
TX	Dallas, Talo Prod. Inc.	214-644-6010
UT	Bountiful, Herb Bass Assocs.	801-292-8991
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486

VOTAN, 4487 Technology Dr., Fremont, CA 94538, Tel: 415-490-7600; *Sls. Mgr.:* Robert Russo

VOYAGER TECHNOLOGIES, INC., 2250 Cabot Blvd. W. Bldg. 40M, Langhorne, PA 19047, Tel: 215-750-0270; Empl.: 15; *Sls. Mgr.:* Roger J. Peirce

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VRN INTERNATIONAL, Div. Vernitron, 2801 72nd St. N., Box 44000, St. Petersburg, FL 33743, Tel: 813-347-2181, Telex: 6815306, TWX: 310-681-5306; FSC No.: 84048; Empl.: 500; *Sls. Mgr.:* R. Fielder; *Dist. Mgr.:* R. Fielder .... **A•2054-2055; D•1056**

Local Sales Offices & Reps

AZ	Tempe, System Sls. of Az.	602-829-9338
CA	Alhambra, MW Riedel & Co.	213-283-7694
CA	Campbell, Kottmeier Assocs.	408-371-8700
CA	San Diego, M.W. Riedel & Co.	619-272-2359
CO	Englewood, Omega, Ltd.	303-762-1921
CT	Stratford, Gerald Rosen Co.	203-375-5456
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
IL	Downers Grove, Circuit Sls.	312-833-2242
IN	Fort Wayne, Ro Whitesell & Assocs.	219-432-5591
IN	Indianpolis, Ro Whitesell & Assocs.	317-359-9283
IN	Kokomo, Ro Whitesell & Assocs.	317-457-9127
KS	Merriam, MTS	913-236-8557
KY	Louisville, Ro Whitesell & Assocs.	502-426-7696
MA	Framingham, Gerald Rosen Co.	617-879-5505
MI	Grand Rapids, Ro Whitesell & Assocs.	616-942-5420
MI	Southfield, Ro Whitesell & Assocs.	313-559-5454
MI	St. Joseph, Ro Whitesell & Assocs.	616-983-7337
MN	Minneapolis, PSI	612-944-8545
NM	Albuquerque, Sys. Sls. of Alb.	505-881-8877
NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, Mos Assocs.	516-487-3966
NY	Manlius, Quality Comps.	315-682-8885
OH	Cincinnati, Ro Whitesell & Assocs.	513-521-2290
OH	Cleveland, Ro Whitesell & Assocs.	216-447-9020
OH	Columbus, Ro Whitesell & Assocs.	614-888-9396
OH	Dayton, Ro Whitesell & Assocs.	513-298-9546
OK	Broken Arrow, Genzel Sls.	918-258-8656
PA	Broomall, LD Lowery	215-528-5170
PA	Hummelstown, LD Lowery	717-533-7095
PA	Pittsburg, Ro Whitesell & Assocs.	412-963-6161
TX	Dallas, TL Mktg.	214-357-1752
UT	Salt Lake City, Omega, Ltd.	801-277-8061
VA	Charlottesville, LD Lowery	804-973-6672
Can	Rexdale, Ont., Source Elec., Ltd.	613-592-5392

Local Distributors

AR	Little Rock, Carlton-Bates	501-562-9100
CA	Gardena, Bell Inds.	213-515-1800
CA	Manhattan Beach, Prime Electro Prods.	213-772-1724
CA	San Fernando, Petell Elec.	213-365-9841
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Jose, Future	408-945-9100
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Thousand Oaks, Bell Inds.	818-340-1940
CO	Denver, Denver-Wintronics	303-431-7161
CO	West Minster, Future	303-650-0123
CT	Danbury, Future	203-743-9594
CT	Norwalk, Cobra Comps.	203-847-6442
CT	Wallingford, Sager Elctrl. Supp.	203-265-4600
FL	Clearwater, Future	813-441-4771
FL	Ft. Lauderdale, Dielco	305-973-8700
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
FL	Orlando, TTI Inc.	305-849-1000
FL	Tampa, Impala Elctrns.	813-885-4747
GA	Norcross, TTI	404-662-0911
IL	Addison, Lectro Comps.	312-543-1680
IL	Northbrook, Classic	312-272-9650
IN	Indianapolis, Classic	317-872-4777
IA	Cedar Rapids, Deeco	319-365-7551
ME	Woburn, TTI Inc.	617-938-8800
MD	Columbia, Future	301-995-1222
MD	Rockville, M S Elctrns.	301-340-6400
MA	Framingham, NOW	617-872-5876
MA	Hingham, Sager Elctrl. Supp.	617-749-6700
MA	Westboro, Future	617-366-2400
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MN	Minneapolis, Aero-Space	612-884-4725
MN	Minneapolis, Merit Elctrns.	612-546-5383
MO	St. Louis, Olive	314-426-4500
NJ	Berlin, GCI	609-768-6767
NJ	East Hanover, State Elctrns.	201-887-2550
NJ	Mt. Laurel, Future	609-778-7600
NJ	New Brunswick, Brothers Elctrns.	201-238-2200
NJ	Whippany, Tonar Ind.	201-884-1400
NM	Albuquerque, Sterling	505-884-1900
NY	Bohemia, TTI Inc	516-567-1500
NY	E. Syracuse, Add Elctrns. Corp.	315-437-0300
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Fairmont Elec. Sls.	516-231-3313
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Huntington Station, Sherburn Elctrns.	516-231-4300
NY	Liverpool, Future	315-451-2371
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Valley Stream, L & S Elctrns.	516-561-2474
NC	Charlotte, Elctrns. Mktg.	704-394-6195
NC	Raleigh, Southeastern	919-828-2311
OH	Columbus, Elctrns. Mktg.	614-299-4161
OH	Dayton, Bell Micro-Mil	513-434-8231
OK	Tulsa, Radio	918-587-9123
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Philadelphia, TRW Elctrn. Supp.	215-923-8230
PA	Reading, Barbey	215-376-7451
TX	Ft. Worth, TTI Inc.	817-831-0441
TX	Houston, Sterling	713-627-9800
TX	Richardson, Altair	214-231-5166
UT	Salt Lake City, Bell	801-972-6969
UT	Salt Lake City, Future	801-972-8489
VA	Charlottesville, Virginia Radio	804-296-4184
WA	Bellevue, Future	206-881-8199
WA	Seattle, Robert E. Priebe Co.	206-682-8242
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Classic	414-786-5300

VTM MICROWAVES, INC., 4975 W. 80 Ave., Westminster, CO 80030, Tel: 303-426-6866; Empl.: 15

V-TRON ELCTRNS. CORP., 10 Venus Way, P.O. Box 297-S, S. Attleboro, MA 02703, Tel: 617-761-9100; Empl.: 250; *Sls. Mgr.:* Richard E. French

Local Sales Offices & Reps

CA	Cerritos, Don Lumpkin & Assocs.	213-402-4589
CT	Wallingford, Com-Sale	203-269-7964
FL	Juniter, Southern Elctrns. Sls. Corp.	305-744-0028
MA	Waltham, Com-Sale	617-890-0011
NH	Manchester, Com-Sale	603-668-1440
NJ	Haworth, Kay Sls. Assocs.	201-384-3261
TX	Fort Worth, Diversified Comps.	817-249-5818
VA	Portsmouth, FDB Sls. Corp.	804-484-3162

VU-DATA, 7122 Convoy Ct., San Diego, CA 92111, Tel: 619-279-6572, TWX: 910-335-1586; FSC No.: 34160; Empl.: 15

WABASH ELECTRICAL COMPONENTS GROUP, A Kearney-National Co., 1375 Swan Street, Huntington, IN 46750, Tel: 219-356-8300, TWX: 810-333-1533; Empl.: 1000

WABASH RELAY & ELCTRNS., First & Webster Sts., Wabash, IN 46992, Tel: 219-563-2191, TWX: 810-290-2722; Empl.: 250; *Sls. Mgr.:* David L. Snodgrass .... **B•1460-1461**

Local Sales Offices & Reps

	Midtec Assocs., Ltd.	
AL	Huntsville, Hughes Assocs., Inc.	205-533-9108
AZ	Fountain Hills, Halbar Assocs., INc.	602-837-2464
CA	Glendale, Halbar	818-246-8263
CA	San Mateo, Halbar	415-349-4700
CO	Aurora, Mountain View Mktg.	303-699-1665
DE	Medford, Comp. Conslt.	609-654-5300
FL	Altamonte Springs, APM Assocs.	305-869-6831
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Tampa, APM Assocs.	813-886-2457
GA	Huntsville, Hughes Assocs., Inc.	205-533-9108
ID	Redmond, Halbar Assocs., Inc.	206-882-0990
IL	Arlington Hgts., M. J. Petersen Assocs.	312-577-8200
IN	Fort Wayne, M/S Sls.	219-436-3023
KS	De Soto, Midtec Assoc.	913-441-6565
MD	Glen Burnie, Macrotech Assocs., Ltd.	301-437-5588
MA	Andover, Crawford Assocs.	617-470-2122
MI	Novi, Lektronics	313-349-3304
MN	Edina, PWC, Inc.	612-831-5999
MS	Huntsville, Hughes Assocs., Inc.	205-533-9108
MO	Florissant, Midtec Assocs.	314-837-5200
NV	San Mateo, Halbar Assocs., INc.	415-349-4700
NJ	Watchung, Dolan Assocs.	201-753-2671
NM	Fountain Hills, Halbar Assocs., Inc.	602-837-2464

NY	Penfield, Upstate Comp. Sls.	716-381-6070
NC	Raleigh, Tingen Tech. Sls.	919-781-1100
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls.	216-491-9177
OH	Worthington, KW Elctrn. Sls.	614-888-0483
OR	Vancouver, Halbar Assocs., Inc.	206-696-0170
PA	Medford, Comp. Conslts.	609-654-5300
TX	Dallas, Stevens Sls. Co.	214-350-2476
VA	Glen Burnie, Macrotech Assocs., Ltd.	301-437-5588
WA	Redmond, Halbar Assocs., Inc.	206-882-0990
WA	Vancouver, Halbar Assocs., Inc.	206-696-0170

Local Distributors

CA	Fullerton, Pyramid Elctrn. Supp.	714-773-0781
CA	Santa Clara, Pyramid Elctrn. Supp.	408-727-9810
CT	Wallingford, Cronin Elctrns., Inc.	203-265-3134
FL	Palm Bay, Action Elctrns., Inc.	305-725-4920
IL	Elk Grove Village, Nu-Way Elctrn. Distrs.	800-323-7957
MA	Needham, Cronin Elctrns., Inc.	617-449-5000
NH	Salem, Cronin Elctrns., Inc.	603-898-4440
WA	Kent, Pyramid Elctrn. Supp., Inc.	206-872-5800

WABER ELECTRIC, See SL Waber Electric.

THE WADSWORTH ELEC. MFG. CO., INC., 20 W. 11th St., Covington, KY 41012, Tel: 606-431-0900; *Sls. Mgr.:* D. W. Phillips

WAGNER ELECTRIC CORP., Tung-Sol Div., 100 Misty Lane, Parsippany, NJ 07054, Tel: 201-386-9300

WAGO CORP., 6657 N. Sidney Pl., Milwaukee, Wi 53209-3217, Tel: 414-352-1035, Telex: 260123; *Sls. Mgr.:* Michael A. Lane

WAHL INSTRUMENTS, INC., 5750 Hannum Ave., Culver City, CA 90230, Tel: 213-822-6144, TWX: 910-343-6867; Empl.: 48

WALDES KOHINOOR, 47-16 Austel Pl., Long Island City, NY 11101-4478, Tel: 718-392-3100, Telex: 126-829; Empl.: 450

WALDOM ELCTRNS., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629, Tel: 312-585-1212, Telex: 25-4604; FSC No.: 92219; Empl.: 143; *Sls. Mgr.:* E. R. Beutler

WALKER SCIENTIFIC, Rockdale St., Worcester, MA 01606, Tel: 617-852-3674, Telex: 92-0489; Empl.: 83; *Sls. Mgr.:* B. Langley

WALL, A. T., CO., 55 Service Ave., Warwick, RI 02886, Tel: 401-739-0740, TWX: 710-382-1535; Empl.: 75; *Sls. Mgr.:* Carl Gibbs; *Dist. Mgr.:* R. Huntsman

WALL-ABLE MANUFACTURING CORP., 1800 N. Clybourn Ave., Chicago, IL 60614, Tel: 312-440-1000, Telex: 312288; Empl.: 150; *Sls. Mgr.:* Dennis O'Brien .... **C•1570-1571**

Local Sales Offices & Reps

IL	Wheeling, AL&W Sls. Co.	312-541-9080
NY	Dobbs Ferry, L. J. Valle, Inc.	914-693-5089

WALL INDS., 2 Franklin, Lawrence, MA 01840, Tel: 617-688-1287; Empl.: 55; *Sls. Mgr.:* Mark P. Aiello

WALL LENK, Box 3349, Dept. EEM-71, Kinston, NC 28501, Tel: 919-527-4186; Empl.: 60; *Sls. Mgr.:* Richard W. Cooper

WALMOR DATA SYSTEMS, INC., 300 E. Irving Park Rd., Wood Dale, IL 60190, Tel: 312-350-0625; Empl.: 10; *Sls. Mgr.:* Wayne D. Pickette

WAMCO, INC., 11555-A Coley River Cir., Fountain Valley, CA 92708, Tel: 714-545-5560, Telex: 678-459; *Sls. Mgr.:* Gordon R. Calvert; *Dist. Mgr.:* Sheila A. Sherman

WARD LEONARD ELEC., 31 South St., Mt. Vernon, NY 10550, Tel: 914-664-1000, TWX: 710-562-0144; FSC No.: 63743;15109; Empl.: 450; *Dist. Mgr.:* Barry Daly .... **A•1986-1987**

Local Sales Offices & Reps

KY	Louisville, Goldschmidt Elec. Sls.	502-241-0303
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MA	Framingham, KSA of New England	617-235-8940
MN	Edina, Hallock Co.	612-835-7100
NY	Buffalo, Rudell-Merrifield Assoc.	716-634-4300
OH	Cincinnati, Goldschmidt Elec. Sls	513-641-1708
OH	Painesville, Ward Leonard	216-951-2262
OH	Westlake, Assoc. Elec. Comps.	216-835-9960
OK	Tulsa, Hammond Elec.	918-582-4104
OK	Tulsa, Mac's Elec.	918-583-3101
OR	Beaverton, Steve Bryan & Assoc.	503-644-5729
PA	Harrison City, Rudell-Merrifield Assoc.	412-327-0858
PA	Philadelphia, S. K. MacDonald	215-545-1205
TX	Dallas, Ward Leonard	214-458-8511
WA	Federal Way, Ward Leonard	206-941-8888
WA	Spokane, K & N Elec. Motors	509-328-3260
WI	Appleton, Langstadt	414-733-3791

Local Distributors

CA	Emeryville, Beck Elec. Supp.	415-652-5665
CA	Sunnyvale, Independent Elec.	408-732-7101
CT	E. Hartford, R & S Elctrn. Distrs.	203-528-9901
CT	Naugatuck, S.C.R. Electric	203-729-8274
CT	Norwalk, Park Distrs.	203-853-2010
NY	Buffalo, CMH Indl. Sls.	716-684-5250
NY	Buffalo, Glauber & Carpenter	716-681-1234
NY	Rochester, Preferred Elec. Motors	716-342-5080
OH	Cleveland, Fordes Elec. & Control	216-229-4700
OH	Cleveland, Specialized Comp. Sls.	216-464-0405
OH	Columbus, Columbus Elctrn.	614-294-4651
OH	Dayton, Summit Inds.	513-434-8192
PA	Philadelphia, Capital Elctrl. Supp.	215-225-7850
WI	Milwaukee, Hunt Co.	414-383-1781
WI	Milwaukee, Tech. Elec. Co.	414-353-4383

WARREN COMMS., 101 Okner Pkwy., Livingston, NJ 07039, Tel: 201-992-6200, Telex: 139-384, TWX: 710-994-4852; Empl.: 200; *Sls. Mgr.:* William Vandertulip

WARREN-KNIGHT INSTR. CO., Warren Inds., Inc., 2045 Bennett Rd., Philadelphia, PA 19116, Tel: 215-464-9300; Empl.: 50; *Sls. Mgr.:* Richard M. Marron

WAVETEK ROCKLAND SCI., 245 Livingston St., Northvale, NJ 07647, Tel: 201-767-7100, TWX: 710-991-9619; Empl.: 200; *Sls. Mgr.:* Howard Siegerman

WASATCH HIGH VOLTAGE, P.O. Box 9027, Salt Lake City, UT 84109, Tel: 801-265-9561; Empl.: 9; *Sls. Mgr.:* T. J. Bruzenak

WATERS MFG., Longfellow Ctr., Wayland, MA 01778, Tel: 617-358-2777, Telex: 948441; FSC No.: ;Multiple; Empl.: 125; *Sls. Mgr.:* Ralph Pietro

WATKINS-JOHNSON CO., 3333 Hillview Ave., Palo Alto, CA 94304, Tel: 415-493-4141, Telex: 34-8415, TWX: 910-373-1253; FSC No.: 14482; Empl.: 2800

WATKINS-JOHNSON CO., Stewart Div., 440 Mount Herman Road, Scotts Valley, CA 95060, Tel: 408-438-2100

WATT-CLOCK CORP., P.O. Box 697, Stratford, CT 06497, Tel: 203-378-2500; Empl.: 5; *Sls. Mgr.:* M. Dee

WAVECOM, 9036 Winnetka Ave., Northridge, CA 91324, Tel: 818-882-3010, TWX: 910-493-2172; FSC No.: 28979; Empl.: 93

WAVELINE, Box 718, W. Caldwell, NJ 07006, Tel: 201-226-9100, TWX: 710-734-4324; FSC No.: 00443; Empl.: 95; *Sls. Mgr.:* J. F. Harty

WAVETEK INDIANA, INC., 5808 Churchman, Beech Grove, IN 46107, Tel: 317-787-3332, TWX: 810-341-3226; FSC No.: 34280; Empl.: 900; *Sls. Mgr.:* Dick Koerner

WAVETEK ROCKLAND SCIENTIFIC, INC., 10 Volvo Dr., Rockleigh Indl. Pk., Rockleigh, NJ 07647, Tel: 201-767-7900, TWX: 710-991-9852; Empl.: 100

WAVETEK CORPORATION, 9191 Towne Centre Drive, San Diego, CA 92122, Tel: 619-450-9971, TWX: 910-335-2007; Empl.: 1206; *Sls. Mgr.:* Sam Lewis

WAYNE KERR, INC., W.K.R. Ltd., 400 West Cummings Pk., Woburn, MA 01801, Tel: 617-938-8390, Telex: 6817257 WKERR WOBN; *Sls. Mgr.:* Ken Berquist

WAYNE TRANSFORMER CO., INC., 99 Hazel St., Paterson, NJ 07503, Tel: 201-278-7674; *Sls. Mgr.:* Fred Demauro .... **A•2340-2341**

WECKESSER CO. INC., 4444 W. Irving Park Rd., Chicago, IL 60641, Tel: 312-282-8626; Empl.: 90

WEBER, 147 W. Cedan St., Norwalk, CT 06854, Tel: 203-866-8474

WECO

WECO ELECTRICAL CONNECTORS, INC., Rt. 11, Mooers, NY 12958, Tel: 518-298-4810, Telex: 05-821840; Empl.: 15; *Sls. Mgr.:* Heiner Kammann; *Dist. Mgr.:* Heiner Kammann .... **C•1572-1578**

Local Sales Offices & Reps

CO	Englewood, Protronics Grp.	303-781-6050
FL	Coral Springs, HAI Elctrns.	305-752-7520
MI	Brooklyn, Engineered Comps., Inc.	517-592-3236
OH	Cincinnati, Engineered Comps., Inc.	513-471-2949
OR	Portland, SPS Elctrns.	503-297-6919
WA	Redmond, SPS Elctrns.	206-323-4140
Can	Montreal, QC., WECO Elec. Connectors, Inc.	514-457-3640
Can	Rexdale, Ont., WECO Elec. Connectors, Inc.	416-674-1084

Local Distributors

CA	Fullerton, ISI Mktg. Co.	714-773-0411
CA	Santa Clara, Glynn Elctrns., Inc.	408-748-1666
CA	Union City, Interwest Sys., Inc.	415-489-1820
CT	Pawcatuck, Glynn Elctrns., Inc.	203-599-5373
IL	Carol Stream, Lectro Comps.	312-690-0520
MA	Middleboro, Glynn Elctrns., Inc.	617-947-4262
NH	Salem, Glynn Elctrns., Inc.	603-893-8313
NJ	South River, Kon-Tac, Inc.	201-254-5100
WA	Seattle, H.D. Campvelle	206-433-1900
Can	Concord, Ont., Ziereck, Ont.	416-669-1429
Can	Manitoba, Winnepeg, WES Elctrns.	204-632-1260
Can	Mississauga, Ont., Prelco Ltd.	416-678-0401
Can	Montreal, Que., Prelco Ltd.	514-389-8051
Can	Montreal, Que., Taylor Ind. Controls	514-334-5900
Can	Nepean, Ont., Prelco Ltd.	613-726-1800
Can	St. Laurent, Que., De-Taylec, Ltd.	514-331-7460
Can	St. Laurent, Que., Taylor Indl. Controls, Ltd.	514-334-5900

WEED INSTR. CO., INC., 707 Jeffrey Way, P.O. Box 300, Round Rock, TX 78664-0300, Tel: 512-255-7043, Telex: 776492; Empl.: 110; *Sls. Mgr.:* Frank Ofner

WEI CORP., 1405 S. Village Way, Santa Ana, CA 92705, Tel: 714-834-9333, TWX: 910-595-1709; FSC No.: 51272; Empl.: 50; *Sls. Mgr.:* R. H. Thomason

WEIDMULLER TERMINATIONS, 821 Southlake Blvd., Richmond, VA 23236, Tel: 804-794-2877, Telex: 828376; Empl.: 31; *Sls. Mgr.:* James G. Dunn; *Dist. Mgr.:* Mort Gelfand

WEINSCHEL ENGRG., One Weinschel La., Gaithersburg, MD 20877, Tel: 301-948-3434, 800-638-2048, Telex: ITT 440702, TWX: WU 89-8352; FSC No.: 93459; Empl.: 325; *Sls. Mgr.:* Ron Bastien

WELLMAN THERMAL SYS., 1 Progress Rd, Shelbyville, IN 46176, Tel: 317-398-4411, TWX: 810-260-2616; FSC No.: 4S017; Empl.: 600; *Sls. Mgr.:* E. W. Abel; *Dist. Mgr.:* W. L. McNamee

WELLS ELCTRNS., 1701 S. Main St., South Bend, IN 46613, Tel: 219-287-5941, Telex: 25-8325; FSC No.: 219-287-0356; Empl.: 200; *Sls. Mgr.:* Michael Myers .... **C•1580-1587**

Local Sales Offices & Reps

AL	Huntsville, Southeastern Mktg.	205-882-1633
AZ	Scottsdale, Luscombe Engrg. Co.	602-949-9333
CA	Los Angeles, EESCO	818-242-8823
CA	San Jose, Western Indl. Network	408-559-8118
CO	Boulder, Luscombe Engrg. Co.	303-772-3342
CT	Wethersfield, Com/Pak, Inc.	203-563-4784
FL	Lighthouse Point, Jack Krutek & Assocs.	305-941-6544
GA	Atlanta, L & D, Inc.	404-395-7079
IL	Glencoe, Howard Benjamin Assocs. Inc.	312-835-0150
IN	Greenfield, France Entprs., Inc.	317-462-6098
MD	Phoenix, Phoenix Elctrn. Sls.	301-628-2066
MA	Woburn, Com/Pak, Inc.	617-938-8580
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
MN	Minneapolis, RK Sls., Inc.	612-786-5713
MO	St. Louis, Reptronics	314-576-9816
NJ	Berkeley Heights, Cambridge Allen and Assocs.	201-464-0203
NJ	Medford, Component Conslts.	609-654-5300
NY	Syracuse, T-Squared Elctrns. Co., Inc.	315-463-8592
NC	Greensboro, L & D, Inc.	919-292-3201
OR	Tigard, El Tech, Inc.	503-684-3458
TN	Knoxville, L & D, Inc.	615-573-6511
TX	El Paso, EPEC, Inc.	915-593-8481
TX	Irving, AID Elctrns., Inc.	214-790-4761
VA	Centerville, Phoenix Elctrns. Sls.	703-631-2924
WA	Bellevue, El Tech, Inc.	206-643-4330
WI	Colgate, Rep 1 & Assocs.	414-628-4016

Local Distributors

AZ	Tempe, Waltronic Sls.	602-967-1020
CA	Anaheim, A To Z Elctrns., Inc.	714-634-3620
CA	San Jose, Cypress Elctrns., Inc.	408-945-8400
CO	Wheat Ridge, Cypress Elctrns., Inc.	303-431-2622
FL	Pompano Beach, Comps. South	305-971-0350
GA	Atlanta, Prehler Elctrns.	404-447-5540

IL	Chicago, Semiconductor Specialists, Inc.	312-279-1005
IN	Indianapolis, Graham Elctrns.	317-634-8202
MD	Gaithersburg, MS Elctrns., Inc.	301-921-0200
MA	Mendon, Add Elctrn. Corp.	617-429-7945
MI	Southfield, L.S.I. Mktg.	313-474-4400
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	Kansas City, Semiconductor Specialists, Inc.	816-452-3900
NH	Hampstead, Astrum Elctrns.	603-329-5656
NJ	Bellmawr, Mid-Atlantic Elctrns. Corp.	609-931-5303
NJ	Rahway, RSR Elctrns.	201-381-8777
NY	East Syracuse, Add Elctrn. Corp.	315-437-0300
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Ronkonkoma, Prime Comps.	516-737-1730
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OR	Tigard, Moore Elctrns., Inc.	503-684-3100
PA	Pittsburgh, Semiconductor Specialists, Inc.	412-963-7241
TX	Houston, Kent Elctrns., Inc.	713-780-7770
TX	Richardson, Kent Elctrns., Inc.	214-669-2600
WI	Milwaukee, Marsh Elctrns.	414-475-6000

WELTEK INTL., INC., 760 W. Cotter St., South Bend, IN 46613, Tel: 219-232-5400, Telex: 23-3131; Empl.: 28; *Sls. Mgr.:* Tom Gerschoffer

WESCO ELECTRICAL CO., 201 Munson St., Greenfield, MA 01301, Tel: 413-774-4358; FSC No.: 12673; Empl.: 190; *Sls. Mgr.:* James R. DeSanty .... **A•1198-1203**

Local Sales Offices & Reps

CA	Costa Mesa, Electro-Mech Sls. Co.	714-642-2390
CA	La Jolla, Southwest Tech. Sls.	619-454-2034
CA	Santa Clara, Gagner-Toomey Assocs.	408-244-2200
CT	Milford, Cuming Assoc.	203-878-3946
FL	Fern Park, EIR Inc.	305-830-9600
IL	Addison, Banner Tech. Sls.	312-279-6070
IN	Columbus, J. H. Weaver Co.	812-372-3625
MA	Framingham, Bengal Assocs.	617-877-2639
MA	Randolph, Bengal Assocs.	617-961-4120
MN	Bloomington, Electronic Sls. Agcy.	612-884-8291
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Leigh Sls.	919-872-1484
OH	Wickliffe, W. Brauer & Assoc.	216-943-0601
OR	Beaverton, L-D Elctrns.	503-649-6177
PA	Pittsburgh, W. Brauer & Assoc.	412-921-3213
TX	Dallas, Blackburn Assocs.	214-692-8885
WA	Snohomish, L-D Elctrns.	206-568-0511

WESCORP ANTISTATIC PRODS., 144 S. Whisman Rd., Mountain View, CA 94041, Tel: 415-969-7717, Telex: 345507; Empl.: 15; *Sls. Mgr.:* Lourdes Rivera

Local Distributors

MA	Canton, Hub Matls.	617-821-1870

Distributor

WES-GARDE COMPONENTS GROUP, INC., 190 Elliott St., Hartford, CT 06114, Tel: 203-525-6907 .... **B•1698**

WESTAMP, 1542 15th St., Santa Monica, CA 90404, Tel: 213-393-0401, Telex: 3720078; FSC No.: 12745; Empl.: 100; *Sls. Mgr.:* Michael Mula

Local Sales Offices & Reps

CT	Ridgefield, E. S. Williams Co.	203-438-7474
FL	Tampa, Brawley Tech. Sls.	813-251-6816
IL	Libertyville, Westamp	312-680-1979
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Troy, Xanthus	313-528-2000
MN	Minneapolis, Lakeland Engrg. Equip. Co.	612-544-0321
NY	Pittsford, Controlled Motion Prods.	716-381-1933
NY	White Plains, Westamp	914-949-7949
OH	Cincinnati, Dorsey Alexander Assocs.	513-221-7518
PA	Warrendale, Superior Sys.	412-935-5230

WESTBERG MFG., INC., 3400 Westach Way, Sonoma, CA 95476, Tel: 707-938-2121; Empl.: 20; *Sls. Mgr.:* R. R. Westberg

WEST-CAP ARIZONA, Sub. of San Fernando Electric Mftg. Co., 2201 East Elvira Road, Tucson, AZ 85706, Tel: 602-294-2646

WEST COAST ELEC. MFG., 14045 Garfield Ave, Paramount, CA 90723, Tel: 213-633-1010; FSC No.: 81823; Empl.: 25; *Sls. Mgr.:* W. E. Seal

WESTCODE SEMICONDUCTORS, INC., 0-02 Fair Lawn Ave., Fair Lawn, NJ 07410, Tel: 201-791-3020, Telex: 353279; *Sls. Mgr.:* Alan J. Melnyk

WEST DIVISION, Gulton Industries, Inc., 3860 N. River Rd., Schiller Park, IL 60176, Tel: 312-678-6400, Telex: 910-227-0723; Empl.: 400; *Sls. Mgr.:* Williard J. Bell, Jr.; *Dist. Mgr.:* Williard J. Bell, Jr.

WESTEMP CORP., Box 767, Cardiff, CA 92007, Tel: 619-942-9800; Empl.: 20; *Sls. Mgr.:* J. Huston

WESTERN DATACOM, 5083 Market St., Youngstown, OH 44512, Tel: 216-788-6583, Telex: 910-333-8609; Empl.: 15; *Sls. Mgr.:* Carol Zinstine; *Dist. Mgr.:* Carol Zinstine

Local Sales Offices & Reps

CA	Campbell, Data Express	408-371-2788
CA	Costa Mesa, Dalcom Sys.	714-851-8142
CA	Woodland Hills, Dalcom Sys.	213-703-7983
CO	Englewood, Beta Distrs.	303-779-4494
CT	Vernon, IMF Sls. Assocs.	203-643-0187
DC	Edgewater, Commart	301-261-4344
FL	Orlando, COL-INS-CO	305-423-7615
GA	Atlanta, COL-INS-CO	404-491-9395
IL	Downers Grove, ARC Elctrn. Assocs.	312-960-4325
MA	Wakefield, IMF Sls. Assocs.	617-245-8900
MI	Ann Arbor, ARC Elctrn. Assocs.	313-995-1211
MN	Eden Prairie, Scientific Dvcs.	612-944-3515
NJ	Northvale, Glasgal Comm.	201-768-8082
NY	E. Syracuse, Ossman Computer Prods.	315-437-7052
NY	Rochester, Ossman Computer Prods.	716-424-4460
NY	Vestal, Ossman Computer Prods.	607-754-3264
NC	Raleigh, COL-INS-CO	919-848-4006
OH	Cleveland, ARC Elctrn. Assocs.	216-835-8400
OR	Portland, Rush Drake	503-224-3145
PA	Pittsburgh, Applied Delta	609-853-5400
TN	Knoxville, COL-INS-CO	615-546-9016
TX	Houston, Beta Distrs.	713-682-1234
TX	Richardson, Beta Distrs.	214-783-1065
WA	Seattle, Rush Drake	206-454-2383
Can	Ottowa, Tempest Security Integrators	613-226-3227

WESTERN DIGITAL CORP., 2445 McCabe Way, Irvine, CA 92714, Tel: 714-557-3550, TWX: 910-595-1139; *Dist. Mgr.:* Ron Weaver

WESTERN ELECTRIC CO., INC., 222 Broadway, New York, NY 10038, Tel: 212-669-2345

WESTERN ELECTRO. MECH. CO. INC., 300 Broadway, Oakland, CA 94607, Tel: 415-452-1936; Empl.: 9; *Sls. Mgr.:* W. J. Foster

WESTERN ELCTRN. PRODS., 107 Los Molinos, San Clemente, CA 92672, Tel: 714-492-4677; FSC No.: 13988

WESTERN GEAR CORP., Applied Tech. Div., 14724 E. Proctor, City of Industry, CA 91744, Tel: 818-968-6525, TWX: 910-584-4856; Empl.: 1125; *Sls. Mgr.:* D. Waite

WESTERN GRAPHTEC, 12 Chrysler St., Irvine, CA 92718, Tel: 714-770-6010, 800-854-8385

WESTERN MULTIPLEX CORP., 1320 Bayport Avenue, San Carlos, CA 94070, Tel: 415-592-8832, Telex: 295114 VIA RCA; FSC No.: 94-2620670; *Sls. Mgr.:* J. P. Bartelme

WESTERN RESERVE ELCTRNS., 2150 Highland Rd., Twinsburg, OH 44087, Tel: 216-425-4951; Empl.: 45; *Sls. Mgr.:* Robert Rhodes

WESTINGHOUSE ELECTRIC CORP., Aerospace Electrical Div., P.O. Box 989, Lima, OH 45802, Tel: 419-226-3121

WESTINGHOUSE ELECTRIC CORP., Indl. Govt. Tube Div., Westinghouse Circle, Horseheads, NY 14845, Tel: 607-796-3211, Telex: 510-252-1588; Empl.: 700; *Sls. Mgr.:* R. R. Kaemmener

WESTINGHOUSE ELEC. CORP., Lamp Div., Parts Sls., 1 Westghse Plaza, Bloomfield, NJ 07003, Tel: 201-429-3325

WESTINGHOUSE ELEC. CORP., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697, Tel: 412-925-7272, TWX: 510-468-2840; Empl.: 600; *Sls. Mgr.:* R. L. Bonkowski; *Dist. Mgr.:* P. DelPalazzo

Local Sales Offices & Reps

AZ	Tempe, Quatra Assocs.	602-820-7050
CA	Agoura, Westpower Co.	818-706-2550
CA	Laguna Hills, Westpower Co.	714-380-0277
CA	Los Angeles, Westpower Co.	818-579-8230
CA	Mountain View, Westinghouse Elec.	415-949-0610
CA	Santa Clara, Engineering Assoc. Corp.	408•988-5001
CO	Denver, Lindberg Co.	303-758-9033
CT	Madison, HV Engrg.	203-421-4561
FL	Altamonte Springs, Semtronic Assoc.	305-831-8233
FL	Clearwater, Semtronic Assoc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.	305-731-2484
IL	Chicago, L & W Power Corp.	312-852-6464
IA	Cedar Rapids, Dy-Tronix	319-377-8275
KS	Wichita, Dy-Tronix, Inc.	316-838-0884
MD	Laurel, Westinghouse Elect.	301-953-8857
MA	Boston, Westinghouse Elec.	617-237-6950
MA	Monson, Gerber Sls.	413-267-5051
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Plymouth, L & W Power, Corp.	313-455-0480
MN	S. St. Paul, Northport Engrg.	612-457-8000
MO	Bridgeton, Dy-Tronix	314-291-4777
MO	Raytown, Dy-Tronix	816-356-6340
NJ	Basking Ridge, Eastpower Co.	201-766-7886
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Wappingers Falls, Bob Dean, Inc.	914-297-6406
NC	Charlotte, Westinghouse	704-377-7737
OH	Kettering, L & W Power, Corp.	513-293-3482
OH	South Euclid, J.R. Thornberry Co.	216-321-3328
OK	Tulsa, Nova Mktg.	918-743-6202
OR	Tigard, Vantage Corp.	503-620-3280
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
PA	Youngwood, Westinghouse	412-925-7272
TX	Austin, NOVA Mktg.	512-343-2321
TX	Dallas, Nova Mktg.	214-750-6082
TX	Houston, Nova Mktg.	713-988-6082
UT	Salt Lake City, Lindberg Co.	801-467-1794
WA	Bellevue, Vantage Corp.	206-455-3460
WI	Milwaukee, L & W Power Corp.	414-782-0799

WESTLAKE CAPACITORS, INC., 5334 Sterling Center Dr., Westlake Village, CA 91361, Tel: 818-889-4120, TWX: 910-494-4779; Empl.: 210; *Sls. Mgr.:* F. G. Edge; *Dist. Mgr.:* D. Lawrence

WESTON CONTROLS/POTS DIV., Div. Fairchild Weston Sys., Inc., Archbald, PA 18403, Tel: 717-876-1500, Telex: 83-1873, TWX: 510-656-2902; FSC No.: 94271;Multiple; Empl.: 1077; *Sls. Mgr.:* J. Cousins

WESTREX, 1140 Bloomfield Ave., W. Caldwell, NJ 07006, Tel: 201-227-7290, Telex: 64-1490, TWX: 710-734-4323; Empl.: 180; *Sls. Mgr.:* J. C. Murray

WESTREX OEM PRODUCTS, Litton Inds., 51 Penn St., Fall River, MA 02724, Tel: 617-676-1016, Telex: 651490-WNJW, TWX: 710-341-3099; *Sls. Mgr.:* J. C. Murray; *Dist. Mgr.:* Ed Cunnie

WESTRONICS INC. OF TEXAS, 2441 Northeast Pkwy., Box 4619, Ft. Worth, TX 76106, Tel: 817-625-2311, Telex: 75-8273; Empl.: 250; *Sls. Mgr.:* Paul Schultz

WEST-TRONICS, INC., 215 Park St., Bensenville, IL 60106, Tel: 312-860-3560; Empl.: 125; *Sls. Mgr.:* Will Allen

WHEDCO, INC., 6107 Jackson Rd., Ann Arbor, MI 48103, Tel: 313-665-5473; *Sls. Mgr.:* K. V. Chilton

WHEELOCK, INC., 273 Branchport Ave., Long Branch, NJ 07740, Tel: 201-222-6880, TWX: 710-722-6510; Empl.: 200; *Sls. Mgr.:* Harry J. Foster

WHITMOR WIRE & CABLE, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605, Tel: 818-764-6296, Telex: 194479; FSC No.: 15851; Empl.: 29; *Sls. Mgr.:* Michael Weiss; *Dist. Mgr.:* Mark Lee

Local Sales Offices & Reps

CA	Sunnyvale, Wirenetics Co.	408-745-6673

Local Distributors

CA	Sunnyvale, Wirenetics Co.	408-745-6673
CA	Valencia, Wirenetics Co.	805-257-2400

WHITSO, 9326 Byron St., Schiller Pk., IL 60176, Tel: 312-678-5200; Empl.: 200; *Sls. Mgr.:* L. McQuillen

WHITTAKER CORP., 10880 Wilshire Blvd., Los Angeles, CA 90024, Tel: 213-475-9411, Telex: 674891; Empl.: 9,600

WHITTAKER CORP., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502, Tel: 818-843-5770, TWX: 910-498-2751; FSC No.: 72152

WHITTAKER CORP., Providence Chemicals Div., King Philip Rd., P.O. Box 16069, E. Providence, RI 02916, Tel: 401-434-1770, Telex: 92-7652; Empl.: 42

WIDE BAND ENGRG. CO., INC., Box 21652, Phoenix, AZ 85036, Tel: 602-254-1570; Empl.: 10

WIDE RANGE ELCTRNS. CORP., 2119 Schultz Rd., St. Louis, MO 63146, Tel: 314-567-5366, Telex: 44-2560; Empl.: 16; *Sls. Mgr.:* Otto Rauhut

WILBRECHT ELCTRNS., 240 Plato Blvd., St. Paul, MN 55107, Tel: 612-222-2791, TWX: 910-563-3679; Empl.: 300

WILCO

WILCO CORP., 6451 Saguaro Court, Indianapolis, IN 46268, Tel: 317-293-9300 .... **A•1296-1297**

WILCO WIRE & CABLE CO., INC., 1921 Las Plumas Ave., San Jose, CA 95133, Tel: 408-926-8880; Empl.: 28; *Sls. Mgr.:* Joe Shepherd; *Dist. Mgr.:* Ken Schmidt

WILCOXON RESCH., P.O. Box 5798, Bethesda, MD 20814, Tel: 301-770-3790, Telex: 898-342; Empl.: 26; *Sls. Mgr.:* W. Wilcoxon

WILD ROVER, See Refac Elctrns.

WILKINSON, P.O. Box 4558, Westlake Village, CA 91359, Tel: 818-889-0050, 800-822-4653, Telex: 698213; Empl.: 34; *Sls. Mgr.:* R. Cook; *Dist. Mgr.:* R. Cook

WILMAR ELCTRNS., INC., 2430 Amsler St., Torrance, CA 90505, Tel: 213-326-6668, Telex: 182417; FSC No.: 25248; Empl.: 25; *Sls. Mgr.:* Zev Heifetz

Local Sales Offices & Reps

CA	Emeryville, Davis Gregory & Doll	415-428-9103
PA	Philadelphia, Tech. Instr. Sls.	215-345-4110

WILMORE ELCTRNS. CO., Box 1329, Hillsborough, NC 27278, Tel: 919-732-9351, Telex: 292617; Empl.: 48; *Sls. Mgr.:* J. L. Harris .... **D•1867-1869, 1974-1975**

WILSON, H.F., ENGRG. CO., 475 Taft Ave., Glen Ellyn, IL 60137, Tel: 312-469-8473, Telex: 72-1438; Empl.: 18; *Sls. Mgr.:* H. Wilson; *Dist. Mgr.:* R. Carroll

WILSON, H. M., CO., 11501 Chimney Rock Rd., Houston, TX 77035, Tel: 713-729-1183; Empl.: 3; *Sls. Mgr.:* H. M. Wilson

WILSON ELECTRONICS, PO Box 19000, Las Vegas, NV 89119, Tel: 702-739-1931, Telex: 684-522; Empl.: 175; *Sls. Mgr.:* J. Flatt; *Dist. Mgr.:* Mac Harrison

WILTRON, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290, Tel: 415-969-6500, TWX: 910-379-6578; FSC No.: 20944; Empl.: 600; *Sls. Mgr.:* W. Baxter

WINCHENDON GROUP INC., 3907 Lakota Rd, P.O. Box 10339, Alexandria, VA 22310, Tel: 703-960-2587

WINSLOW INTL., 2471 E. Bayshore #520, Palo Alto, CA 94303, Tel: 415-856-0552, TWX: 910-373-2060; Empl.: 8; *Sls. Mgr.:* G. Hall; *Dist. Mgr.:* M. Niland

WIN SYSTEMS, INC., P.O. Box 121361, Arlington, TX 76012, Tel: 817-274-7553, Telex: 203984

WINTEK CORP., 1801 South St., Lafayette, IN 47904-2993, Tel: 317-742-8428, Telex: 70-9079; Empl.: 14 .... **D•1105, 1107**

WIRE GRAPHICS, INC., 215 B. Central Ave., Farmingdale, NY 11735, Tel: 516-293-1525; Empl.: 46; *Sls. Mgr.:* Nathan Stettin; *Dist. Mgr.:* Nathan Stettin

WIREMOLD COMPANY, 60 Woodlawn Street, W. Hartford, CT 06110, Tel: 203-233-6251, TWX: 710-425-6281; Empl.: 90; *Sls. Mgr.:* F. F. Keating

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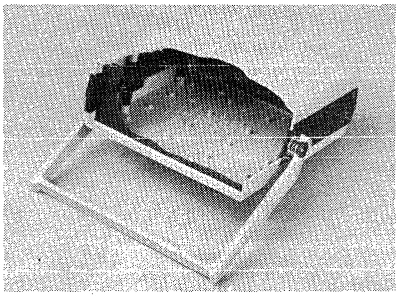


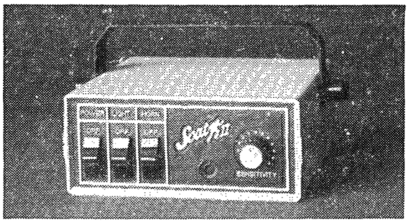
Standard features and options include:

(not all available in every case size)

Choice of standard colors (black, tan, blue, grey); optional special colors and combinations; custom trim; special finish; handle; tilt stand; mounting rails; card guides; swivel mount; mounting bracket; shoulder strap; strap handle, wrist strap; belt clip; extended rear panels; sloped top or bottom covers; EMI/RFI shielding; UL listed materials; cord wrap; custom front panels.

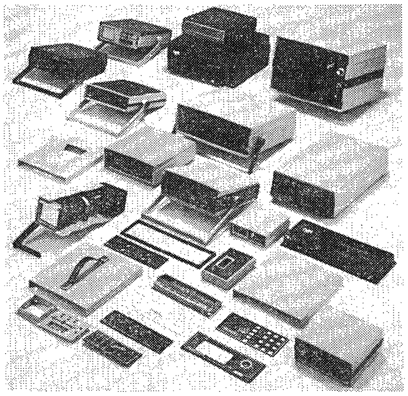
Inexpensive, custom front panels

Create an attractive, custom appearance with a three-dimensional front panel which can incorporate raised copy and production advantages such as posts, clips, slots, etc.



Wide range of standard features and low-cost options

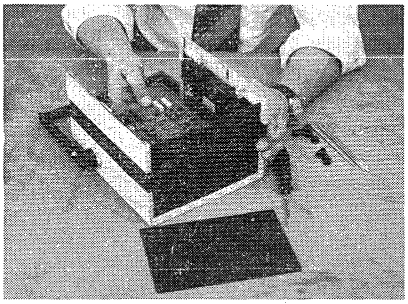
You can customize your enclosure with unlimited variations.



Prototyping kits available

You can build an attractive enclosure for your prototype model—and at the same time design your production unit.

See how easy-to-use the PacTec system is—order an inexpensive kit from the chart on page C•1070.



See pages C•1070 and C•1701 for further details.

eem selection guide

enclosures-1400

CABINETS

Manufacturer	EEM Page No.	Consoles				Cabinets				Turrets		Racks		Special		Characteristics		
		Desktop	Free Standing	Systems	Bench	Desktop	Instrument	Rack	Portable	Bench	Desktop	Equipment	Kits	Stands Printer/ Terminal/Instrument	Desks and Workstations	Composition	19 in. Standard	Shielded
AMCO Engrg.	C•1006		●	●	●	●	●								●	Aluminum Frame	●	●
	C•1007			●		●										Aluminum	●	●
Ango Electronics	C•1008					●		●								Aluminum and/or Steel	●	
Bopla Enclosures	C•1026	●	●	●		●	●	●	●									
Cabtron	C•1029				●	●	●	●		●	●					Vinyl Finish	●	
Compac	C•1046							●				●				Metal	●†	
EG&G Birtcher	C•1052											●	●					
Electronic Enclosures	C•1056		●	●	●	●	●	●	●	●	●			●	●		●†	●
Emcor	C•1057		●	●	●		●	●			●				●		●	●
Equipto	C•1059	●	●	●	●	●	●	●				●		●	●		●	●
Hammond	C•1066		●					●				●				Frames	●	
Kalamazoo Technical Furniture	C•1068														●	Steel		
Lingren	C•1726								●						Work Room		●	●
Premier Metal	C•1072	●	●	●	●	●	●	●				●			●	Welded Units	●	
	C•1073	●	●	●		●	●	●	●		●	●						
Production Industries	C•1075- C•1077 C•1076		●												●	Steel		
Rose Enclosures	C•1078															Aluminum Polyester	●†	
	C•1079	●	●					●	●							Poly-carbonate		
Schroff	C•1080	●	●	●	●	●	●	●				●					●	
Sidac	C•1082	●	●	●	●	●	●	●	●	●	●					Aluminum Epoxy	●	●
Stantron	C•1083	●	●	●	●	●		●				●			●	Steel	●	
Strongbox	C•1084					●		●					●			Aluminum Steel	●	
TDJ Co.	C•1088						●						●			Aluminum	●	
Techmar	C•1091	●										●				Aluminum	●	
Tracewell	C•1092		●			●		●									●	●
Vent Rak	C•1064	●					●	●								Metal and Formica		
	C•1065				●		●	●				●		●	●	Metal and Formica	●	

* Mil. Spec.
† Custom

CHASSIS/TRACKS

Manufacturer	EEM Page No.	Chassis	Tracks/ Slides
Barnes Engrg.	C•1010- C•1023	●	●
Chassis Trak	C•1062	●	●
EG&G Birtcher	C•1052		
Electro-Space	C•1055	●	●
Strongbox	C•1085	●	●

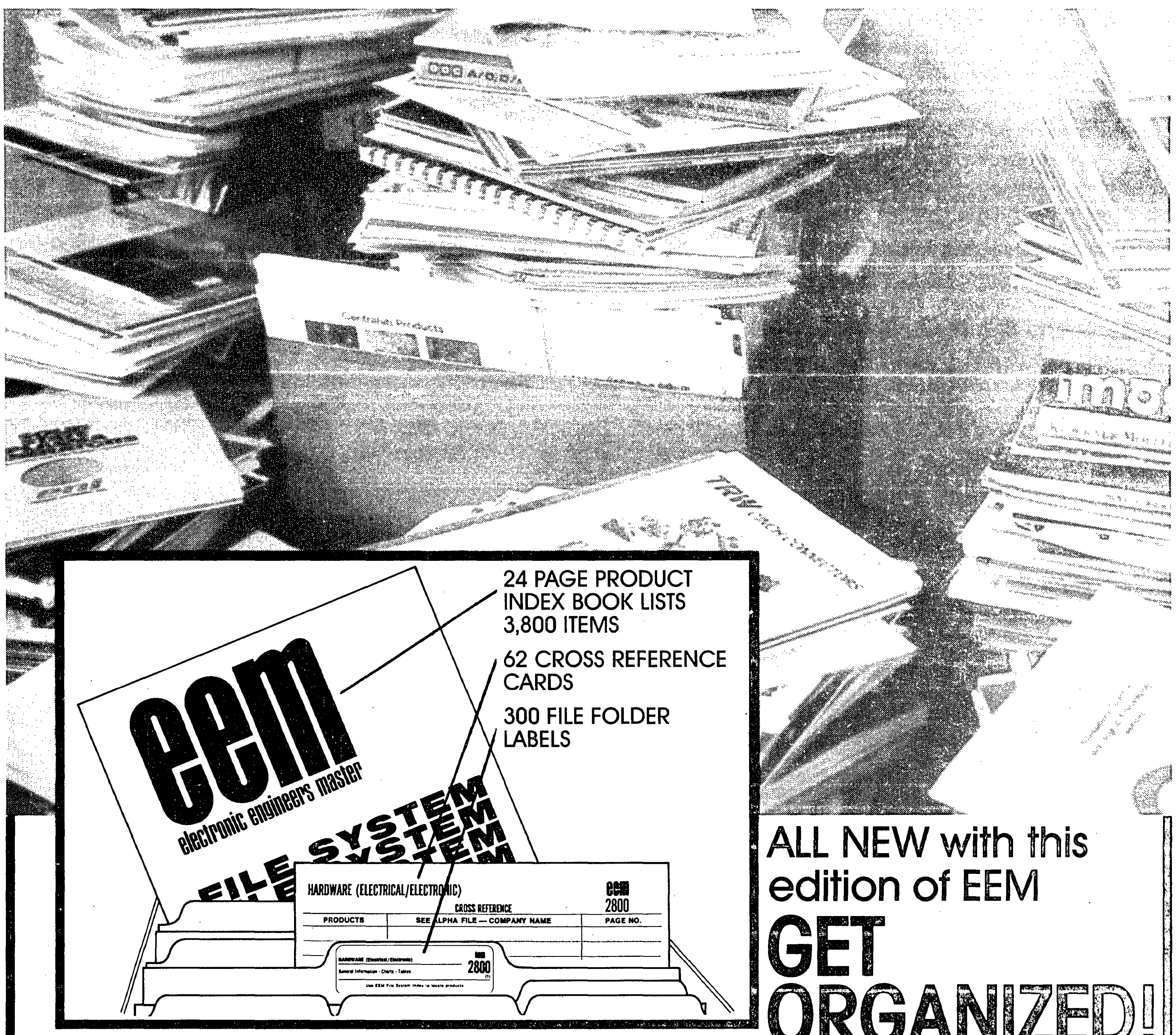
CASES

Manufacturer	EEM Page No.	Type: Benchtop	Data Display	Desktop	Keyboard	Kits	Instru-ment	Portable	Transit	Equip-ment (General)	Characteristics: Composition	19 in. Standard	Shielded
Buckeye	C•1027	●		●							Metal	●	
Compac	C•1046						●			●	Metal	●	●
Gemini	C•1060						●	●	●		ABS, Aluminum & Foam	●	●
Hammond	C•1067			●	●						Plastic & Diecast	●	
Lansing	C•1069						●				Aluminum & Sheet Metal	●	
PacTec	C•1070		●	●	●	●						●	
Premier Metal	C•1073											●	
Rose Enclosures	C•1078 C•1079						●	●	●	●	Aluminum Polyester Poly-carbonate	●	
Schroff	C•1080											●	
Sidac	C•1082	●	●	●	●		●	●	●	●	Aluminum Epoxy	●	●
Skydyne	C•1081						●	●	●		Fiberglass & Foam Econoglass	●	●
TA Instr.	C•1087						●	●	●			●	
TDJ Co.	C•1088					●					Aluminum	●	
Tracewell	C•1092			●			●			●	Aluminum	●	
Vector	C•1095						●	●			Aluminum		
Vent Rak	C•1064						●			●		●	

* Mil. Spec.

PCB MOUNTING

Manufacturer	Card Cages/ Frames	Card Files	Card Guides	Vertical Card Guides	Retainers	Inserters/ Extractors
Atlee	C•1009		C•1009			
Bivar	C•1025		C•1025	C•1025	C•1025	
Buckeye	C•1027		C•1027		C•1027	
Calmark	C•1030 C•1031	C•1042 C•1043	C•1032 C•1033	C•1030 C•1031 C•1042	C•1033- C•1036	C•1036 C•1040
Compac	C•1046		C•1046		C•1046	
EG&G Birtcher			C•1051		C•1051 C•1053	C•1051
Electro-Space	C•1054		C•1054		C•1054	C•1054
Premier Metal	C•1073			C•1073	C•1073	
Strongbox	C•1085					
Techmar	C•1090		C•1090		C•1090	
Unitrack/Calabro	C•1094	C•1094	C•1094			C•1094
Vector	C•1095		C•1095			


eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
eem
2800
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
2800

24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS

62 CROSS REFERENCE CARDS

300 FILE FOLDER LABELS

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Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

The EEM File System was invented over twenty-five years ago to help people who specify, buy, or work with electronic products and equipment. It is upgraded on a constant basis to reflect the current state of the art. It's easy to use and easy to customize to your particular needs.

You say you want to file catalogs by type of product? That's easy to do with The System. But, what are you going to do when there are multiple products in one catalog? Take Mallory for example. There are all kinds of products in the Mallory Short Form Catalog. With the EEM File System all you do is file the catalog under "M" for Mallory and refer to it on all of the cross reference cards that apply.

There are thousands of EEM File Systems in everyday use in engineering and procurement offices all over the world. Shouldn't you be using this proven system?

The EEM File System is shipped in one neat package. The package contains everything you need to set up your very own filing system. Best of all, it's easy to get and very affordable. Send a check or money order for $25.00 and EEM will pay the postage and sales tax. If you must use a purchase order, please add $5.00 for postage and handling. An invoice will accompany your System.

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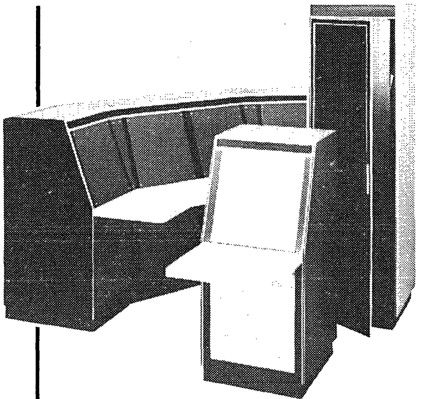
AMCO Enclosures

AMCO's extensive electronic enclosure lines, styling systems, cooling devices and popular accessories give you the freedom to design effectively and creatively.

AMCO's variety of products allows you the freedom to create functional and attractive enclosure arrangements for your electronic equipment. Ordering is easy with AMCO's simplified selection of ***many*** *enclosure sizes, configurations, components and accessories. With AMCO color and styling options, design combinations are unlimited. You have the convenience of ordering all your enclosure needs from the complete source—AMCO—with the added assurance that all components will fit and work together.*

For more specialized applications, AMCO offers military and commercial EMI cabinets, heavy-duty aluminum structural frame assemblies and special custom designs. Initial consultations are always without charge. A one-year limited warranty is provided on all AMCO products.

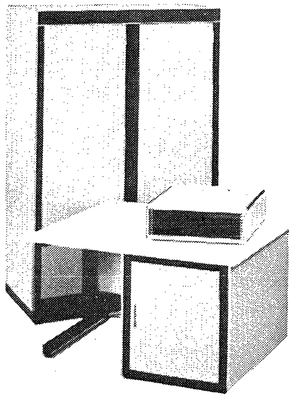


Create functional, versatile and attractive enclosures with AMCO F and FX Series Console Systems

Design your own console system with AMCO modular F and FX Series assemblies—the largest selection of standard heights, widths and depths from any single source. The unique AMCO "Interface 33" program provides a simple, yet extensive, styling selection system, allowing an infinite variety of design possibilities when combined with the many standard color, texture and inlay options. AMCO's new step-by-step ordering guide simplifies the selection process in developing your complete console arrangement.

The rugged FX Series provides superior structural integrity in both series mounted and free standing applications. FX consoles are available in vertical, sloped front and low silhouette configurations. F Series consoles are built to conserve space in series mounted applications and are offered in vertical or sloped front configurations.

Request free 56-page Catalog 310.



Fast Delivery With AMCO's 5-Day Enclosure Program

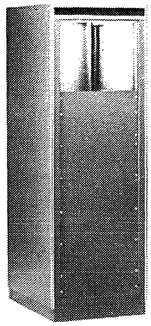
The AMCO 500-A Series:

- *Vertical Consoles*
- *Sloped Front Consoles*
- *Low Silhouette Consoles*
- *Computer Desks*
- *Desk Top Cabinets*
- *Blowers*
- *Accessories & Hardware*

AMCO's newly expanded 500-A Series combines structural integrity with refinement in style in this quick-delivery enclosure program. Generous standard features with many optional sizes allow flexibility in designing ***over a thousand assemblies.*** *Complementing these combinations is a large selection of optional accessories, including blowers. All consoles and desks feature an attractive textured finish with black frames and light blue panels. Easy ordering system allows selection of an entire console (with options) using only a single order number.*

Plus...every credit or C.O.D. approved order is shipped from stock within 5 work-days!

Request free 36-page Catalog 500-A.



New Commercial EMI Cabinets From AMCO Help Comply with FCC Radiated Emissions Regulations

Commercial EMI cabinets manufactured by AMCO Engineering Co. can help computing and other electronic systems comply with the recent FCC imposed regulations on radiated emissions. AMCO's heavy-duty military EMI cabinets meet the most demanding shielding, shock, vibration and seismic requirements for specialized applications. Many size, styling, color and accessory options are available. Attenuation values are established from certified testing.

Since 1962, when AMCO developed the first modular EMI cabinet for NASA, our engineering excellence in the EMI field has provided manufacturers, military and government agencies with unique solutions to difficult shielding problems. Because of the many variables involved with EMI, including environmental, we recommend initial free consultation with AMCO at the early design concept stage to determine the most economical approach in meeting your EMI requirements.

Request free 4-page Commercial EMI Catalog 650-A.

Request free 16-page Military EMI Catalog 204.

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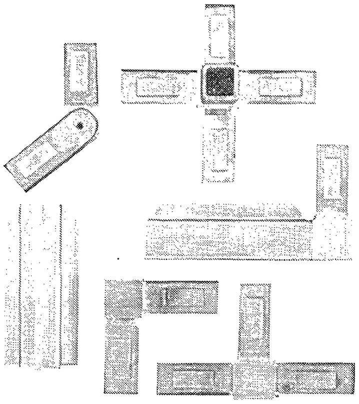
AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

AMCO Enclosures

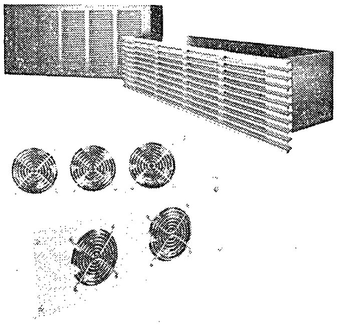


Rugged Aluminum Structural System Reduces Design and Construction Costs

AMCO's heavy-duty aluminum structural system offers a simple method of designing and building enclosure frames to special size and high strength requirements while significantly reducing your design cost. AMCO's unique system features a selection of 1½" O.D. aluminum extrusions with 14 mounting flange combinations and 8 types of cast corners. These structural frame components provide the versatility to create odd-shaped and non-standard sizes and configurations. When reinforced with standard bolt-on gussets, the frame assembly can meet MIL-E-5272C shock and vibration requirements. AMCO's gusseting technique is stronger than welding. Complete aluminum enclosure assemblies can also be provided by AMCO, often saving additional costs by using standard panel components, doors and accessories.

Keep a small inventory of AMCO's aluminum components on hand for an inexpensive and versatile method to prototype designs. The aluminum system is especially suited for environmental, mobile, anti-magnetic, military and commercial applications. Components are readily available preassembled or unassembled from AMCO's inventory.

Request free 16-page Catalog 203.



AMCO Cooling Devices Feature Maximum Air Delivery with Minimum Noise

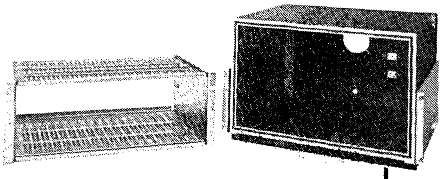
AMCO's new line of attractive cooling devices is designed for quality performance, providing safety and confidence in the operation of your electronic equipment.

Choose from a wide selection of individual fans, tandem assemblies or fans premounted on panels to simplify mounting to enclosure frames. A new line of quiet centrifugal blowers provide greater air flow per space occupied.

AMCO panel mounted fans and blowers feature many choices of attractive, high tech finishes to enhance the aesthetics of your system. Variable speed controls are also offered as standard on many cooling devices. A broad range of accessories and hardware provides many mounting and cosmetic options. All AMCO fans and blowers are ЯU recognized. Fans are also CSA listed.

Air flow (SCFM) and noise level (dB) ratings are available for all AMCO cooling devices. These documented test results were obtained in AMCO's Cooling System Laboratory which is equipped to also solve problems for more sophisticated cooling needs. We invite you to discuss your special cooling requirements with our experienced laboratory personnel.

Request free 16-page Catalog 803.



AMCO's Special Services Division Meets Your Special Needs

Your special needs for custom electronic enclosures or packaging can be met by AMCO's Special Services Division (SSD). Pictured above are examples of custom projects designed and manufactured for SSD customers—a plated card rack and a desktop cabinet with option for internal panel mounting, complete with provisions for convection air cooling and modified rear panel to accommodate wiring.

We recommend the initial step towards a design solution is to meet and become familiar with your requirements and applications in order to determine the most cost efficient approach to filling your request. Often, modifications to standard AMCO products and special finishes are all that are necessary to accomplish the task. Once a solution to your need is agreed upon, AMCO will provide a complete price and delivery quotation.

AMCO's SSD is equipped to handle most special design problems with extensive experience in environmental, shock, vibration, seismic and EMI problems encountered in various military programs, ground support, airborne and shipboard applications. Your inquiry for a special design is welcome—initial consultations are without charge.

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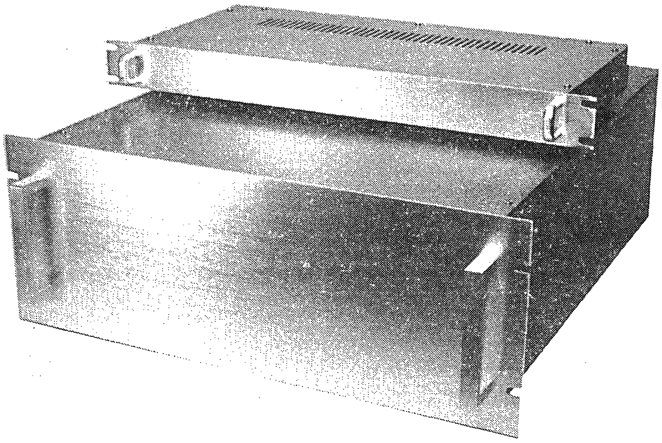
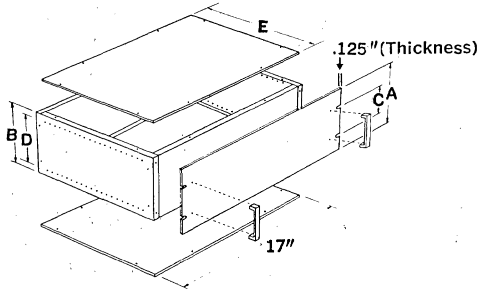
AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

10 + 1* Reasons Why You Should Buy STANDARD ENCLOSURES™

- **QUALITY.** Made with heavy gauged aluminum and/or steel.
- **PRECISION.** Tolerance as small as ±0.03″.
- **SIX HEIGHT COMBINATIONS.** From 1 to 6 EIA panel height.
- **FOUR DEPTH DIMENSIONS.** 8″, 12″, 14″, and 20″.
- **EXCELLENT FINISH.** Front brushed aluminum panel is anodized in black or metallic.
- **LOW PRICE.** Save as much as 70% on same quality enclosures.
- **FREE RACK MOUNT HANDLES.** Aluminum handles at no extra charge.
- **IMMEDIATE DELIVERY.** Most orders shipped within 24 hours.
- **ACCESSORIES.** Supporting rails available for easy assembly.
- **CUSTOM SIZES.** We manufacture for private label or special sizes.

* **SATISFACTION GUARANTEED.** Our long list of satisfied customers speaks for itself.





EIA Standard 19″ Rack Mount Chassis

Series 10 and 11, with steel top and bottom covers, are 0.04″ thick and grilled for excellent heat dissipation. The aluminum back cover, with a thickness of 0.05″, facilitates the making of holes.

Series 12 and 13 are top-of-line enclosures made with heavy gauged aluminum. All surfaces are anodized. Additional front panels for mounting meters or switches are included at no extra charge.

Description	Rack Unit	Dimension (Inch)					Side Panel Thickness (inch)	Black		Metallic		Shipping Weight (lb)
		A	B	C	D	E		Stock No.	Price	Stock No.	Price	
Steel—Side, Top, and Bottom Panels Aluminum—Back and Front Panels	1	1.75	1.50	1.25	0.50	8.00	.04	10-19082	36.60	11-19082	34.50	5
	2	3.50	3.00	3.00	2.00	14.00	.04	10-19143	47.75	11-19143	47.00	8
	3	5.25	4.75	2.25	3.75	14.00	.04	10-19145	55.80	11-19145	55.20	9
	4	7.00	6.50	4.00	5.50	20.00	.04	10-19207	66.50	11-19207	65.10	13
All Aluminum Anodized All Surface	1	1.75	1.50	1.25	.50	12.00	.05	12-19122	65.50	13-19122	63.70	4
	2	3.50	3.25	3.00	2.25	12.00	.05	12-19123	73.10	13-19123	72.10	5
	3	5.25	5.00	2.25	4.00	12.00	.05	12-19125	84.00	13-19125	82.20	6
	4	7.00	6.75	4.00	5.75	12.00	.05	12-19127	91.75	13-19127	89.90	7
Extra Heavy Gauged All Aluminum	5	8.75	8.50	5.75	5.50	12.00	.06	12-19129	121.20	13-19129	119.80	10
	6	10.50	10.25	7.50	7.25	12.00	.06	12-19120	134.50	13-19120	133.20	12
Blank Panels Anodized Aluminum	1	1.75	—	1.25	—	—	—	150-1902	3.95	151-1902	3.90	½
	2	3.50	—	3.00	—	—	—	150-1903	5.85	151-1903	5.50	1
	3	5.25	—	2.25	—	—	—	150-1905	7.75	151-1905	7.50	1½
	4	7.00	—	4.00	—	—	—	150-1907	9.95	151-1907	9.75	2
	5	8.75	—	5.75	—	—	—	150-1909	11.00	151-1909	10.75	2½
	6	10.50	—	7.50	—	—	—	150-1910	12.95	151-1910	12.50	3
Support Rail Passivated Steel	—	—	—	—	—	—	.05	—	—	130-1901	4.95	½

For free catalog, detailed drawings, quantity discount, or other products, please call

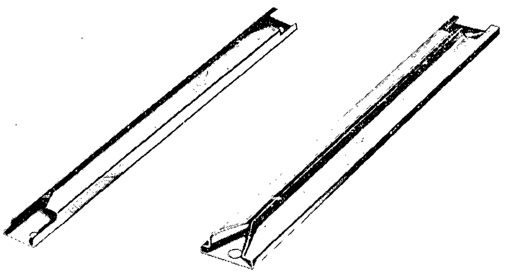
(201) 484-1115

Specifications and prices are subject to change without prior notice.

ANGO ELECTRONICS CORPORATION

PO Box 112, Harrison, NJ 07029

ATLEE CARD GUIDES

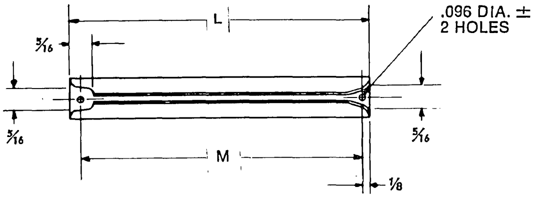


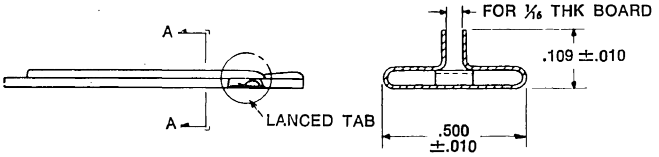
FEATURES

- High retention of printed circuit board under severe shock and vibration.
- Easily installed by welding or riveting.
- Quick and simple board insertion and withdrawal.
- Rigidly mounted printed-circuit board in racks and other types of assemblies.

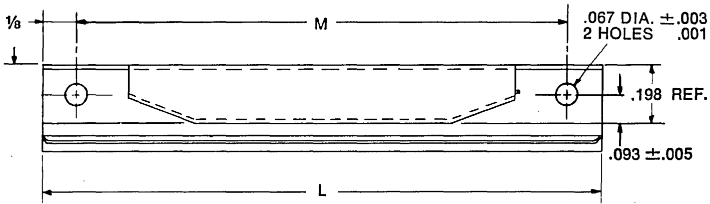
MATERIAL: *beryllium copper, .010 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

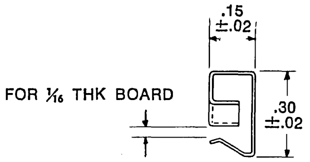
PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.


L
.096 DIA. ±
2 HOLES
5/16
5/16
5/16
M
1/8


A
A
LANCED TAB
FOR 1/16 THK BOARD
.109 ±.010
.500
±.010

SECTION AA


1/8
M
.067 DIA. ±.003 .001
2 HOLES
.198 REF.
.093 ±.005
L


.15
±.02
FOR 1/16 THK BOARD
.30
±.02

* 11903-300

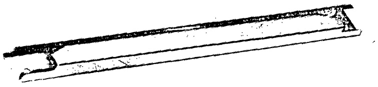
	L ±.02	M ±.005
2	2½	2.250
3	3	2.750
4	3½	3.250
5	4	3.750
6	4½	4.250
7	5	4.750
8	5½	5.250
9	6	5.750
10	6½	6.250
11	7	6.750

* Standard in beryllium copper.

* 11909-300

	L ±.02	M ±.005
1	2	1.750
2	2½	2.250
3	3	2.750
4	3½	3.250
5	4	3.750
6	4½	4.250
7	5	4.750
8	5½	5.250
9	6	5.750

* Standard in beryllium copper.



FEATURES

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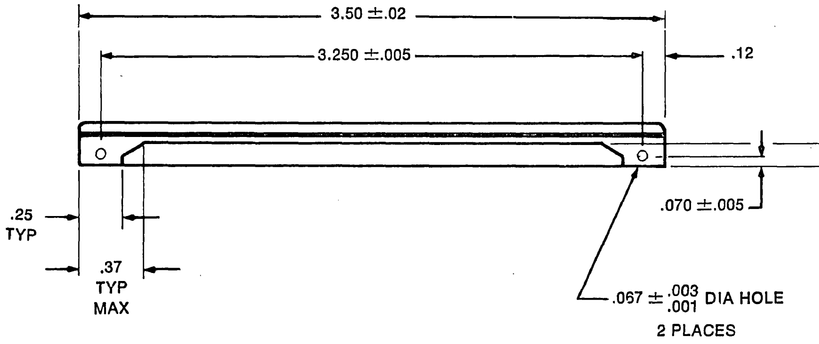
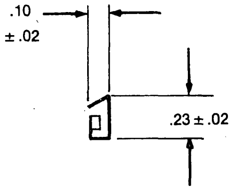
MATERIAL: *beryllium copper, .005 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.


3.50 ±.02
3.250 ±.005
.12
.25
TYP
.37
TYP
MAX
.070 ±.005
.148 ±.005
.067 ± .003 .001 DIA HOLE
2 PLACES



* CS0270

	L ±.02	M ±.005
1	3½	3.250

* Standard in beryllium copper.

- Card guides available for 1/32 and 3/32 thick printed circuit boards.
- Flared card guides also available.
- Refer to Atlee Cross Reference for additional card guides we manufacture.
- Card guides designed and manufactured to your specifications.

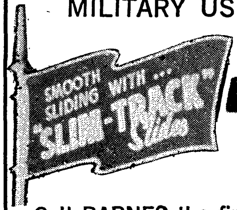
Please consult factory for additional card guide requirements.

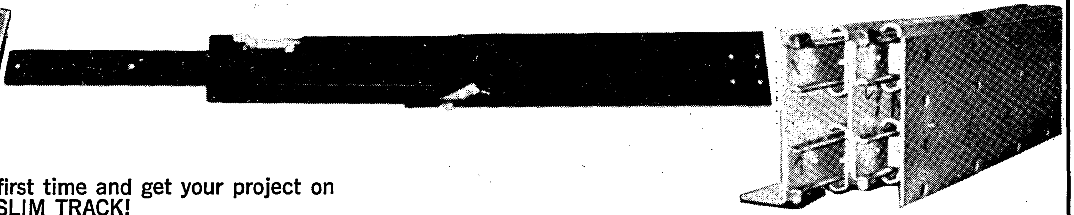
ATLEE

1 GILL STREET, WOBURN, MA 01801 ○ (617) 933-3510 ○ TELEX 949407

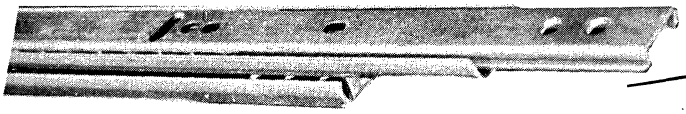
"SLIM TRACK" SLIDES

ALL STEEL, BALL, ROLLER BEARING AND SOLID BEARING SLIDES FOR INDUSTRIAL AND MILITARY USES; AVAILABLE IN STAINLESS STEEL AND ALUMINUM.





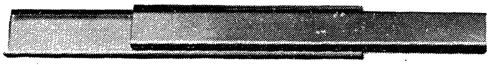
Call BARNES the first time and get your project on the right track... SLIM TRACK!



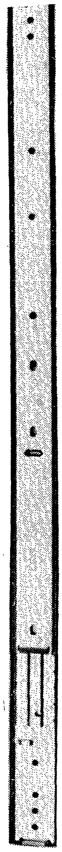
- BALL BEARING
- ROLLER BEARING
- SOLID BEARING
- CABLE CARRIERS

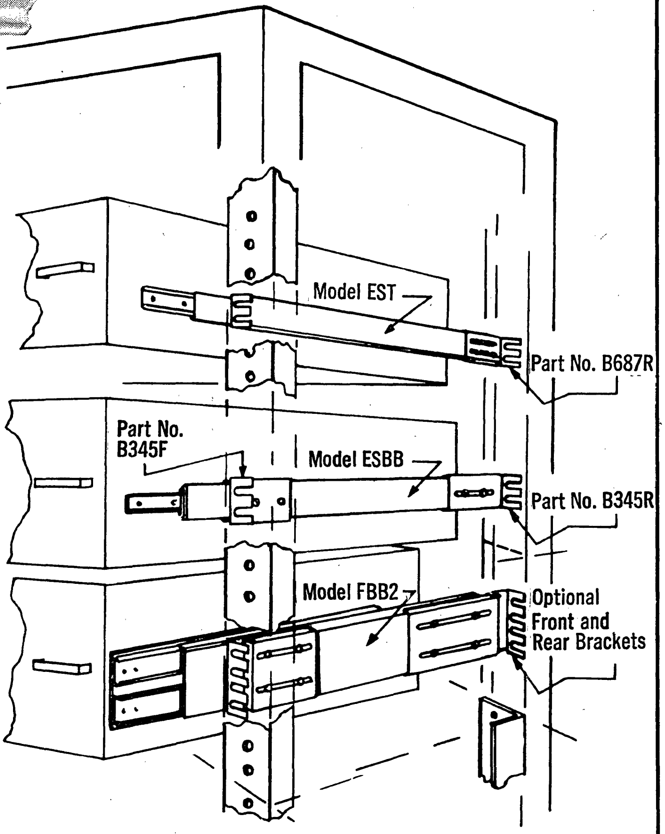
Space savings, high strength, high load capacity slides. All steel ball bearing and solid bearing models. The most extensive variety of slide channels in the industry. Barnes Engineering Company's applications engineering department can solve the toughest linear motion problems.

With a combination of precision formed members, "fail-safe" locks, slimmest design and quality control at its finest, along with the most modern, high-speed, precision production methods, "Slim-Track" slides are "Product engineered" to be the most competitively priced quality slides on the market.



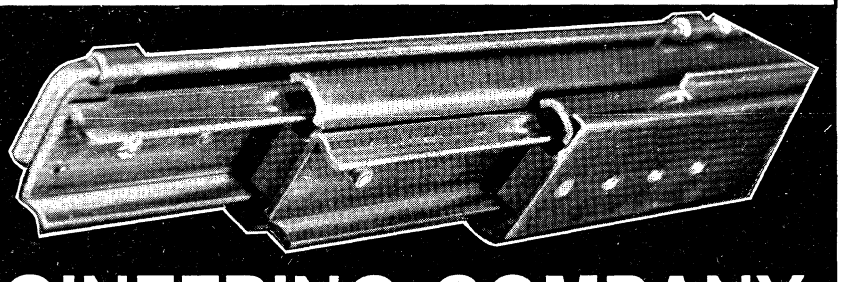
Let us solve your Chassis Slide Problems! Why? Because BARNES ENGINEERING has probably already designed your "Tough" suspension job and has it filed under a standard slide series.





Barnes Engineering Co. has the widest variety of all types of slides and are the most versatile designers of slide mechanisms IN THE INDUSTRY.

B E

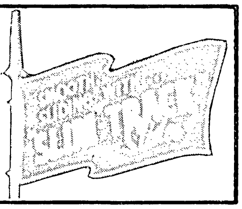


BARNES ENGINEERING COMPANY

1645 SO. CLAUDINA WAY, ANAHEIM, CALIFORNIA 92805

"SLIM TRACK" SLIDES

ALL STEEL, BALL, ROLLER BEARING AND SOLID BEARING SLIDES FOR INDUSTRIAL AND MILITARY USES; AVAILABLE IN STAINLESS STEEL AND ALUMINUM.



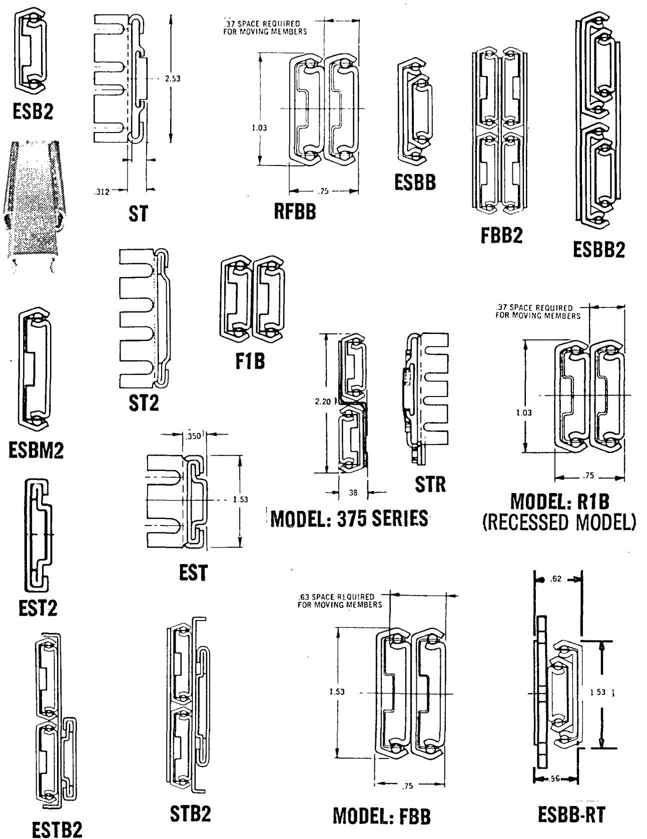
PRECISION LINEAR MOTION MECHANISMS ON OUR WAY TO NO. 1 IN THE SLIDE INDUSTRY
IT'S SMOOTH SLIDING WITH "SLIM-TRACK" CHASSIS SLIDES
MOST VARIETY OF SLIDE CHANNELS IN THE INDUSTRY

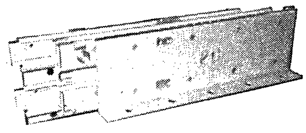
MODEL SELECTION CHART

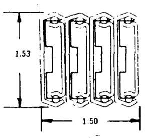
** PAGE	MODEL	SPACE REQUIRED FOR MOVING MEMBERS	HT	DESCRIPTION	*NOM. LOAD
1	ESBB	.410	1.53	3 Section Ball Bearing	125 #
2	ESBB-RT	.56	1.53	3 Section Ball Bearing, Rotating	100 #
3	RFBB	.375	1.53	3 Section Ball Bearing, Recessed	100 #
4	FBB	.630	1.53	3 Section Ball Bearing	150 #
5	RFBB-RT	.520	1.53	3 Section Ball Bearing, Rotating Recessed	100 #
6	FBB-RT	.77	1.53	3 Section Ball Bearing, Rotating	150 #
7	R1B	.375	1.03	3 Section Ball Bearing, Recessed	100 #
8	F1B	.630	1.03	3 Section Ball Bearing	150 #
9	ESBM2	.26	1.53	2 Section Ball Bearing, ¾ Travel	120 #
10	ESB2	.26	1.03	2 Section Ball Bearing, ¾ Travel	120 #
11	ESTБ-2	.67	3.38	Ball Bearing, ⅔ Travel Solid Bearing for Maintenance, Full Travel	200 #
12	STB-2	.37	3.38	Ball Bearing, ⅔ Travel Solid Bearing for Maintenance, Full Travel	200 #
13	FBB2	.75	3.13	3 Section Ball Bearing	300 #
14	EST	.29	1.53	3 Section Solid Bearing	75 #
15	EST-RT	.43	1.53	3 Section Solid Bearing, Rotating	75 #
16	EST2	.30	1.53	2 Section Solid Bearing, ¾ Travel	100 #
17	ST2	.25	2.53	2 Section Solid Bearing, ¾ Travel	100 #
18	ST	.25	2.53	3 Section Solid Bearing	175 #
19	ST-RT	.38	2.53	3 Section Solid Bearing, Rotating	125 #
20	STR-RT	.38	2.53	3 Section Roller Bearing, Rotating	150 #
21	STR	.25	2.53	3 Section Roller Bearing	175 #
22	STBF	.50	2.53	3 Section Solid Bearing	200 #
23	375 Series	.38	2.20	3 Section Ball Bearing	100 #
24	ESBB2	.48	3.13	3 Section Ball Bearing	275 #
25	HD3B	1.32	2.00	Heavy-Duty 3 Sec. Ball Bearing	1000 #
26	HD2B	.57	2.00	Heavy-Duty 2 Sec. Ball Bearing	400 #
27	HD2B2	.67	4.20	Heavy-Duty 2 Sec. Stacked Ball Bearing	1000 #
28	HD3B2	1.53	4.20	Heavy-Duty 3 Sec. Stacked Ball Bearing	2300 #
29	HD-STR	.41	3.25	Heavy-Duty 3 Sec. Roller Bearing	250 #
30	DR	.26	1.53	2 Sec. Ball Bearing Detent Roller, ¾ Travel	120 #
31	DT	1.38	1.53	5 Sec. Ball Bearing Double Extension	75 #
32	HD-ST	.41	3.25	Heavy-Duty Solid Bearing	250 #

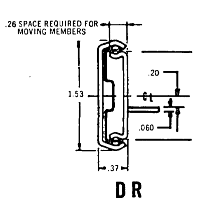
A B.E. Locks, Latches and Spring Stops on EST, FBB, ESB2, ST, ESBB & STBF Models (Also, on other related models)
A1 B.E. Locks, Latches and Spring Stops on HD3B & HD-STR Models (Also on other related models)
A2 Perspective Views of Heavy-Duty HD3B2 & FBB2 Models.
B Bracket No's: B439F, BM439R & B777R.
B1 Bracket No's: B789U, B687R-U, B933, B534 & B573.
B2 Bracket No's: B687R, B275R, B789R, B345R, B854R, B555R, & Bar Nut No's: 766, 988, & 897.
C Cable Carrier Model C100
* Slide Load Rating can be designed from standard members or to specific application requirements.
* All 3-sections Slides have full extension.
** Page numbers refer to BEI General Catalog.

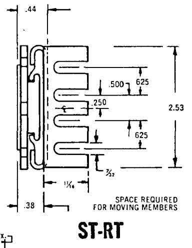
Depicted below are the Cross-Sectional views of some of our most popular SLIDE Models

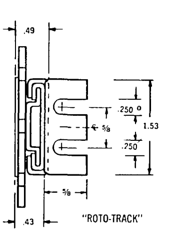

ESB2
.37 SPACE REQUIRED FOR MOVING MEMBERS
2.53
1.03
.312
.75
ST
RFBB
ESBB
FBB2
ESBB2
ST2
F1B
ESBM2
.37 SPACE REQUIRED FOR MOVING MEMBERS
2.20
.38
STR
MODEL: 375 SERIES
1.03
.75
MODEL: R1B
(RECESSED MODEL)
.350
1.53
EST
EST2
.63 SPACE REQUIRED FOR MOVING MEMBERS
1.53
.75
.62
1.53
.56
ESTB2
STB2
MODEL: FBB
ESBB-RT



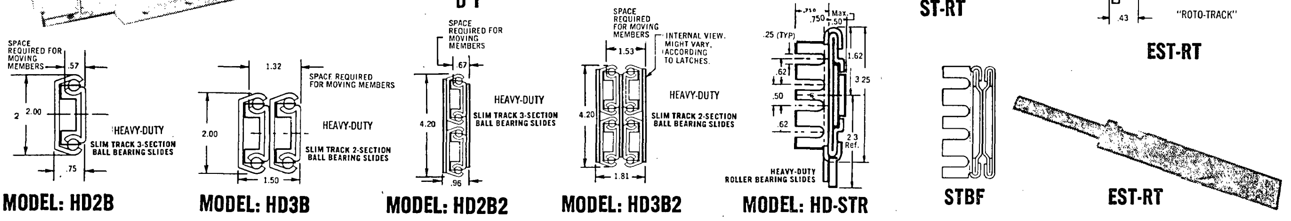



.26 SPACE REQUIRED FOR MOVING MEMBERS
1.53
.20
.060
.37
D R


.44
.500
.625
.250
2.53
.625
.38
SPACE REQUIRED FOR MOVING MEMBERS
ST-RT


.49
.250
5/8
1.53
.750
5/8
.43
"ROTO-TRACK"

EST-RT


SPACE REQUIRED FOR MOVING MEMBERS .57
2.00
HEAVY-DUTY
SLIM TRACK 3-SECTION BALL BEARING SLIDES
.75
MODEL: HD2B
1.32
SPACE REQUIRED FOR MOVING MEMBERS
2.00
HEAVY-DUTY
SLIM TRACK 2-SECTION BALL BEARING SLIDES
1.50
MODEL: HD3B
SPACE REQUIRED FOR MOVING MEMBERS
.67
HEAVY-DUTY
SLIM TRACK 3-SECTION BALL BEARING SLIDES
4.20
.96
MODEL: HD2B2
SPACE REQUIRED FOR MOVING MEMBERS
1.53
INTERNAL VIEW MIGHT VARY ACCORDING TO LATCHES.
HEAVY-DUTY
SLIM TRACK 2-SECTION BALL BEARING SLIDES
4.20
1.81
MODEL: HD3B2
.750 Max
.50
.25 (TYP)
1.62
3.25
.62
.50
.62
2.3 Ref.
HEAVY-DUTY ROLLER BEARING SLIDES
MODEL: HD-STR
STBF
EST-RT

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1645 SOUTH CLAUDINA WAY
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* Hole locations on all slides can vary according to types of locks and/or travels selected.
** All slide spec. sheets not shown; see Model Selection Chart, or contact factory for complete catalog.

B E

"SLIM TRACK" SLIDES

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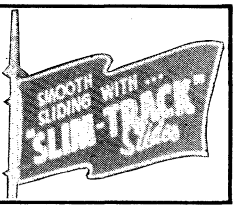


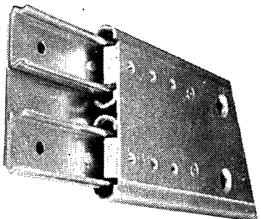
PRECISION LINEAR MOTION MECHANISMS — ON OUR WAY TO NO. 1 IN THE SLIDE INDUSTRY

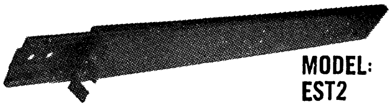
IT'S SMOOTH SLIDING WITH "SLIM-TRACK" CHASSIS SLIDES

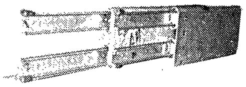
MOST VARIETY OF SLIDE CHANNELS IN THE INDUSTRY

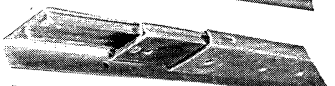
THINNEST SLIDES IN THE WORLD! ST SERIES CAN BE MANUFACTURED TO A TOTAL OVERALL THICKNESS OF ¼" (.250)
ESBM2 AND ESB2 SERIES CAN BE MANUFACTURED TO A TOTAL OVERALL THICKNESS OF .340

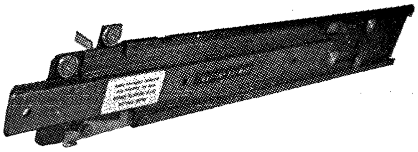
MODEL: STR

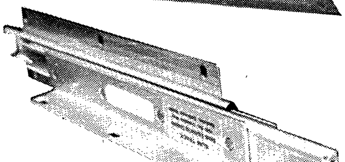


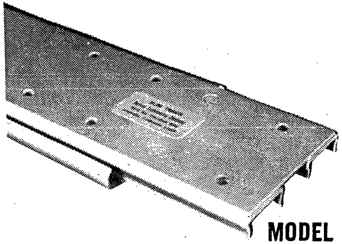

MODEL: EST2

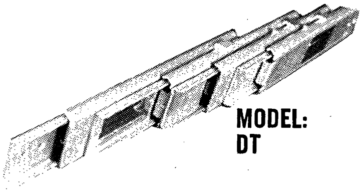

MODEL: FBB2



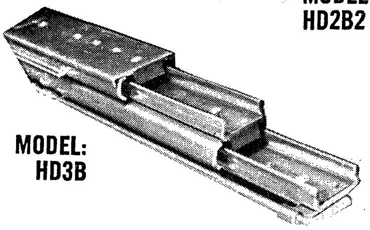


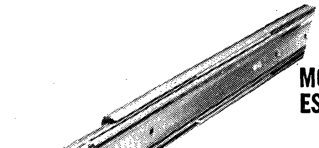


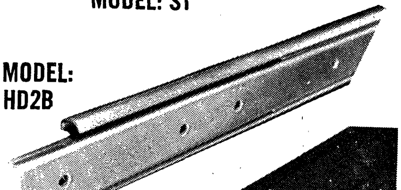

MODEL HD2B2

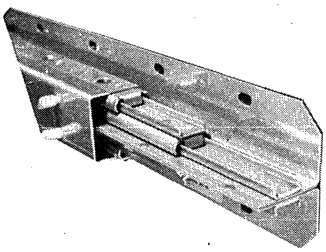

MODEL: DT

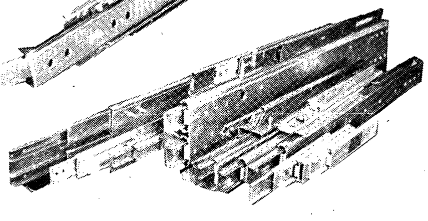
MODEL: ST

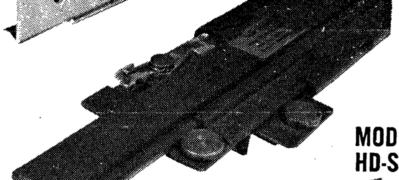

MODEL: HD3B

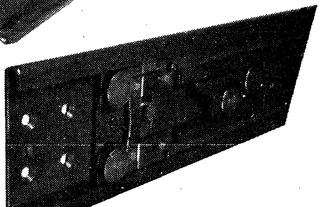

MODEL: ESBB

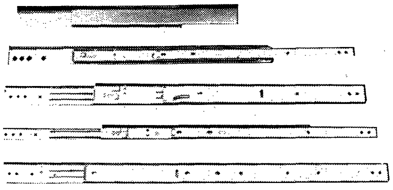

MODEL: HD2B

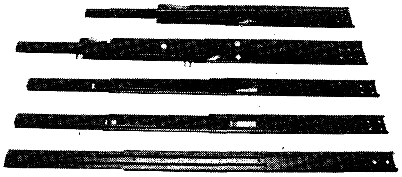


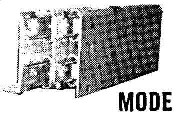



MODEL: HD-STR








MODEL: HD3B2

B E

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FOR COMPLETE
DETAILS AND DIMENSIONS
SEND FOR CATALOG

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ANAHEIM, CALIFORNIA 92805
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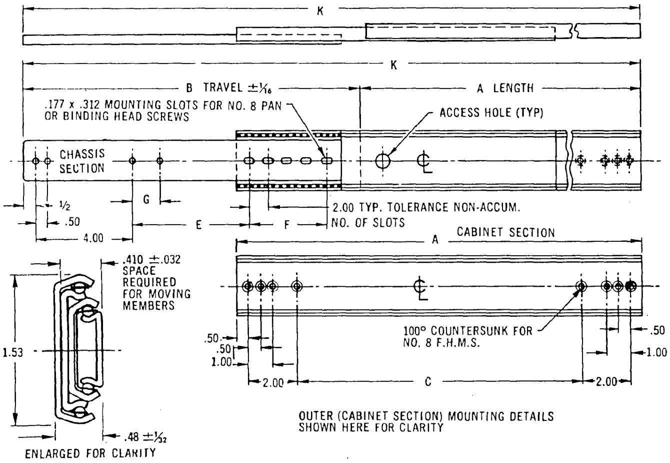
***Page No.'s refer to Barnes Engineering General Catalog**

SLIM TRACK 3-SECTION BALL BEARING SLIDES (PAGE 1)
MODEL: ESBB


K
K
B TRAVEL ±1/16
A LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
ACCESS HOLE (TYP)
CHASSIS SECTION
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
A
CABINET SECTION
.410 ±.032 SPACE REQUIRED FOR MOVING MEMBERS
1.53
.48 ±1/32
ENLARGED FOR CLARITY
100° COUNTERSUNK FOR NO. 8 F.H.M.S.
.50
.50
1.00
.50
1.00
2.00
C
2.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type I, Silver Color.
Front and Rear Mounting Brackets are available.

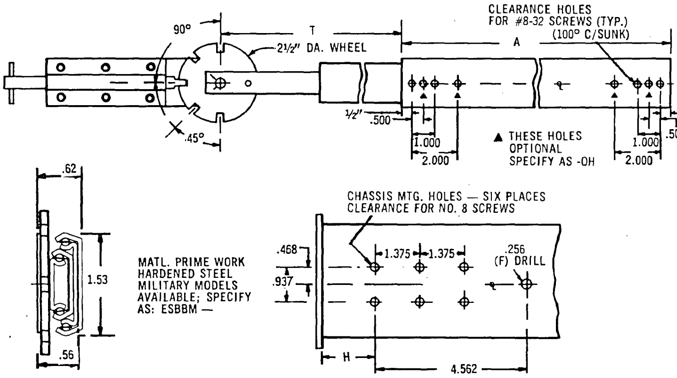
All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated: Load capacity to 125* lbs. and up.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed.
ESBB-20-PL (Positive Locking when extended)
ESBB-20-SO (Stop-Out Only)
ESBBM (Military Models)
-FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
ESBB-10	10	11	5	4.50	1		21
ESBB-12	12	13	7	6.50	1		25
ESBB-14	14	15	9	6.50	2		29
ESBB-16	16	17	11	8.50	2		33
ESBB-18	18	19	13	8.50	3		37
ESBB-20	20	21	15	10.50	3	2	41
ESBB-22	22	23	17	10.50	4	2	45
ESBB-24	24	25	19	12.50	4	2	49
ESBB-26	26	27	21	12.50	5	2	53
ESBB-28	28	29	23	14.50	5	2	57
ESBB-30	30	31	25	16.50	5	2	61

"ROTO-TRACK" BALL BEARING 3-SECTION ROTATING SLIDE (PAGE 2)
SERIES ESBB-RT (ROTATING MECHANISM AVAILABLE ON ANY MODEL)


90°
T
2½″ DA. WHEEL
CLEARANCE HOLES FOR #8-32 SCREWS (TYP.) (100° C/SUNK)
A
½″
.500
1.000
2.000
▲ THESE HOLES OPTIONAL SPECIFY AS -OH
1.000
2.000
.500
½″
45°
.62
1.53
.56
MATL. PRIME WORK HARDENED STEEL MILITARY MODELS AVAILABLE; SPECIFY AS: ESBBM —
CHASSIS MTG. HOLES — SIX PLACES CLEARANCE FOR NO. 8 SCREWS
.468
.937
1.375
1.375
.256 (F) DRILL
H
4.562

Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

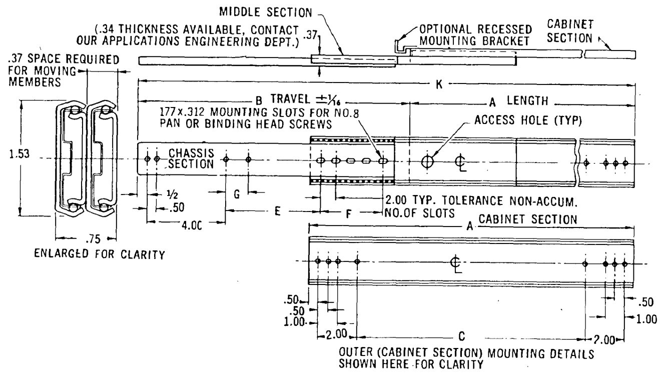
Finish: Bright Electro-Zinc Plated per QQZ-325, Type I, Silver Color.
For Fast Disconnect specify as: -FD.
All Slides Quality Zinc Plated.
Front and Rear Mounting Brackets available.
Send for spec. sheet on Mounting Brackets.

Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming out, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Specify as: example:
ESBB-RT-20-PL (Positive Locking when extended) or ESBB-RT-20-SO (Stop-Out)

SLIDE DIMENSIONS				
MODEL	**A**	**T**	**H Min.**	**H Max.**
ESBB-RT-10	10	Check with factory	1.31	
ESBB-RT-12	12		1.31	
ESBB-RT-14	14	9.50	1.31	
ESBB-RT-16	16	11.50	1.31	
ESBB-RT-18	18	13.50	1.31	
ESBB-RT-20	20	15.50	1.31	
ESBB-RT-22	22	17.50	1.31	
ESBB-RT-24	24	19.50	1.31	
ESBB-RT-26	26	21.50	1.31	
ESBB-RT-28	28	23.50	1.31	
ESBB-RT-30	30	25.50	1.31	

SLIM TRACK 3-SECTION BALL BEARING SLIDES (PAGE 3)
MODEL: RFBB (RECESSED MODEL)


MIDDLE SECTION
(.34 THICKNESS AVAILABLE, CONTACT OUR APPLICATIONS ENGINEERING DEPT.)
.37
OPTIONAL RECESSED MOUNTING BRACKET
CABINET SECTION
.37 SPACE REQUIRED FOR MOVING MEMBERS
K
B TRAVEL ±1/16
A LENGTH
177x.312 MOUNTING SLOTS FOR NO.8 PAN OR BINDING HEAD SCREWS
ACCESS HOLE (TYP)
1.53
CHASSIS SECTION
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO.OF SLOTS
A
CABINET SECTION
.75
ENLARGED FOR CLARITY
.50
.50
1.00
2.00
C
2.00
.50
1.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type I, Silver Color.
Front and Rear Mounting Brackets are available.

All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated: Load capacity to 100* lbs. and up.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of chassis into cabinet without manipulation of catches.

WHEN ORDERING
Please specify feature needed.
RFBB-20-PL (Positive Locking when extended).
RFBB-20-SO (Stop-Out Only)
RFBBM (Military Models)
-FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
RFBB-10	10	11	5	4.50	1		21
RFBB-12	12	13	7	6.50	1		25
RFBB-14	14	15	9	6.50	2		29
RFBB-16	16	17	11	8.50	2		33
RFBB-18	18	19	13	8.50	3		37
RFBB-20	20	21	15	10.50	3	2	41
RFBB-22	22	23	17	10.50	4	2	45
RFBB-24	24	25	19	12.50	4	2	49
RFBB-26	26	27	21	12.50	5	2	53
RFBB-28	28	29	23	14.50	5	2	57
RFBB-30	30	31	25	16.50	5	2	61

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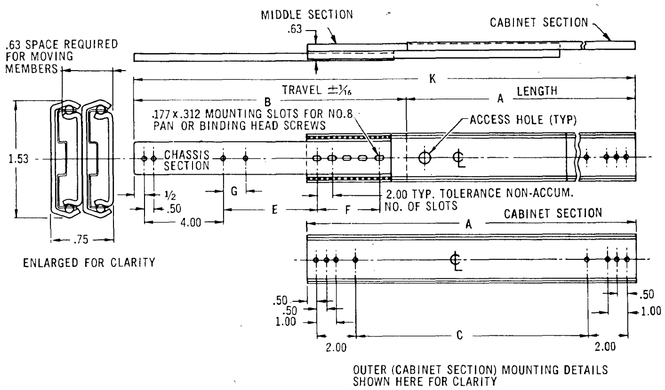
SLIM TRACK 3-SECTION BALL BEARING SLIDES (PAGE 4)
MODEL: FBB


MIDDLE SECTION
.63
CABINET SECTION
.63 SPACE REQUIRED FOR MOVING MEMBERS
K
TRAVEL ±1/16
B
A
LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
ACCESS HOLE (TYP)
1.53
CHASSIS SECTION
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
CABINET SECTION
.75
ENLARGED FOR CLARITY
.50
.50
1.00
.50
1.00
C
2.00
2.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type I, Silver Color.
Front and Rear Mounting Brackets are available.

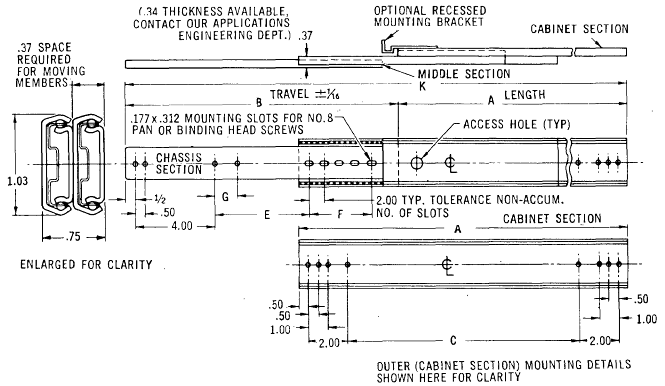
All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated: Load capacity to 150* lbs. and up.
Any load requirements available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
FBB-20-PL (Positive Locking when extended).
FBB-20-SO (Stop-Out Only)
FBBM (Military Models)
-FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
FBB-10	10	11	5	4.50	1		21
FBB-12	12	13	7	6.50	1		25
FBB-14	14	15	9	6.50	2		29
FBB-16	16	17	11	8.50	2		33
FBB-18	18	19	13	8.50	3		37
FBB-20	20	21	15	10.50	3	2	41
FBB-22	22	23	17	10.50	4	2	45
FBB-24	24	25	19	12.50	4	2	49
FBB-26	26	27	21	12.50	5	2	53
FBB-28	28	29	23	14.50	5	2	57
FBB-30	30	31	25	16.50	5	2	61

SLIM TRACK 3-SECTION BALL BEARING SLIDES (PAGE 7)
MODEL: R1B (RECESSED MODEL)


(.34 THICKNESS AVAILABLE, CONTACT OUR APPLICATIONS ENGINEERING DEPT.) .37
OPTIONAL RECESSED MOUNTING BRACKET
CABINET SECTION
.37 SPACE REQUIRED FOR MOVING MEMBERS
MIDDLE SECTION
K
TRAVEL ±1/16
B
A
LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
ACCESS HOLE (TYP)
1.03
CHASSIS SECTION
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
CABINET SECTION
.75
ENLARGED FOR CLARITY
.50
.50
1.00
.50
1.00
2.00
C
2.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.

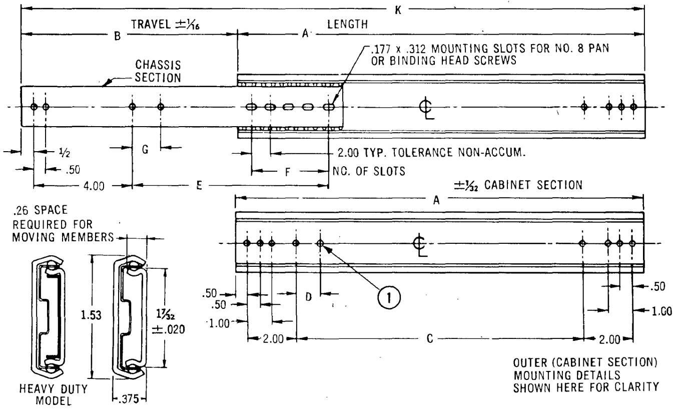
All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated: Load capacity to 150* lbs. and up.
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
R1B-20-PL (Positive Locking when extended)
R1B-20-SO (Stop-Out Only).
R1BM (Military Models)
-FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
R1B-10	10	11	5	4.50	1		21
R1B-12	12	13	7	6.50	1		25
R1B-14	14	15	9	6.50	2		29
R1B-16	16	17	11	8.50	2		33
R1B-18	18	19	13	8.50	3		37
R1B-20	20	21	15	10.50	3	2	41
R1B-22	22	23	17	10.50	4	2	45
R1B-24	24	25	19	12.50	4	2	49
R1B-26	26	27	21	12.50	5	2	53
R1B-28	28	29	23	14.50	5	2	57
R1B-30	30	31	25	16.50	5	2	61

SLIM TRACK 2-SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 9)
MODEL: ESBM2


K
TRAVEL ±1/16
B
A
LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
CHASSIS SECTION
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
±1/32 CABINET SECTION
A
.26 SPACE REQUIRED FOR MOVING MEMBERS
1.53
1 1/32 ±.020
.50
.50
1.00
D
①
.50
1.00
2.00
C
2.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY
HEAVY DUTY MODEL
.375
ENLARGED FOR CLARITY

Material: Prime work hardened steel.
Front and Rear Mounting Brackets are available.
All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All necessary Clearance Holes provided for mounting purposes.
All Slides Quality Zinc Plated.

Inner (chassis section) removabe from the rear when specified.
Special combinations of Lengths, Engagements, Mounting Hole Patterns, etc., available.
Load capacity to 120* lbs.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
ESBM2-SO (Stop-Out Only)
ESBM2-FD (Positive Stop or Friction Stop with Fast Front Disconnect)
ESBM2-PL (Positive Lock)
ESBH2 (Heavy-Duty)
ESBM2-OH (Optional Hole)
ESBM2M or ESBH2M (Military Models)

SLIDE•DIMENSIONS								
MODEL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**K**
ESBM2-10	10	7	5		4.50	1		17
ESBM2-12	12	9	7	1	6.50	1		21
ESBM2-14	14	11	9	1	8.50	1		25
ESBM2-16	16	12	11	3	10.50	2		28
ESBM2-18	18	13	13	3	12.50	2		31
ESBM2-20	20	15	15	5	14.50	2	2	35
ESBM2-22	22	16	17	5	16.50	3	2	38
ESBM2-24	24	17	19	7	18.50	3	2	41
ESBM2-26	26	19	21	7	20.50	5	2	45
ESBM2-28	28	20	23	9	22.50	5	2	48
ESBM2-30	30	22	25	9	24.50	5	2	52

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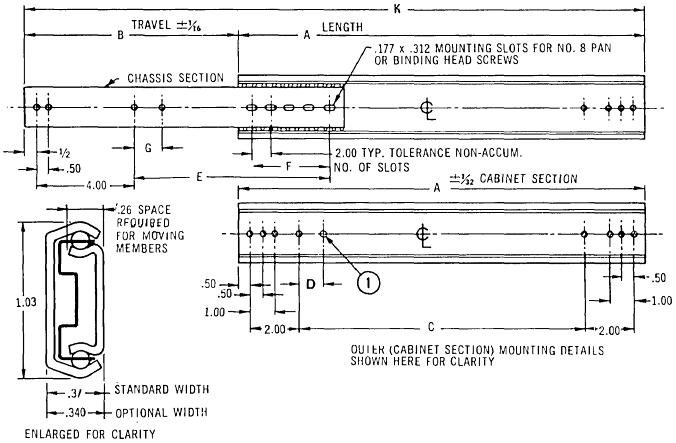
SLIM TRACK 2-SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 10)
MODEL: ESB2


K
TRAVEL ±1/16
B
A
LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
CHASSIS SECTION
1/2
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
A
±1/32 CABINET SECTION
.26 SPACE REQUIRED FOR MOVING MEMBERS
1.03
.50
.50
1.00
D
①
2.00
C
2.00
.50
1.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY
.37 STANDARD WIDTH
.340 OPTIONAL WIDTH
ENLARGED FOR CLARITY

Material: Prime work hardened steel.
Front and Rear Mounting Brackets are available.
All Mounting Holes are .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All necessary Clearance Holes provided for mounting purposes.

All Slides Quality Zinc Plated.
Inner (chassis section) removable from the rear when specified.
Special combinations of Lengths, Engagements, Mounting Hole Patterns, etc., available.
Load capacity to 120* lbs.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

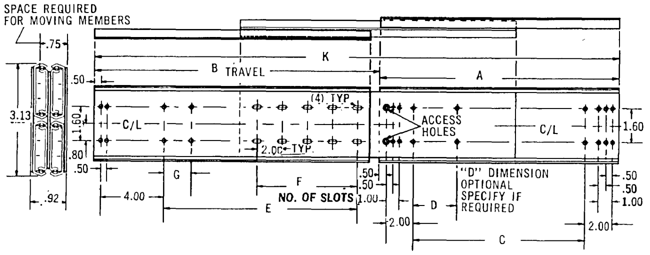
Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING

Please specify feature needed:
ESB2-SO (Stop-Out Only)
ESB2-FD (Positive Stop or Friction Stop with Fast Front Disconnect)
ESB2-OH (Optional Hole)
ESB2-M (Military Models)

SLIDE DIMENSIONS								
MODEL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**K**
ESB2-10	10	7	5		4.50	1		17
ESB2-12	12	9	7	1	6.50	1		21
ESB2-14	14	11	9	1	8.50	1		25
ESB2-16	16	12	11	3	10.50	2		28
ESB2-18	18	13	13	3	12.50	2		31
ESB2-20	20	15	15	5	14.50	2	2	35
ESB2-22	22	16	17	5	16.50	3	2	38
ESB2-24	24	17	19	7	18.50	3	2	41
ESB2-26	26	19	21	7	20.50	5	2	45
ESB2-28	28	20	23	9	22.50	5	2	48
ESB2-30	30	22	25	9	24.50	5	2	52

SLIM TRACK 3-SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 13)
MODEL: FBB2


SPACE REQUIRED FOR MOVING MEMBERS
.75
3.13
.50
1.60
.80
.50
.92
K
B TRAVEL
A
(4) TYP
C/L
2.00 TYP.
ACCESS HOLES
C/L
1.60
G
4.00
F
NO. OF SLOTS
E
.50
.50
1.00
D
"D" DIMENSION OPTIONAL SPECIFY IF REQUIRED
2.00
C
2.00
.50
.50
1.00

Load Capacity: Up to 300 Pounds. Load Ratings are based on a pair of 18″ slides with Standard Extension.
Material: Prime work hardened steel.
Holes: All Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Slots: .177 x .312 Mounting Slots for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.

Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Brackets: Front and Rear Mounting Brackets available.
Military Models available: Specify as: FBB2M
Fast Disconnect: Specify as: -FD.
Any load requirement available by multiple stacking vertically, and/or horizontally.

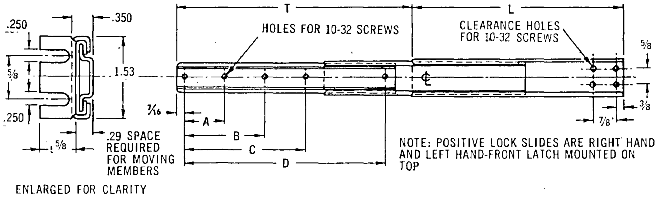
Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming OUT, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING

Specify as: example:
FBB2-20-PL (Positive Locking when extended) and FBB2-20-SO (Stop-Out Only)

SLIDE DIMENSIONS								
MODEL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**K**
FBB2-10	10	11	5		4.50	1		21
FBB2-12	12	13	7	1	6.50	1		25
FBB2-14	14	15	9	1	8.50	2		29
FBB2-16	16	17	11	3	10.50	2		33
FBB2-18	18	19	13	3	12.50	3		37
FBB2-20	20	21	15	5	14.50	3	2	41
FBB2-22	22	23	17	5	16.50	4	2	45
FBB2-24	24	25	19	7	18.50	4	2	49
FBB2-26	26	27	21	7	20.50	5	2	53
FBB2-28	28	29	23	9	22.50	5	2	57
FBB2-30	30	31	25	9	24.50	5	2	61

SLIM TRACK 3-SECTION SOLID BEARING SLIDES (PAGE 14)
MODEL: EST


.250
.350
5/8
1.53
.250
5/8
.29 SPACE REQUIRED FOR MOVING MEMBERS
ENLARGED FOR CLARITY
T
L
HOLES FOR 10-32 SCREWS
CLEARANCE HOLES FOR 10-32 SCREWS
5/8
7/16
A
B
C
D
3/8
7/8
NOTE: POSITIVE LOCK SLIDES ARE RIGHT HAND AND LEFT HAND-FRONT LATCH MOUNTED ON TOP

Solid Bearing, superior performance against high shock and vibration.
Built in permanent dry lubricant, never needs oiling.
All hardware stainless steel or zinc plated.
Finish: Molybdenum Disulphide.

Dry lubricant, baked on at 400° per MIL-L-25504. Over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime hard cold rolled steel. All parts built to military specifications.
Slides shipped with standard 2″ Rear Mounting Brackets. If specified, any one of the folowing size Rear Mounting Brackets will be shipped with Slides. 4″, 6″, 8″, 10″, or 12″.
Load Ratings: Nominal load rating 75* pounds.
*Load ratings are based on a pair of 18″ Slides with standard extension.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enable easy entry of Chassis into Cabinet without manipulation of Catches.

TO ORDER

Please specify feature needed:
EST-20-PL (Positive Locking when extended)
EST-20-SO (Stop-Out Only)
-FD (Fast Disconnect)

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
EST-10	10	11	3.12	6.25		
EST-12	12	13	3.75	7.50		
EST-14	14	15	4.37	8.75		
EST-16	16	17	5.00	10.00		
EST-18	18	19	5.62	11.25		
EST-20	20	21	3.125	6.250	9.375	12.500
EST-22	22	23	3.937	7.875	11.812	15.750
EST-24	24	25	4.437	8.875	13.312	17.750
EST-26	26	27	4.937	9.875	14.812	19.750
EST-28	28	29	5.437	10.875	16.312	21.750
EST-30	30	31	5.937	11.875	17.812	23.750

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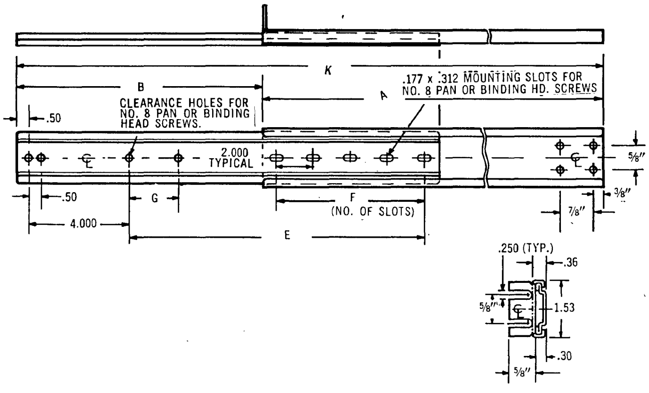
SLIM TRACK 2-SECTION SOLID BEARING SLIDES (PAGE 16)
MODEL: EST2


K
B
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HD. SCREWS
CLEARANCE HOLES FOR NO. 8 PAN OR BINDING HEAD SCREWS.
.50
2.000 TYPICAL
5/8"
.50
G
F (NO. OF SLOTS)
3/8"
7/8"
4.000
E
.250 (TYP.)
.36
5/8"
1.53
.30
5/8"

Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504, over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime, hard cold rolled steel. All parts built to military specifications.
* Load Capacity: Up to 100 Pounds in Extended Position.
Slides shipped with Standard Rear Mounting Bracket (2").
If specified, anyone of the following size Rear Mounting Brackets will be shipped with Slides: 4", 6", 8", 10", 12".
*Load ratings are based on a pair of 18" Slides with standard extension.

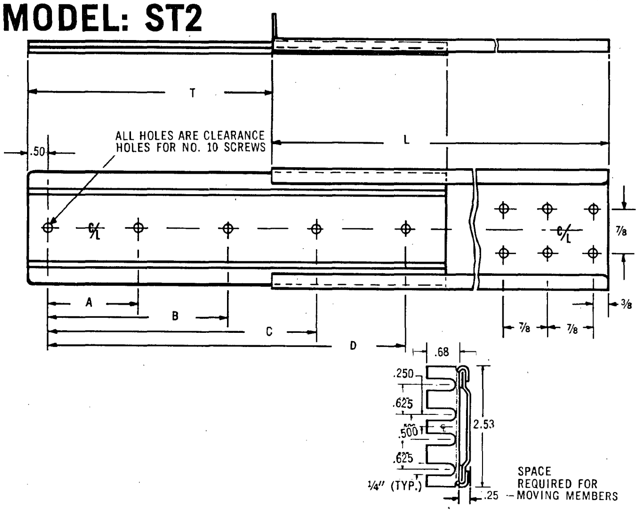
Solid Bearing, superior performance against high shock and vibration.
Built-in permanent dry lubrication, never need oiling.
All hardware stainless steel or zinc plated.

Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming OUT, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Specify as:
EST2-20-PL (Positive Locking when extended) or EST2-20-SO (Stop-Out Only). For Fast Disconnect, specify as: -FD

SLIDE DIMENSIONS						
MODEL	**A**	**B**	**E**	**F**	**G**	**K**
EST2-10	10	7	4.50	1		17
EST2-12	12	9	6.50	1		21
EST2-14	14	11	8.50	1		25
EST2-16	16	12	10.50	2		28
EST2-18	18	13	12.50	2		31
EST2-20	20	15	14.50	2	2	35
EST2-22	22	16	16.50	3	2	38
EST2-24	24	17	18.50	3	2	41
EST2-26	26	19	20.50	5	2	45
EST2-28	28	20	22.50	5	2	48
EST2-30	30	22	24.50	5	2	52

SLIM TRACK 2-SECTION SOLID BEARING SLIDES (PAGE 17)
MODEL: ST2


T
ALL HOLES ARE CLEARANCE HOLES FOR NO. 10 SCREWS
.50
L
7/8
A
B
C
D
3/8
7/8
7/8
.68
.250
.625
.500
2.53
.625
1/4" (TYP.)
.25
SPACE REQUIRED FOR MOVING MEMBERS

Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504, over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime, hard cold rolled steel. All parts built to military specifications.
* Load Capacity: Up to 100 Pounds in Extended Position.
Slides shipped with Standard Rear Mounting Bracket (2").
If specified, anyone of the following size Rear Mounting Brackets will be shipped with Slides: 4", 6", 8", 10", 12".
*Load ratings are based on a pair of 18" Slides with standard extension.

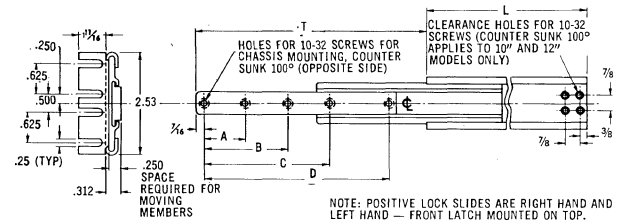
Solid Bearing, superior performance against high shock and vibration.
Built-in permanent dry lubrication, never needs oiling.
All hardware stainless steel or zinc plated.

Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming OUT, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Specify as (example):
ST2-20-PL (Positive Locking when extended) or ST2-20-SO (Stop-Out Only) For Fast Disconnect, specify as -FD

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
ST2-10	10	7	4.25	8.50		
ST2-12	12	9	5.25	10.50		
ST2-14	14	11	6.25	12.50		
ST2-16	16	12	4.83	9.66	14.50	
ST2-18	18	13	5.50	11.00	16.50	
ST2-20	20	15	4.62	9.25	13.87	18.50
ST2-22	22	16	5.12	10.25	14.37	20.50
ST2-24	24	17	5.62	11.25	15.37	22.50
ST2-26	26	19	6.12	12.25	17.37	24.50
ST2-28	28	20	6.62	13.25	19.37	26.50
ST2-30	30	22	7.12	14.25	20.37	28.50

SLIM TRACK 3-SECTION SOLID BEARING SLIDES (PAGE 18)
MODEL: ST


L
CLEARANCE HOLES FOR 10-32 SCREWS (COUNTER SUNK 100° APPLIES TO 10" AND 12" MODELS ONLY)
T
HOLES FOR 10-32 SCREWS FOR CHASSIS MOUNTING, COUNTER SUNK 100° (OPPOSITE SIDE)
7/8
3/8
7/8
7/16
A
B
C
D
1 11/16
.250
.625
.500
2.53
.625
.25 (TYP)
.250 SPACE REQUIRED FOR MOVING MEMBERS
.312

NOTE: POSITIVE LOCK SLIDES ARE RIGHT HAND AND LEFT HAND — FRONT LATCH MOUNTED ON TOP.

Slides shipped with Standard Rear Mounting Bracket (2").
If specified, any one of the following size Rear Mounting Brackets will be shipped with Slides. 4", 6", 8", 10", or 12".
Solid Bearing, superior performance against high shock and vibration.
Built in permanent dry lubricant, never needs oiling.
*Load ratings are based on a pair of 18" Slides with standard extension.

All hardware stainless steel or zinc plated.
Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504 over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime, hard cold rolled steel. All parts built to military specifications.
*Load Capacity: To 175 Pounds in Extended Position.

Choice of Positive Locking in both directions in extended position, or Stop-Out Only which allows easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Specify feature needed:
ST-20-PL (Positive Locking when extended)
ST-20-SO (Stop-Out Only)
-FD (Fast Disconnect)

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
ST-10	10	11	3.12	6.25		
ST-12	12	13	3.75	7.50		
ST-14	14	15	4.37	8.75		
ST-16	16	17	5.00	10.00		
ST-18	18	19	5.62	11.25		
ST-20	20	21	3.125	6.250	9.375	12.500
ST-22	22	23	3.937	7.875	11.812	15.750
ST-24	24	25	4.437	8.875	13.312	17.750
ST-26	26	27	4.937	9.875	14.812	19.750
ST-28	28	29	5.437	10.875	16.312	21.750
ST-30	30	31	5.937	11.875	17.812	23.750

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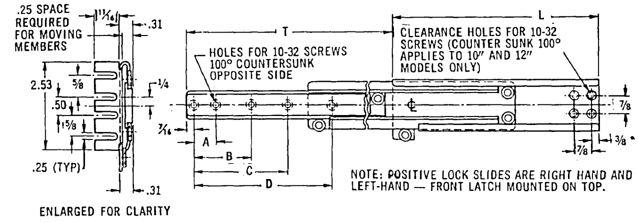
SLIM TRACK 3-SECTION ROLLER BEARING SLIDES (PAGE 21)
MODEL: STR


.25 SPACE REQUIRED FOR MOVING MEMBERS
11/16
.31
2.53
5/8
1/4
.50
15/8
.25 (TYP)
.31
ENLARGED FOR CLARITY
T
HOLES FOR 10-32 SCREWS 100° COUNTERSUNK OPPOSITE SIDE
L
CLEARANCE HOLES FOR 10-32 SCREWS (COUNTER SUNK 100° APPLIES TO 10" AND 12" MODELS ONLY)
℄
7/8
3/16
A
B
C
D
7/8
3/8
NOTE: POSITIVE LOCK SLIDES ARE RIGHT HAND AND LEFT-HAND — FRONT LATCH MOUNTED ON TOP.

Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

All hardware: Stainless steel or cadmium plated.

Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504, over Phosphate Coating per MIL-P-16232, Type M.

Material: Prime, hard cold rolled steel. All parts built to military specifications.

*Load Capacity: Up to 175 Pounds in Extended Position.

Slides shipped with Standard Rear Mounting Bracket (2″) if specified, any one of the following size Rear Mounting Brackets will be shipped with Slides. 4″, 6″, 8″, 10″ or 12″.

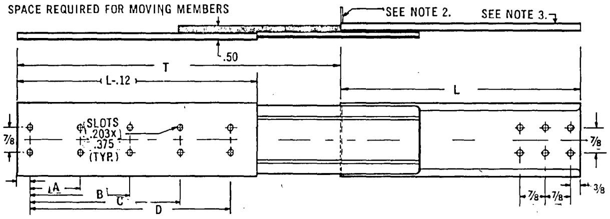
*Load ratings are based on a pair of 18″ Slides with standard extension.

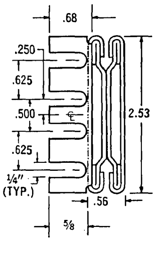
Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Specify feature needed:
STR-20-PL (Positive Locking when extended)
STR-20-SO (Stop-Out Only)
-FD (Fast Disconnect)

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
STR-10	10	11	3.12	6.25		
STR-12	12	13	3.75	7.50		
STR-14	14	15	4.37	8.75		
STR-16	16	17	5.00	10.00		
STR-18	18	19	5.62	11.25		
STR-20	20	21	3.125	6.250	9.375	12.500
STR-22	22	23	3.937	7.875	11.812	15.750
STR-24	24	25	4.437	8.875	13.312	17.750
STR-26	26	27	4.937	9.875	14.812	19.750
STR-28	28	29	5.437	10.875	16.312	21.750
STR-30	30	31	5.937	11.875	17.812	23.750

SLIM TRACK 3-SECTION SOLID BEARING SLIDES/HEAVY-DUTY (PAGE 22)
MODEL: STBF


SPACE REQUIRED FOR MOVING MEMBERS
SEE NOTE 2.
SEE NOTE 3.
.50
T
L-.12
L
7/8
SLOTS .203x .375 (TYP.)
7/8
A
B
C
D
7/8
7/8
3/8


.68
.250
.625
.500
℄
.625
1/4" (TYP.)
2.53
.56
5/8

Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Co. service at a nominal cost, or, in many cases at no additional cost.

Use only No. 10 Pan or Binding Head Screws for Mounting.

Integral Front Bracket standard, consult Barnes Application Engineering Dept. for all other Mounting methods.

Adjustable Rear Bracket supplied Loose, (zinc plated)

Material: Prime work hardened steel.

Finish: Molybdenum Disulphide dry lubricant, baked on at 400° per MIL-L-25504 over Phosphate Coating per MIL-P-16232, Type M.

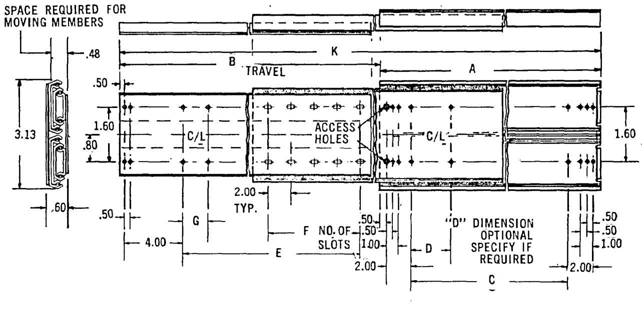
Load Rating: 200 pounds in extended position; based on an 18″ Slide with Standard Extension.

*Load ratings are based on a pair of 18″ Slides with standard extension.

WHEN ORDERING
Please specify feature needed:
STBF-20-PL (Positive Locking when extended)
STBF-20-SO (Stop-Out Only)
STBFM (Military Models)
FD (Fast Disconnect)

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
STBF-10	10	11	4.25	8.50		
STBF-12	12	13	5.25	10.50		
STBF-14	14	15	6.25	12.50		
STBF-16	16	17	4.83	9.66	14.50	
STBF-18	18	19	5.50	11.00	16.50	
STBF-20	20	21	4.62	9.25	13.87	18.50
STBF-22	22	23	5.12	10.25	15.37	20.50
STBF-24	24	25	5.62	11.25	16.87	22.50
STBF-26	26	27	6.12	12.25	18.37	24.50
STBF-28	28	29	6.62	13.25	19.87	26.50
STBF-30	30	31	7.12	14.25	21.37	28.50

SLIM TRACK 3-SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 24)
MODEL: ESBB2


SPACE REQUIRED FOR MOVING MEMBERS
.48
K
B
TRAVEL
A
.50
1.60
3.13
.80
C/L
ACCESS HOLES
C/L
1.60
.60
.50
4.00
G
2.00 TYP.
E
F NO. OF SLOTS
.50
.50
1.00
2.00
D
"D" DIMENSION OPTIONAL SPECIFY IF REQUIRED
C
.50
.50
1.00
2.00

Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming OUT, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

Any choice of combinations of lengths, engagements, mounting hole patterns etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Load Capacity: Up to 300 Pounds. Load Ratings are based on a pair of 18″ slides with Standard Extension.

Material: Prime work hardened steel.

Holes: All Holes .177 Dia. for No. 8 Pan or Binding Head Screws.

Slots: .177 x .312 Mounting Slots for No. 8 Pan or Binding Head Screws.

Mounting Hole and Slot Location Tolerance ±.010.

Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.

Brackets: Front and Rear Mounting Brackets available.

Military Models available: Specify as: ESBB2M.

Any load requirement available by multiple stacking vertically, and/or horizontally.

*Load ratings are based on a pair of 18″ Slides with standard extension.

WHEN ORDERING
Specify as: example:
ESBB2-20-PL (Positive Locking when extended) and ESBB2-20-SO (Stop-Out Only) Fast Disconnect: Specify as: -FD

SLIDE DIMENSIONS								
MODEL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**K**
ESBB2-10	10	11	5		4.50	1		21
ESBB2-12	12	13	7	1	6.50	1		25
ESBB2-14	14	15	9	1	8.50	2		29
ESBB2-16	16	17	11	3	10.50	2		33
ESBB2-18	18	19	13	3	12.50	3		37
ESBB2-20	20	21	15	5	14.50	3	2	41
ESBB2-22	22	23	17	5	16.50	4	2	45
ESBB2-24	24	25	19	7	18.50	4	2	49
ESBB2-26	26	27	21	7	20.50	5	2	53
ESBB2-28	28	29	23	9	22.50	5	2	57
ESBB2-30	30	31	25	9	24.50	5	2	61

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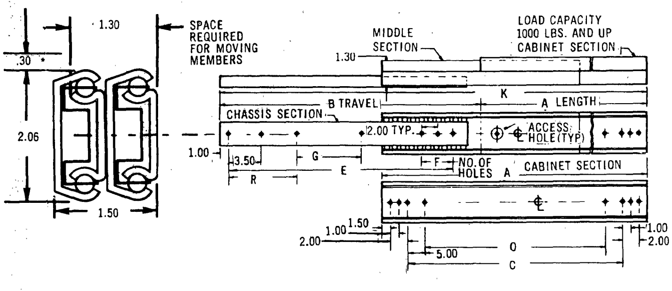
SLIM TRACK 3-SECTION BALL BEARING SLIDES/HEAVY-DUTY (PAGE 25)
MODEL: HD3B


1.30
SPACE REQUIRED FOR MOVING MEMBERS
.30
2.06
1.50
MIDDLE SECTION
LOAD CAPACITY 1000 LBS. AND UP
CABINET SECTION
1.30
K
B TRAVEL
A LENGTH
CHASSIS SECTION
2.00 TYP.
ACCESS HOLE (TYP)
1.00
3.50
G
R
E
F
NO. OF HOLES
A
CABINET SECTION
1.50
1.00
2.00
5.00
O
C
1.00
2.00

OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

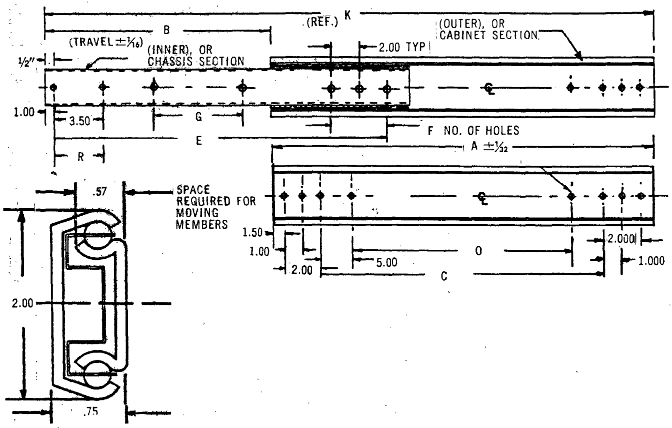
We Recommend: 1/4" Button Head Hex Socket Screws.
Any load requirement available by stacking vertically and/or horizontally.
Load capacity to 1000 Lbs. and up.
All Slides Quality Zinc Plated.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

WHEN ORDERING
Please specify feature needed:
- *HD3B-20-PL (Positive Locking when extended)
- HD3B-20-SO (Stop-Out Only)
- HD3BM (Military Models)
- HD3B-20-SO-FD Stop-Out (Fast Disconnect)
- *HD3B-20-PL-FD Positive Locking (Fast Disconnect)
- *HD3B-20-PL-FD-L.I. Positive Locking (Fast Disconnect) Lock In

SLIDE DIMENSIONS									
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**	**O**	**R**
HD3B-10	10	11	3	8	1		21		
HD3B-12	12	13	5	10	1		25		
HD3B-14	14	15	7	12	1		29		
HD3B-16	16	17	9	14	1		33		
HD3B-18	18	19	11	16	2		37		
HD3B-20	20	21	13	18	2		41	3	5.5
HD3B-22	22	23	15	20	3		45	5	5.5
HD3B-24	24	25	17	22	3		49	7	5.5
HD3B-26	26	27	19	24	4	2.5	53	9	5.5
HD3B-28	28	29	21	26	4	4.5	57	11	5.5
HD3B-30	30	31	23	28	5	5.5	61	13	5.5

*Load ratings are based on a pair of 18" Slides with standard extension.
Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
All Mounting Holes .265 Dia.

SLIM TRACK 2-SECTION BALL BEARING SLIDES/HEAVY-DUTY (PAGE 26)
MODEL: HD2B


B
(REF.) K
(OUTER), OR CABINET SECTION
(TRAVEL ±1/16)
(INNER), OR CHASSIS SECTION
1/2"
2.00 TYP
1.00
3.50
G
E
F NO. OF HOLES
A ±1/32
R
.57
SPACE REQUIRED FOR MOVING MEMBERS
1.50
1.00
2.00
5.00
O
C
2.000
1.000
2.00
.75

Load capacity to 400 Lbs. and up.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated.
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18" Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

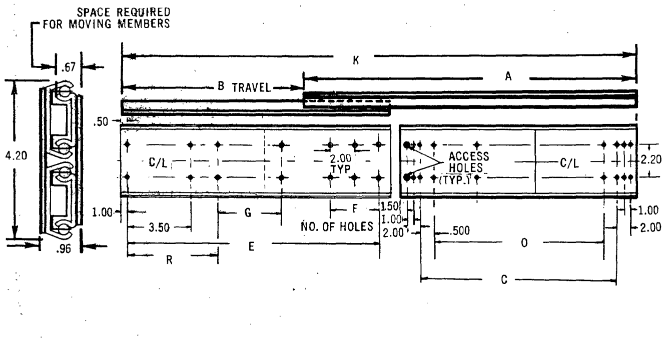
Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
- HD2B-20-PL (Positive Locking when extended)
- HD2B-20-SO (Stop-Out Only)
- HD2BM (Military Models)
- FD (Fast Disconnect)

SLIDE DIMENSIONS									
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**	**O**	**R**
HD2B-10	10	7	3	8	1		17		
HD2B-12	12	9	5	10	1		21		
HD2B-14	14	11	7	12	1		25		
HD2B-16	16	12	9	14	1		28		
HD2B-18	18	13	11	16	2		31		
HD2B-20	20	15	13	18	2		35	3	5.5
HD2B-22	22	16	15	20	3		38	5	5.5
HD2B-24	24	17	17	22	3		41	7	5.5
HD2B-26	26	19	19	24	4	2.5	45	9	5.5
HD2B-28	28	20	21	26	4	4.5	48	11	5.5
HD2B-30	30	22	23	28	5	5.5	52	13	5.5

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.
All Slots .265 x .375.
All Mounting Holes .265 Dia.

SLIM TRACK 2-SECTION BALL BEARING SLIDES/HEAVY-DUTY (PAGE 27)
MODEL: HD2B2


SPACE REQUIRED FOR MOVING MEMBERS
.67
K
B TRAVEL
A
.50
4.20
C/L
2.00 TYP
ACCESS HOLES (TYP.)
C/L
2.20
1.00
3.50
G
F
NO. OF HOLES
1.50
1.00
2.00
.500
E
R
O
C
.96
1.00
2.00

Load capacity to 1000 Lbs. and up.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated.
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18" Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
- HD2B2-20-PL (Positive Locking when extended)
- HD2B2-20-SO (Stop-Out Only)
- HD2B2M (Military Models)
- FD (Fast Disconnect)

SLIDE DIMENSIONS									
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**	**O**	**R**
HD2B2-10	10	7	3	8	1		17		
HD2B2-12	12	9	5	10	1		21		
HD2B2-14	14	11	7	12	1		25		
HD2B2-16	16	12	9	14	1		28		
HD2B2-18	18	13	11	16	2		31		
HD2B2-20	20	15	13	18	2		35	3	5.5
HD2B2-22	22	16	15	20	3		38	5	5.5
HD2B2-24	24	17	17	22	3		41	7	5.5
HD2B2-26	26	19	19	24	4	2.5	45	9	5.5
HD2B2-28	28	20	21	26	4	4.5	48	11	5.5
HD2B2-30	30	22	23	28	5	5.5	52	13	5.5

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.
All Mounting Holes .265 Dia.
All Slots .265 x .375.

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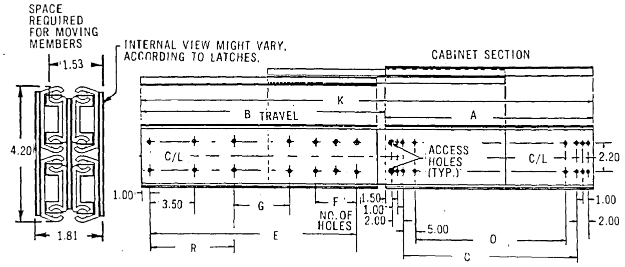
SLIM TRACK 3-SECTION BALL BEARING SLIDES/HEAVY-DUTY (PAGE 28) MODEL: HD3B2


SPACE REQUIRED FOR MOVING MEMBERS
1.53
INTERNAL VIEW MIGHT VARY, ACCORDING TO LATCHES.
CABINET SECTION
K
B TRAVEL
A
4.20
C/L
ACCESS HOLES (TYP.)
C/L
2.20
1.00
3.50
G
F
1.50
1.00
2.00
NO. OF HOLES
1.00
2.00
5.00
O
1.81
R
E
C

Choice of Positive Locking in both directions in Extended Position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

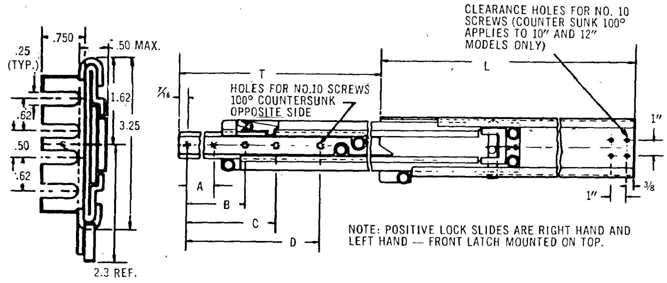
Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.
All Mounting Holes .265 Dia.
All Slots .265 x .375.

Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated.
Load capacity to 2300 Lbs. and up.
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

WHEN ORDERING
Please specify feature needed:
HD3B2-20-PL (Positive Locking when extended)
HD3B2-20-SO (Stop-Out Only)
HD3B2M (Military Models)
FD (Fast Disconnect)

SLIDE DIMENSIONS									
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**	**O**	**R**
HD3B2-10	10	11	3	8	1		21		
HD3B2-12	12	13	5	10	1		25		
HD3B2-14	14	15	7	12	1		29		
HD3B2-16	16	17	9	14	1		33		
HD3B2-18	18	19	11	16	2		37		
HD3B2-20	20	21	13	18	2		41	3	5.5
HD3B2-22	22	23	15	20	3		45	5	5.5
HD3B2-24	24	25	17	22	3		49	7	5.5
HD3B2-26	26	27	19	24	4	2.5	53	9	5.5
HD3B2-28	28	29	21	26	4	4.5	57	11	5.5
HD3B2-30	30	31	23	28	5	5.5	61	13	5.5

SLIM TRACK 3-SECTION ROLLER BEARING SLIDES/HEAVY-DUTY (PAGE 29) MODEL: HD-STR


CLEARANCE HOLES FOR NO. 10 SCREWS (COUNTER SUNK 100° APPLIES TO 10″ AND 12″ MODELS ONLY)
.750
.50 MAX.
.25 (TYP.)
T
L
HOLES FOR NO.10 SCREWS 100° COUNTERSUNK OPPOSITE SIDE
1.62
.62
3.25
.50
.62
1″
1″
3/8
A
B
C
D
NOTE: POSITIVE LOCK SLIDES ARE RIGHT HAND AND LEFT HAND — FRONT LATCH MOUNTED ON TOP.
2.3 REF.

Choice of Positive Locking in both directions in Extended Position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

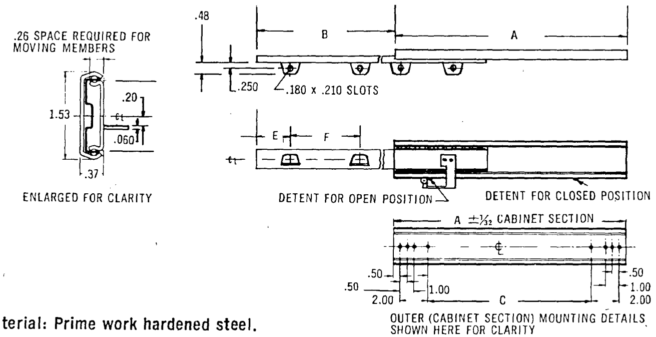
All hardware: Stainless steel or cadmium plated.
Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504, over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime, hard cold rolled steel. All parts built to military specifications.

Slides shipped with Standard Rear Mounting Bracket (2″).
If specified, any one of the following size Rear Mounting Brackets will be shipped with Slides. 4″, 6″, 8″, 10″ or 12″.
Load Capacity: 250 Pounds and up.
Available with or without Integral Front Bracket Flange.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

WHEN ORDERING
Specify feature needed:
HD-STR-20-PL (Positive Locking when extended)
HD-STR-20-SO (Stop-Out Only)
-FD (Fast Disconnect)

SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
HD-STR-10	10	11	3.12	3.12		
HD-STR-12	12	13	3.75	3.75		
HD-STR-14	14	15	4.37	4.37		
HD-STR-16	16	17	5.00	5.00		
HD-STR-18	18	19	5.62	5.62		
HD-STR-20	20	21	3.125	6.250	9.375	12.500
HD-STR-22	22	23	3.937	7.875	11.812	15.750
HD-STR-24	24	25	4.437	8.875	13.312	17.750
HD-STR-26	26	27	4.937	9.875	14.812	19.750
HD-STR-28	28	29	5.437	10.875	16.312	21.750
HD-STR-30	30	31	5.937	11.875	17.812	23.750

SLIM TRACK 2-SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 30) D R SERIES


.48
.26 SPACE REQUIRED FOR MOVING MEMBERS
B
A
.250
.180 x .210 SLOTS
.20
1.53
.060
.37
E
F
ENLARGED FOR CLARITY
DETENT FOR OPEN POSITION
DETENT FOR CLOSED POSITION
A ±1/32 CABINET SECTION
.50
.50
1.00
2.00
C
.50
1.00
2.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

Material: Prime work hardened steel.
Front and Rear Mounting Brackets are available.
All Mounting Holes are .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All necessary Clearance Holes provided for Mounting Purposes.
All Slides Quality Zinc Plated.
Inner (chassis section) removable from the rear when specified.

Special combinations of Lengths, Engagements, Mounting Hole Patterns, etc., available.
Load capacity to 120* Lbs.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

DETENT ROLLER holds SLIDE in Extended Position and in Closed Position.

SLIDE DIMENSIONS						
MODEL	**A**	**B**	**C**	**E**	**F**	**No. of TABS**
DR-10	10	7	5	1.50	4.50	2
DR-12	12	9	7	1.50	6.50	2
DR-14	14	11	9	1.50	8.50	2
DR-16	16	12	11	1.50	9.50	2
DR-18	18	13	13	1.50	10.50	2
DR-20	20	15	15	1.50	6.25	3
DR-22	22	16	17	1.50	6.75	3
DR-24	24	17	19	1.50	7.25	3
DR-26	26	19	21	1.50	8.25	3
DR-28	28	20	23	1.50	8.75	3
DR-30	30	22	25	1.50	9.75	3

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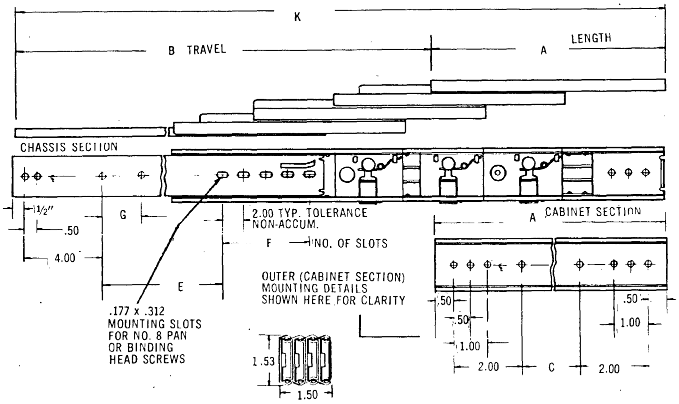
SLIM TRACK 5-SECTION BALL BEARING SLIDES (PAGE 31)
MODEL: D T


K
B TRAVEL
A
LENGTH
CHASSIS SECTION
1½"
.50
4.00
G
2.00 TYP. TOLERANCE NON-ACCUM.
F
NO. OF SLOTS
E
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
1.53
1.50
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY
A
CABINET SECTION
.50
.50
1.00
1.00
.50
2.00
C
2.00

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.

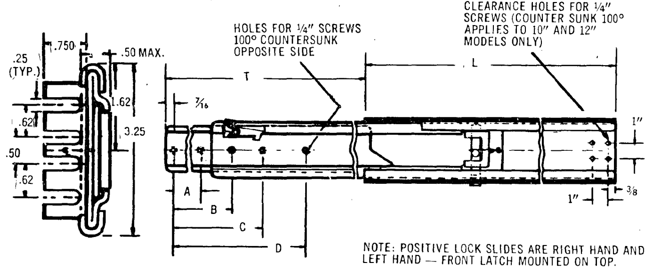
All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated.
***Load capacity to 25 Lbs. and up.**
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING
Please specify feature needed:
DT-20-PL (Positive Locking when extended)
DT-20-SO (Stop-Out Only)
DTM (Military Models)
-FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
DT-10	10	20	5	4.50	1		30
DT-12	12	24	7	6.50	1		36
DT-14	14	28	9	6.50	2		42
DT-16	16	32	11	8.50	2		48
DT-18	18	36	13	8.50	3		54
DT-20	20	40	15	10.50	3	2	60
DT-22	22	44	17	10.50	4	2	66
DT-24	24	48	19	12.50	4	2	72
DT-26	26	52	21	12.50	5	2	78
DT-28	28	56	23	14.50	5	2	84
DT-30	30	60	25	16.50	5	2	90

HEAVY-DUTY SOLID BEARING SLIDES (PAGE 32)
MODEL: HD-ST


.25 (TYP.)
.750
.50 MAX.
1.62
.62
3.25
.50
.62
HOLES FOR ¼" SCREWS 100° COUNTERSUNK OPPOSITE SIDE
CLEARANCE HOLES FOR ¼" SCREWS (COUNTER SUNK 100° APPLIES TO 10" AND 12" MODELS ONLY)
T
L
7/16
1"
A
B
C
D
1"
3/8
NOTE: POSITIVE LOCK SLIDES ARE RIGHT HAND AND LEFT HAND — FRONT LATCH MOUNTED ON TOP.

All hardware: Stainless steel or cadmium plated.
Finish: Molybdenum Disulphide, dry lubricant, baked on at 400° per MIL-L-25504, over Phosphate Coating per MIL-P-16232, Type M.
Material: Prime, hard cold rolled steel. All parts built to military specifications.
Slides shipped with Standard Rear Mounting Bracket (2″).
If specified, any one of the folowing size Rear Mounting Brackets will be shipped with Slides. 4″, 6″, 8″, 10″ or 12″.

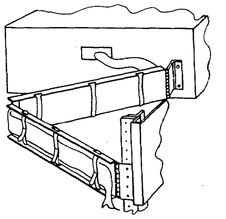
Load Capacity: 200 Pounds and up.
Available with or without Integral Front Bracket Flange.
*Load ratings are based on a pair of 18″ Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

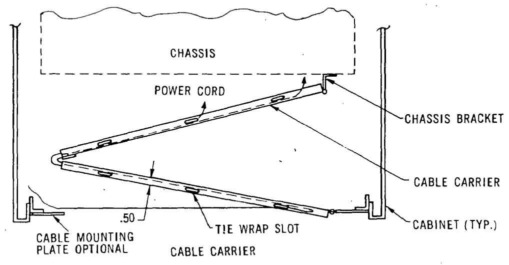
WHEN ORDERING
HD-ST-20-PL (Positive Locking when extended)
HD-ST-20-SO (Stop-Out Only)
-FD (Fast Disconnect)

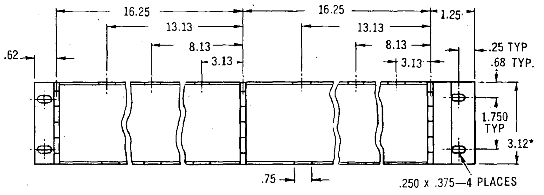
SLIDE DIMENSIONS						
MODEL	**L**	**T**	**A**	**B**	**C**	**D**
HD-ST-10	10	11	3.12	3.12		
HD-ST-12	12	13	3.75	3.75		
HD-ST-14	14	15	4.37	4.37		
HD-ST-16	16	17	5.00	5.00		
HD-ST-18	18	19	5.62	5.62		
HD-ST-20	20	21	3.125	6.250	9.375	12.500
HD-ST-22	22	23	3.937	7.875	11.812	15.750
HD-ST-24	24	25	4.437	8.875	13.312	17.750
HD-ST-26	26	27	4.937	9.875	14.812	19.750
HD-ST-28	28	29	5.437	10.875	16.312	21.750
HD-ST-30	30	31	5.937	11.875	17.812	23.750

CABLE CARRIER
MODEL: C100
(PAGE C)

Material: Prime hard cold rolled steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type I, Silver Color.




CHASSIS
POWER CORD
CHASSIS BRACKET
CABLE CARRIER
.50
TIE WRAP SLOT
CABINET (TYP.)
CABLE MOUNTING PLATE OPTIONAL
CABLE CARRIER


16.25
16.25
1.25
13.13
13.13
8.13
8.13
3.13
3.13
.62
.25 TYP
.68 TYP.
1.750 TYP
3.12*
.75
.250 x .375—4 PLACES

* OTHER DIMENSIONS AVAILABLE: PLEASE SPECIFY

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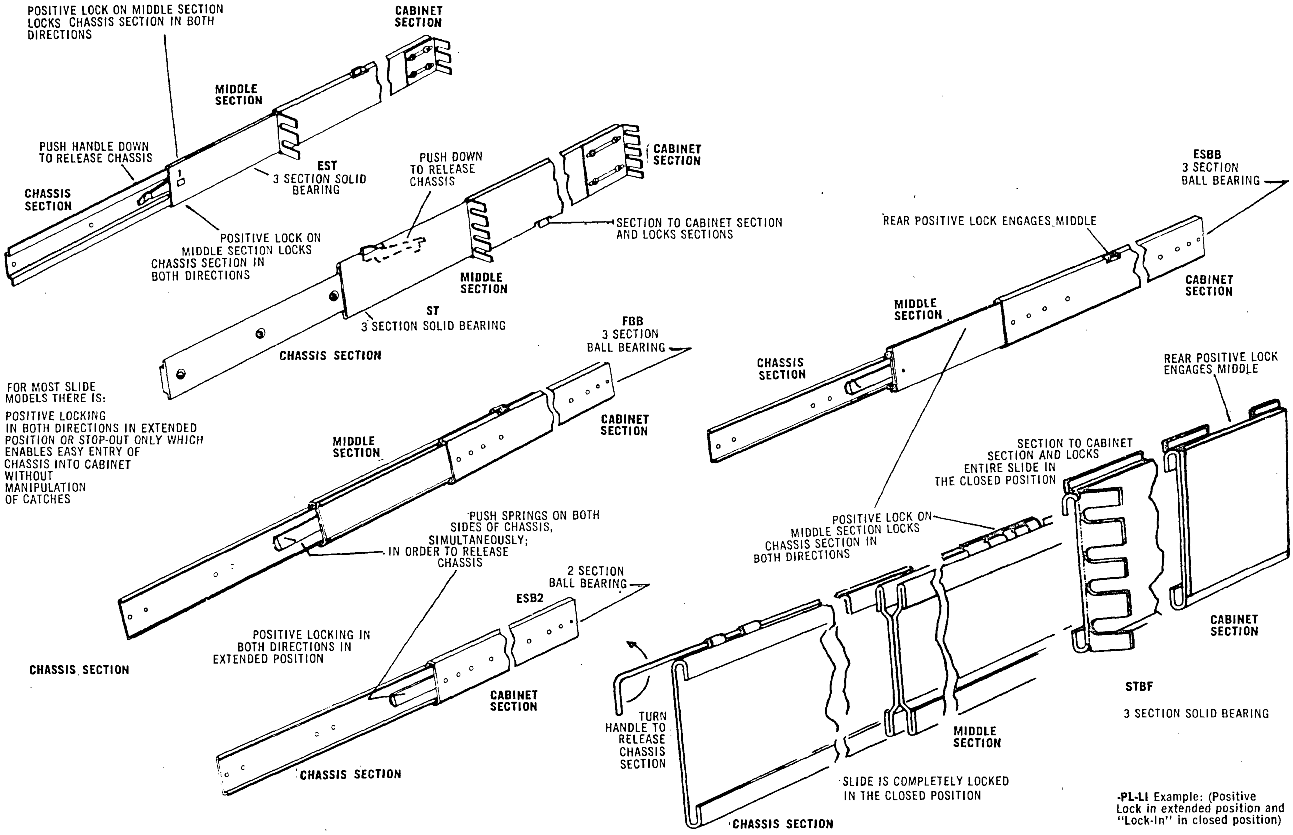
B.E. LOCKS, LATCHES AND SPRING STOPS (PAGE A)

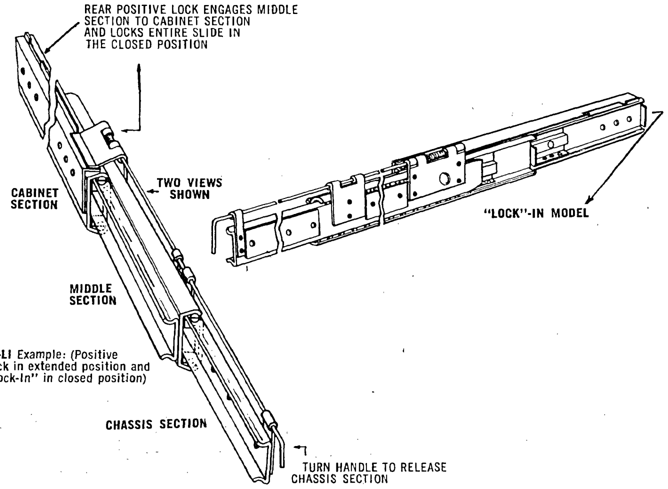

POSITIVE LOCK ON MIDDLE SECTION LOCKS CHASSIS SECTION IN BOTH DIRECTIONS
CABINET SECTION
MIDDLE SECTION
PUSH HANDLE DOWN TO RELEASE CHASSIS
CHASSIS SECTION
EST
3 SECTION SOLID BEARING
POSITIVE LOCK ON MIDDLE SECTION LOCKS CHASSIS SECTION IN BOTH DIRECTIONS
PUSH DOWN TO RELEASE CHASSIS
CABINET SECTION
SECTION TO CABINET SECTION AND LOCKS SECTIONS
MIDDLE SECTION
ST
3 SECTION SOLID BEARING
CHASSIS SECTION
ESBB
3 SECTION
BALL BEARING
REAR POSITIVE LOCK ENGAGES MIDDLE
CABINET SECTION
MIDDLE SECTION
CHASSIS SECTION
FBB
3 SECTION
BALL BEARING
CABINET SECTION
MIDDLE SECTION
PUSH SPRINGS ON BOTH SIDES OF CHASSIS, SIMULTANEOUSLY; IN ORDER TO RELEASE CHASSIS
CHASSIS SECTION
2 SECTION BALL BEARING
ESB2
POSITIVE LOCKING IN BOTH DIRECTIONS IN EXTENDED POSITION
CABINET SECTION
CHASSIS SECTION
REAR POSITIVE LOCK ENGAGES MIDDLE
SECTION TO CABINET SECTION AND LOCKS ENTIRE SLIDE IN THE CLOSED POSITION
POSITIVE LOCK ON MIDDLE SECTION LOCKS CHASSIS SECTION IN BOTH DIRECTIONS
CABINET SECTION
STBF
3 SECTION SOLID BEARING
TURN HANDLE TO RELEASE CHASSIS SECTION
MIDDLE SECTION
SLIDE IS COMPLETELY LOCKED IN THE CLOSED POSITION
CHASSIS SECTION

FOR MOST SLIDE MODELS THERE IS:
POSITIVE LOCKING IN BOTH DIRECTIONS IN EXTENDED POSITION OR STOP-OUT ONLY WHICH ENABLES EASY ENTRY OF CHASSIS INTO CABINET WITHOUT MANIPULATION OF CATCHES

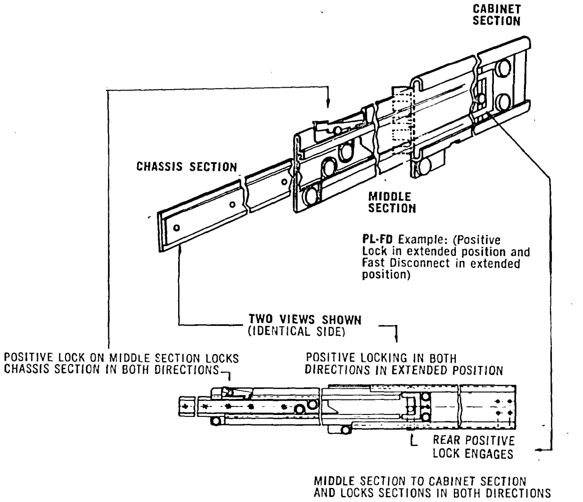
-PL-LI Example: (Positive Lock in extended position and "Lock-In" in closed position)

SLIM TRACK 3-SECTION BALL BEARING SLIDE/HEAVY DUTY
MODEL: HD3B (PAGE A1)

SLIM TRACK 3-SECTION/HEAVY-DUTY ROLLER BEARING SLIDE
MODEL: HD-STR


REAR POSITIVE LOCK ENGAGES MIDDLE SECTION TO CABINET SECTION AND LOCKS ENTIRE SLIDE IN THE CLOSED POSITION
TWO VIEWS SHOWN
CABINET SECTION
"LOCK"-IN MODEL
MIDDLE SECTION
CHASSIS SECTION
TURN HANDLE TO RELEASE CHASSIS SECTION

PL-LI Example: (Positive Lock in extended position and "Lock-In" in closed position)


CABINET SECTION
CHASSIS SECTION
MIDDLE SECTION
TWO VIEWS SHOWN (IDENTICAL SIDE)
POSITIVE LOCK ON MIDDLE SECTION LOCKS CHASSIS SECTION IN BOTH DIRECTIONS
POSITIVE LOCKING IN BOTH DIRECTIONS IN EXTENDED POSITION
REAR POSITIVE LOCK ENGAGES
MIDDLE SECTION TO CABINET SECTION AND LOCKS SECTIONS IN BOTH DIRECTIONS

PL-FD Example: (Positive Lock in extended position and Fast Disconnect in extended position)

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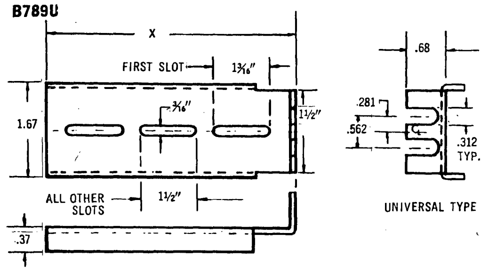
SLIM TRACK MOUNTING BRACKETS

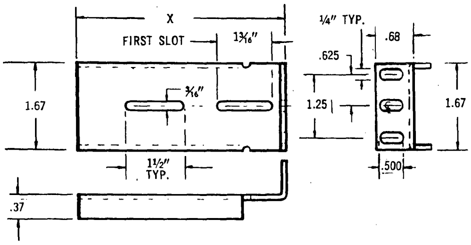
(PAGE B1)

B789U


X
FIRST SLOT
1 3/16"
1.67
3/16"
1 1/2"
ALL OTHER SLOTS
.37
.68
.281
.562
.312 TYP.
UNIVERSAL TYPE

Part No.	B789U
Dash No.	X-Dimen.
-2	2"
-4	4"
-6	6"
-8	8"
-10	10"

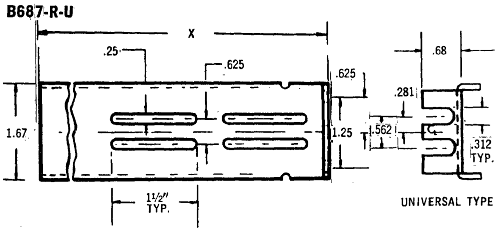
B534


X
FIRST SLOT
1 3/16"
1/4" TYP.
.68
.625
3/16"
1.67
1.25
1.67
1 1/2" TYP.
.500
.37

Part No.	B534
Dash No.	X-Dimen.
-2	2"
-4	4"
-6	6"
-8	8"
-10	10"

Material: Prime cold rolled Steel. (16) GA.
Finish: Bright Electro-Zinc Plated per QQZ-325. Type 1, Silver Color.

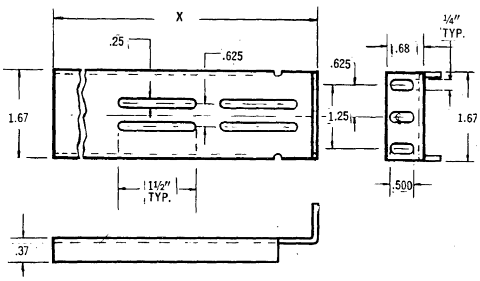
B687-R-U


X
.25
.625
.625
1.67
1.25
1 1/2" TYP.
.68
.281
.562
.312 TYP.
UNIVERSAL TYPE

Part No.	B687-RU
Dash No.	X-Dimen.
-2	2"
-4	4"
-6	6"
-8	8"
-10	10"

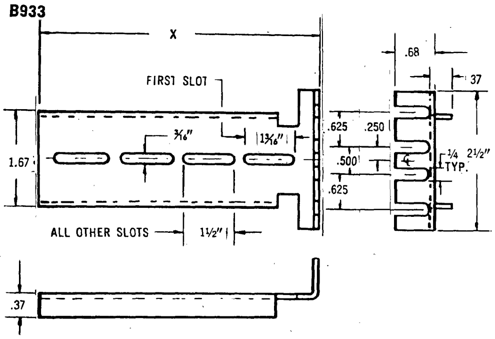
B573

ADJUSTABLE MOUNTING BRACKETS


X
.25
.625
1/4" TYP.
.68
.625
1.67
1.25
1.67
1 1/2" TYP.
.500
.37

Part No.	B573
Dash No.	X-Dimen.
-4	2"
-2	4"
-6	6"
-8	8"
-10	10"

B933


X
FIRST SLOT
3/16"
1 3/16"
1.67
ALL OTHER SLOTS
1 1/2"
.68
.37
.625
.250
.500
.625
1/4 TYP.
2 1/2"
.37

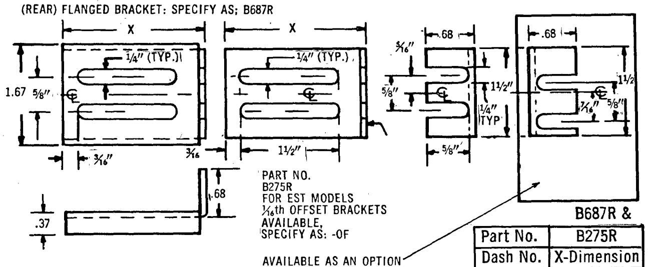
Part No.	B933
Dash No.	X-Dimen.
-2	2"
-4	4"
-6	6"
-8	8"
-10	10"

Material: Prime cold rolled Steel. (16) GA.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.

SLIM TRACK MOUNTING BRACKETS

(PAGE B2)

(REAR) FLANGED BRACKET: SPECIFY AS; B687R


X
X
1/4" (TYP.)
1/4" (TYP.)
1.67
5/8"
3/16"
3/16
1 1/2"
.68
.37
.68
5/16"
5/8"
1 1/2"
1/4" TYP
5/8"
.68
1 1/2
7/16"
5/8"

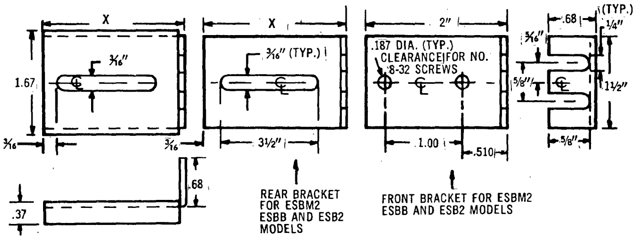
PART NO.
B275R
FOR EST MODELS
1/16th OFFSET BRACKETS
AVAILABLE,
SPECIFY AS: -OF

AVAILABLE AS AN OPTION ON ALL BRACKETS, SPECIFY AS -T R.H. SHOWN, L.H. Opposite

B687R &

Part No.	B275R
Dash No.	X-Dimension
-2	2"
-4	4"
-8	6"
-8	8"
-10	10"

(REAR) FLANGED BRACKET: SPECIFY AS;
B789R PART NO. B345R PART NO. B345F


X
X
2"
3/16"
3/16" (TYP.)
.187 DIA. (TYP.) CLEARANCE FOR NO. 8-32 SCREWS
1.67
3/16
3/16
3 1/2"
1.00
.510
.68
.37
.68
(TYP.) 1/4"
5/16"
5/8"
1 1/2"
5/8"

REAR BRACKET FOR ESBM2 ESBB AND ESB2 MODELS

FRONT BRACKET FOR ESBM2 ESBB AND ESB2 MODELS

B789R &

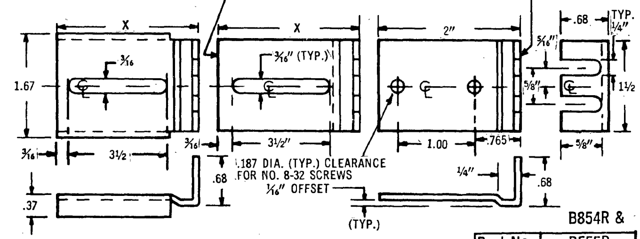
Part No.	B345R
Dash No.	X-Dimension
-4	4"
-6	6"
-6	8"
-10	10"

FINISH: Zinc Plated

(REAR) FLANGED BRACKET SPECIFY AS; B854R

PART NO. B555R REAR BRACKET FOR ESBB AND ESB2 MODELS

PART NO. B555F (FRONT BKT.) FOR ESBB AND ESB2 MODELS


X
X
2"
3/16
3/16" (TYP.)
1.67
3/16
3 1/2
3/16
3 1/2"
1.00
.765
.68
TYP. 1/4"
5/16"
5/8"
1 1/2
5/8"
.187 DIA. (TYP.) CLEARANCE FOR NO. 8-32 SCREWS
1/16" OFFSET
(TYP.)
.68
.37
1/4"
.68

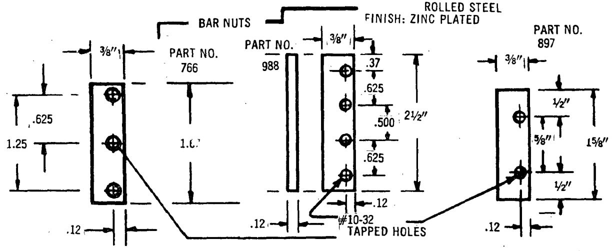
B854R &

Part No.	B555R
Dash No.	X-Dimension
-4	4"
-6	6"
-8	8"
-10	10"

Mounting brackets and bar nuts must be ordered separately.
All brackets available with CLOSED SLOTS.
Material: .060 Cold Rolled Steel.
Finish: Bright Zinc Plate.
Military Finish supplied, when specified.

OFFSET MOUNTING BRACKETS

MATERIAL: 1/8th COLD ROLLED STEEL
FINISH: ZINC PLATED

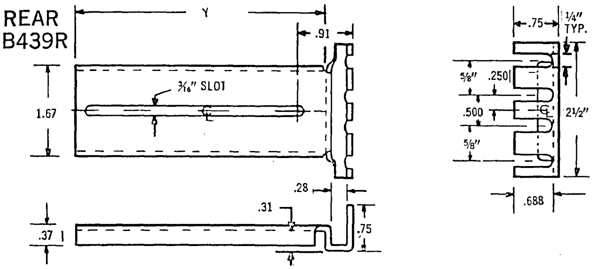

BAR NUTS
PART NO. 766
PART NO. 988
PART NO. 897
3/8"
3/8"
3/8"
.625
1.25
1.6
.37
.625
.500
.625
2 1/2"
1/2"
5/8"
1/2"
1 5/8"
.12
.12
.12
.12
#10-32 TAPPED HOLES

BARNES ENGINEERING COMPANY
1645 SOUTH CLAUDINA WAY
ANAHEIM, CALIFORNIA 92805
TELEPHONE (714) 533-7530

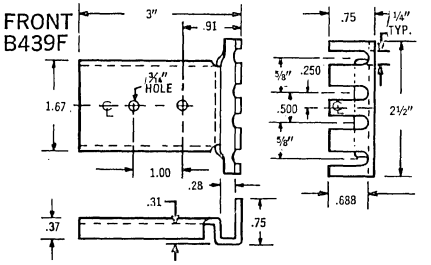
***Page No.'s refer to Barnes Engineering General Catalog**

SLIM TRACK MOUNTING BRACKETS (RECESSED) (PAGE B)

REAR
B439R


Y
.91
3⁄16" SLOT
1.67
℄
.75
1⁄4" TYP.
5⁄8"
.250
.500
2½"
.688
.28
.31
.37
.75

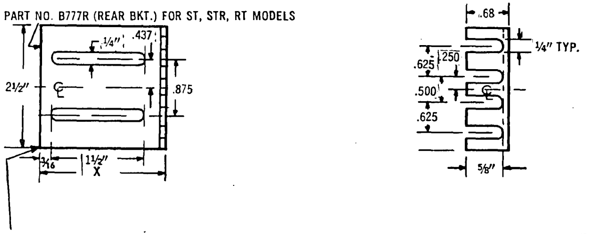
FRONT
B439F


3"
.91
3⁄16" HOLE
1.67
℄
1.00
.28
.31
.37
.75
1⁄4" TYP.
5⁄8"
.250
.500
2½"
.688

Part No.	B439R
Dash No.	Y-Dimension
	4"
-6	6"
-8	8"
-10	10"
-12	12"

REAR
B777R

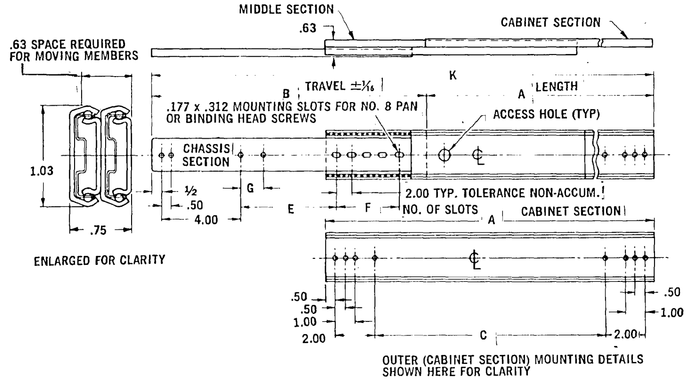
PART NO. B777R (REAR BKT.) FOR ST, STR, RT MODELS


1⁄4"
.437
2½"
℄
.875
3⁄16
1½"
X
.68
1⁄4" TYP.
.625
.250
.500
.625
5⁄8"

NOTE: This Bracket available with 3⁄16" Slot on C/L and Mtg. Holes for mounting Ball Bearing Models, front & rear. Also available for EST Models Mounting Brackets and Bar Nuts must be ordered separately. All Brackets available with Closed Slots. Material: .060 Cold Rolled Steel. Finish: Bright Zinc Plate. All Brackets available in Stainless or with Military Finish when specified.

Part No.	B777R
Dash No.	X-Dimension
-2	2"
-4	4"
-6	6"
-8	8"
-10	10"

SLIM TRACK 3-SECTION BALL BEARING SLIDES (PAGE 8)
MODEL: F1B


MIDDLE SECTION
.63
CABINET SECTION
.63 SPACE REQUIRED FOR MOVING MEMBERS
K
B
TRAVEL ±1⁄16
A
LENGTH
.177 x .312 MOUNTING SLOTS FOR NO. 8 PAN OR BINDING HEAD SCREWS
ACCESS HOLE (TYP)
1.03
CHASSIS SECTION
℄
½
.50
4.00
G
E
F
2.00 TYP. TOLERANCE NON-ACCUM.
NO. OF SLOTS
A
CABINET SECTION
.75
ENLARGED FOR CLARITY
.50
.50
1.00
2.00
C
2.00
.50
1.00
OUTER (CABINET SECTION) MOUNTING DETAILS SHOWN HERE FOR CLARITY

All Mounting Holes .177 Dia. for No. 8 Pan or Binding Head Screws.
Mounting Hole and Slot Location Tolerance ±.010.
All Slides Quality Zinc Plated. **Load capacity to 150* lbs.**
Any load requirement available by stacking vertically and/or horizontally.
*Load ratings are based on a pair of 18" Slides with standard extension.
Any choice of combinations or lengths, engagements, mounting hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.

Choice of Positive Locking in both directions in extended position or Stop-Out Only which enables easy entry of chassis into cabinet without manipulation of catches.

WHEN ORDERING

Please specify feature needed:

F1B-20-PL (Positive Locking when extended).

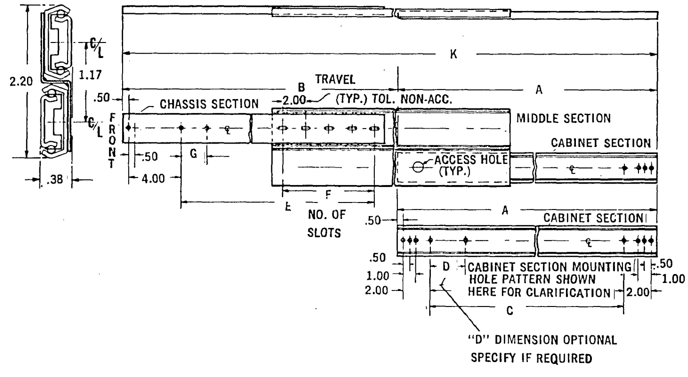
F1B-20-SO (Stop-Out Only)

F1BM (Military Models)
FD (Fast Disconnect)

SLIDE DIMENSIONS							
MODEL	**A**	**B**	**C**	**E**	**F**	**G**	**K**
F1B-10	10	11	5	4.50	1		21
F1B-12	12	13	7	6.50	1		25
F1B-14	14	15	9	6.50	2		29
F1B-16	16	17	11	8.50	2		33
F1B-18	18	19	13	8.50	3		37
F1B-20	20	21	15	10.50	3	2	41
F1B-22	22	23	17	10.50	4	2	45
F1B-24	24	25	19	12.50	4	2	49
F1B-26	26	27	21	12.50	5	2	53
F1B-28	28	29	23	14.50	5	2	57
F1B-30	30	31	25	16.50	5	2	61

Material: Prime work hardened steel.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Front and Rear Mounting Brackets are available.

SLIM TRACK 3 SECTION BALL BEARING STEEL CHASSIS SLIDES (PAGE 23)
MODEL: 375


K
℄
1.17
2.20
.50
℄
FRONT
B
TRAVEL
2.00
(TYP.) TOL. NON-ACC.
A
CHASSIS SECTION
MIDDLE SECTION
CABINET SECTION
.50
G
4.00
.38
ACCESS HOLE (TYP.)
F
E
NO. OF SLOTS
.50
A
CABINET SECTION
.50
1.00
2.00
D
CABINET SECTION MOUNTING HOLE PATTERN SHOWN HERE FOR CLARIFICATION
.50
1.00
2.00
C
"D" DIMENSION OPTIONAL SPECIFY IF REQUIRED

Mounting Hole and Slot Location Tolerance ±.010.
*Load ratings are based on a pair of 18" Slides with standard extension.
Any choice of combinations of lengths, engagements, mounting — hole patterns, etc., available as a Barnes Engineering Company service at a nominal cost, or, in many cases at no additional cost.
Finish: Bright Electro-Zinc Plated per QQZ-325, Type 1, Silver Color.
Brackets: Front and Rear Mounting Brackets available.
Military Models Available: Specify as 375M.

Choice of Positive Locking in both directions in extended position or Stop-Out Only (Stops coming OUT, but can be pushed back into Cabinet without releasing any Catches), enabling easy entry of Chassis into Cabinet without manipulation of Catches.

WHEN ORDERING

Specify as: example:
375-20-PL (Positive Locking when extended and 375-20-SO (Stop-Out Only)
Fast Disconnect: Specify as -FD

SLIDE DIMENSIONS								
MODEL	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**K**
375-10	10	11	5		4.50	1		21
375-12	12	13	7	1	6.50	1		25
375-14	14	15	9	1	8.50	2		29
375-16	16	17	11	3	10.50	2		33
375-18	18	19	13	3	12.50	3		37
375-20	20	21	15	5	14.50	3	2	41
375-22	22	23	17	5	16.50	4	2	45
375-24	24	25	19	7	18.50	4	2	49
375-26	26	27	21	7	20.50	5	2	53
375-28	28	29	23	9	22.50	5	2	57
375-30	30	31	25	9	24.50	5	2	61

Load Capacity: Up to 100 Pounds.
Material: Prime work hardened steel.
Holes: All Holes .177 Dia. for No. 8 Pan or Binding — Head Screws.
Slots: .177 x .312 Mounting Slots for No. 8 Binding — Head Screws.

BARNES ENGINEERING COMPANY
1645 SOUTH CLAUDINA WAY
ANAHEIM, CALIFORNIA 92805
TELEPHONE (714) 533-7530

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LOAD RATING CHARTS

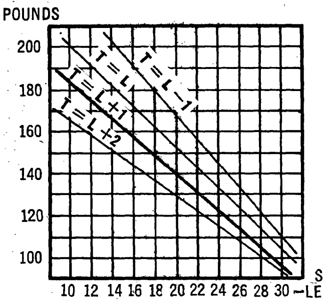


Chart above applies to Models:
FBB, F1B, FBB-RT, STR-RT

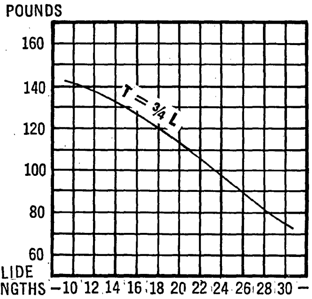


Chart above applies to Models:
ESBM2, ESB2

Load Ratings carry a 100% Static — Load Safety Factor.

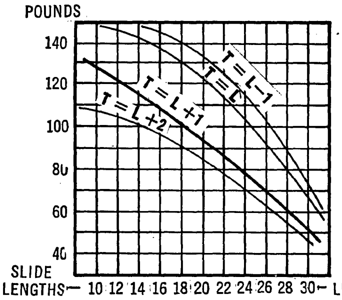


Chart above applies to Models:
ESBB-RT, RFBB, RFBB-RT,
R1B, 375 Series

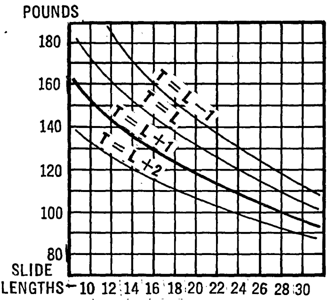
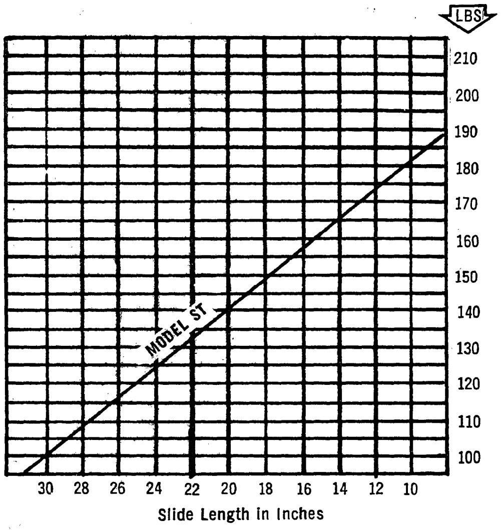


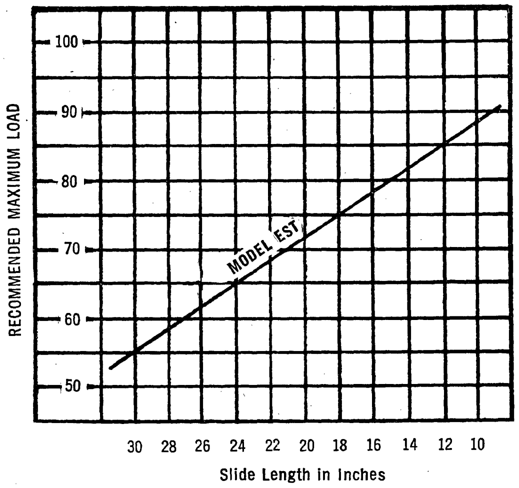
Chart above applies to Models:
ESBB

T = TRAVEL
L = SLIDE LENGTH

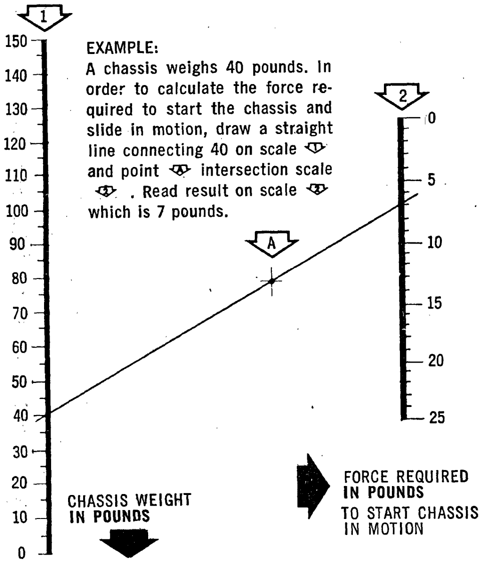
SLIM TRACK 3-SECTION SOLID BEARING SLIDES

LOAD CAPACITY





STARTING LOAD CALCULATOR



EXAMPLE:
A chassis weighs 40 pounds. In order to calculate the force required to start the chassis and slide in motion, draw a straight line connecting 40 on scale ① and point Ⓐ intersection scale ②. Read result on scale ② which is 7 pounds.

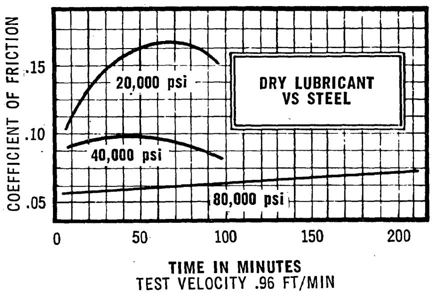
CHASSIS WEIGHT **IN POUNDS**

FORCE REQUIRED **IN POUNDS** TO START CHASSIS IN MOTION

KINETIC COEFFICIENT

OF DRY LUBRICANT ON STEEL

Molybdenum DiSulphide permanent, dry, dust-repellant lubrications, baked-on at 400°F withstands over 50,000 psi Finish passes JAN 100 hour salt spray test.



TIME IN MINUTES
TEST VELOCITY .96 FT/MIN

Bivar Electronic Packaging Aids for Components and PCB Assembly

OVER 4000 LOW-COST STANDARD PRODUCTS ARE NOW AVAILABLE FROM STOCK THROUGH YOUR AUTHORIZED BIVAR DISTRIBUTOR.

Now, Bivar's complete family of low cost time saving aids for electronic component assembly and printed circuit board packaging is available through direct distribution.

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- Standard designs that answer real applications problems.
- Eliminate costly rework/rejects in assembly.
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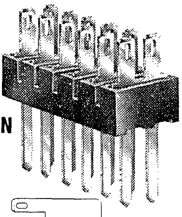
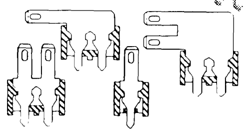
SAVE UP TO 50% ON YOUR INTERCONNECTION COSTS

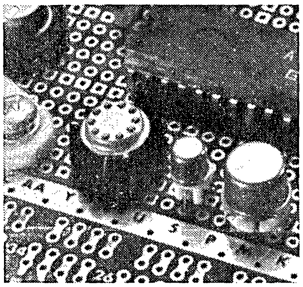
MINI-BLOK™



A NEW CONCEPT IN MINIATURE PROGRAMABLE INTERCONNECTION TERMINALS



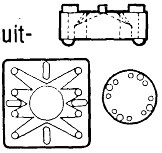
- Miniature Size for High-Density, Space Savings.
- Up to 10 Circuit Terminations/Inch; Maximum of 40 Stations Per Unit. Vertical or 90° styes.
- .200″ Pin Spacing Fits Standard .100″ PCB Grid Patterns.
- Programable by PCB Circuitry, Jumpers, Bussing or Terminal Changes.
- Low Unit Cost; Even Greater Cost Savings with No Special Hardware or Tools Required for Quick Assembly.



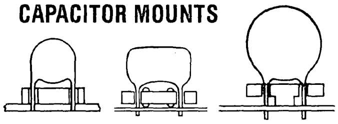
PERMANENT MOUNTS/ SPACERS

Over 3400 standard low cost styles and sizes from stock . . .

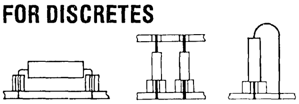
TO-18 mounts/spreaders
TO-5 mounts
Integrated circuit-
Mounts
Spreaders
Converters



DISCRETE COMPONENT AND CAPACITOR MOUNTS



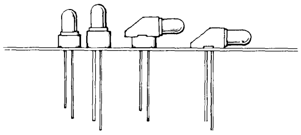
UNIVERSAL SPACERS FOR DISCRETES



Dual in-line mounts
TO-5/TO-18 covers and shields

NYLON L.E.D. MOUNTS/ 90° L.E.D. MOUNTS

984 standards in heights from .030″ through 1.250″ in .005″ increments.



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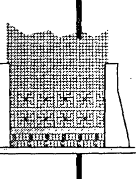
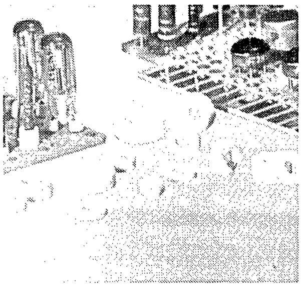
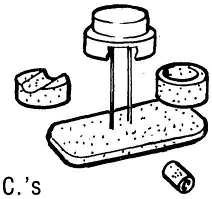




WASH-AWAY SPACERS

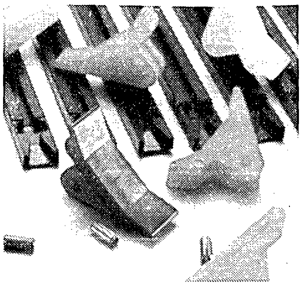
Over 400 standard sizes . . .



For I.C.'s
TO-5/TO-18 Transistors & Semiconductors
Cordwood assemblies

For Capacitors
Dual in-line components
Axial components

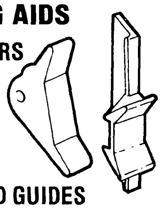
A complete selection of general purpose tubular & solid spacers



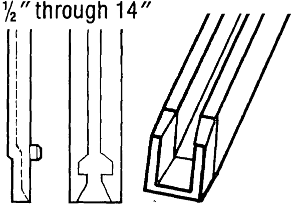
PRINTED CIRCUIT BOARD PACKAGING AIDS

CARD EJECTORS
18 standard & locking styles

3 PCB Handles



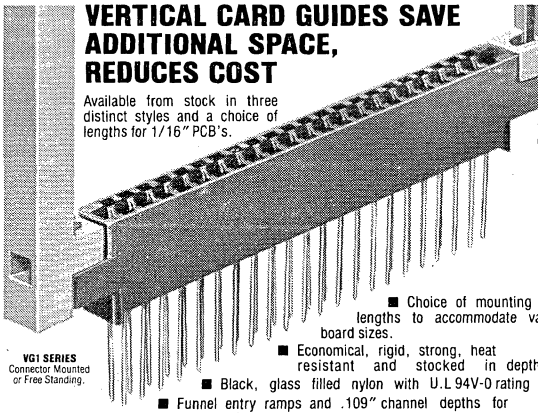
SNAP-IN CARD GUIDES
52 standard sizes; lengths from 2½″ through 14″



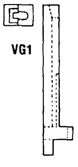
DEEP CHANNEL CARD GUIDES

VERTICAL CARD GUIDES SAVE ADDITIONAL SPACE, REDUCES COST

Available from stock in three distinct styles and a choice of lengths for 1/16″ PCB's.



VG1 SERIES
Connector Mounted
or Free Standing.



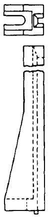
VG1

- Choice of mounting styles and lengths to accommodate various board sizes.
- Economical, rigid, strong, heat resistant and stocked in depth.
- Black, glass filled nylon with U.L 94V-0 rating
- Funnel entry ramps and .109″ channel depths for firm PCB retention

VG2 SERIES

Available from stock in 7 lengths, the VG2 series is designed to be used in pairs and is easily mounted with standard #6 fasteners.

- Rigidly reinforced and heat resistant.
- Easily installed with standard #6 fasteners. Built-in anti-rotation device.
- Funnel entry ramps with .109″ channel depths.
- 7 standard lengths stocked in depth.

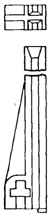


VG2

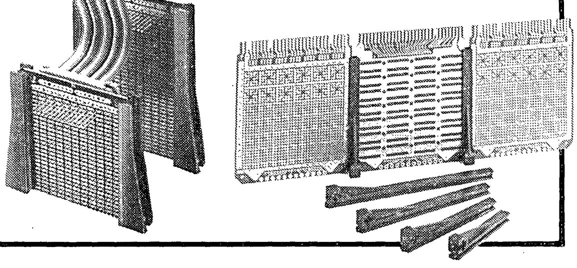
VG3 SERIES

These double sided guides are available from stock, may be used in pairs or in tandem for maximum economy and are easily mounted with standard #6 fasteners.

- Can be used in tandem for maximum density and economy.
- Easily installed with standard #6 fasteners. Built-in anti-rotation device.
- Funnel entry ramps with .109″ channel depths.
- 7 standard lengths stocked in depth.



VG3



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Unique answers to common problems.

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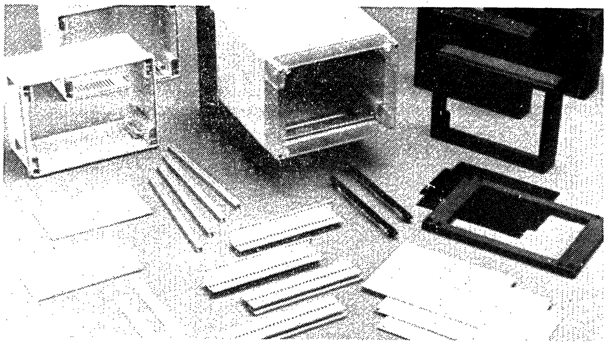
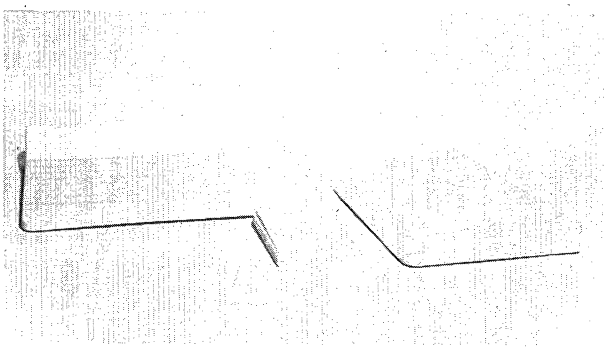
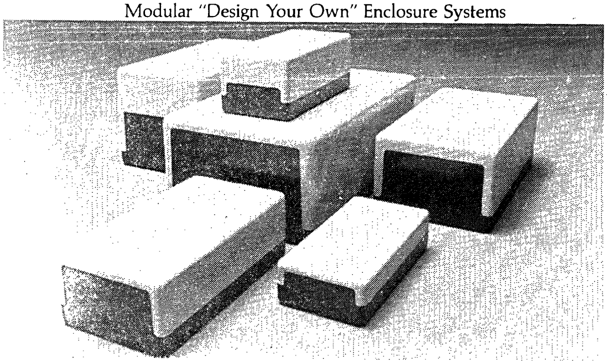
Choose from a huge inventory of keyboard and terminal housings, panel and wall mounted control enclosures, watertight cable strain relief fittings, table top housings and hand held instrument enclosures. Complete secondary services including silk screening are also offered on all enclosures. Quality milling, drilling, tapping and counterboring are performed in-house on state of the art, computerized machining equipment.



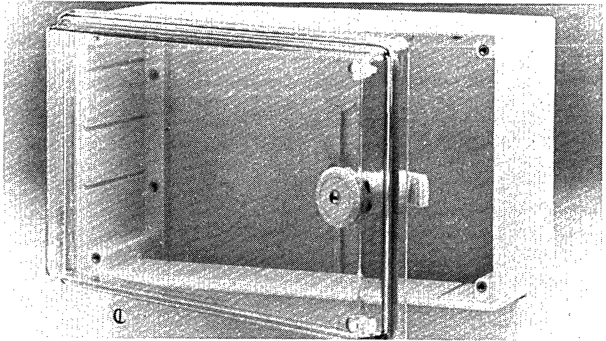
Modular "Design Your Own" Enclosure Systems



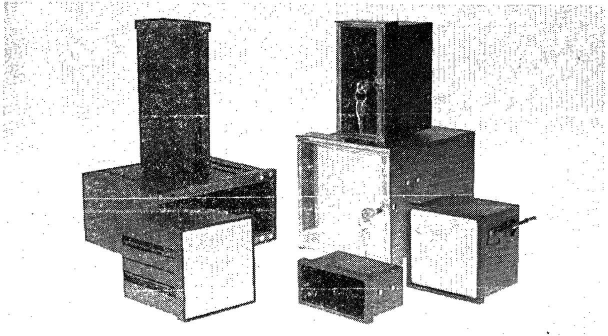
Keyboard Enclosures



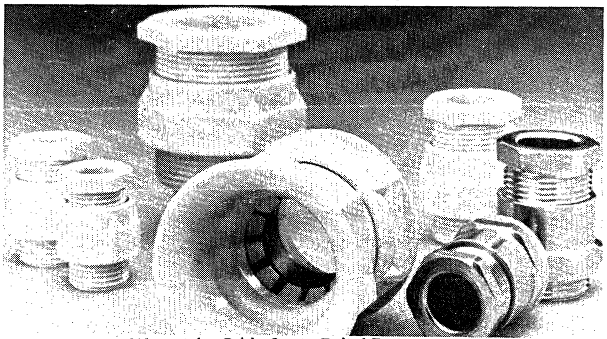
Polystyrene Electronic Enclosures



Wall Mounted Control Housings



DIN Panel Housings



Watertight Cable Strain Relief Fittings

Machining

bopla ENCLOSURES SYSTEMS

Silk Screening

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McLEAN, VIRGINIA 22101

(703) 549-7242

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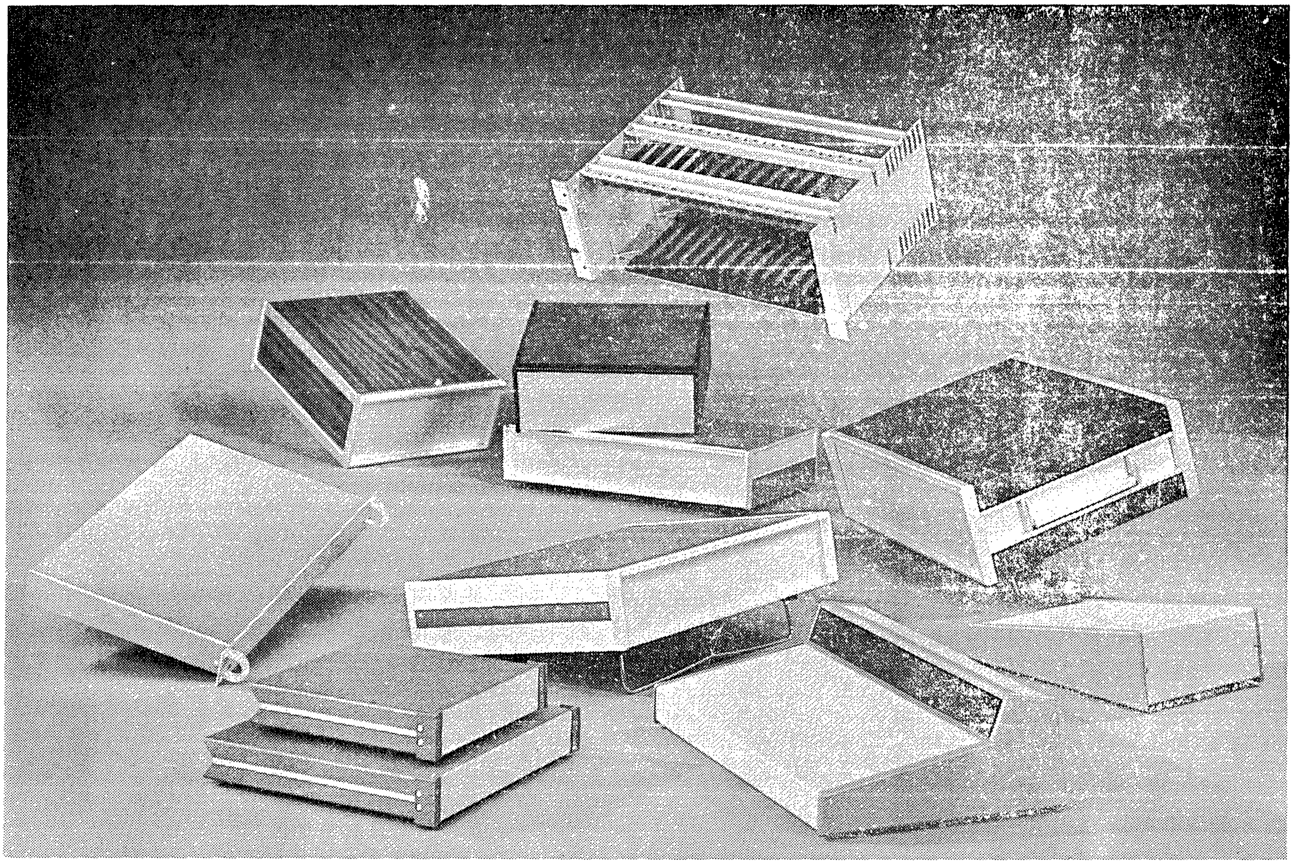
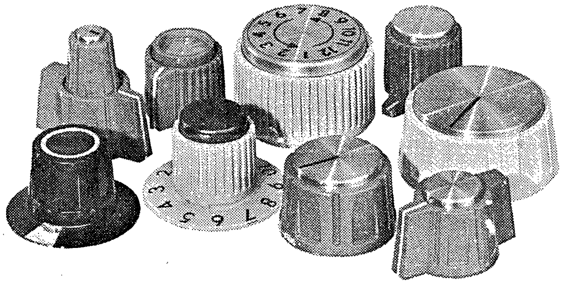


Electronic packaging with a perfect combination of functional design and precision engineering.

CASES • CABINETS • CAGES • CHASSIS
KNOBS • COMPONENTS & ACCESSORIES

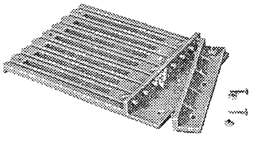
KNOBS



cord-wrap

POWER CORD STORAGE.

MODULAR CARD Guides



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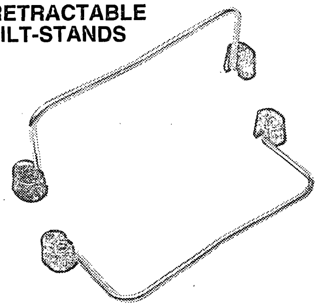

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eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M

MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O

OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P

PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

Z

ZIF zero insertion force

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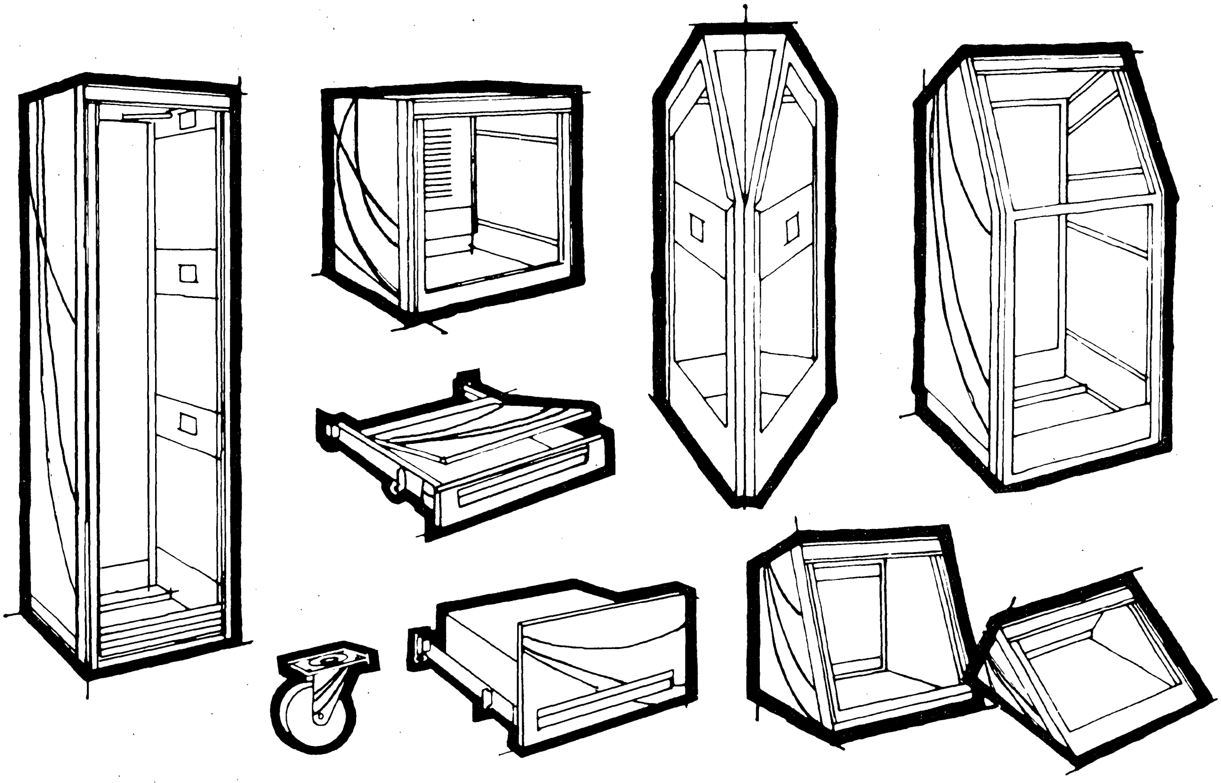

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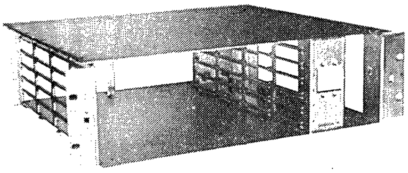
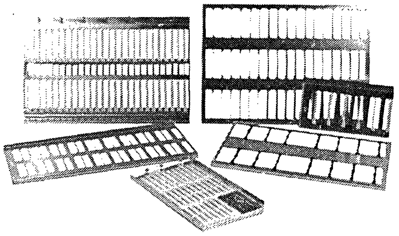
CARD CAGE general information

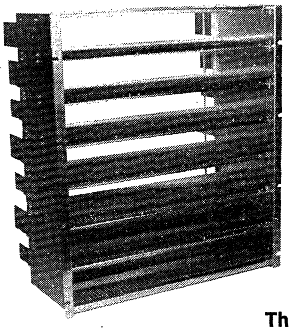
Calmark Card Cages are custom designed and fabricated to meet the customers requirements for holding or retaining plug-in PC cards.

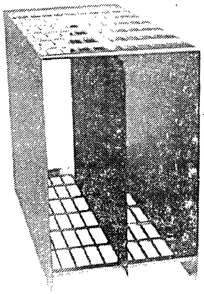
A few of the many custom designed card cages and guide plates manufactured by Calmark.

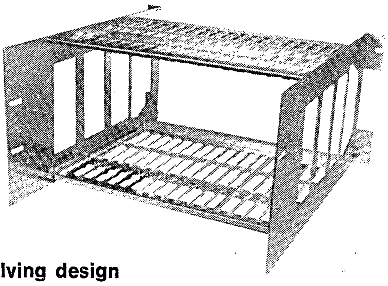
FEATURES:
- Design Flexibility.
- Design Simplicity.
- Maximum Strength and Rigidity.
- Precision Fabrication and Assembly.
- Maximum Economy.



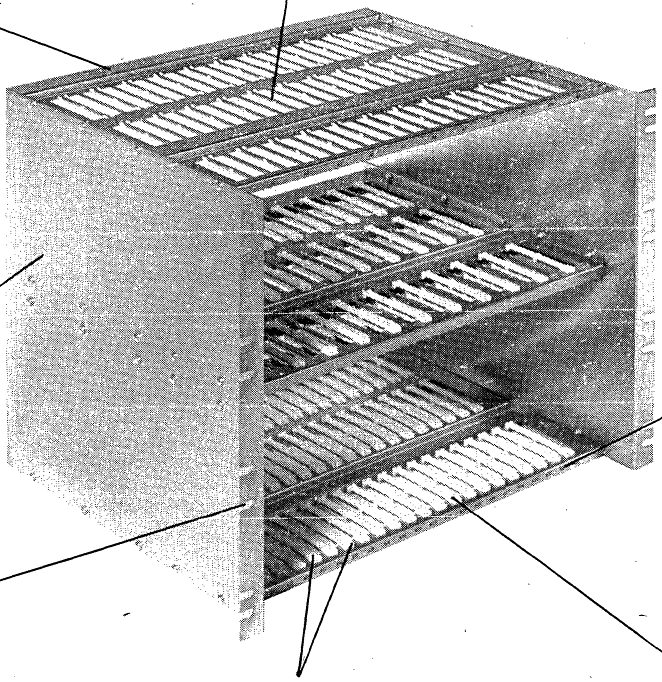








The Calmark Engineering Department is available to assist in solving design problems or answering questions regarding your requirements.



Ventilation
Hole patterns provided for maximum or minimum open area as required.

Connector Mounting
Mounts discreet connectors or back panels. Precision fabricated one-piece design provides precise alignment of connectors and cards. Noncumulative tolerances, true position within ±.005. Mounting holes can be clearance, tapped or captive nuts.

Strength & Rigidity
Sturdy sheet metal design. Stiffening members easily provided to meet strength requirements.

Assembly
Choice of bolted, spotwelded or riveted assembly. Cages delivered completely assembled and sized ready for production use. Special hardware or fasteners available on request.

Marking
Permanent silk screened identification easily provided.

Mounting
Standard EIA or special mounting provisions available on request.

Card Guides
Six types of card guides or retainers to choose from. Mounting holes and slots for card guides precisely fabricated with noncumulative tolerances, true position within ±.005.

Cage Configuration, Card Size & Spacing
Single or multi-level design accommodates any card size and spacing, uniform or variable.

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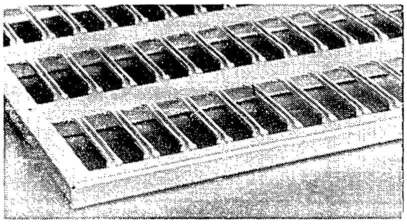
SERIES 100 metal louver guide

Calmark offers the Series 100 Card Guide for maximum strength and economy.

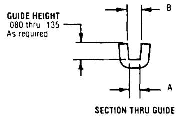


FEATURES:

- Maximum strength from all metal construction.
- Maximum economy from simple one-piece design.
- Accommodates any card size and spacing.
- Variable guide length, height and width.
- Noncumulative tolerances.
- Maximum air flow.

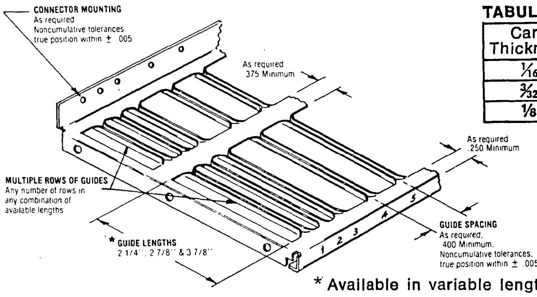
MATERIAL: C.R. Steel, QQ-S-698, .047 or .059 thick (see Tabulation)

FINISH: Zinc Plated, Clear Iridite with Clear Coat Sealer. Other materials and finishes available on request.


GUIDE HEIGHT
080 thru 135
As required
B
A

SECTION THRU GUIDE

GUIDE DETAILS


CONNECTOR MOUNTING
As required
Noncumulative tolerances.
true position within ± 005
As required
375 Minimum
As required
.250 Minimum
MULTIPLE ROWS OF GUIDES
Any number of rows in any combination of available lengths
* GUIDE LENGTHS
2 1/4", 2 7/8" & 3 7/8"
GUIDE SPACING
As required,
.400 Minimum.
Noncumulative tolerances.
true position within ± .005
1
2
3
4
5

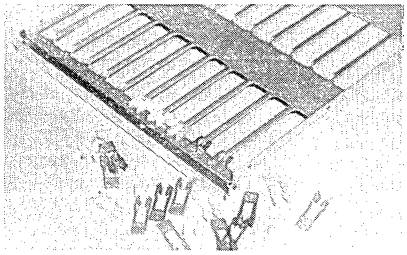
TABULATION

Card Thickness	A Dim. ±..004	B Dim. Max.
1/16	.076	.100
3/32	.100	.125
1/8	.140	.165

* Available in variable lengths from 4″ & longer.

SERIES 100-1 guide entry enhancement

Calmark offers the Series 100-1 Guide Entry Enhancement for optimum card entry on metal louver card guides.



FEATURES:

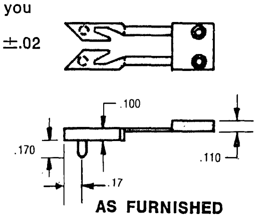
- Wide lead-in for easy card entry.
- Easy and secure snap-on design.
- Fits most all metal louver card guides.
- Available in colors for card position coding.
- Economical.

MATERIAL: Nylon 6/6. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

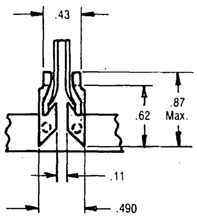
COLOR: Standard color is natural (white). Additional colors available on request. When ordering colors other than white, please specify the particular color you wish.

TOLERANCES: .XXX = ±.010, .XX = ±.02

PATENT NO. 4,335,819


.100
.170
.110
.17

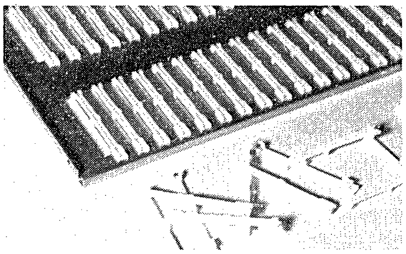
AS FURNISHED


.43
.87
.62
Max.
.11
.490

AS ASSEMBLED

SERIES 115-287 nylon guide

Calmark offers the Series 115-287 Card Guide, a most unique design in PC card guides. The Series 115-287 Card Guide allows users of louver or lance type card guides to easily change to an insulated nylon card guide with a minimum modification of strength and air flow.



FEATURES:

- Available for 1/16″ and 3/32″ thick cards.
- Unique snap-on design.
- Secure and easy installation.
- Wide lead-in for easy card entry.
- No mounting hardware required.
- Metal web support provides strength and rigidity.
- Narrow profile for excellent air flow.
- No mounting holes required.
- Economical.

MATERIAL: Nylon 6/6. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

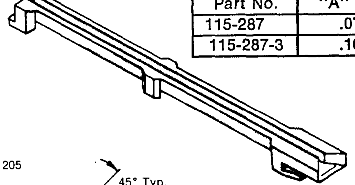
COLOR: Standard color is natural (white). Additional colors available on request. When ordering colors other than white, please specify the particular color you wish.

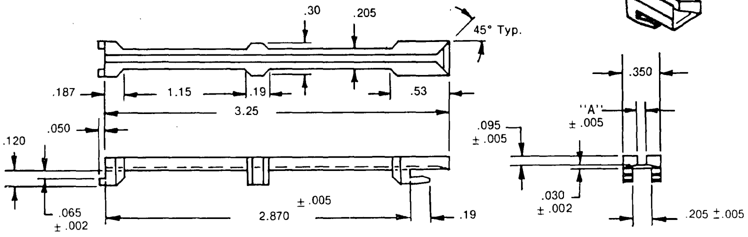
TOLERANCES: .XXX = ±.010, .XX = ±.02

PATENT NO. 3,878,438

TABULATION

Part No.	"A" Dim.
115-287	.076
115-287-3	.106




.30
.205
45° Typ.
.187
1.15
.19
.53
3.25
.050
.120
.065
± .002
± .005
2.870
.19
.350
"A"
± .005
.095
± .005
.030
± .002
.205 ±.005

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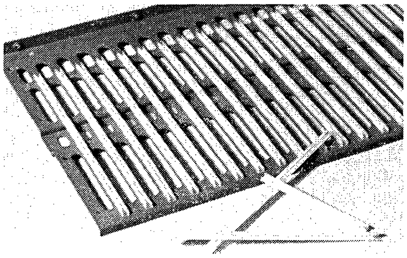
SERIES 120 nylon guide

Calmark offers the Series 120 snap-in PC Card Guide.



FEATURES:

- Easy and secure snap-in design.
- Extra deep guide.
- Wide lead-in for easy card entry.
- No mounting hardware required.
- Narrow profile for excellent air flow.
- Mid-span mounting point for greater stability.
- Economical.

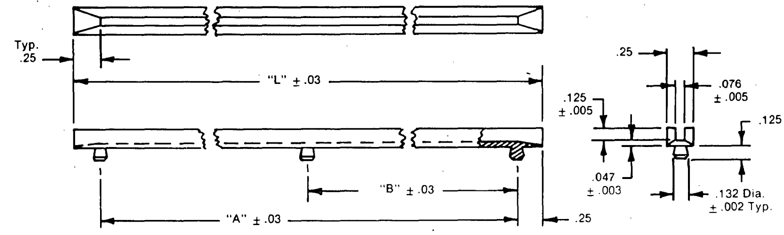
MATERIAL: Nylon 6/6. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

COLOR: Standard color is natural (white). Additional colors available on request. When ordering colors other than white, please specify the particular color you wish.

TOLERANCES: .XXX = ±.010, .XX = ±.02

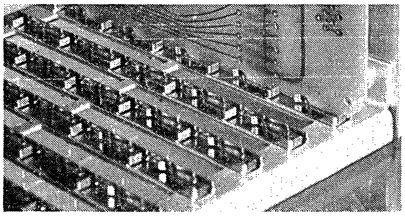
TABULATION

Part No.	"L" Dim.	"A" Dim.	"B" Dim.
120-400	4.00	3.50	—
120-600	6.00	5.50	—
120-700	7.00	6.50	3.25
120-700X	7.00	6.50	—
120-850	8.50	8.00	4.00
120-850X	8.50	8.00	—

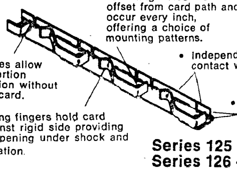


SERIES 125 and 126 retainer

Calmark offers the Series 125 and 126 Card Retainer as the economical approach to protecting your PC cards in shock and vibration.



FEATURES:



- Mounting holes are offset from card path and occur every inch, offering a choice of mounting patterns.
- Independent sections maximize contact with card.
- Coined edges allow smooth insertion and extraction without damage to card.
- Turned in tabs and rigid wall limit card excursion under dynamic loading.
- Spring fingers hold card against rigid side providing dampening under shock and vibration.

Series 125 — Shown
Series 126 — Opposite

MATERIAL: .016 thick Stainless Steel Type 301, Cond. ½ H, QQ-S-766

FINISH: Passivate per MIL-S-5002

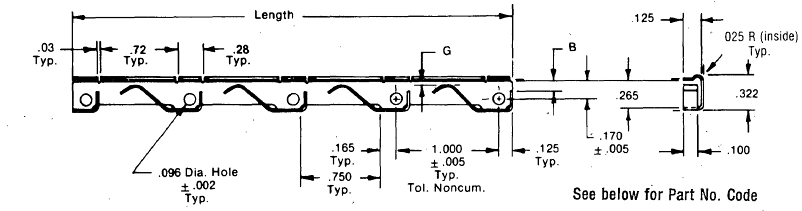
WEIGHT: .036 oz./inch

SPRING RATE: 34.5 lbs/inch of deflection/spring finger.

TOLERANCES: .XXX = ±.010, .XX = ±.02

TABULATION

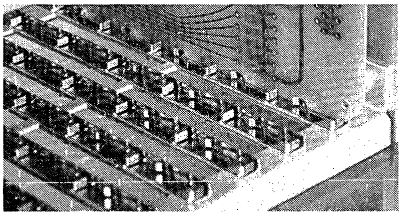
Dash No.	Card Thickness	B. Dim. +.015 −.000	G Dim. +.00 −.03
-06	1/16	.075	.045
-09	3/32	.105	.075



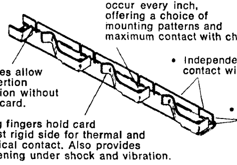
See below for Part No. Code

SERIES 165 and 166 retainer (heat sinking)

Calmark offers the Series 165 and 166 Card Retainer as the answer to PC card heat sinking and grounding problems. The Series 165 and 166 provides an excellent thermal path from the card to the chassis. Alloy 10 beryllium copper furnishes exceptionally high thermal conductivity (1600 BTU/sq. ft/hr. in./°F) and electrical conductivity (48-55% IACS).



FEATURES:



- Mounting holes are offset from card path and occur every inch, offering a choice of mounting patterns and maximum contact with chassis.
- Independent sections maximize contact with card.
- Coined edges allow smooth insertion and extraction without damage to card.
- Turned in tabs and rigid wall limit card excursion under dynamic loading.
- Spring fingers hold card against rigid side for thermal and electrical contact. Also provides dampening under shock and vibration.

Series 165 — Shown
Series 166 — Opposite

MATERIAL: .016 thick Alloy 10 Beryllium Copper. Cond. "AT" per MIL-C-81021.

FINISH: No Finish.

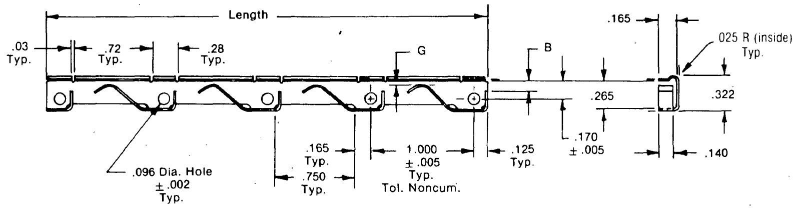
WEIGHT: .043 oz./inch.

SPRING RATE: 32 lbs./inch of deflection/spring finger.

TOLERANCES: .XXX = ±.010, .XX = ±.02

TABULATION

Dash No	Card Thickness	B. Dim. +.015 −.000	G DIM. +.00 −.03
-06	1/16	.075	.045
-09	3/32	.105	.075

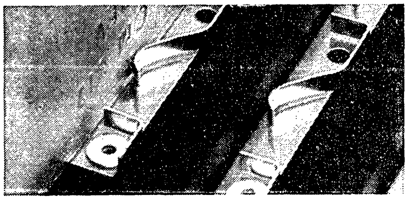


PART NO. CODE

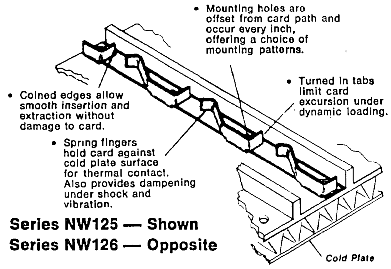
XXX-06-3.25
125/165 — Shown
126/166 — Opposite
Length (1.25 thru 12.25 by 1″ increments) Longer lengths available on request.
Card thickness (see Tabulation)

SERIES nw125 and nw126 retainer (cold plate)

Calmark offers the Series NW125 and NW126 Card Retainer for cold plate-heat exchanger applications. The Series NW125 and NW126 Card Retainer provides the necessary spring pressure to insure positive contact between the thermal path on the PC card and the cold plate surface.



FEATURES:

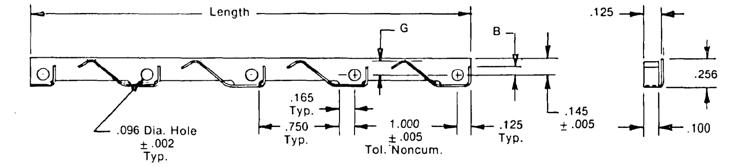

• Mounting holes are offset from card path and occur every inch, offering a choice of mounting patterns.
• Turned in tabs limit card excursion under dynamic loading.
• Coined edges allow smooth insertion and extraction without damage to card.
• Spring fingers hold card against cold plate surface for thermal contact. Also provides dampening under shock and vibration.
Cold Plate

Series NW125 — Shown
Series NW126 — Opposite

MATERIAL: .016 thick Stainless Steel Type 301, Cond. ½ H, QQ-S-766
FINISH: Passivate per MIL-S-5002
WEIGHT: .029 oz./inch
SPRING RATE: 34.5 lbs./inch of deflection/spring finger
TOLERANCES: .XXX = ±.010, .XX = ±.02

TABULATION

Dash No.	Card Thickness	B Dim. + .000 −.015	G Dim. +.00 −.03
-06	1/16	.095	.155
-09	3/32	.065	.125

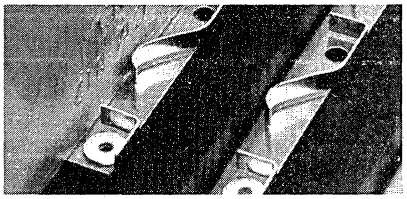

Length
G
B
.125
.256
.165 Typ.
.750 Typ.
1.000 ±.005 Tol. Noncum.
.125 Typ.
.145 ±.005
.100
.096 Dia. Hole ±.002 Typ.

PART NO. CODE

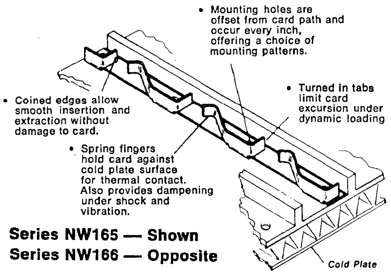
NW125-06-3.25
NW125 — Shown
NW126 — Opposite
Length (1.25 thru 12.25 by 1″ increments) Longer lengths available on request.
Card thickness (see Tabulation)

SERIES nw165 and nw166 retainer (cold plate)

Calmark offers the Series NW165 and NW166 Card Retainer for cold plate-heat exchanger applications. The Series NW165 and NW166 Card Retainer provides the necessary spring pressure to insure positive contact between the thermal path on the PC card and the cold plate surface.



FEATURES:

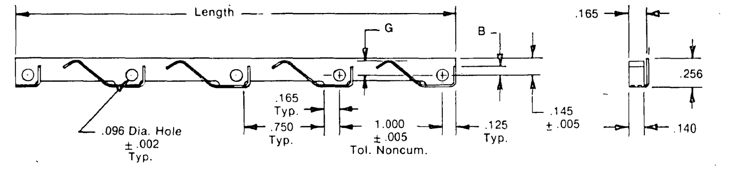

• Mounting holes are offset from card path and occur every inch, offering a choice of mounting patterns.
• Turned in tabs limit card excursion under dynamic loading
• Coined edges allow smooth insertion and extraction without damage to card.
• Spring fingers hold card against cold plate surface for thermal contact. Also provides dampening under shock and vibration.
Cold Plate

Series NW165 — Shown
Series NW166 — Opposite

MATERIAL: .016 thick Alloy 10 Berryllium Copper. Cond. "AT," per MIL-C-81021.
FINISH: No Finish.
WEIGHT: .034 oz./inch
SPRING RATE: 32 lbs./inch of deflection/spring finger
TOLERANCES: .XXX = ±.010, .XX = ±.02

TABULATION

Dash No.	Card Thickness	B. Dim. +.000 −.015	G Dim. +.00 −.03
-06	1/16	.095	.155
-09	3/32	.065	.125

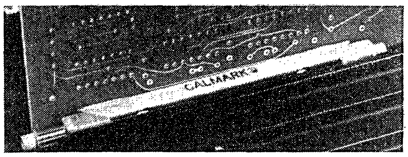

Length
G
B
.165
.256
.165 Typ.
.750 Typ.
1.000 ±.005 Tol. Noncum.
.125 Typ.
.145 ±.005
.140
.096 Dia. Hole ±.002 Typ.

PART NO. CODE

NW165-06-3.25
NW165 — Shown
NW166 — Opposite
Length (1.25 thru 12.25 by 1″ increments) Longer lengths available on request.
Card thickness (see tabulation)

SERIES V visual lock indicator for "card-lok" retainer

Calmark offers the Series V, which incorporates a new visual lock indicator to the Series 225 and 230 "Card-Lok" to show when the card is locked or unlocked.



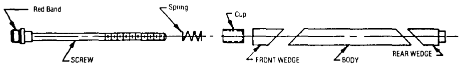
FEATURES:

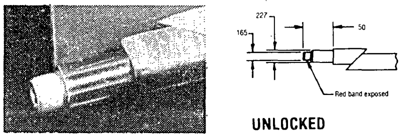
- Visual indicator shows when card is locked or unlocked.
- Other features same as Series 225 or 230 "Card-Lok" (see page 5).

MATERIAL & FINISHES:
SCREW — MATERIAL: Stainless Steel QQ-S-763 or ASTM-A582
FINISH: Passivate per MIL-S-5002
Red Band on Head — Epoxy Paint
SPRING — MATERIAL: Stainless Steel QQ-W-423
FINISH: Passivate per MIL-S-5002
CUP — MATERIAL: Stainless Steel QQ-S-766
FINISH: Passivate per MIL-S-5002

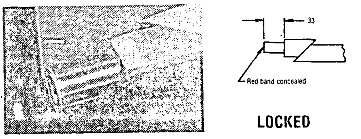
PART NO. CODE

V225-3.80 H
Prefix "V" added to basic part no. signifies visual lock indicator is required.
Basic part no. (See Page 5)


Red Band
Spring
Cup
SCREW
FRONT WEDGE
BODY
REAR WEDGE


227
165
50
Red band exposed

UNLOCKED


33
Red band concealed

LOCKED

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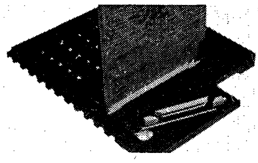
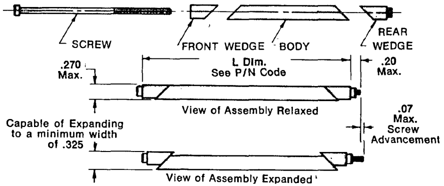
SERIES 225 "card-lok" retainer (cold plate)

Calmark offers the Series 225 "Card-Lok" Retainer for cold plate-heat exchanger applications. A maximum efficiency heat sinking PC card retainer offered for the first time at an economical price.

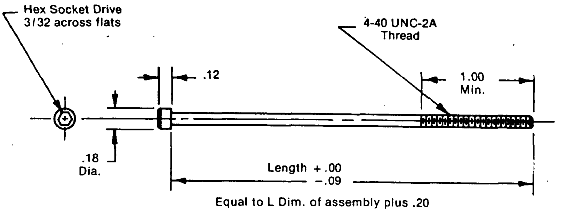


FEATURES:

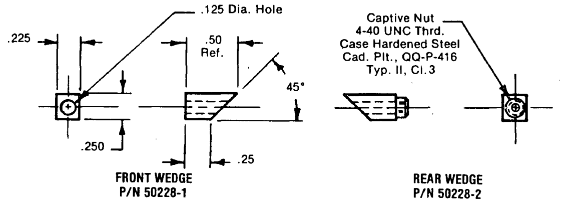
- Maximum Reliability
  Screw-actuated wedge action locks PC cards in place.
- Maximum Thermal Transfer
  Wedge-action design provides maximum contact between thermal paths on PC card and the heat sink surface.
- Maximum Resistance to Shock & Vibration
  Wedge-action design locks PC card in place to provide maximum resistance to shock and vibration.
- Zero Insertion & Extraction Forces
  Screw actuation provides zero insertion and extraction forces on\PC card.
- Design Flexibility
  Special lengths, finishes or other design variations available on request.


SCREW
FRONT WEDGE
BODY
REAR WEDGE
.270 Max.
L Dim. See P/N Code
.20 Max.
View of Assembly Relaxed
.07 Max. Screw Advancement
Capable of Expanding to a minimum width of .325
View of Assembly Expanded

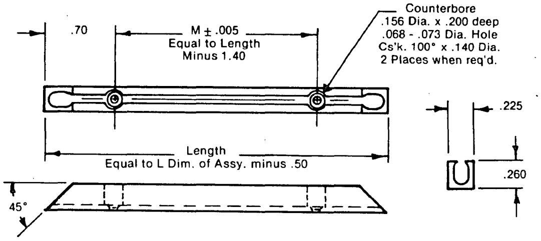
SCREW
P/N 50253-Length
MATERIAL: Stainless Steel QQ-S-763 or ASTM-A582
FINISH: Passivate per MIL-S-5002
WEIGHT: .043 oz./inch
TOLERANCES: .xxx = ±.010, .xx = ±.02


Hex Socket Drive 3/32 across flats
4-40 UNC-2A Thread
.12
1.00 Min.
.18 Dia.
Length + .00 − .09
Equal to L Dim. of assembly plus .20

WEDGES
MATERIAL: Aluminum Alloy 6061-T6, QQ-A-200/8
FINISH: Chemical Film per MIL-C-5541
WEIGHT:
Front Wedge - .027 oz.
Rear Wedge - .041 oz.
TOLERANCES: .xxx = ±.010, .xx = ±.02


.125 Dia. Hole
.225
.50 Ref.
45°
.250
.25
FRONT WEDGE P/N 50228-1
Captive Nut 4-40 UNC Thrd. Case Hardened Steel Cad. Plt., QQ-P-416 Typ. II, Cl.3
REAR WEDGE P/N 50228-2

BODY
P/N 50227-Length-H
MATERIAL: Aluminum Alloy 6061-T6, QQ-A-200/8
FINISH: Chemical Film per MIL-C-5541
WEIGHT: .060 oz./inch
TOLERANCES: .xxx = ±.010, .xx = ±.02


.70
M ± .005 Equal to Length Minus 1.40
Counterbore .156 Dia. x .200 deep .068 - .073 Dia. Hole Cs'k. 100° x .140 Dia. 2 Places when req'd.
.225
.260
Length Equal to L Dim. of Assy. minus .50
45°

PART NO. CODE **225-3.80 H**

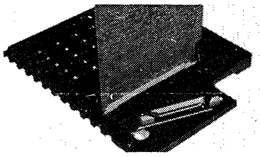
Basic No. Consisting of: 1 each Screw, Front Wedge, Body, Rear Wedge

Indicates holes required (omit if no holes required)

L Dimension (Length in decimals)
Standard Length 2.80, 3.80, 4.80.
Other lengths by special order.

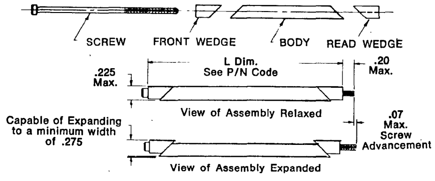
SERIES 230 "card-lok" retainer (cold plate)

Calmark offers the Series 230 "Card-Lok" Retainer for cold plate-heat exchanger applications. A mid-width configuration, to meet PC card retainer requirements between the Series 225 and 240.

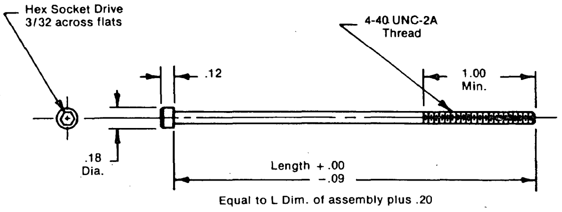


FEATURES:

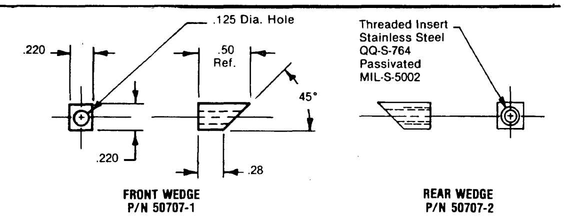
- Maximum Reliability
  Screw-actuated wedge action locks PC cards in place.
- Maximum Thermal Transfer
  Wedge-action design provides maximum contact between thermal paths on PC card and the heat sink surface.
- Maximum Resistance to Shock & Vibration
  Wedge-action design locks PC card in place to provide maximum resistance to shock and vibration.
- Zero Insertion & Extraction Forces
  Screw actuation provides zero insertion and extraction forces on PC card.
- Design Flexibility
  Special lengths, finishes or other design variations available on request.


SCREW
FRONT WEDGE
BODY
READ WEDGE
.225 Max.
L Dim. See P/N Code
.20 Max.
View of Assembly Relaxed
.07 Max. Screw Advancement
Capable of Expanding to a minimum width of .275
View of Assembly Expanded

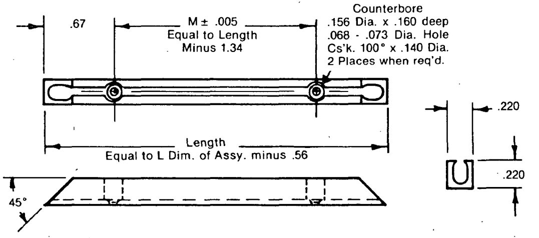
SCREW
P/N 50253-Length
MATERIAL: Stainless Steel QQ-S-763 or ASTM-A582
FINISH: Passivate per MIL-S-5002
WEIGHT: .043 oz./inch
TOLERANCES: .xxx = ±.010, .xx = ±.02


Hex Socket Drive 3/32 across flats
4-40 UNC-2A Thread
.12
1.00 Min.
.18 Dia.
Length + .00 − .09
Equal to L Dim. of assembly plus .20

WEDGES
MATERIAL: Aluminum Alloy 6061-T6, QQ-A-200/8
FINISH: Chemical Film per MIL-C-5541
WEIGHT:
Front Wedge - .027 oz.
Rear Wedge - .041 oz.
TOLERANCES: .xxx = ±.010, .xx = ±.02


.125 Dia. Hole
.220
.50 Ref.
45°
.220
.28
FRONT WEDGE P/N 50707-1
Threaded Insert Stainless Steel QQ-S-764 Passivated MIL-S-5002
REAR WEDGE P/N 50707-2

BODY
P/N 50542-Length-H
MATERIAL: Aluminum Alloy 6061-T6, QQ-A-200/8
FINISH: Chemical Film per MIL-C-5541
WEIGHT: .060 oz./inch
TOLERANCES: .xxx = ±.010, .xx = ±.02


.67
M ± .005 Equal to Length Minus 1.34
Counterbore .156 Dia. x .160 deep .068 - .073 Dia. Hole Cs'k. 100° x .140 Dia. 2 Places when req'd.
.220
.220
Length Equal to L Dim. of Assy. minus .56
45°

PART NO. CODE **230-3.80 H**

Basic No. Consisting of: 1 each Screw, Front Wedge, Body, Rear Wedge

Indicates holes required (omit if no holes required)

L Dimension (Length in decimals)
Standard Length 2.80, 3.80, 4.80.
Other lengths by special order.

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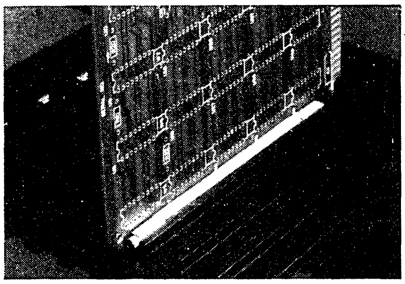
SERIES 240 "card-lok" retainer (cold plate)

Calmark offers the Series 240 "Card-Lok" Retainer for cold plate-heat exchanger applications. A narrow configuration PC card retainer that provides maximum heat sinking efficiency for high density card spacing.



FEATURES:
- Narrow width allows minimum card spacing.
- Other features same as Series 225 "Card-Lok" (see page 5).

MATERIALS & FINISHES

BODY AND WEDGES — MATERIAL: Aluminum Alloy 6061-T6, QQ-A-200/8

FINISH: Chemical Film per MIL-C-5541

SCREW — MATERIAL: Stainless Steel QQ-S-763 or ASTM-A582

FINISH: Passivate per MIL-S-5002

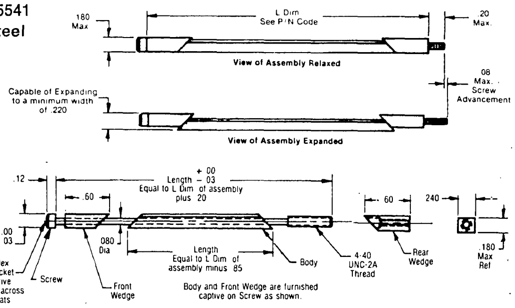
ASSEMBLY WEIGHT: .078 oz./inch

PART NO. CODE

240-3.80

Basic No. Consisting of: 1 each Screw, Front Wedge, Body, Rear Wedge

L Dimension (Length in decimals) Standard Lengths 2.80, 3.80, 4.80. Other lengths by special order.



180 Max
L Dim See P/N Code
.20 Max.
View of Assembly Relaxed
08 Max. Screw Advancement
Capable of Expanding to a minimum width of .220
View of Assembly Expanded
.12
+ 00 Length − 03 Equal to L Dim of assembly plus 20
.60
.18 + .00 Dia. − 03
080 Dia
Length Equal to L Dim of assembly minus 85
Hex Socket Drive 3/32 across flats
Screw
Front Wedge
Body
4-40 UNC-2A Thread
60
Rear Wedge
240
.180 Max Ref
Body and Front Wedge are furnished captive on Screw as shown.

SERIES 101, 103, 104, 105 extractors

Calmark offers the Series 101, 103, 104, 105 Card Extractors for efficient extraction of PC cards from connectors.

FEATURES:
- Lever action for safe and easy card extraction.
- Ample gripping and pushing surfaces for extracting and inserting card.
- Available in colors for coding.
- Generous area for hot stamp marking.
- Exact replacement for other manufacturers.

MATERIAL: Extractor — 6/6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

Roll Pin — Stainless Steel (3/32" Dia. x 1/4" long) furnished with each extractor.

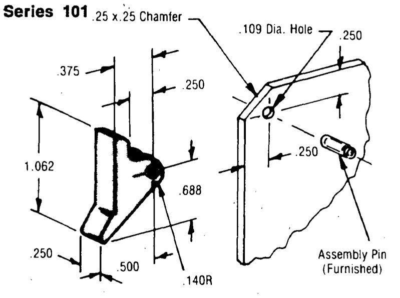
COLOR: Standard color is natural (white). Additional colors available on request. When ordering colors other than white, please specify the particular color you wish.

HOT STAMPING: Hot stamp marking can be furnished to your requirements.

APPLICATION DATA: Fits 1/16" thick cards only. Two extractors per card are recommended on cards wider than 5 inches.

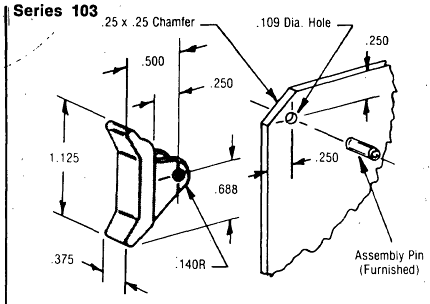
TOLERANCES: .xxx = ±.010, .xx = ±.02

Series 101



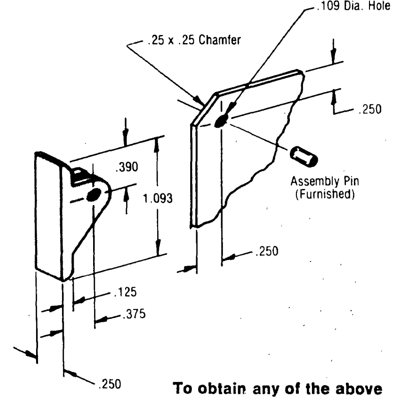
.25 x .25 Chamfer
.109 Dia. Hole
.250
.375
.250
1.062
.250
.688
.250
.500
.140R
Assembly Pin (Furnished)

Series 103



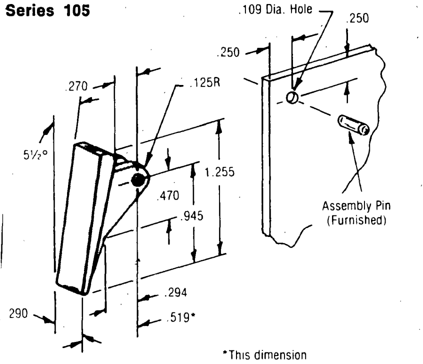
.25 x .25 Chamfer
.109 Dia. Hole
.250
.500
.250
1.125
.250
.688
.375
.140R
Assembly Pin (Furnished)

Series 104



.109 Dia. Hole
.25 x .25 Chamfer
.250
.390
1.093
Assembly Pin (Furnished)
.250
.125
.375
.250

Series 105



.109 Dia. Hole
.250
.250
.270
.125R
5½°
1.255
.470
.945
.294
290
.519*
Assembly Pin (Furnished)

*This dimension reduces to .437 when extractor is fully rotated against card.

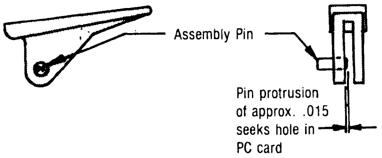
To obtain any of the above P/Ns with Pre-Started Assembly Pin, add prefix P to part number.

SERIES P pre-started assembly pin

Calmark offers any of our extractors and inserter-extractors with the option of Pre-Started Assembly Pin.

FEATURES:
- Faster and easier installation of extractor to PC card.
- Eliminates need for special tools or equipment and set-up time.
- Eliminates loss of loose assembly pins.

To obtain parts with Pre-Started Assembly Pin, add prefix P to part number. Refer to individul catalog pages for availability.



Assembly Pin
Pin protrusion of approx. .015 seeks hole in PC card

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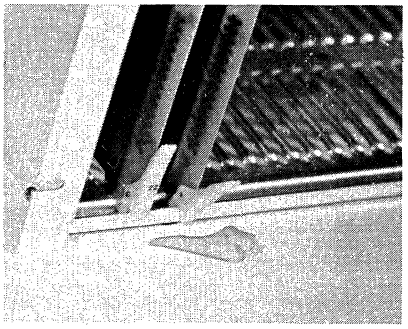
SERIES 107 inserter-extractor

Calmark offers the Series 107 Card Inserter-Extractor for efficient insertion and extraction of PC cards in high density connector-contact and multiple connector applications.



FEATURES:

- Lever action overcomes insertion and extraction forces in excess of 100 lbs.
- Actuates from a simple "U" channel form.
- Mounting detail on card retrofits other industry standards.
- No chamfer required on corner of card.
- Strong glass filled nylon material.
- Available in colors for coding.
- Generous area for hot stamp marking.

MATERIAL: Inserter-Extractor — Glass Filled (30%) 6/6 or 6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

Roll Pin — Stainless Steel (3/32" Dia. x 1/4" or 5/16" long). Furnished with each inserter-extractor.

COLOR: Standard color is black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

HOT STAMPING: Hot stamp marking can be furnished to your requirements.

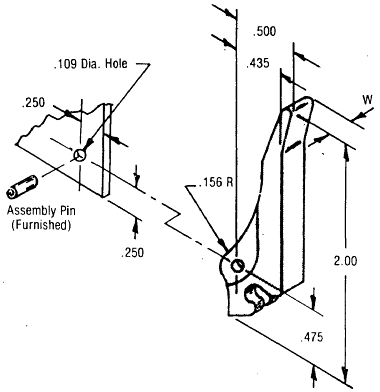
TOLERANCES: .xxx = ±.010, .xx = ±.02

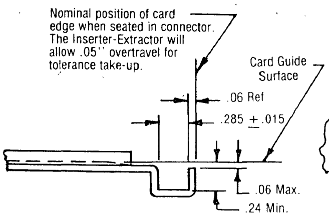
APPLICATION DATA: Two inserter-extractors are required per card. Provides insertion and extraction travel of .35 minimum with a mechanical advantage of approx. 4:1

To obtain with Pre-Started Assembly Pin, add prefix P to part number.

TABULATION

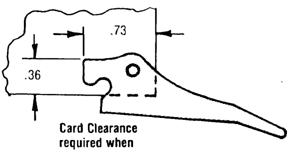
Part No.	"W" Dim.	Card Thickness
107	.290	1/16"
107-3	.350	3/32" or 1/8"


.109 Dia. Hole
.250
Assembly Pin (Furnished)
.250
.500
.435
W
.156 R
2.00
.475

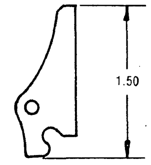

Nominal position of card edge when seated in connector. The Inserter-Extractor will allow .05'' overtravel for tolerance take-up.
Card Guide Surface
.06 Ref
.285 ± .015
.06 Max.
.24 Min.

DETAIL OF ACTUATING SURFACES

Required on top and bottom guide plates of Calmark fabricated card cages.



Card Clearance required when rotated.



SERIES 107-10

This part otherwise same as standard Series 107.

SERIES 107-10

Calmark offers the Series 107-10 Card Inserter-Extractor as a reduced size variation of the standard Series 107 for cards with limited available space.

SERIES 108 inserter-extractor

Calmark offers the Series 108 Card Inserter-Extractor for efficient insertion and extraction of PC cards in high density connector-contact and multiple connector applications.

FEATURES:

- Lever action provides mechanical advantage for efficient insertion and extraction of card.
- Compatible with other competitive configurations.
- Strong glass filled nylon material.
- Available in colors for coding.
- Generous area for hot stamp marking.

MATERIAL: Inserter-Extractor — Glass filled (30%) 6/6 or 6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

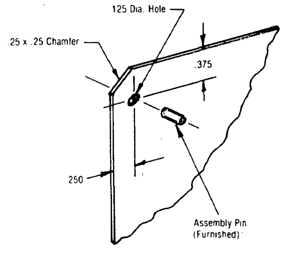
Roll Pin — Stainless Steel (1/8" dia. x 1/4" long). Furnished.

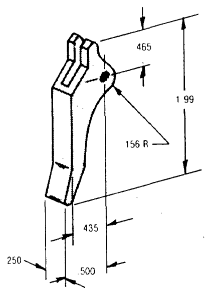
COLOR. Standard color is black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

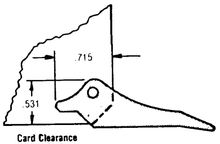
HOT STAMPING: Hot stamp marking can be furnished to your requirements.

TOLERANCES: .xxx = ±.010, .xx = ±.020

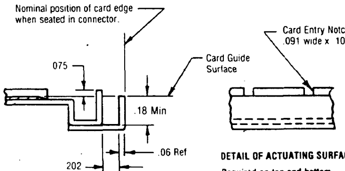
APPLICATION DATA: Two inserter-extractors are required per card. Fits 1/16" thick cards only.


125 Dia. Hole
.25 x .25 Chamfer
.375
250
Assembly Pin (Furnished)


465
1 99
156 R
435
250
500



Card Clearance required when rotated.

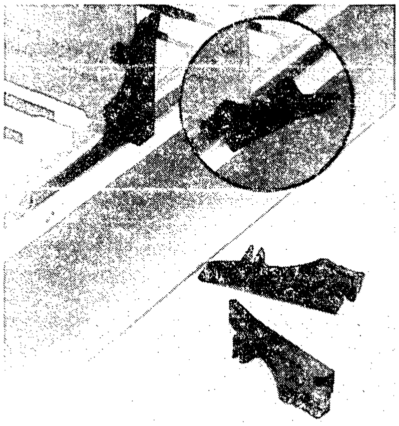

Nominal position of card edge when seated in connector.
075
Card Guide Surface
.18 Min
.06 Ref
202
Card Entry Notch .091 wide x 100 deep

DETAIL OF ACTUATING SURFACES

Required on top and bottom guide plates of Calmark fabricated card cages.

SERIES 107-20 inserter-extractor (locking)

Calmark offers the Series 107-20 Card Inserter-Extractor for efficient insertion and extraction of PC cards in high density connector-contact and multiple connector applications, with the added feature of locking.



FEATURES:

- Lever action overcomes insertion and extraction forces in excess of 100 lbs.
- Positive locking feature protects against card "walkout."
- Actuates from a simple "U" channel form.
- No chamfer required on corner of card.
- Strong glass filled nylon material.
- Available in colors for coding.
- Generous area for hot stamp marking.

MATERIAL: Inserter-Extractor — Glass filled 6/6 or 6 nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuous. Resistant to alkalies, weak acids, and common solvents.

Roll Pins — Stainless Steel (3/32" Dia. x 1/4" long). Two (2) furnished with each inserter-extractor.

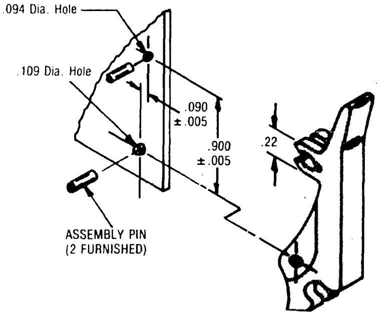
HOT STAMPING: Hot stamp marking can be furnished to your requirements.

COLOR: Standard color is Black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

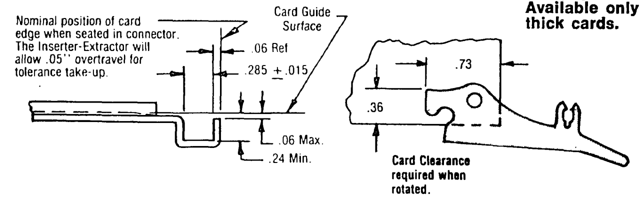
TOLERANCES: .xxx = ±.010, .xx = ±.02.

APPLICATION DATA: Two inserter-extractors are required per card. Provides insertion and extraction travel of .35 minimum with a mechanical advantage of approx. 4:1. In locked position, locking prongs provide 10 lbs. min. of card "walkout" resistance. Fits 1/16" thick cards only.

To obtain with Pre-Started Assembly Pin, add prefix P to part number.


.094 Dia. Hole
.109 Dia. Hole
.090 ±.005
.900 ±.005
.22
ASSEMBLY PIN (2 FURNISHED)

NOTE: Otherwise dimensionally the same as standard 107, see page 7. Available only for 1/16" thick cards.

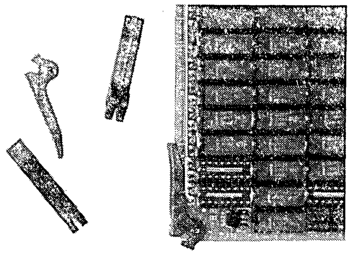

Nominal position of card edge when seated in connector. The Inserter-Extractor will allow .05" overtravel for tolerance take-up.
Card Guide Surface
.06 Ref
.285 ± .015
.06 Max.
.24 Min.
.73
.36
Card Clearance required when rotated.

DETAIL OF ACTUATING SURFACES

Required on top and bottom guide plates of Calmark fabricated card cages.

SERIES 107-30 inserter-extractor

Calmark offers the Series 107-30 space saving Card Inserter-Extractor for efficient insertion and extraction of PC cards in high density connector-contact and multiple connector applications.



FEATURES:

- Lever action overcomes insertion and extraction forces in excess of 100 lbs.
- Replaces similar metal stamped competitive configurations.
- Actuates from a low profile simple "U" channel form.
- No chamfer required on corner of card.
- Strong glass filled nylon material.
- Available in colors for coding.
- Generous area for hot stamp marking.

MATERIAL: Inserter-Extractor — Glass filled 6/6 or 6 nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuous. Resistant to alkalies, weak acids, and common solvents.

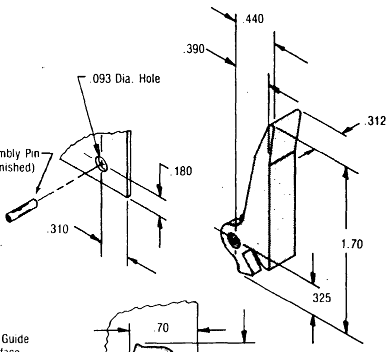
Roll Pins — Stainless Steel (5/64" Dia. x 5/16" long). Furnished with each inserter-extractor.

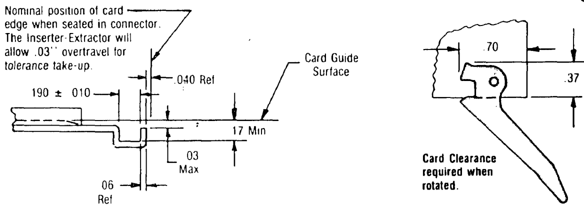
HOT STAMPING: Hot stamp marking can be furnished to your requirements.

COLOR: Standard color is Black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

TOLERANCES: .xxx = ±.010, .xx = ±.02.

APPLICATION DATA: Two inserter-extractors are required per card. Provides insertion and extraction travel of .30 minimum with a mechanical advantage of approx. 5:1. Fits 1/16" thick cards only.


Available only for 1/16" thick cards.
.440
.390
.093 Dia. Hole
.312
Assembly Pin (Furnished)
.180
.310
1.70
325


Nominal position of card edge when seated in connector. The Inserter-Extractor will allow .03" overtravel for tolerance take-up.
.040 Ref
190 ± 010
Card Guide Surface
17 Min
03 Max
06 Ref
.70
.37
Card Clearance required when rotated.

DETAIL OF ACTUATING SURFACES

Required on top and bottom guide plates of Calmark fabricated card cages.

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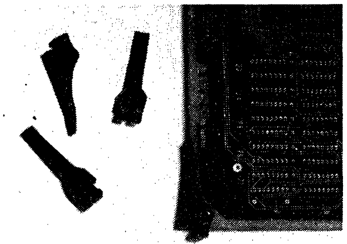
SERIES 107-40 inserter-extractor ("super strong")

Calmark offers the Series 107-40 Card Inserter-Extractor for safe and easy insertion and extraction of PC cards in applications of extremely high insertion and extraction forces.



FEATURES:

- "Super strong" lever action design overcomes insertion and extraction forces in excess of 200 lbs.
- Actuates from a simple "U" channel form.
- Mounting detail on card retrofits other industry standards.
- No chamfer required on corner of card.
- Strong glass filled nylon material.
- Available in colors for coding.
- Generous area for hot stamp marking.

MATERIAL: Inserter-Extractor — Glass filled (30%) 6/6 or 6 nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuous. Resistant to alkalies, weak acids, and common solvents.

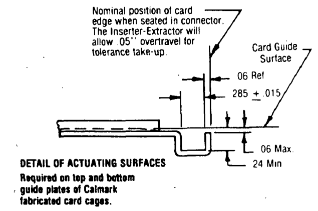
Roll Pins — Stainless Steel (3/32″ Dia. x 1/2″ long). Furnished with each inserter-extractor.

COLOR: Standard color is Black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

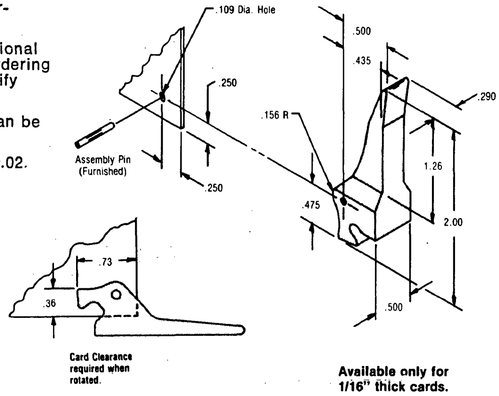
HOT STAMPING: Hot stamp marking can be furnished to your requirements.

TOLERANCES: .xxx = ±.010, .xx = ±.02.

APPLICATION DATA: Two inserter-extractors are required per card. Provides insertion and extraction travel of .35 minimum with a mechanical advantage of approx. 4:1. Fits 1/16″ thick cards only.


Nominal position of card edge when seated in connector. The Inserter-Extractor will allow .05'' overtravel for tolerance take-up.
Card Guide Surface
06 Ref
285 ± 015
06 Max
24 Min

DETAIL OF ACTUATING SURFACES
Required on top and bottom guide plates of Calmark fabricated card cages.

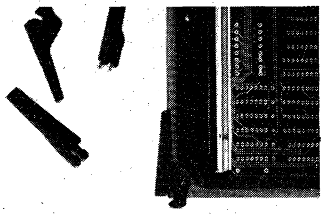

.109 Dia. Hole
.500
.435
.250
.290
.156 R
Assembly Pin (Furnished)
.250
1.26
.475
2.00
.500
.73
.36

Card Clearance required when rotated.

Available only for 1/16" thick cards.

SERIES 107-50 inserter-extractor ("ultra strong")

Calmark offers the Series 107-50 Inserter-Extractor for safe and easy insertion and extraction of PC cards in the severest applications of high insertion and extraction forces.



FEATURES:

- "Ultra strong" lever action design overcomes insertion and extraction forces of highest possible limits.
- Narrow width — .290 inches.
- Actuates from a simple "U" channel form.
- Mounting details on card retrofits other industry standards.
- No chamfer required on corner of card.

MATERIAL & FINISH:

Inserter-Extractor — Aluminum alloy 6061-T6. Black anodize per MIL-A-8625, Type 1, Class 2.

Roll Pins — Stainless Steel (3/32″ Dia. x 1/4″ long). Furnished with each inserter-extractor.

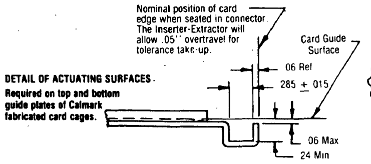
To obtain with Pre-Started Assembly Pin, add prefix P to part number.

TOLERANCES: .xxx = ±.010, .xx = ±.02

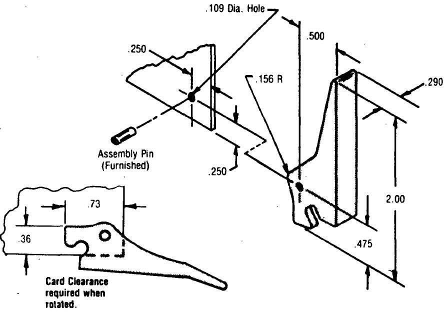
APPLICATION DATA: Two inserter-extractors are required per card. Provides insertion and extraction travel of .35 minimum with a mechanical advantage of approx. 4:1.

TABULATION

Part No.	Card Thickness
107-50	1/16″
107-50-3	3/32″


Nominal position of card edge when seated in connector. The Inserter-Extractor will allow .05'' overtravel for tolerance take-up.
Card Guide Surface
06 Ref
285 ± 015
06 Max
24 Min

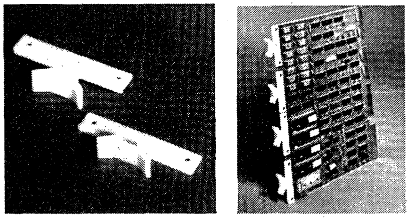
DETAIL OF ACTUATING SURFACES
Required on top and bottom guide plates of Calmark fabricated card cages.


.109 Dia. Hole
.500
.250
.156 R
.290
Assembly Pin (Furnished)
.250
2.00
.475
.73
.36

Card Clearance required when rotated.

SERIES 110 handle (DEC* compatible)

Calmark offers the Series 110 Card Handle for efficient extraction of DEC* PDP-8, PDP-11 and LSI-11 configuration cards.



FEATURES:

- Compatible for use on DEC* PDP-8, PDP-11, and LSI-11 configuration cards.
- Ample gripping and pushing surfaces for extracting and inserting card.
- Available in colors for coding.
- Generous area for hot stamp marking.

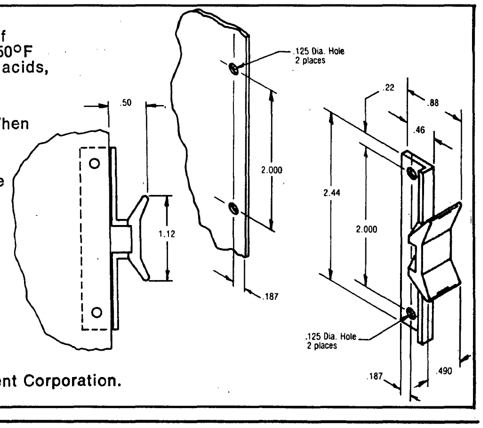
MATERIAL: 6/6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

COLOR: Standard color is natural (white). Additional colors available on request. When ordering colors other than white, please specify the particular color you wish.

HOT STAMPING: Hot stamp marking can be furnished to your requirements.

TOLERANCES: .xxx = ±.010, .xx = ±.020

MOUNTING HARDWARE: Not furnished.


.125 Dia. Hole 2 places
.50
2.000
1.12
.187
.22
.88
.46
2.44
2.000
.125 Dia. Hole 2 places
.187
.490

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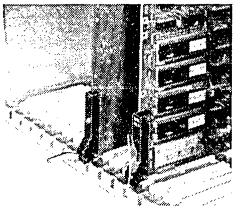
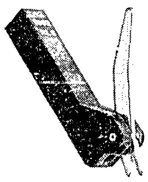
SERIES 111 inserter-extractor (DEC* Compatible)

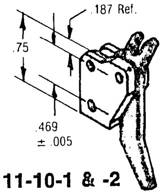
Calmark offers the Series 111 Card Inserter-Extractor for efficient insertion and extraction of DEC* PDP-8, PDP-11 and LSI-11 configuration cards.





FEATURES:

- Compatible for use on DEC* PDP-8, PDP-11 and LSI-11 configuration cards.
- Lever action provides mechanical advantage for efficient insertion and extraction of card.
- Available in colors for coding.
- Generous area for hot stamp marking.
- Economical.


.187 Ref.
.75
.469
± .005

111-10-1 & -2

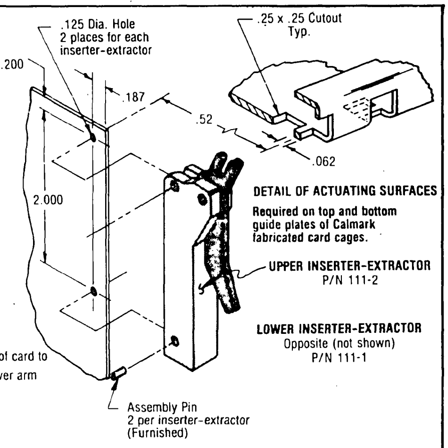
MATERIALS & FINISHES: Housing — Glass Filled (30%) 6/6 or 6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.
Lever Arm — Steel (.090 thick). Electroless Nickel plated (.0002 min.)
Roll Pins — Stainless Steel (3/32″ & 1/8″ dia. x 3/8″ long). Furnished.

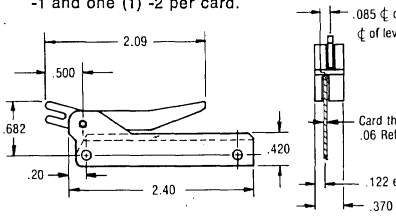
COLOR: Housing — Standard color is black. Additional colors available on request. When ordering colors other than black, please specify the particular color you wish.

HOT STAMPING: Housing — Hot stamp marking can be furnished to your requirements.

TOLERANCES: .xxx = ±.010, .xx = ±.020

APPLICATION DATA: Two inserter-extractors are required per card. Requires one (1) -1 and one (1) -2 per card.


.125 Dia. Hole
2 places for each inserter-extractor
.25 x .25 Cutout Typ.
.200
.187
.52
.062
2.000
DETAIL OF ACTUATING SURFACES
Required on top and bottom guide plates of Calmark fabricated card cages.
UPPER INSERTER-EXTRACTOR
P/N 111-2
LOWER INSERTER-EXTRACTOR
Opposite (not shown)
P/N 111-1
Assembly Pin
2 per inserter-extractor
(Furnished)


2.09
.500
.682
.420
.20
2.40
.085 ℄ of card to ℄ of lever arm
Card thickness
.06 Ref.
.122 edge of housing to ℄ of card
.370

* Registered trademarks of Digital Equipment Corporation

SERIES 112 and 112n (insulated) pullers

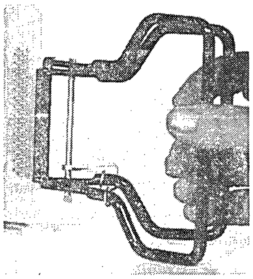
Calmark offers the Series 112 Card Puller for efficient extraction of PC cards from connectors. Positive gripping action provides safe and easy card extraction without damage to circuits or components.

Calmark offers the Series 112N Insulated Card Puller for efficient extraction of PC cards from connectors while providing positive insulation between gripping surfaces and circuitry.

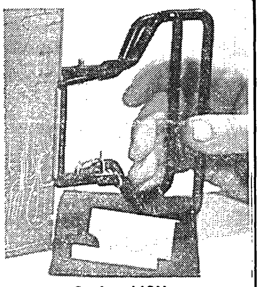
FEATURES:

- Positive gripping action.
- Durable nylon insert provides positive insulation between gripping surfaces and circuitry.
- No wear on gripping surfaces.
- Grips cards to 1/8 inch thick.
- Gripping area is only 1/8 x 2 7/8 inches.
- Sturdy wire form design.
- Vinyl plastic coated in addition to nylon insert.
- Nylon insert can retrofit Series 112 Card Puller and similar competitive card pullers.

MATERIALS & FINISHES:
Handles — 1/4″ dia. Low Carbon Steel. Coated with .015 thick PVC plastic (black).
Insert — Nylon 6/6 (Natural — white).
Pin — 1/8″ dia. Low Carbon Steel. Cadmium Plated.
Spring — .060 dia. Stainless Steel.



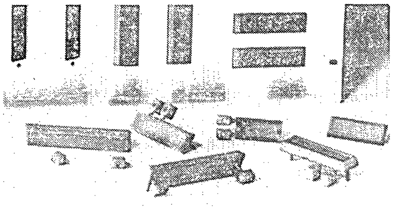
Series 112



Series 112N

SERIES 810 connector-cutout cover (D-subminiature)

Calmark offers the Series 810 Connector-Cutout Cover as an economical decorative cover for unused D-subminiature cutouts on connector panels.



FEATURES:

- Decorative appearance.
- Economical.
- Easy snap-on and off reusable design.
- Fits all standard size D-subminiature cutouts.
- Mountable on panels up to 1/8″ thick.
- Available in colors.
- Generous area for hot stamp marking.

MATERIAL: 6/6 Nylon. Meets UL 94V-2. Self extinguishing to flame. May be used at 250°F continuously. Resistant to alkalies, weak acids, and common solvents.

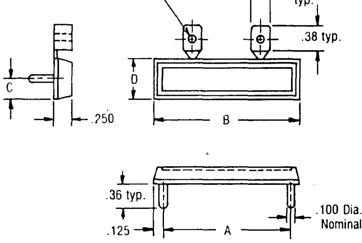
COLOR: Standard color is white. Additonal colors available on request. When ordering colors other than white, please specify the particular color you wish.

HOT STAMPING: Hot stamp marking can be furnished to your requirements.

TOLERANCES: .xxx = ±.010, .xx = ±.02

TABULATION

Dash No.	A Dim.	B Dim.	C Dim.	D Dim.
-9	.984	1.23	.29	.58
-15	1.312	1.56	.29	.58
-25	1.852	2.10	.29	.58
-37	2.500	2.75	.29	.58
-50	2.406	2.66	.32	.68


.100 Dia. Nominal
.25 typ.
.38 typ.
C
D
.250
B
.36 typ.
.125
A
.100 Dia. Nominal

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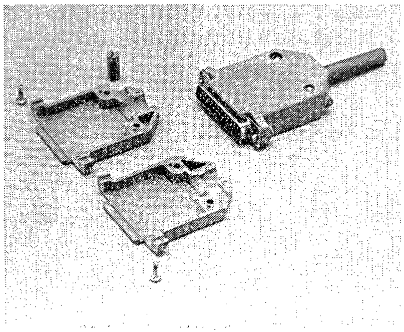
SERIES 805 D-subminiature backshell

Calmark offers the Series 805 Connector Backshell for enclosing connector and wiring on D-Subminiature rectangular connectors.



MATERIALS & FINISHES:

Backshell — Glass filled 6/6 nylon.
Color — Gray.

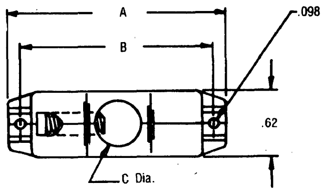
Set Screw — Nylon 6/6. Color — Natural. Backshell and Set Screw meet UL 94V-2. Self extinguishing to flame. May be used at 250°F continuous. Resistant to alkalies, weak acids, and common solvents.

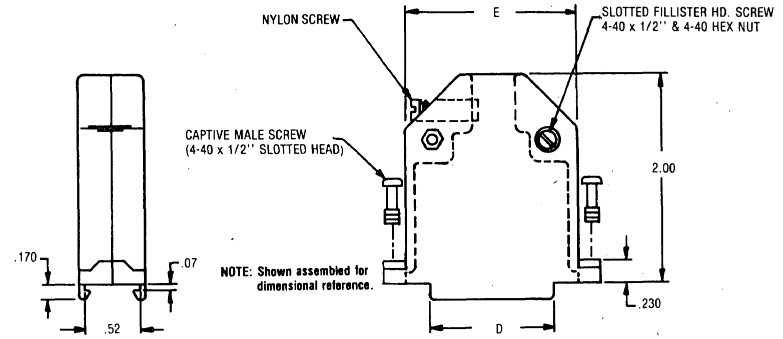
Captive Panel Screws — Steel 4-40 x ½″ long, slotted head. Cadmium or Zinc plated, clear iridite.

TOLERANCES: .xxx = ±.010, .xx = ±.02

TABULATION

Dash No.	A Dim.	B Dim.	C Dim.	D Dim.	E Dim.
-15	1.550	1.312	.31	.76	1.080
-25	2.090	1.852	.38	1.17	1.620


A
B
.098 Dia. Hole
.62
C Dia.

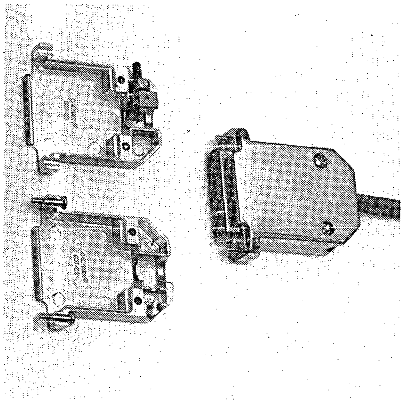

NYLON SCREW
E
SLOTTED FILLISTER HD. SCREW 4-40 x 1/2" & 4-40 HEX NUT
CAPTIVE MALE SCREW (4-40 x 1/2" SLOTTED HEAD)
2.00
.170
.07
NOTE: Shown assembled for dimensional reference.
.230
.52
D

FEATURES:

- Easy to assemble "clamshell" design.
- Secure cable strain relief.
- Includes captive panel screws.
- Strong glass filled nylon material.
- Compatible with all makes of D-Subminiature rectangular connectors.

SERIES 807 D-sub backshell (EMI/RFI shielded)

Calmark offers the Series 807 Connector Backshell for enclosing connector and wiring on D-Subminiature rectangular connectors, and provide EMI/RFI shielding in accordance with FCC regulation 20780.



MATERIALS and FINISHES:

Backshell & Clamp—Zinc alloy, Nickel plated.

Set Screw—6-32 x ½″ socket head, steel Black oxide finish.

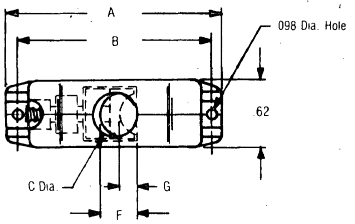
Locknut—6-32 x 5⁄16″ hex x 3⁄16″ high, Steel, Plated.

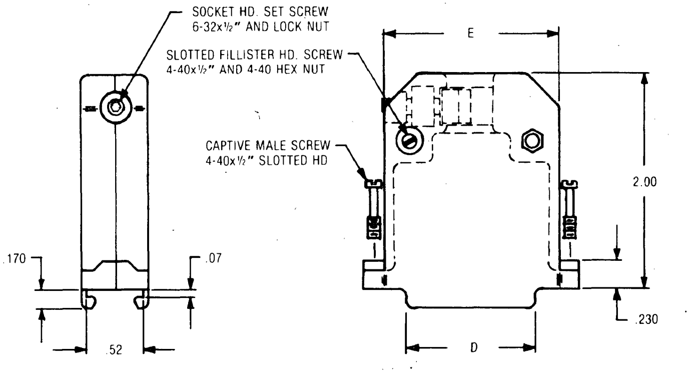
Captive Panel Scews—Steel 4-40 x ½″ long, slotted head. Cadmium or Zinc plated, clear iridite.

TOLERANCES: xxx = ±.010, .xx = ±.02

TABULATION

Dash NO.	A Dim.	B Dim.	C Dia.	D Dim.	E Dim.	F Dim.	G Dim.
—25	2.090	1.852	.406	1.17	1.620	.35	.11


A
B
098 Dia. Hole
.62
C Dia.
F
G

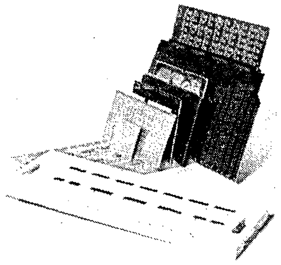

SOCKET HD. SET SCREW 6-32x½" AND LOCK NUT
SLOTTED FILLISTER HD. SCREW 4-40x½" AND 4-40 HEX NUT
E
CAPTIVE MALE SCREW 4-40x½" SLOTTED HD
2.00
.170
.07
.230
.52
D

FEATURES:

- Meets FCC regulation 20780.
- Unique cable clamp design—provides:
  - Adjustable clamping for varying cable diameters.
  - No separate fittings required.
  - Positive shielding and electrical continuity.
  - Locking feature.
- Rugged die cast zinc.
- Easy to assemble "clamshell" design.
- Includes captive panel screws.
- Compatible with most makes of D-Subminiature rectangular connectors.

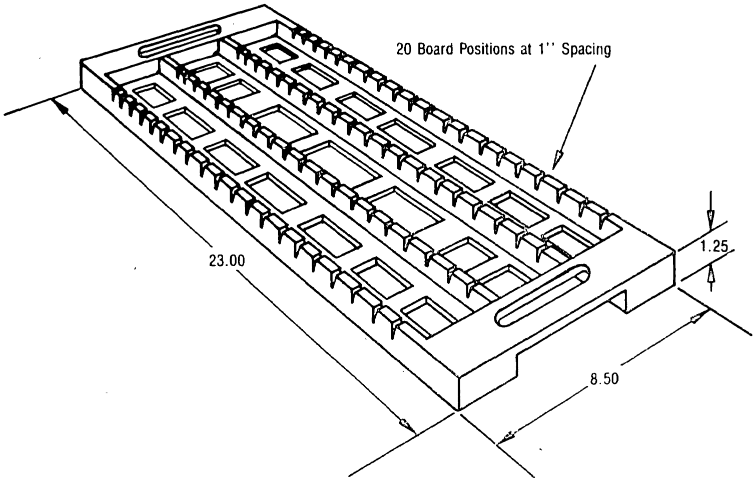
SERIES 900 and 910 pcb handling tray

Calmark offers the Series 900 and 910 (high temperature) PCB Handling Tray for easy and efficient handling and transport of PC boards during various stages of production.



SERIES 900
MATERIAL: Expanded Polypropylene. May be used at 200°F continuous. Resistant to alkalies, weak acids, and common solvents.
COLOR: Standard colors are: Red, Yellow and Green. When ordering, please specify the color you wish.

SERIES 910 (high temperature)
MATERIAL: Glass filled expanded polyester (Valox or equivalent). May be used at 350°F continuous, (melt temperature 460°F). Resistant to alkalies, weak acids, and common solvents.
COLOR: Light Gray. (May change color.)

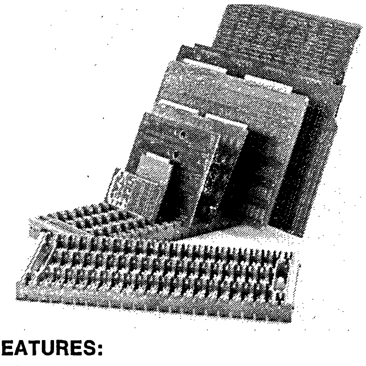

20 Board Positions at 1'' Spacing
23.00
1.25
8.50

FEATURES:

- Holds 20 boards of varying size and thickness.
- Molded-in camber prevents spinning or turning on flat surfaces.
- Series 900 material is non-conductive — will not hold static charge.
- Open design provides generous airflow and drainage.
- Series 910 may be used at 350°F continuous.
- Unloaded trays nest when stacked.

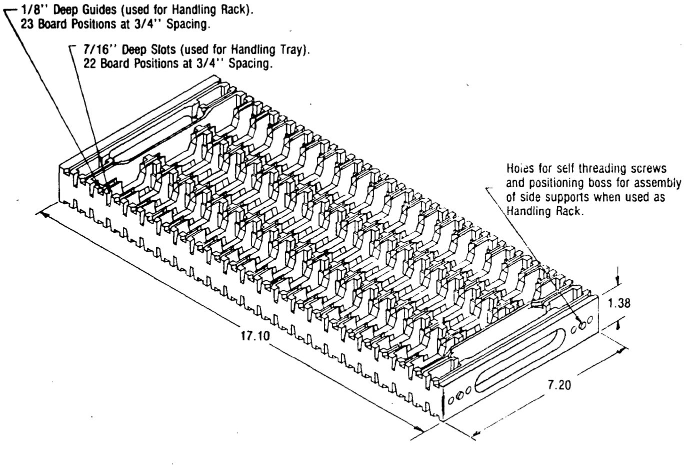
SERIES 920 and 930 pcb handling tray/rack "combination"

Calmark offers the Series 920 and 930 (high temperature) PCB Handling Tray/Rack for easy and efficient handling and transport of PC board during various stages of production. The unique design of this product affords versatility of use as a handling tray or, with the addition of side supports, as a handling rack.



SERIES 920
MATERIAL: Expanded Polypropylene. May be used at 200°F continuous. Resistant to alkalies, weak acids, and common solvents.
COLOR: Standard colors are: Red, Yellow and Green. When ordering, please specify the color you wish.

SERIES 930 (high temperature)
MATERIAL: Glass filled expanded polyester (Valox or equivalent). May be used at 350°F continuous, (melt temperature 460°F). Resistant to alkalies, weak acids, and common solvents.
COLOR: Light Gray. (May change color).


1/8" Deep Guides (used for Handling Rack).
23 Board Positions at 3/4" Spacing.
7/16" Deep Slots (used for Handling Tray).
22 Board Positions at 3/4" Spacing.
Holes for self threading screws and positioning boss for assembly of side supports when used as Handling Rack.
1.38
17.10
7.20

FEATURES:

- Can be used as a tray or made into a handling rack — with the addition of side suports.
- Holds 22 boards of varying size and thickness (up to ⅛") in either tray or rack usage.
- Completely symmetrical with identical board slot and guide pattern on both sides.
- Series 920 material is non-conductive — will not hold static charge.
- Open design provides generous airflow and drainage.
- Series 930 may be used at 350°F continuous.
- Unique molded-in handle design provides sure grip and safe handling.

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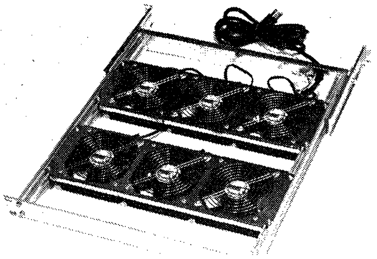
SERIES 301-175 fan tray (std. EIA rack mount)

Calmark offers the Series 301-175 "adjustable" Fan Tray for cooling electronics in standard EIA cabinets, enclosures and racks. The Series 301-175 Fan Tray mounts in a standard 19 inch EIA rack, requiring only 1¾ inches of standard panel height.



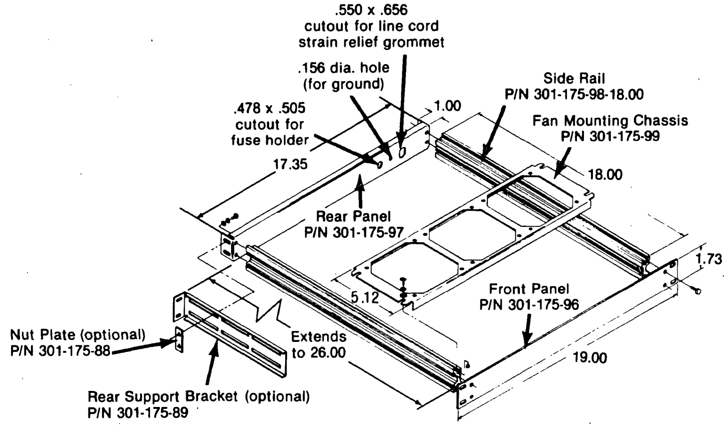
FEATURES:

- Sturdy and rigid construction.
- Requires only 1¾ inches of panel height.
- Accommodates up to nine 4½ inch axial fans.
- Unlimited adjustment of fan location.
- Available with U.S. Toyo high performance, high reliability, low cost axial fans.
- Available unassembled or completely assembled and wired, ready to plug in.
- Available with rear support brackets for standard EIA mounting rails.
- Design flexibility offers easy customizing. Special requirements available on request.

MATERIALS & FINISHES:

Fan Mounting Panel, Front & Rear Panels, Rear Support Brackets (optional) — C. R. Steel, QQ-S-698, .059 thick. Zinc Plated, Clear Iridite with Clear Coat Sealer. Other materials and finishes available on request

Side Rails — Aluminum Extrusion, 6063-T5. Clear Chemical Film per MIL-C-5541. Other finishes available on request


.550 x .656
cutout for line cord
strain relief grommet
.156 dia. hole
(for ground)
.478 x .505
cutout for
fuse holder
17.35
1.00
Side Rail
P/N 301-175-98-18.00
Fan Mounting Chassis
P/N 301-175-99
18.00
Rear Panel
P/N 301-175-97
1.73
5.12
Front Panel
P/N 301-175-96
Nut Plate (optional)
P/N 301-175-88
Extends
to 26.00
19.00
Rear Support Bracket (optional)
P/N 301-175-89

PART NO. CODE:

P/N 301-175 is an unassembled fan tray kit consisting of:

P/N 301-175-99	Fan Mounting Chassis	— Qty. 1
P/N 301-175-98-18.00	Side Rail	— Qty. 2
P/N 301-175-97	Rear Panel	— Qty. 1
P/N 301-175-96	Front Panel	— Qty. 1
——	Assembly Hardware	——

Optional items available as follows:

Rear Support Kit — P/N 301-2 consisting of:

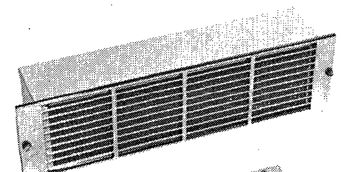
P/N 301-175-89	Bracket	— Qty. 2
P/N 301-175-88	Nut Plate	— Qty. 2
——	Assembly Hardware	——

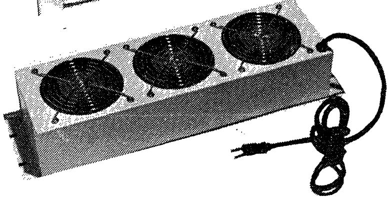
Extra Fan Mounting Chassis Kit — P/N 301-1 consisting of:

P/N 301-175-99	Fan Mounting Chassis	— Qty. 1
——	Assembly Hardware	——

SERIES 302 blower (std. EIA rack mount)

Calmark offers the Series 302 Blower Assembly for cooling electronics in standard 19 inch EIA cabinets, enclosures and racks. The Series 302 Blower Assembly requires only 5¼ inches of standard panel height when mounted.





FEATURES:

- High performance airflow.
- Low noise level.
- Uses three U.S. Toyo precision ball bearing, long life expectancy axial fans.
- Standard 5¼ inch panel height x 19 inch EIA rack mounting.
- Removable-cleanable air filter.
- Decorative front panel grille with quick release quarter-turn fasteners.
- Design flexibility offers easy customizing.

MATERIALS & FINISHES:

Housing — C.R. Steel, QQ-S-698, .047 thick. Zinc Plated Clear Iridite with Clear Coat Sealer.

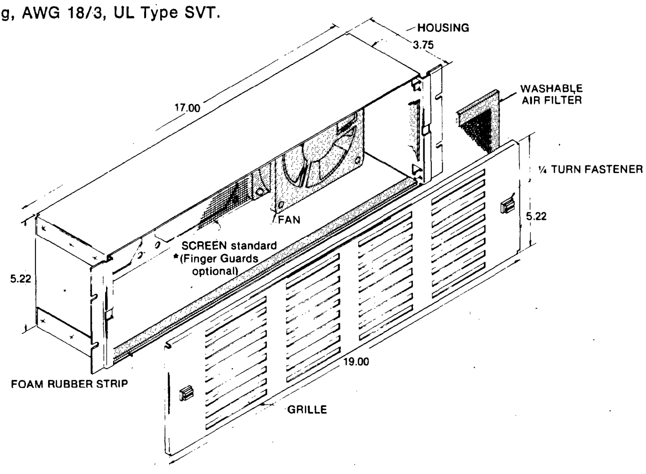
Fans — U.S. Toyo Fan P/N TF 120115AW (3) - 104 CFM, 115VAC, 15W each.

Filter — Washable Aluminum.

Grille — C.R. Steel, QQ-S-698, .047 thick. Bright Nickel Plated.

Power Cord — 6′ long, AWG 18/3, UL Type SVT.

CUSTOM VARIATIONS AVAILABLE ON REQUEST


HOUSING
3.75
17.00
WASHABLE
AIR FILTER
¼ TURN FASTENER
5.22
FAN
SCREEN standard
*(Finger Guards
optional)
5.22
19.00
FOAM RUBBER STRIP
GRILLE

***NOTE: For Finger Guard option, suffix P/N 302 with FG.**

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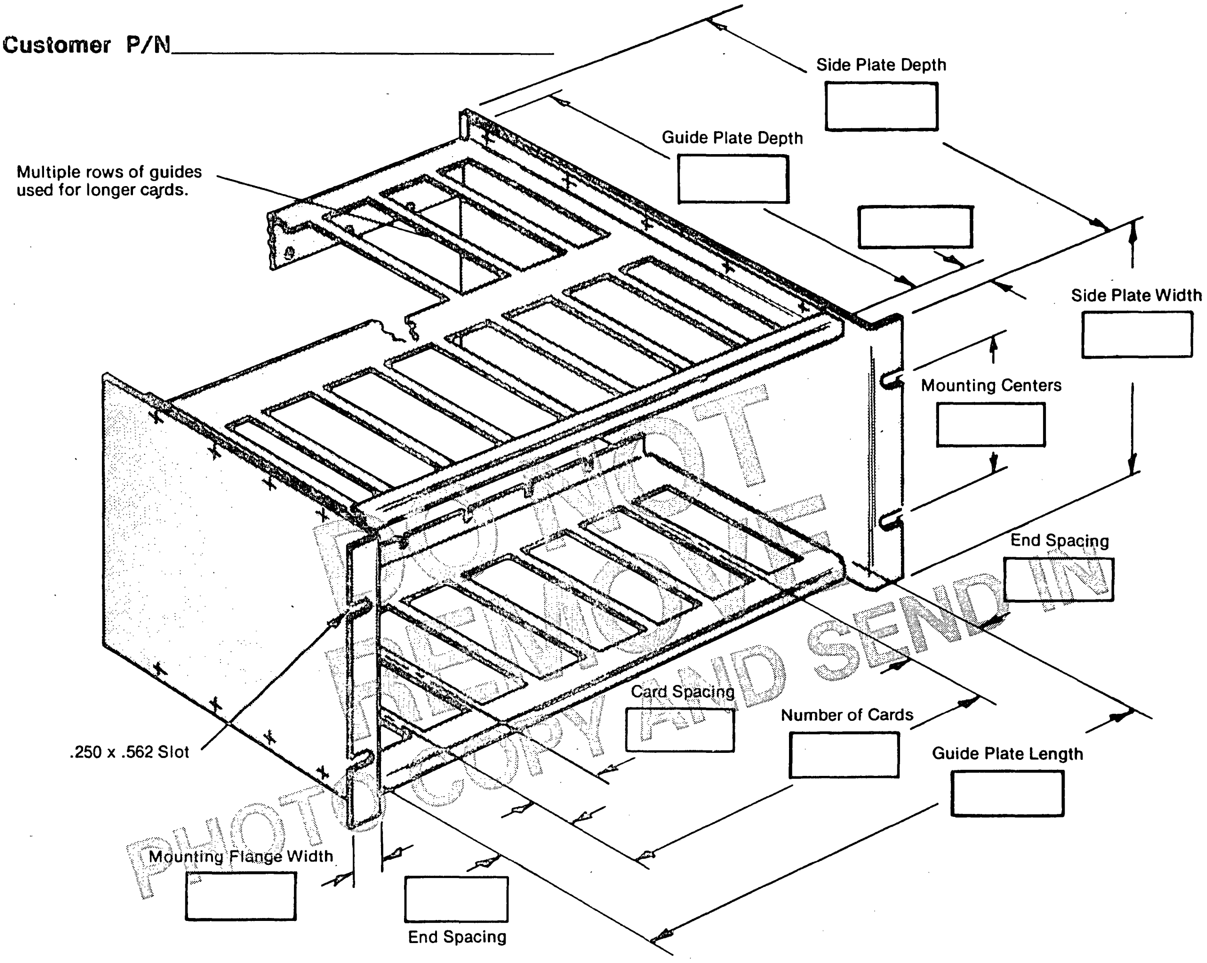
CARD CAGE design data sheet

Company ______________________ Prepared by ______________________

Address ______________________ Telephone ______________________

City ______________________ State ______________ Zip ______________

Ref. Customer P/N ______________________


Side Plate Depth
Guide Plate Depth
Multiple rows of guides used for longer cards.
Side Plate Width
Mounting Centers
End Spacing
Card Spacing
Number of Cards
Guide Plate Length
.250 x .562 Slot
Mounting Flange Width
End Spacing

DO NOT REMOVE PHOTOCOPY AND SEND IN

1. **Size of P.C. Card:** ______________ thick x ______________ wide x ______________ total length (including connector tab)
2. **If multiple level construction:** Number of levels ______________________
3. **Connector:** Made by ______________ Part No. ______________ Mounting Hole Centers ______________
4. **Materials & Finishes:**

   C.R. Steel, QQ-S-698 .059 thick Guide Plates, .059 thick Side Plates
   Zinc Plated, Clear Iridite with Clear Coat Sealer

5. **Card Guide or Retainer type:** ☐ Series 100 (Metal Louver) ☐ Series 115-287 (Nylon Guide) ☐ Series 120 (Nylon Guide)
   ☐ Series 100-1 (Entry Enhancement) ☐ Series125/126 (Retainer) ☐ Series 165/166 (Retainer-Heat Sinking)
6. **Assembly:** ☐ Bolted ☐ Spotwelded

Special Details or Instructions:

Calmark P/N ______________________

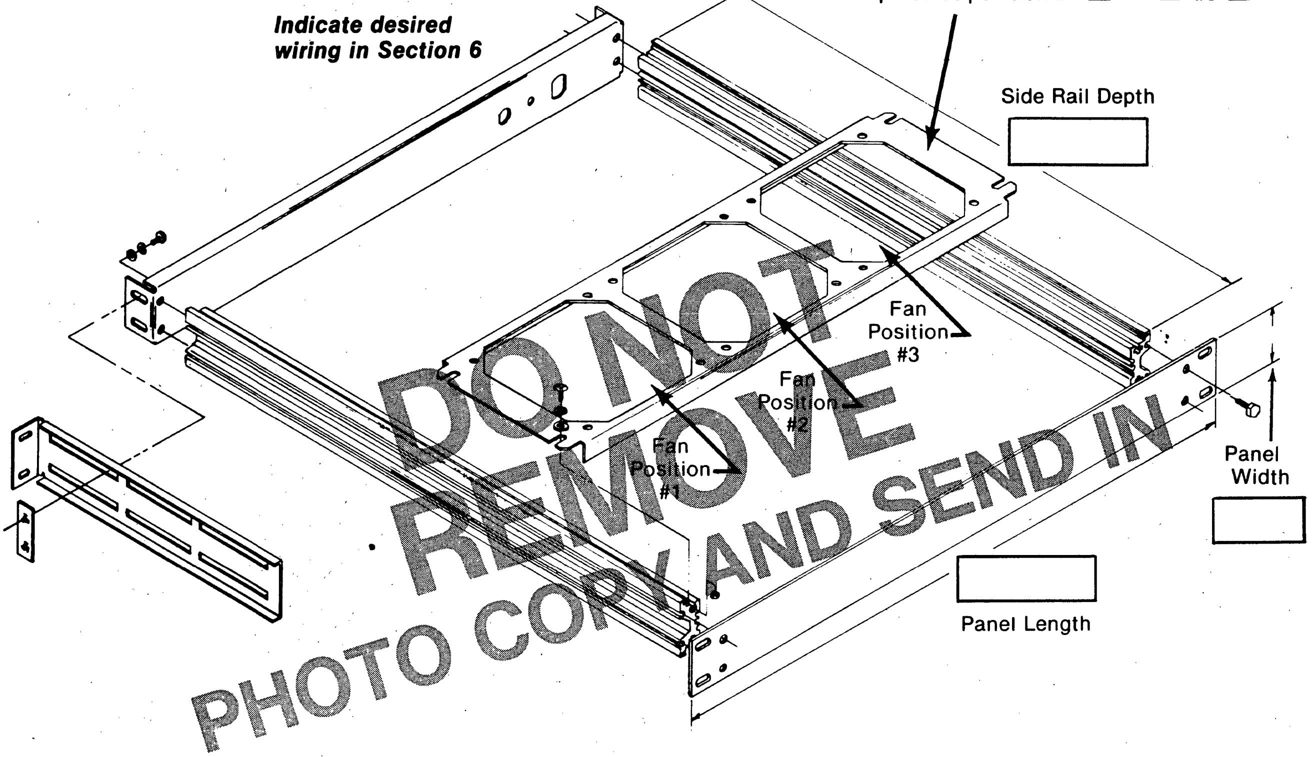
CALMARK®
CORPORATION
4915 WALNUT GROVE AVE., SAN GABRIEL, CALIF. 91776 (818) 287-0451, TWX (910) 589-1540

FAN TRAY design data sheet

Company ______________________ Prepared by ______________________
Address ______________________ Telephone ______________________
City ______________________ State ______________________ Zip______

Customer P/N Ref. ______________________

Fan Mounting Chassis
Quantity Required__________
Fans Required at position #1 ☐ #2 ☐ #3 ☐


Indicate desired wiring in Section 6
Side Rail Depth
☐
Fan Position #3
Fan Position #2
Fan Position #1
Panel Width
☐
☐
Panel Length

DO NOT REMOVE
PHOTO COPY AND SEND IN

DESIGN REQUIREMENTS:

1. **Fans required:** U.S. Toyo Fan P/N ______________________ Quantity ______________________
(Refer to U.S. Toyo Fan EEM Pages **C**•1690, **C**•1691)
2. **Assembly:** ☐ Not Assembled ☐ Assembled ☐ Assembled & Wired
3. **Fan Mounting Panel & Fan location(s):** Indicate on isometric drawing.
4. **Rear Support Brackets:** ☐ Include ☐ Do not include
5. **Special material and finish requirements:** (So specify) ______________________

____

6. **Other special details or requirements:** ______________________

____

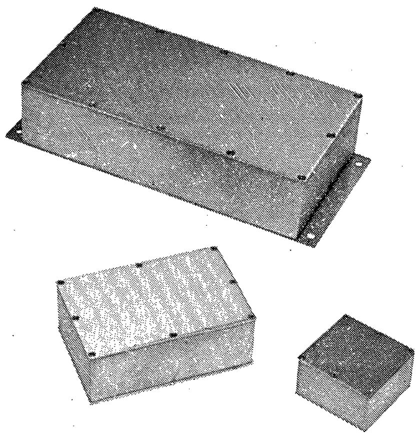
Calmark P/N ______________________

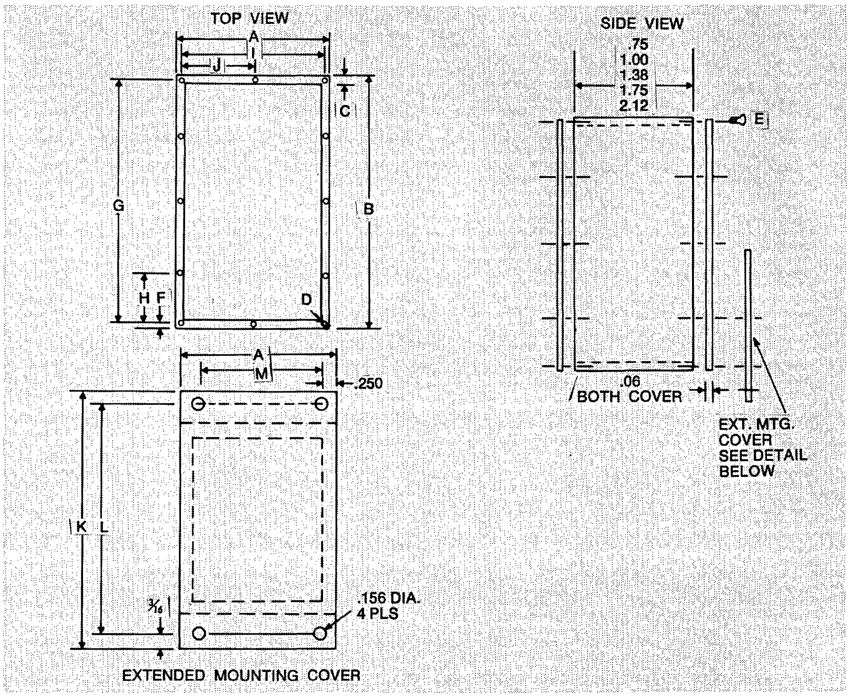
EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

COMPAC™

RFT SERIES





☐ Compac's RFT Series Enclosures have shielding capabilities to 60 dB at 3 GHz

☐ Independent access from either side

☐ Greater Interior Acreage
Construction Specs: Case — AL 6063T3 Covers — AL 5052-H32 finish chemical film per MIL C 5541 Class 1 A
Conformance to MIL 45208A

	A	B	C	D*	E	F	G	H	I	J	K	L	M
R51080	1.00	1.00	.125	4	0-80	.070	.860	—	.860	—	1.75	1.375	.50
R51090	1.25	1.25	.125	4	0-80	.070	1.110	—	1.110	—	2.00	1.625	.75
R51095	1.25	2.50	.125	6	0-80	.070	2.360	1.180	1.110	—	3.25	2.875	.75
R51100	1.50	1.50	.125	6	0-80	.070	1.360	.680	1.360	—	2.25	1.875	1.00
R51110	1.50	2.00	.125	6	0-80	.070	1.860	.930	1.360	—	2.75	2.375	1.00
R51120	1.50	2.50	.125	6	0-80	.070	2.360	1.180	1.360	—	3.25	2.875	1.00
R31125	1.50	3.25	.125	6	0-80	.070	3.110	1,555	1.360	—	4.00	3.625	1.00
R51130	1.50	6.00	.125	10	0-80	.070	5.860	1.465	1.360	—	6.75	6.375	1.00
R51140	1.75	1.75	.125	6	0-80	.070	1.610	.805	1.610	—	2.50	2.125	1.25
R31150	1.75	3.00	.125	6	0-80	.070	2.860	1.430	1.610	—	3.75	3.375	1.25
R31160	2.00	2.00	.125	8	0-80	.070	1.860	.930	1.860	.930	2.75	2.375	1.50
R51170	2.00	3.00	.125	8	0-80	.070	2.860	1.430	1.860	.930	3.75	3.375	1.50
R51180	2.00	4.00	.125	10	0-80	.070	3.860	1.286	1.860	.930	4.75	4.375	1.50
R51190	2.00	5.00	.125	12	0-80	.070	4.860	1.215	1.860	.930	5.75	5.375	1.50
R51200	2.00	6.00	.125	12	0-80	.070	5.860	1.465	1.860	.930	6.75	6.375	1.50
R51205	2.50	2.50	.125	8	0-80	.070	2.360	1.180	2.360	1.180	3.25	2.875	2.00
R51210	3.00	3.00	.125	8	0-80	.070	2.860	1.430	2.860	1.430	3.75	3.375	2.50
R51220	3.00	5.00	.125	12	0-80	.070	4.860	1.215	2.860	1.430	5.75	5.375	2.50
R51225	3.00	5.00	.188	12	2-56	.094	4.812	1.203	2.812	1.406	5.75	5.375	2.50
R51230	3.00	6.00	.188	12	2-56	.094	5.812	1.453	2.812	1.406	6.75	6.375	2.50
R51250	5.00	6.00	.188	14	2-56	.094	5.812	1.453	4.812	1.604	6.75	6.375	4.50

* D = Number of cover screws

Specifications subject to change without notice

HOW TO ORDER:

R-51110 — 138 — 0 (N)
CASE PART NO.
CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12
COVER TYPE
0 - Standard flush
1 - Extended
ADD FOR NICKEL PLATE

CUSTOM
FROM COMPAC'S RFT SERIES

Compac will modify our RFT Series Enclosures to meet your needs.

- Drilling
- Tapping
- Milling
- "D" Punching
- Cut Outs for Subminiature Connections
- Silk Screening, Painting

Work is done from your prints or to your specifications.

For your convenience Compac has included on page 5 a request for quote with a rendering of a Compac Case to depict your modifications.

R51110 — 138 — 0 — (N)/MOD/XXX
CASE PART NO.
CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12
COVER TYPE
0 - Standard flush
1 - Extended
ADD FOR NICKEL PLATE
YOUR PRINT #

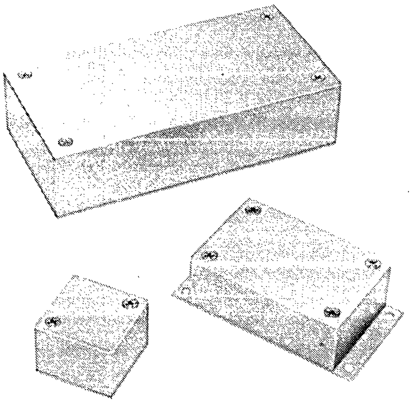
TO ORDER

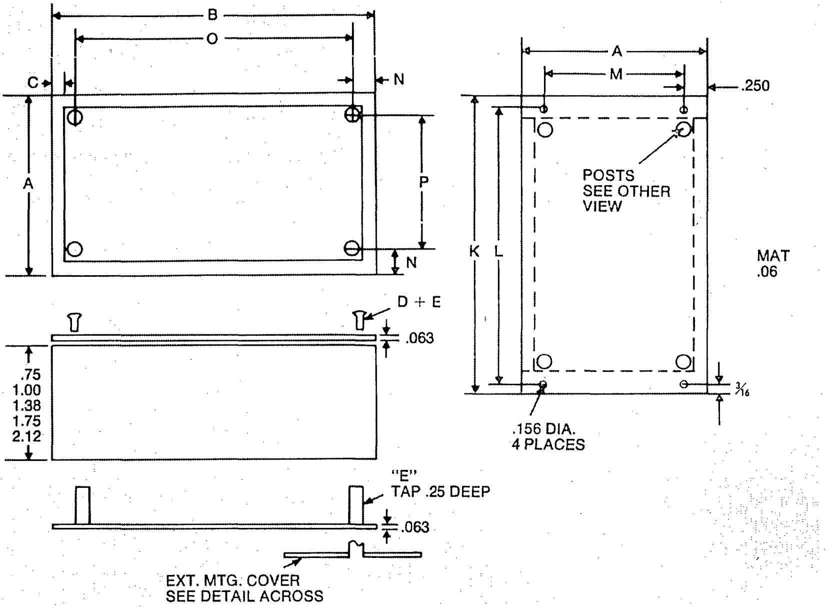
Select a case size from the RFT series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

COMPAC™

BLANK SERIES





- ☐ Compac Blank Series Enclosures provide up to 100 dB shielding effectiveness at 100 MHz
- ☐ Easy access and assembly
- ☐ Off-the-shelf availability

CONSTRUCTION SPECS
Frames: 6063-T5QQA200 Extruded Aluminum
Covers: 5052-H32-Aluminum
Standard Finishes
Irridite Chemifilm per MIL C 5541 CL 1 A Conformance to MIL Spec 45208A

HOW TO ORDER:

51110 — 138 — 0 — (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

	A	B	C	D	E	K	L	M	N	O	P
51080	1.00	1.00	.125	2	4-40	1.75	1.375	.50	.250	.50	.50
51090	1.25	1.25	.125	2	4-40	2.00	1.625	.75	.250	.75	.75
51095	1.25	2.50	.125	4	4-40	3.25	2.875	.75	.250	2.00	.75
51100	1.50	1.50	.125	2	4-40	2.25	1.875	1.00	.250	1.00	1.00
51110	1.50	2.00	.125	4	4-40	2.75	2.375	1.00	.250	1.50	1.00
51120	1.50	2.50	.125	4	6-32	3.25	2.875	1.00	.250	2.00	1.00
51125	1.50	3.25	.125	4	6-32	4.00	3.625	1.00	.250	2.75	1.00
51130	1.50	6.00	.125	4	6-32	6.75	6.375	1.00	.250	5.50	1.00
51140	1.75	1.75	.125	4	6-32	2.50	2.125	1.25	.250	1.25	1.25
51150	1.75	3.00	.125	4	6-32	3.75	3.375	1.25	.250	2.50	1.25
51160	2.00	2.00	.125	4	6-32	2.75	2.375	1.50	.250	1.50	1.50
51170	2.00	3.00	.125	4	6-32	3.75	3.375	1.50	.250	2.50	1.50
51180	2.00	4.00	.125	4	6-32	4.75	4.375	1.50	.250	3.50	1.50
51190	2.00	5.00	.125	4	6-32	5.75	5.375	1.50	.250	4.50	1.50
51200	2.00	6.00	.125	4	6-32	6.75	6.375	1.50	.250	5.50	1.50
51205	2.50	2.50	.125	4	6-32	3.25	2.875	2.00	.250	2.00	2.00
51210	3.00	3.00	.125	4	6-32	3.75	3.375	2.50	.250	2.50	2.50
51220	3.00	5.00	.125	4	6-32	5.75	5.375	2.50	.250	4.50	2.50
51225	3.00	5.00	.188	4	6-32	5.75	5.375	2.50	.310	4.38	2.38
51230	3.00	6.00	.188	4	6-32	6.75	6.375	2.50	.310	5.38	2.38
51250	5.00	6.00	.188	4	6-32	6.75	6.375	4.50	.310	5.38	4.38

Specifications subject to change without notice

CUSTOM
FROM COMPAC'S BLANK SERIES

Compac will modify our Blank Series to meet your needs and specifications.

- Drilling
- Tapping
- Milling
- Punching
- Traps for Subminiature Connections
- Silk Screening/Painting

Work is done from your print to your specifications.

For your convenience Compac has included on page 5 a request for quote with a rendering of a Compac Case to depict your modifications.

51110 — 138 — 0 (N)/MOD/XXX

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

TO ORDER

Select a case size from the BLANK Series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location, etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

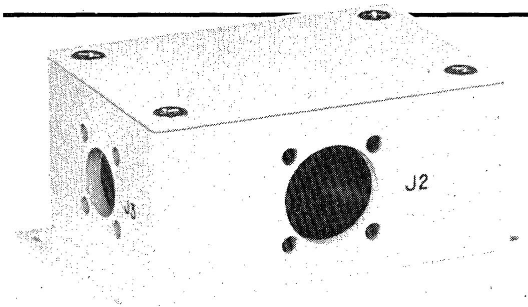
COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

COMPAC™

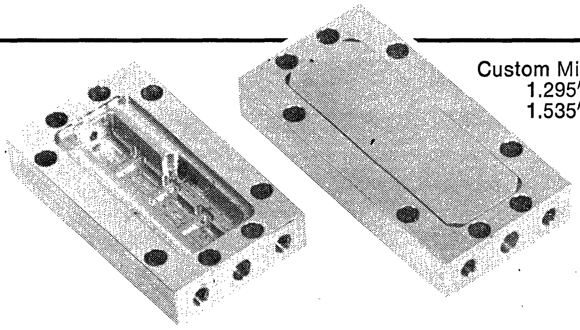
CUSTOM SERIES

Compac's unique product line can easily be tailored to meet your many custom specifications. But if our RFT or Blank Series do not fit your basic requirements, Compac can build a totally custom enclosure quickly and inexpensively. Compac's versatility converts your design into a finished product ready for assembly and installation. All you have to do is supply circuitry!

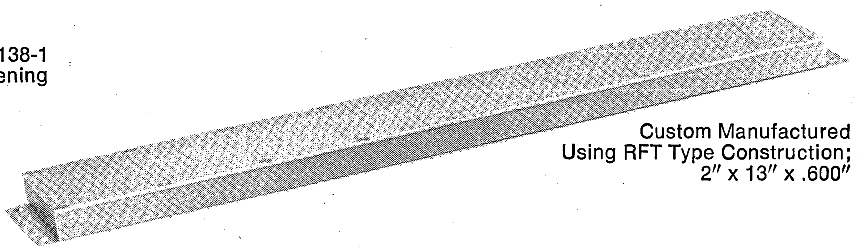
— Print or Detailed Drawings Required —



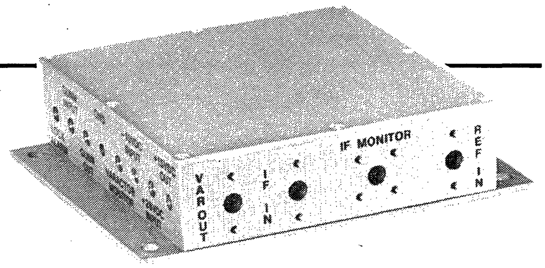
Manufactured from 51170-138-1
with Custom Drilling, Painting, and Silk Screening



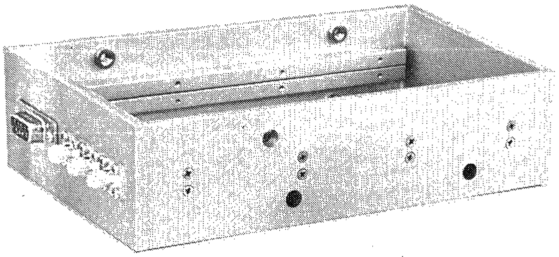
Custom Milled Enclosures,
1.295″ x .765″ x .225″
1.535″ x .765″ x .225″



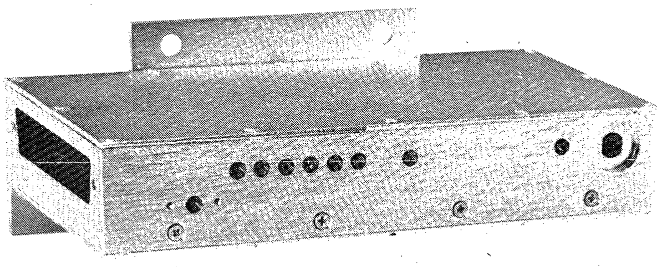
Custom Manufactured
Using RFT Type Construction;
2″ x 13″ x .600″



Manufactured from R51210-075-1 with
Custom Drilling, Tapping, and
Silk Screening



Custom Manufactured
Using RFT Type Construction, 4.00″ x 7.00″ x 2.00″
Showing Mounting Bars, Custom Drilling for
Hardware and Connectors



Manufactured from R51230-100-0(N)
Showing Custom Mounting Plate
Drilling, Milling and "D" Punching

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

Not Limited To
Examples Shown; COMPAC
Can Build To Your Specifications

COMPAC™

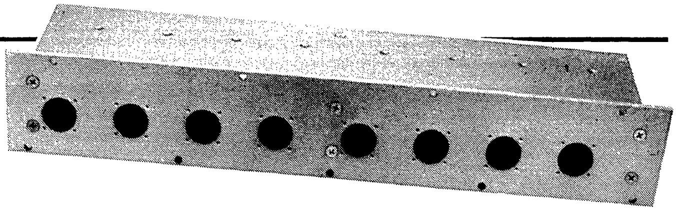
CUSTOM SERIES

SERVICES

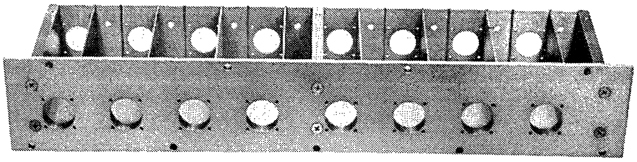
Milling — Enclosures, Channel, Grooves, as Required
Holes — Drilled or Punched
Material Thickness — To Your Specifications
Silk Screening or Painting
Construction Methods — Extrusion, Die Cast, Brazed, or Milled
Covers — To Your Specifications

ADVANTAGES OF A CUSTOM ENCLOSURE

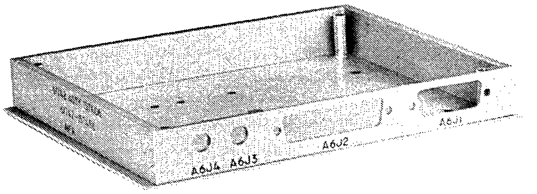
— Low Cost
— To your Exacting Specifications
— Short Lead Times
— Prototype to Production Quantity
— Finished Product Ready for Assembly
— With or Without Connectors & Filters



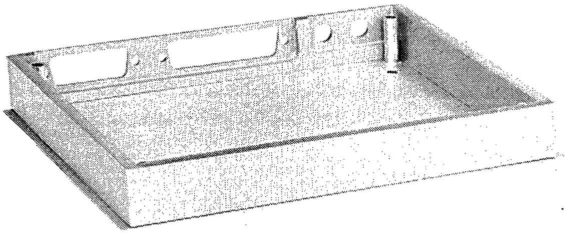
Custom Manufactured to Customer Spec's 19.00″ x 4.00″ x 6.00″



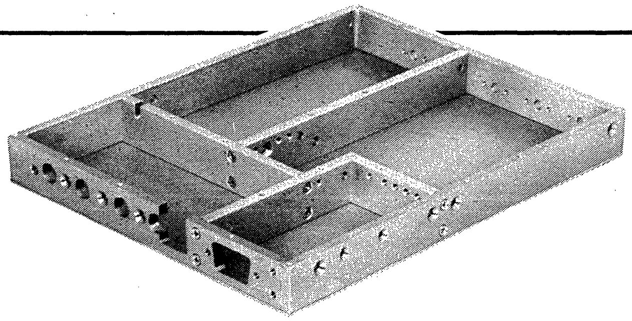
View of above Enclosure Showing Interior and Partitions



Custom Manufactured Blank Series Construction, 5.00″ x 6.00″ x .75″ Flat and Parallel to .001″ with Custom Milling, Drilling, "D" Punching and Silk Screening



View of Above Enclosure Showing Interior Milling



Custom Manufactured using RFT Construction 6.00″ x 8.00,″ x .75″, Show Custom Drilling, Milling, Counter Sinking, and Custom Partitions

Quantities from 1 pc thru production

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C
CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J
JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K
kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L
LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P
PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

EG&G BIRTCHER INDUSTRIAL PRODUCTS

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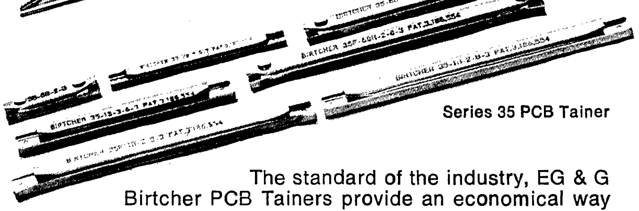
PCB TAINERS

Series 15-20 PCB Tainer


Series 35 PCB Tainer

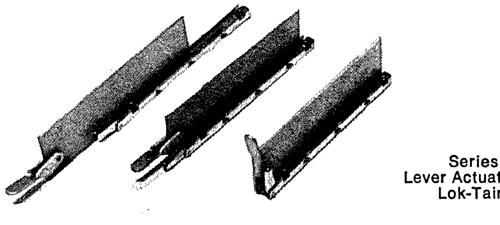
The standard of the industry, EG & G Birtcher PCB Tainers provide an economical way of securely fastening PC Boards.

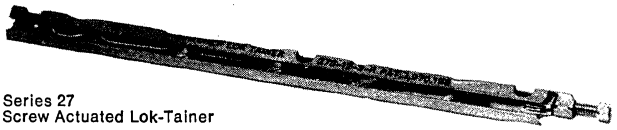
EG & G Birtcher PCB Tainers come in standard or made-to-spec versions. They are made of cold rolled steel or beryllium copper for rivet, weld or adhesive bonding installation. They provide heat dissipation, electrical grounding, retention in shock and vibration applications and they accept PC boards from 1/32″ to 1/8″ in thickness. Finishes are available in cadmium, zinc, nickel, copper, gold, silver or ebanol and they may also be heat treated.

SERIES 15 THRU 20
Flared entry guides
Material .010 thick
2″ to 10″ lengths, .50 wide
SERIES 21
Flared entry guide designed for high density applications

Material .006 thick
1″ to 6″ lengths, .190 wide
SERIES 35
With or without flared entry
Material .005 and .008 thick
2″ to 6″ lengths, .27 and .36 wide

LOK-TAINERS


Series 24
Lever Actuated
Lok-Tainer


Series 27
Screw Actuated Lok-Tainer

Lok-Tainers are designed to provide extremely high resistance to heavy shock and vibration while maintaining maximum contact for heat dissipation. In unlocked position there is no resistance to insertion or removal of the PC board. This minimizes destruction of board surfaces.

SERIES 24 AND 25
Level actuated

SERIES 27, 28 AND 29
Screw actuated
Material .024 thick housing
Left or right hand
3″ to 12″ lengths

EXTRACTORS, CARD HANDLES, AND INJECTOR/EXTRACTORS

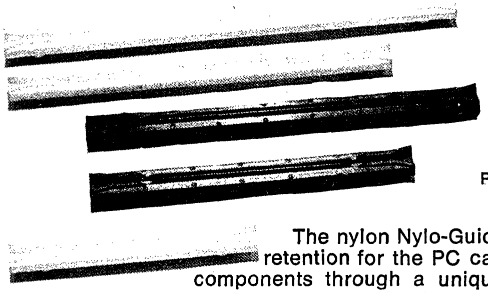
Injectors/Extractors

Extractors provide for quick, damage free, removal of PC cards. Injector/Extractors function in two directions allowing the card to be easily inserted into the connector as well as providing quick removal.

Material A.B.S. plastic and nylon:
Available for 1/32″ to 1/8″ boards
Hot stamp identification and colors available on special order

For heavy duty application:
Material of .063 aluminum alloy 5052-H32
Available for 1/32″ to 1/8″ boards

PLASTIC GUIDES

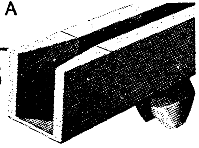

Series 26
Plastic Guides

The nylon Nylo-Guide provides retention for the PC card and its components through a unique gripping action. It is self-lubricating, non conductive with superior strength and durability.

SERIES 26
One guide fits 1/32″, 1/16″, 3/32″ PCB's
Identical ends
Easy snap-in style installation

3″ to 6″ lengths
Rigid nylon per MIL-M-20693A, Type IV A

DEEP CHANNEL GUIDES



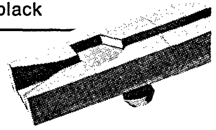
For 1/16″ and 1/8″ P.C.B.'s

The 94 series DEEP CHANNEL card guides hold P.C.B.'s more firmly and prevent vibration. These guides are being specified more and more because of their versatility and extra "holding power".

Permit horizontal and vertical mounting of extra large board
.200″ slot depth allows added tolerances to board dimensions
Extra "holding action" is precision molded into guide
Reversible guides can be mounted end to end for Tandem assembly

Prevent vibration
Press fit pylons fit .187″ dia. + .003″ hole in any plate .047″ to .009″ thickness −.001″
Rear hole should be slotted.
Material: Nylon Type 6/6, Glass Filled/Reinforced, flame retardant U.L. rated 94-VO, color black

SPACE SAVER GUIDES



For 1/16″ P.C.B.'s

The 93 Series Guide offers excellent retention with its .078″ x .078″ channel while saving valuable board area due to its shallow depth.

Available 2½″ to 8″ in 12 standard lengths
Special lengths may be ordered
Precision molded, offering strength and rigidity
Snap-in installation with any metal plate .047″ to .090″ thickness. Hole size .172″ dia. +.003, −.001 (11/64 drill)

Rear hole should be slotted.
Use with Ejectors for card insertion/extraction ease. See p. 49 (90-2 or 91-2)
Material: Nylon Type 6/6, Glass Filled/Reinforced flame reardant U.L. rated 94-VO, color black

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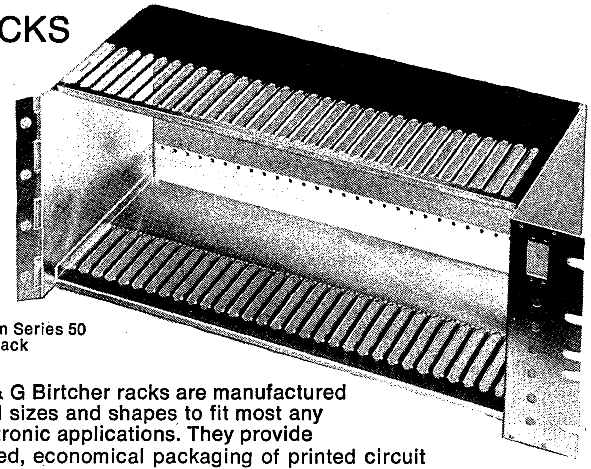
RACKS



Custom Series 50
PCB Rack

EG & G Birtcher racks are manufactured in all sizes and shapes to fit most any electronic applications. They provide rugged, economical packaging of printed circuit boards and motherboards with complete design flexibility at minimal cost. Standard finishes include zinc or cadmium plate on steel racks and chem film or anodized on aluminum racks. Available in both standard and custom configurations.

SERIES 50
Sheet metal construction of low carbon steel or aluminum with formed louvers as card guides. Louver size selection is available.

SERIES 53
Similar to Series 50, these racks are constructed of steel or aluminum with a formed guide plate which utilizes Series 64, 73 or 87 injector/extractors.

SERIES 50N
This rack is the same as the 50 Series except is nylon coated for applications requiring circuit insulation.

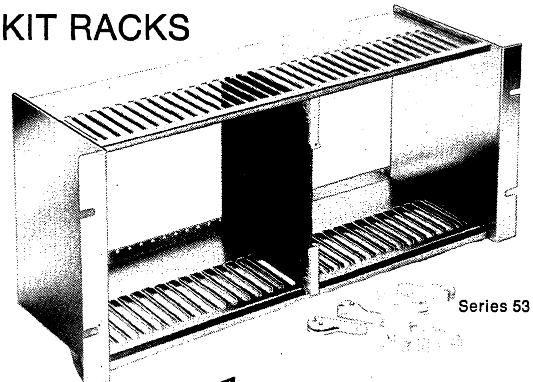
SERIES 52
Economical packaging for applications requiring non-conductive guides. Fabricated in aluminum or cold rolled steel, these racks utilize Series 26 snap-in Nylo-Guides.

SHEET METAL CAPABILITIES

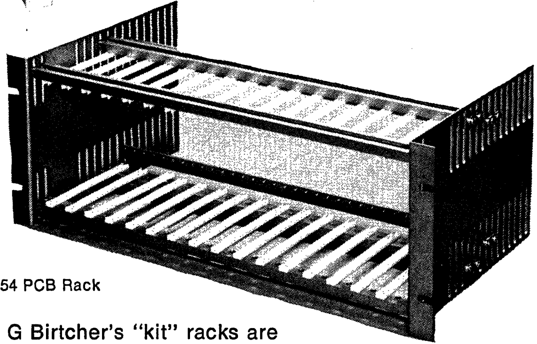
Available to all EG & G Birtcher customers are the combined resources of the Birtcher facilities and broad spectrum of technical and manufacturing knowledge.

Our fully equipped 60,000 square-foot plant with its top-of-the-line equipment enables us to fill almost any customer requirement including design, shearing, piercing, bending, milling, welding, chemical finishing and painting, silk screening and assembly of hardware.

KIT RACKS



Series 53 PCB Rack



Series 54 PCB Rack

EG & G Birtcher's "kit" racks are available in certain sizes from stock in knocked down kit form for assembly in your plant. Refer to the EG & G Birtcher Engineering Guide for details on available sizes and configurations.

SERIES 53N
Same as Series 53 except with nylon coating.

SERIES 54
Constructed of high strength extruded aluminum, these card racks utilize non-conductive Series 26 snap-in Nylo-Guides. Three standard spacing sizes of .500, .600 and .750 are offered. Mounting and connector rails are available in 6" to 48" lengths and are supplied with punched holes for 4-40 self-threading screws.

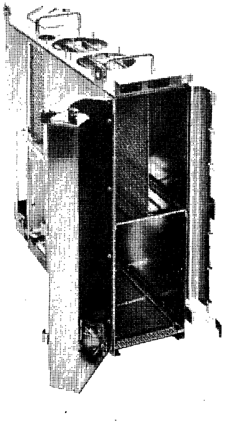
SERIES 57
A universal style rack designed to mount all EG & G Birtcher PCB Tainers and Lok-Tainers. These racks, constructed of extruded aluminum, offer infinite flexibility in selection of guides for any application.

SERIES 58
An economical extruded aluminum rack utilizing non-conductive Series 26 snap in Nylo-Guides.. Front extrusion provides recess for injector/extractors.

CUSTOM FABRICATION

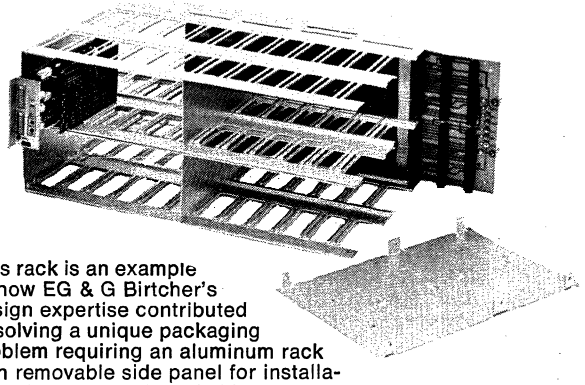
POWER SUPPLY CHASSIS

This custom power supply chassis is fabricated from cold rolled steel and perforated sheet complete with formed metal guides, weld studs, press nuts, grommets, spring clips, hinges and a zinc plated finish. This chassis is manufactured at a rate of 400 per week utilizing sophisticated numerically controlled punch press and brake production plus welding, stamping, machining and plating capabilities.



IF YOU HAVE A
DESIGN PROBLEM,
CALL EG & G BIRTCHER

SHELF FOR DUAL CARD MODULES



This rack is an example of how EG & G Birtcher's design expertise contributed to solving a unique packaging problem requiring an aluminum rack with removable side panel for installation of the motherboard. After assembly, twenty-four dual-card modules must insert with perfect indexing into the card edge connectors in the motherboard.

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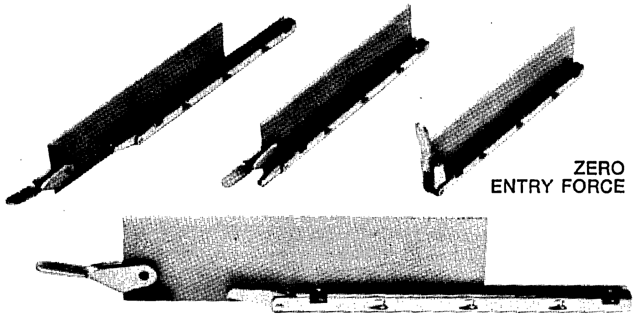
SERIES 24 LOK-TAINER


ZERO
ENTRY FORCE

PATENT NO. 3,970,198

DESIGNED FOR HEAVY SHOCK AND VIBRATION REQUIREMENTS

24-SERIES LOK-TAINER designed for heavy shock and vibration is now available with our equally new 71 SERIES EXTRACTOR.

1. In engaged position provides:
    - A. Extremely high resistance to shock and vibration.
    - B. Maximum contact intimacy for heat dissipation.
2. In released position it provides:
    - A. Zero entry for minimal insertion and removal force of P.C. Boards into connectors.
    - B. Minimizes destruction of P.C. Board surfaces.

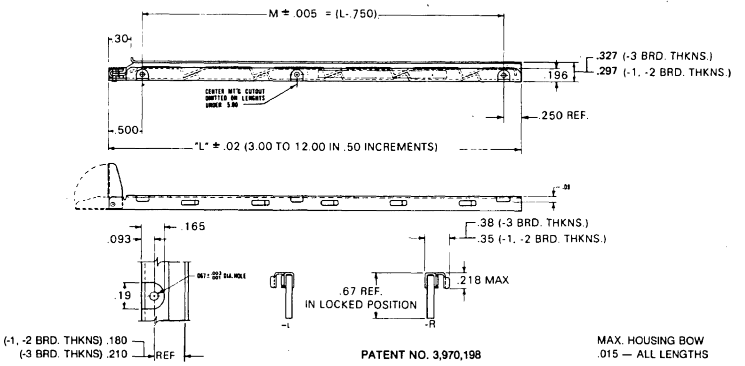
MATERIAL: .024 thick cold rolled steel or beryllium copper (housing)

WEIGHT: .116 ounces per inch (steel)

MOUNTING HOLES: Center mtg. hole and cutout is eliminated on lengths under 5 inches.

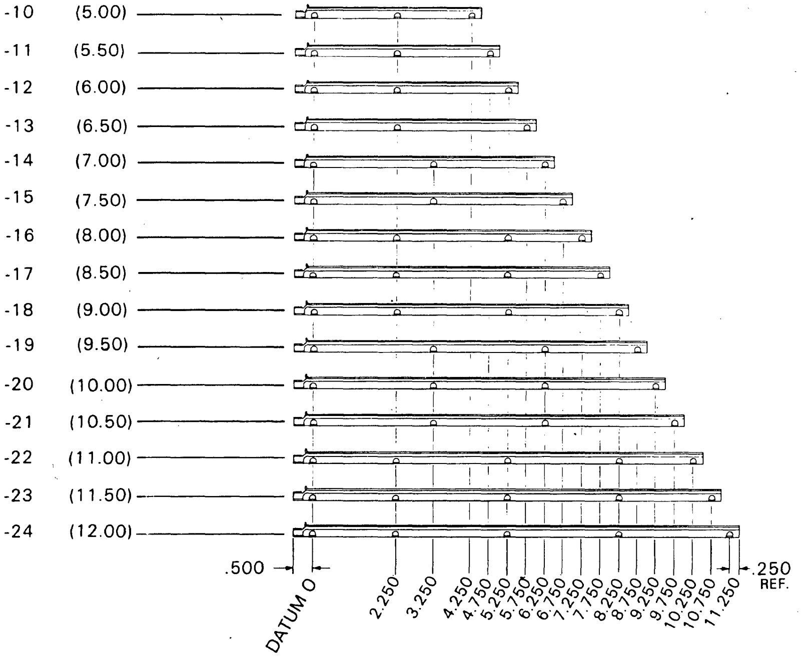
RIVETS: Any .065″ normal diameter rivet or eyelet may be used for installing retainers. Normal factory assembly utilizes our P/N 180-000 Eyelet (manufactured by United Shoe Company P/N S-5994.

DIMENSIONS


M ± .005 = (L-.750)
.30
.327 (-3 BRD. THKNS.)
.297 (-1, -2 BRD. THKNS.)
.196
CENTER MT'G CUTOUT OMITTED ON LENGHTS UNDER 5.00
.250 REF.
.500
"L" ± .02 (3.00 TO 12.00 IN .50 INCREMENTS)
.09
.093
.165
.067 ± .003 .001 DIA. HOLE
.19
(-1, -2 BRD. THKNS) .180
(-3 BRD. THKNS) .210
REF
-L
.67 REF.
IN LOCKED POSITION
-R
.38 (-3 BRD. THKNS.)
.35 (-1, -2 BRD. THKNS.)
.218 MAX
PATENT NO. 3,970,198
MAX. HOUSING BOW
.015 — ALL LENGTHS

MOUNTING HOLE DIMENSIONS

NOTE: -6 (3.00) THRU -9 (4.50) MOUNTING HOLE DIMS. AS PER .500 DATUM & .250 REF. AS NOTED BELOW


-10 (5.00)
-11 (5.50)
-12 (6.00)
-13 (6.50)
-14 (7.00)
-15 (7.50)
-16 (8.00)
-17 (8.50)
-18 (9.00)
-19 (9.50)
-20 (10.00)
-21 (10.50)
-22 (11.00)
-23 (11.50)
-24 (12.00)
.500
DATUM O
2.250
3.250
4.250
4.750
5.250
5.750
6.250
6.750
7.250
7.750
8.250
8.750
9.250
9.750
10.250
10.750
11.250
.250
REF.

BOARD THICKNESS

DASH NO.	BOARD THICKNESS
-1	1/32
-2	1/16
-3	3/32

For optimum clamping action and heat transfer, the printed circuit board thickness should be a minimum of .062 inches and a maximum of .067 inches.

FINISH TABLE

DASH	FINISH
None	Silver plate per QQ-S-365, Type III, GR. A
-1	None
-2	Ebanol Per Mil F-495 for 75429-BH- Per Mil-C-13924 for 75429-S
-3	Cad. plate per QQ-P-416, Type II, CL. 2
-4	Copper plate per MIL-C-14550, CL. 2
-5	Gold plate per Mil-G-45204, Type I, CL. 1
-6	Nickel plate per QQ-N-290, CL., Grade G. bright
-7	Zinc pl. clear chromate per QQ-Z-325, Type II, CL. 2
-8	Zinc pl. yel. chromate per QQ-Z-325, Type II, CL. 2

MATERIALS TABLE

CODE LETTER	MATERIAL
Standard B	Beryllium copper per QQ-C-533
Standard S	Steel per QQ-S-698

Housing: Steel or be. cu.
Cam: Be. cu.
Lever: Steel

24 - M - X - B - L - F - L or R

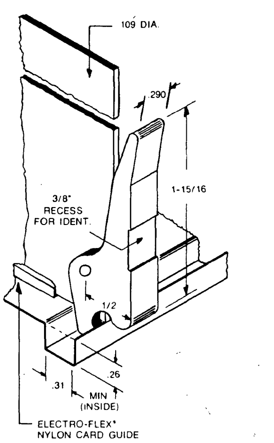
Series
Housing material ("S"=steel) or ("B"=beryllium copper)
"X" extractor flange (standard)
Board thickness (see table below)
Length in ½ increments (-6=3″ thru -24=12″)
Finish (see table above)
"L" for left hand, "R" for right hand action

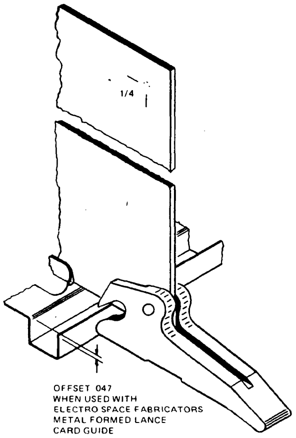
Electro-Space Fabricators, Inc.

ELECTRO-SPACE Packaging Accessories

Injector/Ejectors

Unique devices function in two directions . . . utilizing both surfaces of a single blade. Design eliminates the need for very close tolerances.


109 DIA.
.290
1-15/16
3/8"
RECESS
FOR IDENT.
1/2
.26
.31
MIN
(INSIDE)
ELECTRO-FLEX*
NYLON CARD GUIDE

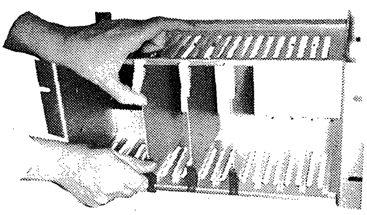

1/4
OFFSET 047
WHEN USED WITH
ELECTRO SPACE FABRICATORS
METAL FORMED LANCE
CARD GUIDE

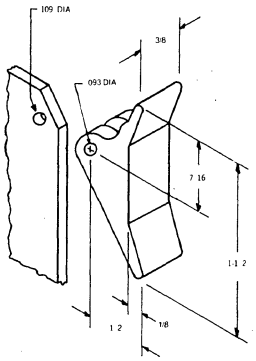
PART NO.	CARD	COLOR
NE-3001-W	1/16	White
NE-3001-B		Black
NE-3003-W	1/8	White
NE-3003-B		Black

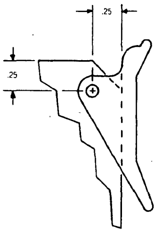
Includes .093 dia. stainless steel roll pin.
Material: 20V Nylon
per MIL-M-20693A, Composition A, Type 1.
Temp Rating: −40°C to +105°C UL APPROVED

Ejectors

Improved lever action and greater strength for quick, damage-free extraction.




109 DIA
3/8
093 DIA
7 16
1-1 2
1 2
1/8



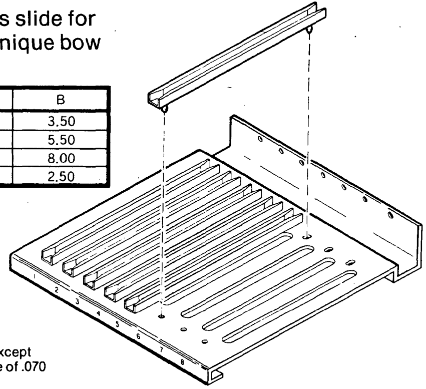
PART NO.	CARD	SLOT	COLOR
EJ-2001-W	1/16	.072	White
EJ-2001-R			Red
EJ-2002-W	3/32	.100	White
EJ-2002-R			Red
EJ-2003-W	1/8	.135	White
EJ-2003-R			Red

Includes .093 dia. stainless steel roll pin.
Material: 20V Nylon
per MIL-M-20693A, Composition A, Type 1.
Temp Rating: −40°C to +105°C UL APPROVED

Nylon Guides

Smooth, effortless slide for board insertion; unique bow feature.

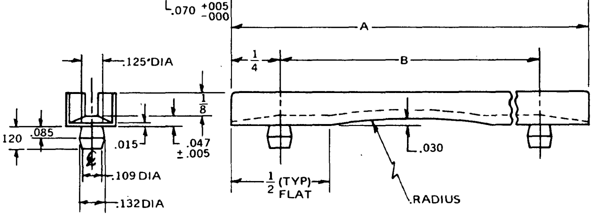
A-42870-	A	B
−1	4.00	3.50
−2	6.00	5.50
−3	8.50	8.00
−4	3.00	2.50



NOTE:
1. 1/64 Radius — All edges except bottom of guide and inside of .070 slot.
2. 20V Nylon MIL-M-20693A, composition A, Type I. Temp. Rating: −40°C to +105°C. UL Approved.
3. Color — White

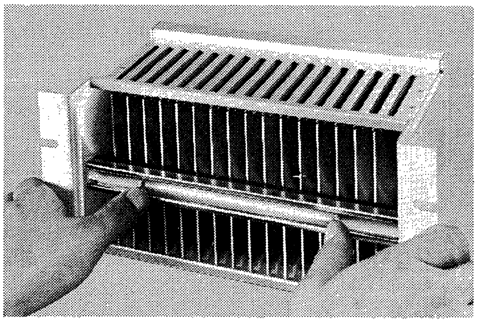
MOUNTING HOLES:
.125 dia. hole (front)
.120 x .218 slot (rear);
material range .048 to .080

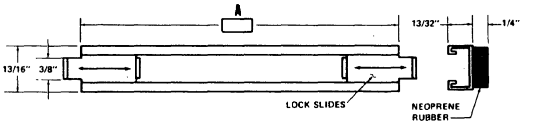
INSTALLATION:
Sharp impact, snap-in.
No special tools or hardware required.


1/4
℄
.035
.070 +005 −000
A
.125 DIA
1/8
1/4
B
.120
.085
.015
.047 ±.005
.030
.109 DIA
.132 DIA
1/2 (TYP) FLAT
RADIUS

Retaining Bars

Quick, low cost solution for PC board retention and shipping problems.




A
13/32"
1/4"
13/16"
3/8"
LOCK SLIDES
NEOPRENE
RUBBER

HOW TO SPECIFY AND ORDER

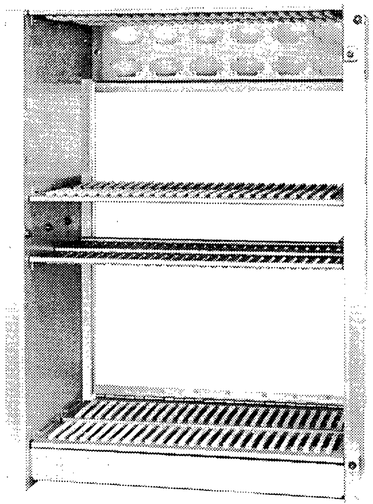
1. Deduct 1/8" from the inside dimension of your PC card enclosure. This is the "A" dimension shown above.
2. Develop part number by expressing the "A" dimension in three-place decimal form and writing it after the prefix RB-__________. (Example: A = 16-7/8". Part number is RB-16875.)
3. Use this part number in ordering. Specify clear or yellow zinc plate.

Electro-Space Fabricators, Inc. ESF

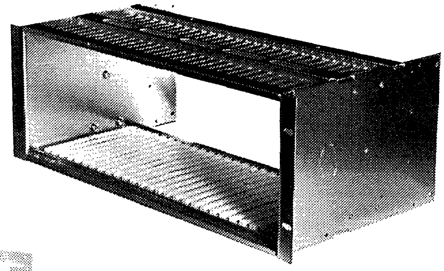
FREE Value Analysis of Your Enclosure

Improved card rack design begins with in-depth value analysis. And that's a free service of the ELECTRO-SPACE design group...aimed at delivering greater strength and better tolerances at lower unit cost. Our packaging techniques place no limitations on size, card spacing, special holes and hardware, connector or back plane mounting.

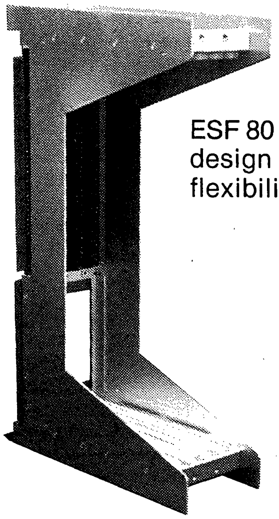
If your rack requirements are 50 or 100, 500 or 5000, why not draw upon our expertise? Our present customers have done so and enjoyed significant savings, both in unit cost and on their production lines. Send us your sketches, prints or sample rack at no obligation. Or, call and ask for one of our qualified design engineers.



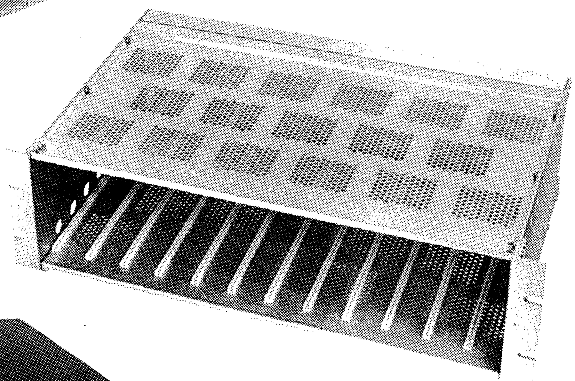
Double bay enclosure with fan mounting tray.



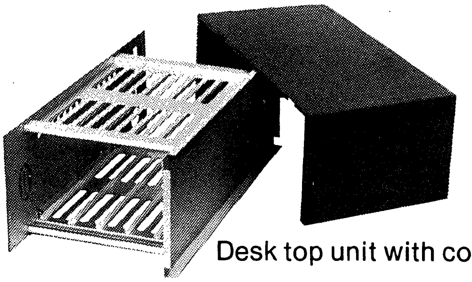
Stiffening hat section for greater strength.



ESF 80 standard rack design with low cost flexibility.



Perforated guide plate with RF shielding.



Desk top unit with cover.

The Engineers' Design Manual is a compilation of the latest technology and most commonly asked questions concerning card enclosure design. Send for your free copy today.

ESF

Electro-Space Fabricators, Inc.

300 W. High St.•P.O. Box 67•Topton, PA 19562-0067
(215) 682-7181

Electronic Enclosures

for cost effective standard, modified-standard and custom designs

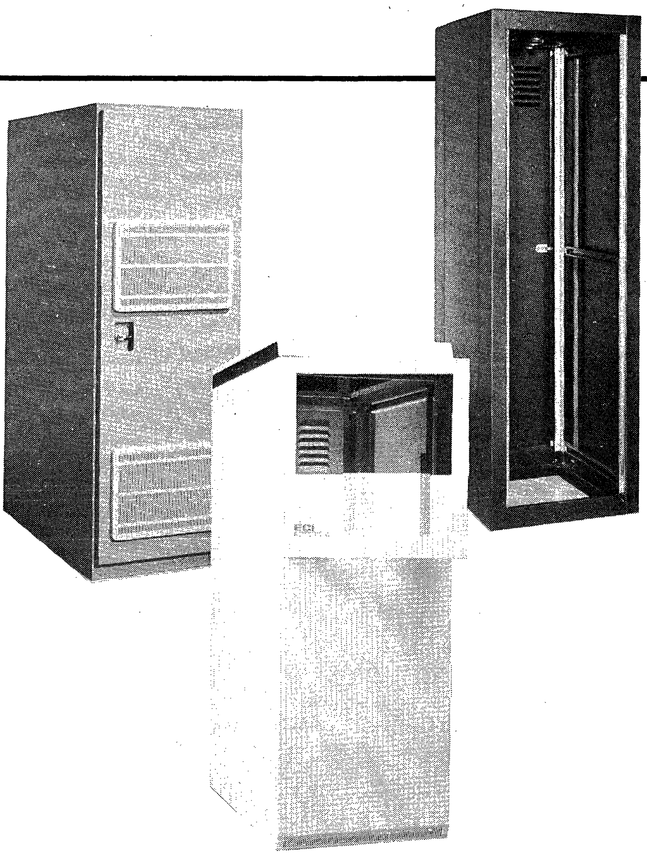
Wyle Laboratories Electronic Enclosures builds the industry's finest cabinets for electronics at prices that don't shut the doors on budgets. Our integrated line of standard and modified-standard designs and an extensive line of accessories make it possible to meet many customer requirements "off the shelf". This includes RFI/EMI shielded enclosures built to commercial, military, and high security (TEMPEST) specifications.

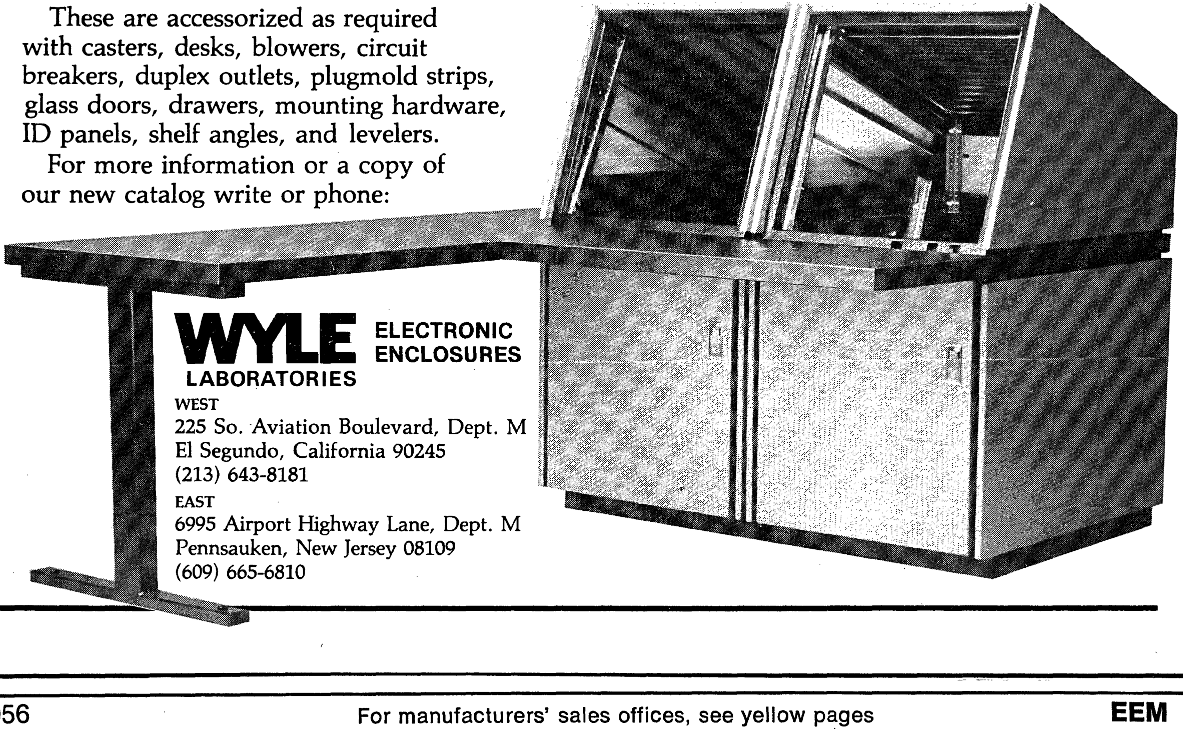
Even custom cabinets from Electronic Enclosures are cost effective. A large, constantly evolving design library and an engineering staff that keeps pace with the electronics industry allows Electronic Enclosures to meet specialized requirements without "reinventing the wheel" for each new order.

Cabinets from Electronic Enclosures' line include vertical enclosures, control consoles, sloping front consoles, custom consoles, mobile carts, small bench cabinets, turrets, equipment cases, special tables, and work benches.

These are accessorized as required with casters, desks, blowers, circuit breakers, duplex outlets, plugmold strips, glass doors, drawers, mounting hardware, ID panels, shelf angles, and levelers.

For more information or a copy of our new catalog write or phone:





WYLE **ELECTRONIC ENCLOSURES**
LABORATORIES

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El Segundo, California 90245
(213) 643-8181

EAST
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Pennsauken, New Jersey 08109
(609) 665-6810

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Units pictured are from our ESQ Series.

One high standard of quality.

Choose from these product lines:

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Emcor's original concept and broadest product line is available in vertical, slope front, low silhouette, desk height and turret configurations.

Emcor II

This top-of-the-line series features seamless construction and handsome, contemporary styling.

Emcor ESQ

Designed to combine the economy of Emcor I with the styling of Emcor II. This is currently Emcor's most popular product line.

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Emcor's newest and most rigid product line — available in vertical, desk height and slope front configurations with a full complement of accessories.

EMI/RFI Enclosures

This new line of shielded enclosures is designed to help you keep EMI/RFI emissions to the levels required by FCC Docket 20780.

CompuDesk

Emcor's computer support furniture is available in two heights, two depths, four widths and in three different top styles. More than 500 models available.

And when you need it fast, there's Instant Emcor

775 items — available for shipment in just five working days, with option of color on selected items in ten working days.

Crenlo, Inc.
Emcor Products

EMCOR

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Emcor Products

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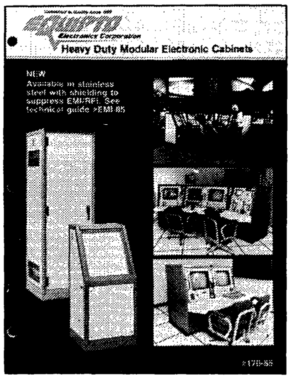
MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS TECHNICAL
CODES INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms	**A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code	**D**•1087
Batteries, Product Selection Guide	**D**•1413
Batteries & Fuel Cells, Characteristics	**D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide	**C**•1003
Capacitors, Basic Formulas	**A**•1093
Capacitors, Miniglossary	**A**•1066
Capacitors, Product Selection Guide	**A**•1003
Circuit Boards (Printed) Product Selection Guide	**C**•1099
Coils, Chokes, Inductors, Product Selection Guide	**A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum	**C**•1863
Connectors, Miniglossary	**C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide	**C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude	**A**•1309
Delay Lines, Product Selection Guide	**A**•1459
Discrete Semiconductors, Product Selection Guide	**A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**B**•1015
EBCDIC Code	**D**•1092
Encapsulation, Miniglossary	**C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**C**•1623
Filters, Product Selection Guide	**A**•1583
Instruments, Graphic Recording Product Selection Guide	**D**•1401
Instruments, Panel Meters, Product Selection Guide	**D**•1329
Instruments, Test & Measuring Product Selection Guide	**D**•1175
Interconnection Systems, Product Selection Guide	**C**•1699
Keyboards & Keypads, Product Selection Guide	**B**•1705
Logofinder & Trademark Directories	**B**•901
Microwave Components, Product Selection Guide	**A**•1701
Military Qualified Products Lists	**B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide	**B**•1129
Opto Semiconductors, Miniglossary	**B**•1214
Oscilloscopes, Product Selection Guide	**D**•1385
Panel Hardware, Product Selection Guide	**C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide	**A**•1991
Power Supplies, Miniglossary	**D**•1462
Power Supplies, AC, Product Selection Guide	**D**•1877
Power Supplies, DC, Product Selection Guide	**D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide	**B**•1225
Relay Contact Forms	**B**•1317
Relays, Electromechanical, Miniglossary	**B**•1308
Relays, Product Selection Guide	**B**•1261
Resistor Color Codes	**A**•1828
Resistors, Product Selection Guide	**A**•1785
Servo Components, Miniglossary	**D**•1985
Solenoids, Product Selection Guide	**B**•1463
Switches, Product Selection Guide	**B**•1477
Thermal Components, Product Selection Guide	**B**•1741
Thermal Conductivity of Dielectrics at Room Temperature	**B**•1744
Thyristors/High Power Diodes, Miniglossary	**A**•2076
Transducers & Encoders, Product Selection Guide	**B**•1777
Transformers, Product Selection Guide	**A**•2099
Wire & Cable, Product Selection Guide	**C**•1743
Wire Gauges—Diameter, Area, Copper Weight	**C**•1844

Electronic Enclosures:

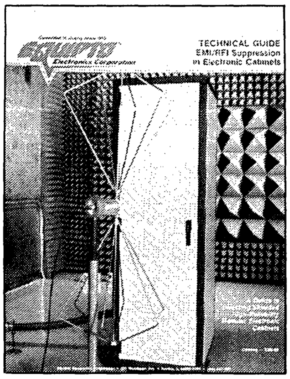
Vertical Rack Cabinets, Sloped Front Consoles, Instrument Cabinets, Electronic Desks, Computer Furniture


Heavy Duty Modular Electronic Cabinets

NEW Available in stainless steel with shielding to suppress EMI/RFI. See technical guide #EMI-85

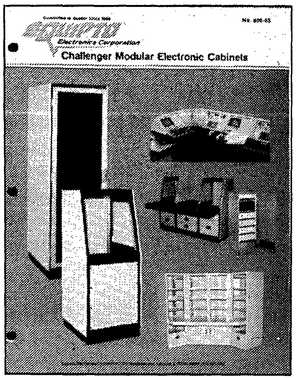
Heavy Duty Electronic Cabinets

Our top-of-the-line enclosures. Modular, very rugged. Sway-proof corners. Sag-proof doors. Moveable angle support channels. Superior finishes. Meets MIL Spec.


TECHNICAL GUIDE EMI/RFI Suppression in Electronic Cabinets

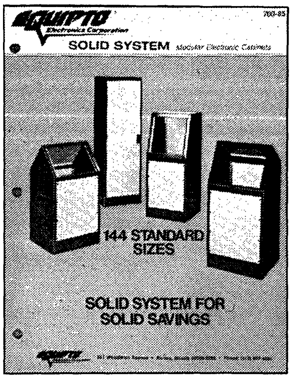
EMI/RFI Stainless Steel Shielded Cabinets

New stainless steel heavy duty shielded cabinets solve EMI/RFI/EMP suppression problems. Meets high degree of attenuation demanded by MIL Specs and TEMPEST.


Challenger Modular Electronic Cabinets

Challenger Electronic Cabinet System

Our most popular cabinet line. Modular, all-welded construction. Many accessories — fans, blowers, etc. Universal removable side panels. Competitively priced.

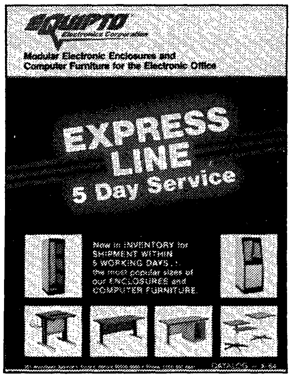

SOLID SYSTEM Modular Electronic Cabinets

144 STANDARD SIZES

SOLID SYSTEM FOR SOLID SAVINGS

Solid System Electronic Cabinets

Identical to our Challenger line with one exception — the side panels are not removable. The benefit is added economy for the single-bay user.

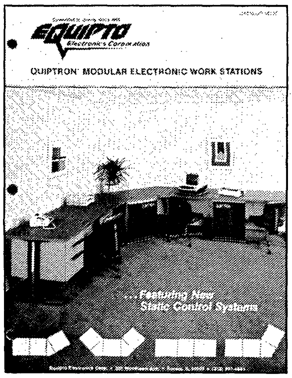

Modular Electronic Enclosures and Computer Furniture for the Electronic Office

EXPRESS LINE 5 Day Service

Now in INVENTORY for SHIPMENT WITHIN 5 WORKING DAYS... the most popular sizes of our ENCLOSURES and COMPUTER FURNITURE.

Express Line 5 Day Service

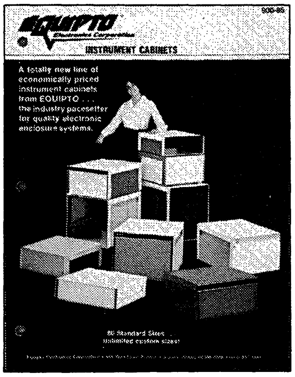
For shipment within 5 working days, Equipto Electronics now stocks the most popular sizes of the Heavy Duty, Challenger and Quiptron lines. New special 12-page catalog gives details.


QUIPTRON MODULAR ELECTRONIC WORK STATIONS

...Featuring New Static Control Systems

Quiptron Computer Furniture

New, high quality line of ergonomically designed modular work stations, CRT stands, printer stands, storage drawer and pedestal compartments. Available with static control tops and accessories.

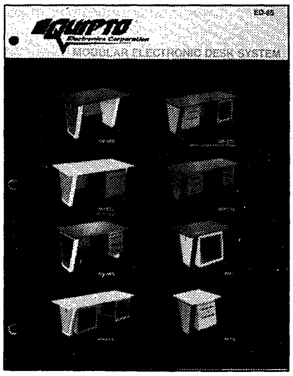

INSTRUMENT CABINETS

A totally new line of economically priced instrument cabinets from EQUIPTO... the industry pacesetter for quality electronic enclosure systems.

60 Standard Sizes Unlimited custom sizes!

Instrument Cabinets

Modular, stackable, clean contemporary styling, rugged construction. 60 standard sizes (2 widths, 3 depths, 10 heights). Available in steel or aluminum.


MODULAR ELECTRONIC DESK SYSTEM

Modular Electronic Desk Systems

For your heavy duty applications. Strong, rugged electronic desks with unique trapezoidal pylon design. Concealed wiring, removable panels. Two heights, seven widths. Many accessories.

You'll find there are Equipto enclosures to fit every size need... every budget! Phone or write us.

Committed to Quality Since 1960

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351 Woodlawn Avenue
Aurora, IL 60506-9988
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INDUSTRY STANDARD CASES

HEAVY DUTY TRANSIT CASE

MODEL*	W	L	H1	H2	A	B	C	D	E	F	AVAILABLE FOR WHEEL & HANDLE
GH0715RP-2	7-3/16	15-1/16	2-1/8 to 3-1/4 4 to 5-1/8	2-1/8 to 3-1/4 4 to 5-1/8	6	13-5/8	5-3/4	13-3/4	3/4	3/4	
GH0818RP-1	8-3/4	18-7/8	4-3/8 to 7	4-3/8 to 7	6-3/4	16-3/4	6-3/4	16-3/4	3/4	3/4	
GH0912RP-1	9	12-1/2	4 to 5	4 to 5	7-1/4	11	7-1/4	11	3/4	3/4	
GH1218RP-2	12-15/16	18-1/8	2-1/4 to 3-11/16	2-1/4 to 3-11/16	11-3/4	17	11-3/4	17	3/4	3/4	
GH1219RP-2	12-1/16	19-13/16	2 to 4	2 to 4	11-1/4	18-3/4	11-1/4	18-3/4	3/4	3/4	
GH1313RP-1	13-5/16	13-7/8	4-3/8 to 5-1/4	4-3/8 to 5-1/4	11-7/8	12-3/8	11-7/8	12-3/8	3/4	3/4	
GH1314RP-2	14-7/16	13-7/8	3-1/8 to 4 6-1/4 to 6-3/4	3-1/8 to 4 4-1/4 to 6-3/4	13-7/8	13-1/4	13-1/8	12-1/2	3/4	3/4	
GH1317RP-2	13-3/4	17	3-1/4 to 4	3-1/4 to 4	12-1/8	15-3/4	12-1/8	15-3/4	3/4	3/4	
GH1319RP-1	13	19-3/8	3-7/8 to 5	3-7/8 to 5	11-3/4	18	11-3/4	18	3/4	3/4	
GH1330RP-2	13-7/8	30-7/8	4 to 6-7/16	4 to 6-7/16	12-1/4	29-3/8	12-1/4	29-3/8	3/4	3/4	X
GH1419RP-2	14	19-7/16	3-1/4 to 3-3/4 4-1/4 to 6 7-5/8 to 9-3/4	3-1/4 to 3-3/4 4-1/4 to 6 7-5/8 to 9-3/4	12	17-1/2	12	17-1/2	3/4	3/4	
GH1420RP-2	14	20	4 to 5-1/2	4 to 5-1/2	12-1/2	18-1/2	12-1/2	18-1/2	3/4	3/4	
GH1423RP-2	14-7/16	23-3/4	4-3/16 to 6-5/16	4-3/16 to 6-5/16	13	22-3/8	13	22-3/8	3/4	3/4	X
GH1617RP-2	16-1/2	17-3/4	3-1/8 to 4-3/8 6-1/8 to 8	3-1/8 to 4-3/8 6-1/8 to 8	15	16-3/8	15-1/4	16-1/2	3/4	3/4	
GH1622RP-2	16-1/2	22-3/8	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	14-7/8	21-1/4	14-7/8	21-1/4	3/4	3/4	
GH1624RP-2	16-3/8	24-3/4	3-3/4 to 4-15/16	3-3/4 to 4-15/16	15-1/2	24-1/4	15-1/2	24-1/4	3/4	3/4	X
GH1727RP-2	17-13/16	27-3/4	3-3/4 to 4-1/2 5-1/2 to 7	3-3/4 to 4-1/2 5-1/2 to 7	16-1/4	26-1/2	16-1/4	26-1/2	3/4	3/4	X
GH1823RP-2	18-1/8	23-7/8	3-3/4 to 5-3/8 5-1/2 to 7-1/2	3-3/4 to 5-3/8 5-1/2 to 7-1/2	16-1/4	22-1/2	16-1/4	22-1/2	3/4	3/4	X
GH2020RP-2	20-13/16	20-13/16	4-1/2 to 5	4-1/2 to 5	19-1/4	19-1/4	19-1/4	19-1/4	3/4	3/4	
GH2122RP-2	21-3/16	22-5/8	2 to 3	2 to 3	19-5/8	21	19-5/8	21	3/4	3/4	
GH2325RP-2	23	25	5-1/4 to 7-3/16	5-1/4 to 7-3/16	21-1/4	23-1/4	21-1/4	23-1/4	3/4	3/4	X
GH2530RP-2	25-1/8	30-1/8	5-1/4 to 7	5-1/4 to 7	23	28	23	28	3/4	3/4	X

X-STACKING TRANSIT CASE

MODEL*	W	L	H1	H2	A	B	C	D	E	F
GH1021RP-X	10-1/2	21	2-3/4 to 3-13/16	2-3/4 to 3-13/16	8-15/16	19-7/16	8-15/16	19-7/16	3/4	3/4
GH1417RP-X	14-1/2	17	2-3/4 to 5-1/4	2-3/4 to 5-1/4	12-15/16	15-7/16	12-15/16	15-7/16	3/4	3/4
GH1717RP-X	17	17-1/2	3-to 3-7/8	3-to 3-7/8	15-7/16	15-15/16	15-7/16	15-15/16	3/4	3/4
GH1823RP-X	18-1/8	23-7/8	3-3/4 to 5-3/8 5-1/2 to 7-3/4	3-3/4 to 5-3/8 5-1/2 to 7-3/4	16-1/4	22-1/2	16-1/4	22-1/2	3/4	3/4
GH1921RP-X	19-1/8	21	3-1/4 to 4-3/8 5-1/4 to 6-5/8	3-1/4 to 4-3/8 5-1/4 to 6-5/8	17-1/2	19-1/2	17-1/2	19-1/2	3/4	3/4
GH1927RP-X	19	27	3 to 3-3/4 6-5/8 to 7-7/8	3 to 3-3/4 6-5/8 to 7-7/8	17-7/16	25-7/16	17-7/16	25-7/16	3/4	3/4
GH2325RP-X	23	25	5-1/4 to 7-3/16	5-1/4 to 7-3/16	21-1/4	23-1/4	21-1/4	23-1/4	3/4	3/4

HEAVY DUTY CARRYING CASE

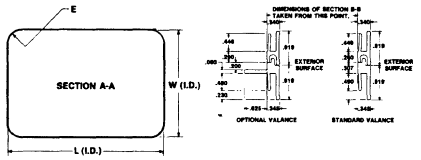
MODEL*	W	L	H1	H2	A	B	C	D	E	F
GH0511R-1	5-7/8	11-3/8	3 to 3-3/4 7-1/4 to 8	3 to 3-3/4 7-1/4 to 8	4-7/8	10-1/4	4-3/8	10	3/4	3/4
GH0617R-1	6-1/8	17-1/8	2-5/8 to 2-15/16	2-5/8 to 2-15/16	4-3/4	15-3/8	5-3/8	16-3/8	3/4	5/8
GH0710R-1	7-1/2	10	3-1/8 to 3-3/8 4-3/16 to 5-3/8	3-1/8 to 3-3/8 4-3/16 to 5-3/8	6-1/2	8-3/4	6-1/4	8-5/8	3/4	1/2
GH0813R-2	8-5/8	13-7/8	2-3/4 to 3-1/4 5-1/2 to 6-1/2	2-3/4 to 3-1/4 5-1/2 to 6-1/2	6-15/16	12	6-15/16	12	3/4	5/8
GH0814R-2	8-11/16	14	4 to 5-1/16	4 to 5-1/16	7-1/4	12-1/2	7-1/4	12-1/2	7/8	3/4
GH0830R-1	8-13/16	30-11/16	1-1/4 to 2-3/4	1-1/4 to 2-3/4	8-1/4	30-1/4	8-1/4	30-1/4	3/4	1/2
GH0909R-1	9-7/8	9-7/8	2-11/16 to 3-9/16	2-11/16 to 3-9/16	8-5/16	8-5/16	8-5/16	8-5/16	3/4	5/8
GH0912R-1	9-1/16	12-1/16	1-1/2 to 1-3/4 3-1/4 to 3-3/4	3-1/4 to 3-3/4 7 to 7-13/16	8-1/4	11-1/2	6-1/4	9-1/2	3/4	1-1/4B
GH0914R-1	9-1/4	14	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8	8-1/4	12-3/4	7-1/2	12-1/4	3/4	1/2T 3/4
GH0916R-1	9 3/4	16-13/16	1-3/4 to 2-11/16 7-3/4 to 10-3/4	1-3/4 to 2-11/16 7-3/4 to 10-3/4	9	16-3/8	8	15-1/4	3/4	3/4
GH0918R-1	9	18-15/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16	7-7/8	18	7-1/2	17-3/8	3/4	3/4
GH0922R-1	9 5/8	22-11/16	2 to 3-1/16	2 to 3-1/16 6-5/8 to 10-1/2	8-3/8	21-1/8	8-1/4	21	3/4	3/4
GH0942R-1	9	42-5/8	1-1/4 to 2	1-1/4 to 2	8-3/8	41-3/4	8-3/8	41-3/4	3/4	1/2
GH1013R-1	10	13 1/8	2-3/4 to 3-1/2	2-3/4 to 3-1/2 9-3/4 to 10-1/2	8-1/2	11-3/4	7-3/4	11-1/4	3/4	3/4
GH1016R-1	10	16-1/16	1-3/4 to 2 7-1/4 to 9-3/8	1-3/4 to 2 7-1/4 to 9-3/8	9-1/4	15-1/4	8-1/4	14-1/4	3/4	1/2
GH1021R-1	10-1/4	21-15/16	4-3/8 to 5-1/4	4-3/8 to 5-1/4	9-1/8	20-1/2	9-1/8	20-1/2	3/4	3/4
GH1113R-1	11	13	2-1/4 to 2-3/4	2-1/4 to 2-3/4	10-1/8	12-1/8	10-1/8	12-1/8	3/4	1/2
GH1116R-2	11	16-1/2	2-5/8 to 3-15/16	2-5/8 to 3-15/16	10-1/2	16-1/16	10-1/2	16-1/16	3/4	1/2
GH1117R-2	11-5/8	17-1/2	2 to 3-1/4 3-1/2 to 4-3/4	2 to 3-1/4 3-1/2 to 4-3/4	10-3/8	16-1/2	10-3/8	16-1/2	3/4	3/4
GH1119R-1	11-5/16	19-5/16	2-3/16 to 3	2-3/16 to 3	10-5/8	18-1/2	10-5/8	18-1/2	3/4	3/4
GH1121R-2	11-7/16	20-15/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16	10	19-1/2	10	19-1/2	3/4	3/4
GH1123R-2	11-11/16	23-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4	11-1/4	23-3/8	11-1/4	23-3/8	3/4	1/4
GH1137R-2	11-7/8	37-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4	11-11/16	37-3/4	11-11/16	37-3/4	3/4	1/4
GH1212R-2	12	12	3-9/16 to 4-1/4	3-9/16 to 4-1/4	10-5/8	10-5/8	10-5/8	10-5/8	3/4	5/8
GH1220R-2	12-7/16	20-5/16	3-1/8 to 4	3-1/8 to 4	11-3/4	19-3/4	11-3/4	19-3/4	1-1/32	1/4
GH1316R-1	13-13/16	16-13/16	2-5/16 to 3-1/8 3-5/8 to 6-1/4	2-5/16 to 3-1/8 3-5/8 to 6-1/4	12-13/16	15-3/4	12-5/8	15-1/2	3/4	3/4
GH1318R-2	13	18	3-9/16 to 5-1/4	3-9/16 to 5-1/4	11-5/8	16-1/2	11-5/8	16-1/2	3/4	1/2
GH1319R-2	13-13/16	19-3/4	2-3/4 to 3-5/8 7-1/4 to 8-1/8	2-3/4 to 3-5/8 7-1/4 to 8-1/8	11-1/2	17-1/4	11-1/2	17-1/4	3/4	5/8
GH1319R-2	13-7/8	19-5/8	3 to 3-3/4 4-3/4 to 6	3 to 3-3/4 4-3/4 to 6	12-5/8	18-1/4	12-5/8	18-1/4	3/4	1/2
GH1417M-1	14-7/8	17-3/4	3-3/4 to 5-3/16	3-3/4 to 5-3/16	14-1/8	17	14-1/8	17	M	45°
GH1419R-1	14-1/4	19-15/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16	13-1/2	19-3/16	13-1/2	19-3/16	3/4	1/2
GH1444R-2	14-13/16	44-3/16	3-1/16 to 3-5/16	3-1/16 to 3-5/16	13-11/16	43-9/16	13-11/16	43-9/16	3/4	1/2
GH1523R-2	15-1/8	23-7/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16	14	22-1/8	14	22-1/8	3/4	1/2
GH1528R-2	15-1/4	28-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16	13-1/4	26-1/4	13	25-1/2	3/4	3/4
GH1631R-2	16	31	4-3/8 to 6-7/8	4-3/8 to 6-7/8	14-1/4	29-3/8	14-1/4	29-3/8	3/4	3/4
GH1733R-2	17-13/16	33-3/4	1-1/4 to 2-9/16	1-1/4 to 2-9/16	13-1/8	34-1/4	13-1/8	34-1/4	3/4	1/2
GH1820R-2	18	20	2 to 3-1/2	2 to 3-1/2	16-5/8	18-3/4	16-5/8	18-3/4	3/4	5/8
GH1825R-2	18	25-3/4	1-13/16 to 2-13/16 5-1/4 to 6-9/16	1-13/16 to 2-13/16 5-1/4 to 6-9/16	17	25-1/4	16-1/2	24-3/8	3/4	5/8
GH1828R-2	18-1/16	28-3/16	3-3/4 to 4-1/2 6-3/4 to 7-1/2	3-3/4 to 4-1/2 6-3/4 to 7-1/2	16-5/8	26-3/4	16-1/2	26-1/2	3/4	3/4
GH2121R-2	21-1/4	21-1/4	5-5/16 to 6-11/16	5-5/16 to 6-11/16	18-3/4	18-3/4	18-3/4	18-3/4	3/4	3/4
GH2131R-2	21	31	3 to 5	3 to 5	19-15/16	29-15/16	19-15/16	29-15/16	3/4	3/4
GH2639R-2	26-13/16	39-3/16	1-1/4 to 2-13/16 4-11/16 to 5-7/16	4-11/16 to 5-7/16	26	38-3/8	25-3/8	37-13/16	3/4	5/8

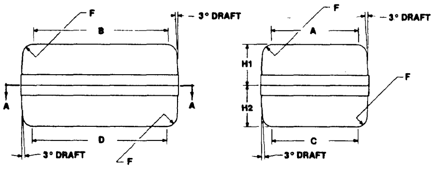
HEAVY DUTY RACK MOUNT CASE

MODEL	EIA STANDARD PANEL	W	L	A	B	C	D	E	F
GH0514M	—	5-5/16	14-3/16	12-3/4	12-5/16	—	—	14-3/8	5-9/16
GH0519M	5.219 x 19	5-5/16	19-1/4	18-5/16	17-7/8	2-1/4	—	19-1/4	5-7/16
GH0714M	—	6-15/16	13-11/16	12-3/4	12-5/16	—	—	13-11/16	7
GH0719M	6.969 x 19	7-1/16	19-1/4	18-5/16	17-7/8	4	—	19-1/4	7-1/4
GH0919M	8.719 x 19	8-13/16	19-1/4	18-5/16	17-7/8	5-3/4	—	18-7/8	8-7/16
GH1119M	10.469 x 19	10-9/16	19-1/4	18-5/16	17-7/8	2-1/4	3	19-1/4	10-3/4
GH1219M	12.219 x 19	12-5/16	19-1/4	18-5/16	17-7/8	3-1/2	2-1/4	19-1/4	12-1/2

Gemini specializes in custom designed cases for industry. We have the capability to design a case specifically for your product and follow through from prototypes to production. If you are currently purchasing a standard case from another manufacturer, we may be able to duplicate that case at a lower cost. We welcome the opportunity to quote on your case requirements and to work with you on design.

Gemini's standard line of **HEAVY DUTY TRANSIT CASES** are constructed from high density polyethylene, and extremely tough and resilient material ideally suited to the abuses transit cases are subjected to. The heavy wall (.100" nominal) shells and heavy duty 1.838" wide #6063 T52 aluminum valance combine to form a container capable of transporting delicate portable instruments under the most adverse conditions. Available with recessed wheels and folding handle.

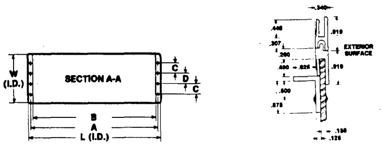


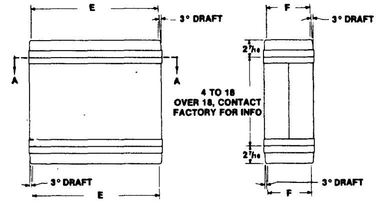


Gemini's standard line of **HEAVY DUTY CARRYING CASES** are constructed from rugged A.B.S. and feature a heavy wall aluminum valance to provide an extremely rugged case with contemporary lines for transporting delicate portable instruments under the most demanding conditions.

Standard Features include:

- .100" to .150" nominal wall black A.B.S. shells
- variable case depth
- heavy wall 1.838" wide #6063 T52 aluminum valance with dust seal
- choice of handle, latch, hinge and bumpers





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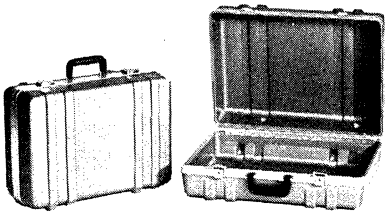
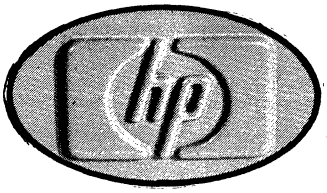
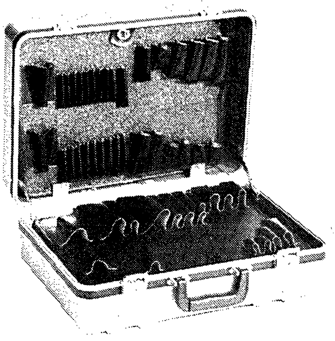
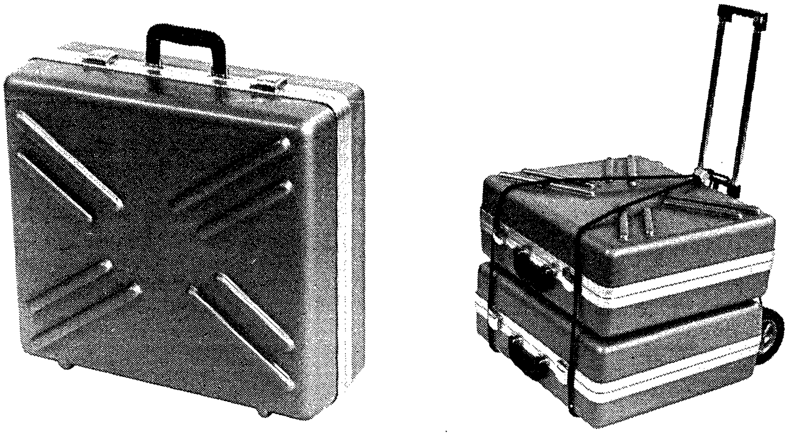
PHONE: (507) 263-3957

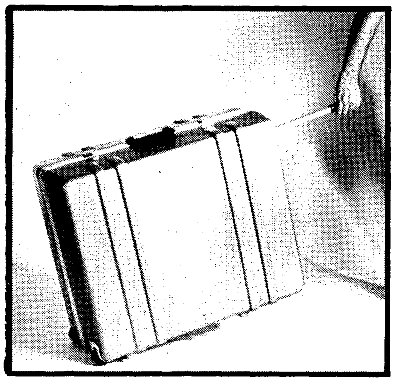
INDUSTRY STANDARD CASES

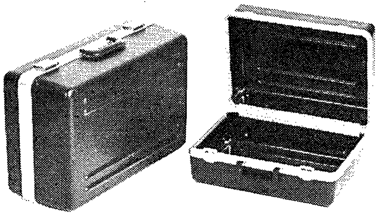

TRANSIT CASE

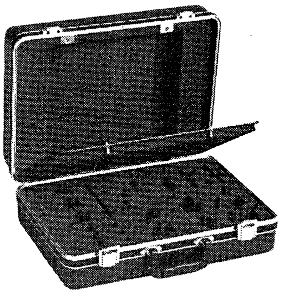

MOLDED LOGOS

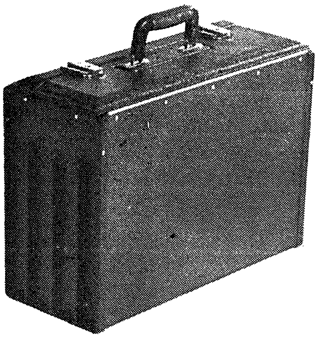

TOOL CASE

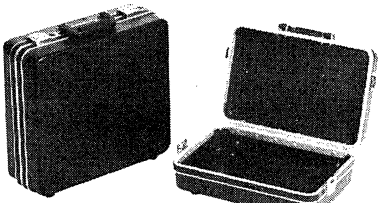

X-STACKING TRANSIT CASE & CART

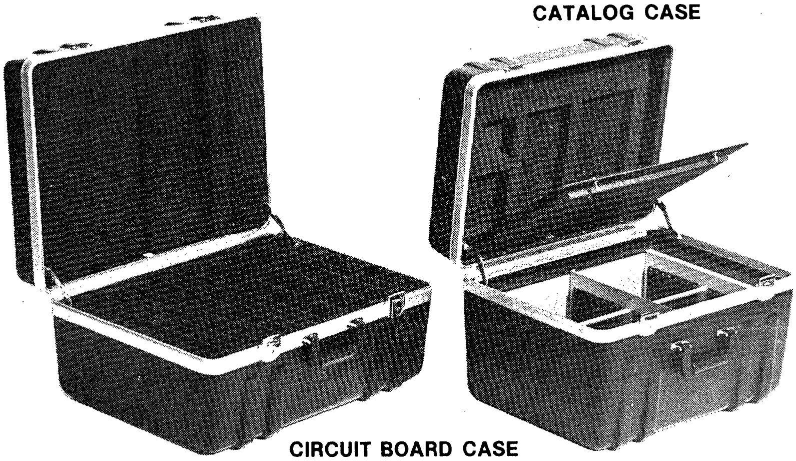

WHEEL CASE

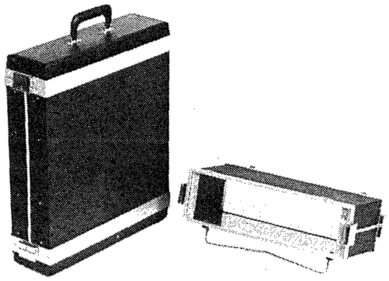

HEAVY DUTY CARRYING CASE


DOORS/HINGED DIVIDERS
DIE-CUT FOAM INSERTS


CATALOG CASE


ATTACHE STYLE CASE


CIRCUIT BOARD CASE


EIA RACK MOUNT CASE

Contact factory for:

- Special hardware selections available
- Special colors
- Flame retardant material
- Special brackets
- Door/dividers/formed inserts
- EMI/RFI shielding
- Foam filled
- Foam die cut
- Foam molded
- Printed circuit board racks

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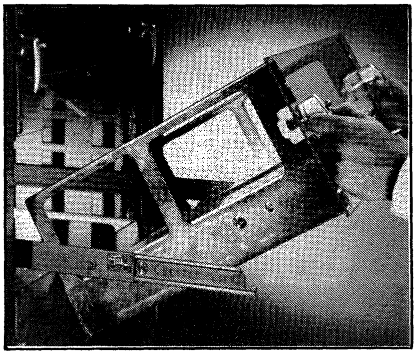
CHASSIS TRAK®
Electronic
Slide Mechanisms

Enclosure slides for even the most unusual applications!

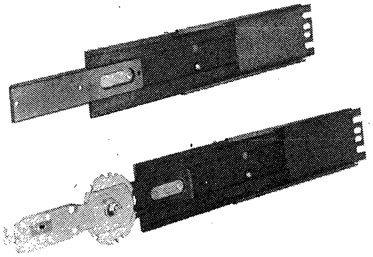
Rugged • Dependable • Economical



***C**hassis Trak solid bearing slides are exceptionally compact, low cost, side mounted, slides for commercial and military application. Permanently lubricated with Poxylube® molybdenum disulfide dry film lubricant to provide smooth sliding action. Chassis Trak solid bearing slides offer a high degree of immunity to shock and vibration and all slides offer lock-out and quick-disconnect as standard features.*

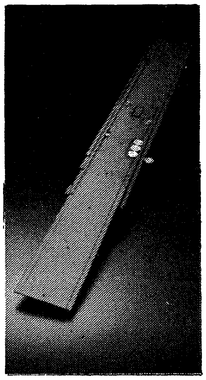
Series	Load Capacity lbs./pr.	Lengths
C300	85	10″ to 24″
C230	125	12″ to 24″
D-600	125	10″ to 24″
CT	175	10″ to 24″
CTR	175	10″ to 24″
CTH	275	14″ to 24″
CTHR	275	14″ to 24″

All solid bearing slides available in 2 inch increments affording complete installation versatility.



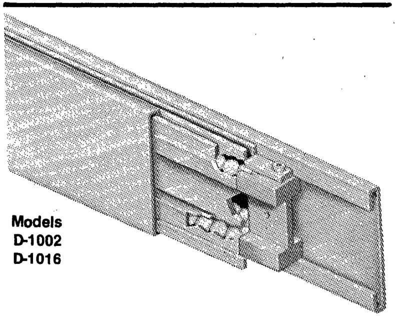
Pencil-thin design permits installation of standard 17″ chassis in standard 19″ panel racks. All solid bearing slides are cold-rolled steel except Model D-600 which is lightweight, hard coated aluminum.

CC6400 Solid Bearing Slides



The CC-6400 solid bearing slide is designed with rollers that reduce drag and pull force and facilitate easy movement.

Features
- 175 lbs. weight capacity with only .38 clearance required.
- Quick disconnect with safety stop feature eliminates chassis from being inadvertently pulled out. The release must be activated for mechanism to disconnect.
- Automatic release option available.



Models
D-1002
D-1016

Circulating Ball Bearing Slides

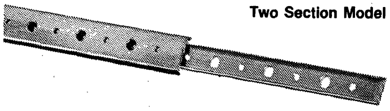
Chassis Trak circulating ball bearing slides are designed to support weights up to 500 lbs. per pair over considerable lengths. Slides are side mounted with a bottom mount option. Military applications (Models D-1002 and D-1016) are constructed from cold-rolled steel cadmium plated and dipped in irridite. They are furnished with Poxylube® finish and carbon steel balls. Loads are distributed evenly over entire length of slide due to unique design of continuous ball movement. Two-way operation available upon request.

Series	Special Feature
D-1002	Mil version
D-1016	Lock-out

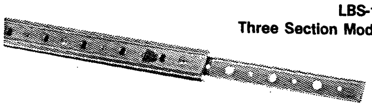
Load Capacity up to 500 lbs.
Lengths: 20″ - 60″ in 4″ incr.

Linear Ball Bearing Slides

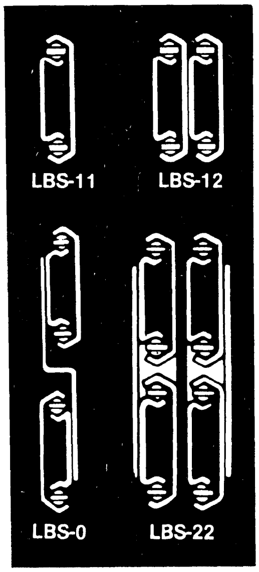
Designed for especially smooth travel and extra long life under maximum loads, these slides are made of cold-rolled steel raceways and operate on precision carbon steel ball bearings. Available in several models and lengths, with optional cabinet mount and/or lock out. Applicable to low cost commercial and tough military applications. Easy mounting system is calibrated for installation at 2 inch intervals.



LBS-11
Two Section Model



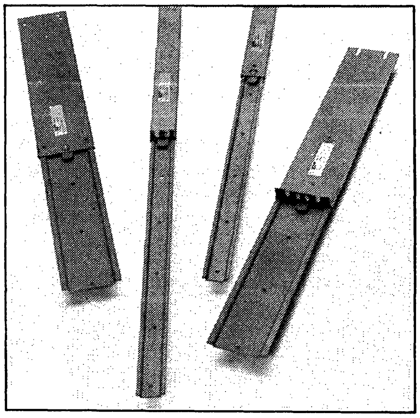
LBS-12
Three Section Model



Series	Load Capacity lbs./pr.	Lengths
LBS-11	100	10″ to 40″
LBS-12	250	10″ to 40″
LBS-0	150	10″ to 30″
LBS-22	400	10″ to 30″

CHASSIS TRAK®
Electronic
Slide Mechanisms

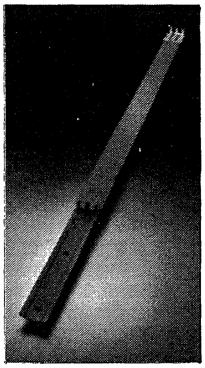
• *Rugged*
• *Dependable*
• *Economical*



Two-Section Slides

These slides are thinner than normal slides. Sturdy construction allows these two section slides to be only .340 of an inch thick to provide additional chassis space. They are supplied as *direct mount* solid bearing slides but can be obtained with a return flange for standard mounting. Also designed to be easily disconnected. Mounting hardware is included.

CC3700
"Thin-Trak"



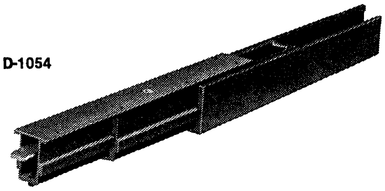
This two section slide series offers slides that are ultra thin and just as sturdy as standard units allowing for a much wider chassis application. Still designed as a "solid bearing" slide, the sliding section of this unit is only .188 of an inch thick.

Features

- Ultra thin sliding thickness - (.188").
- 85 lb. capacity (per pr.).
- Can be furnished for direct flat-mount requirements (mount directly to side of cabinet - flanges, front and rear *not* required).
- Parts interchangeable - (No LH or RH).
- Other combinations of length and travel available on request.

Quick Disconnect - Chassis is easily removed by depressing both stop latches and pulling the chassis forward.

D-1054



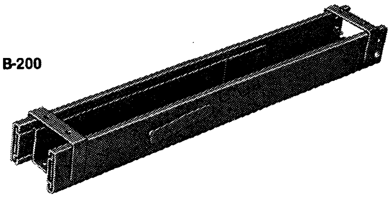
Bottom Mount Slides

Five different models offer load-carrying capacities from 150 lbs./pr to 1,500 lbs./pr. These slides are made from cold-rolled steel, cadmium plated and irridite dipped, and are available with solid-bearing surfaces or roller bearing, depending on the model. Slides feature smooth operation, dependability and long life for heavy-duty applications. Close tolerance rollers minimize pulling force required for extension and provide vertical alignment, while ball bearings carry any horizontal thrust.

Series	Load Cap. lbs./pr.	Lengths
B-200 (solid)	50	10" to 24"
C-938 (roller)	400	12" to 48"
D-1065 (roller)	600	12" to 24"
D-1050 (roller)	1000	22" to 48"
D-1054 (roller) (same as D-1050 except includes lock-in and lock out)	1000	22" to 48"

(other lengths available upon request)

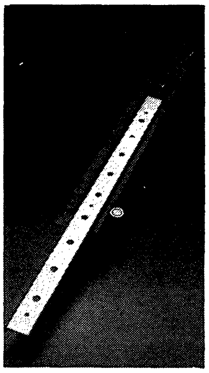
B-200



Top/Bottom Mount Slides

Telescoping, formed sections, bearing on a film of Poxylube®, a molybdenum disulfide dry film lubricant, makes this low-cost slide desirable for many light-weight applications.

CC4500
Hybrid Slide



This new design is a combination Linear Ball Bearing and Solid Bearing Slide, which combines ease of movement with economy and dependability.

This slide is 1/2" thick and at full extension can carry up to 125 lbs. per pair.

Features include 16 in. through 30 in. lengths, disconnect, and safety stop feature at front.

Series	Load Cap. lbs./pr.	Lengths
CC4500	125	16" to 30"

Options:
- Strap mount
- Lock-out
- Automatic release

Chassis Trak Offers:

Experience - Leader in Chassis Slides for commercial and military applications for over 30 years.

Low Cost - Advanced production techniques enable us to offer quality at a competitive price.

Stock - Commonly used models are stocked for off-the-shelf immediate delivery.

Specials - Chassis Trak engineers are ready to handle your special engineering requirements.

For a complete catalog of all slides write to:

CHASSIS TRAK
P.O. Box 39100
Indianpolis, Indiana 46239
(317) 897-7000
Telex: 27-2169 (GENDEVI CO IND)
Division of General Devices Co., Inc.

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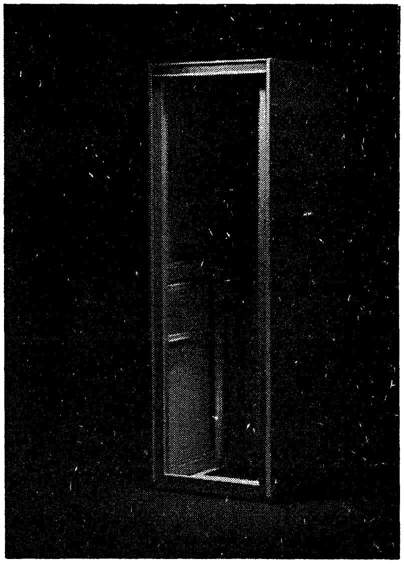
Electronic
Cabinetry

Electronic Cabinets
both beautiful and functional

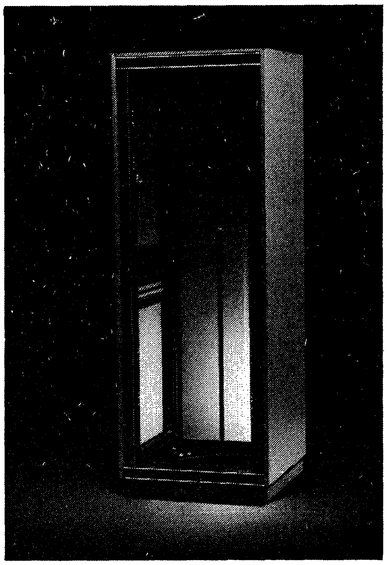


Light Duty 9500 Series

Series 9500 is constructed from standard pre-engineered parts featuring welded all steel construction.

Standard Features

- Frame is 14 gauge CRS.
- Lift-off removable 18 gauge CRS side panels.
- Hinged and removable flush 18 gauge rear door and key lock.
- Adjustable rear mounting angles punched and tapped #10-32 per EIA Standard RS-310.
- Front corner posts have .270 inch dia punched clearance holes in EIA Standard RS-310 pattern. Forty #10-32 clip nuts are furnished with each frame.
- Adjustable levelers.
- Available panel openings 35.06 inches through 70.06 inches in 1.75 inch increments.
- Available frame depths from 24.0 to 30.0 inches in 2.00 inch increments.
- Panel width 19.13 inches with 17.91 inches clear opening.
- Overall cabinet width is 24 inches.
- Overall cabinet height is 5.00 inches greater than the vertical panel opening.
- Aluminum extrusion horizontal trim and woodgrain insert.
- Ideal for EMI applications.

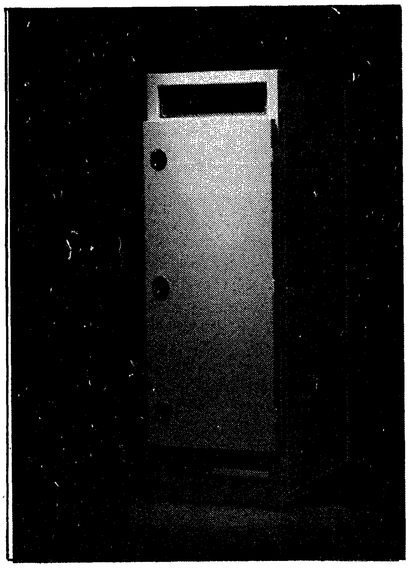


Medium/Heavy Duty 6200 Series

The Series 6200 line is designed and built to pass some of the most stringent commercial applications.

Standard Features

- Frame is 12 gauge CRS, Tig welded.
- Two 18 gauge CRS lift-off side panels.
- Surface mounted hinged 16 gauge CRS rear door with magnetic latch and aluminum extrusion pull.
- Removable 12 gauge CRS top cover.
- Available vertical panel openings 35.06 through 77.06 inches in 1.75 inch increments.
- Available frame depths from 24.00 inches to 30.00 inches in 2.00 inch increments.
- Four 12 gauge CRS mounting angles punched and tapped #10-32 per EIA Standard RS-310. Mounted on UNISTRUTS for infinite adjustment.
- Extruded aluminum front horizontal trim.
- Four levelers.
- Panel width 19.13 inches with 17.91 inches clear opening.



Heavy/Seismic Duty 7700 Series

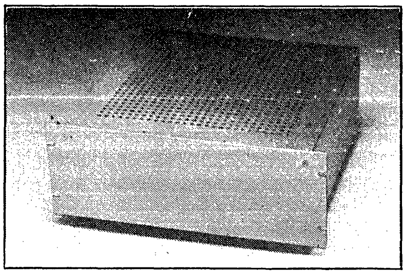
The Series 7700 are standard cabinets pre-engineered with custom quality for special applications. This line is designed to conform with military specifications.

Standard Features

- EMI, EMP, RFI shielding capability.
- Frame 10 gauge CRS.
- Reinforced corner posts with 10 gauge CRS liners.
- Removable 16 gauge CRS side panels.
- Removable and flush mounted 16 gauge CRS rear door with multiple latches.
- Removable 12 gauge CRS bottom cover.
- Adjustable 10 gauge CRS rear mounting angles punched .27 inch diameter holes in RS-310 pattern.
- Front corner posts are punched and tapped #10-32 per EIA RS-310.
- Available in vertical panel openings from 35.13 inches through 84.13 inches in 1.75 inch increments.
- Available panel widths of 19.13 inches and 24.13 inches.
- Available frame widths with 19.13 inch panel width are 23.13 inches and 21.13 inches.
- Available frame width with 24.13 inch panel width are 28.13 inches and 26.13 inches.
- Available frame depths from 20.00 inches through 36.00 inches.

VENT RAK®
Electronic
Cabinetry

Cabinets Hardware & Accessories



Modular Chassis

- Finish is etch and clear chromate conversion per MIL-C-5541C.
- Mounting slots are located per EIA Standard RS-310-C.
- Standard 17 inch width for a 19 inch front panel width.
- Chassis plate is .090 aluminum, standard one piece or optional modular chassis sub-plates.
- Chassis sides .060 aluminum, available in four standard depths 8.50, 12.75, 17.00 and 21.25 inches. Chassis sides are .50 inch less the front panel height and are available in heights 1.75 inch through 14 inch in 1.75 inch increments.
- Top and bottom covers are perforated .060 aluminum.

Standard Chassis consists of:

A. Front Panel

B. Chassis Sides (Pair)

C. Chassis Plate (One piece)

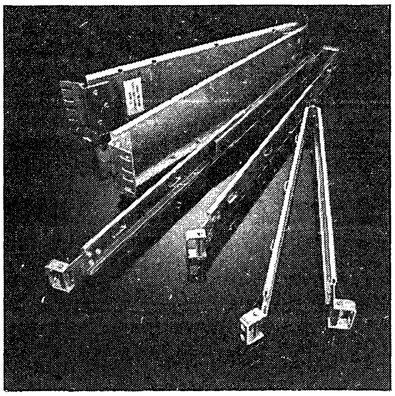
D. Rear Support Panel

Standard chassis are shipped unassembled with all required mounting hardware.

Standard options available on Vent Rak chassis include:

- Special cut outs
- Painted front panels
- Lettered front panels
- Assembled chassis
- Hardware mounting holes
- Perforated top cover
- Handles
- Chassis Trak slides

The Vent Rak facilities permit the fabrication of made-to-order chassis and our engineers welcome your inquiries.



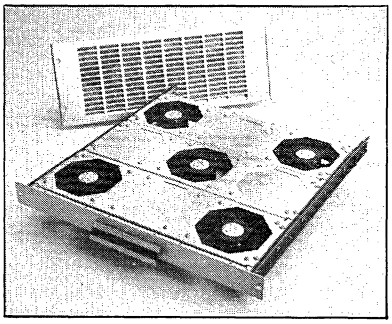
Cable Carriers

The D-329, C-990 and C-4555 will extend proportionately with cable movement and prevent sagging cable hazards that might damage the equipment housed and the lower chassis. The D-329 and C-990 with quick disconnects were designed for round cable. The C-4555 was designed to handle ribbon cable.

C-4555 Ribbon cable carrier

C-990 Quick disconnect cable carrier

D-329 Quick disconnect cable carrier

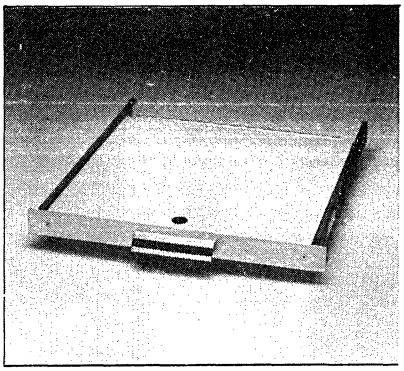


Cooling Modules

D-4118 cooling modules, the arrangeable cooling module enables you to choose the fan pattern that will best cool your equipment.

D-4119 cooling module provides air movement rated at 250 CFM and occupies 7 inches of vertical panel space.

Both cooling modules are fuse protected and supplied with easily replaceable fans; filters are optional on the D-4118 and standard on the D-4119.



D-4080 Retractable Writing Shelf

This readily accessable writing surface mounts directly to any standard 19.00 inch cabinet per RETMA/EIA universal or MIL-STD-189. Completely assembled unit requires 1.75 inches of vertical front panel space.

Features

- Writing surface covered with off-white laminate.
- Maximum extension of 20.88 inches.
- Quick disconnect slides for easy removal.
- Lock out slides that will hold up to 85 pound load.
- Adjustable rear mounting brackets to mount in cabinets 20 to 30 inches in depth.
- Finger tip desk top lid.
- Clear anodize aluminum handle.
- Zinc plate 1.5 inch body.

For a complete catalog of all cabinets and accessories write to:

VENT RAK
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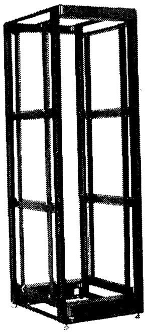
Indianpolis, Indiana 46239
(317) 897-7000
Telex: 27-2169 (GENDEVI CO IND)
Division of General Devices Co., Inc.

The Hammond Alternative For Rack Packaging

RSFS System Rack

This system is designed for single or multiple cabinet assemblies. Interlocking ribs provide a mere 1.0" space loss on side ganged cabinets. Conformation to EIA spacing on overall cabinet height allows for front to back ganging.

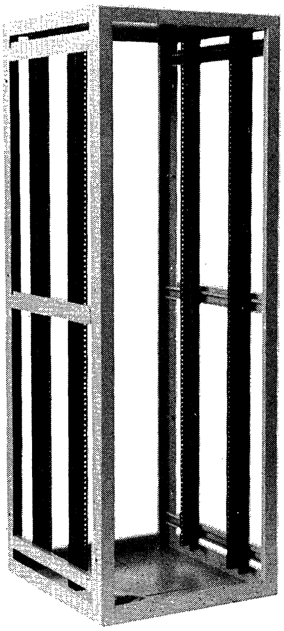


Rack Panel Height E	U	Order Part No.	Overall Height C^2
21.0	12	RSFS 19 021 .... BK3	28.0
28.0	16	RSFS 19 028 .... BK3	35.0
35.0	20	RSFS 19 035 .... BK3	42.0
42.0	24	RSFS 19 042 .... BK3	49.0
49.0	28	RSFS 19 049 .... BK3	56.0
56.0	32	RSFS 19 056 .... BK3	63.0
63.0	36	RSFS 19 063 .... BK3	70.0
70.0	40	RSFS 19 070 .... BK3	77.0
77.0	44	RSFS 19 077 .... BK3	84.0
84.0	48	RSFS 19 084 .... BK3	91.0

[1] Specify overall depth in blanks.
17 = 17.5" deep, 24 = 24.5" deep or 31 = 31.5" deep.
[2] Levelling feet add at least 1" to height.

1469 Rack Frames

The 1469 rack is a modular 19" enclosure made for situations where heavier equipment is to be mounted in an attractive package. This rack is extremely sturdy when used as a single unit and even more sturdy when ganged.

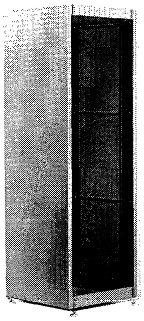


Cat. No.	Panel Space In.	U	Overall Height
1469 A1	49.0	28	52.5
1469 A2	49.0	28	52.5
1469 A3	49.0	28	52.5
1469 A4	49.0	28	52.5
1469 A5	49.0	28	52.5
1469 B1	61.25	35	64.7
1469 B2	61.25	35	64.7
1469 B3	61.25	35	64.7
1469 B4	61.25	35	64.7
1469 B5	61.25	35	64.7
1469 C1	70.0	40	73.5
1469 C2	70.0	40	73.5
1469 C3	70.0	40	73.5
1469 C4	70.0	40	73.5
1469 C5	70.0	40	73.5
1469 E1	80.50	46	84.0
1469 E2	80.50	46	84.0
1469 E3	80.50	46	84.0
1469 E4	80.50	46	84.0
1469 E5	80.50	46	84.0
1469 F2	85.75	49	90.0
1469 F3	85.75	49	90.0
1469 F4	85.75	49	90.0
1469 F5	85.75	49	90.0

Finish .... Specify BK1 or GY2

Economy Rack

The economy racks are designed to be used as single, freestanding units and are not used with system ganging kits.



Rack Panel Height E	U	Order Part No. ^{1}	Overall Height C^3
35.0	20	REFK 19 035	40.0
42.0	24	REFK 19 042	47.0
49.0	28	REFK 19 049	54.0
56.0	32	REFK 19 056	61.0
63.0	36	REFK 19 063	68.0
70.0	40	REFK 19 070	75.0
77.0	44	REFK 19 077	82.0
84.0	48	REFK 19 084	89.0

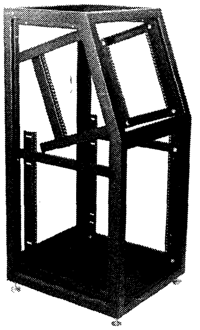
[1] Specify depth required 17 = 17.5" deep or 24 = 24.5" deep.
[3] Levelling feet add at least 1" to overall height

1564 Consoles

1564 Series racks provide an attactive, durable enclosure for control centre installations, or for protection of electronic, hydraulic, pneumatic, or electric equipment.

20° slope provides optimum viewing angle for control or instrument panel. Integral CRT mounting angles and optional desk panel provide versatility for many applications.

Cat. No.	Height	Width	Depth
1564 A2BK1	49.0	22.56	24.5
1564 B2BK1	49.0	22.56	31.5
1564 A4BK1	49.0	22.56	24.5
1564 B4BK1	49.0	22.56	31.5



And More ....

A full range of accessories from side panels, tops, writing surfaces and doors to panels, blowers, drawers and much, much more are available through Hammond Manufacturings' 9R-3 Electronic Rack Packaging Catalog. Order Today From and Authorized Hammond Dealer.

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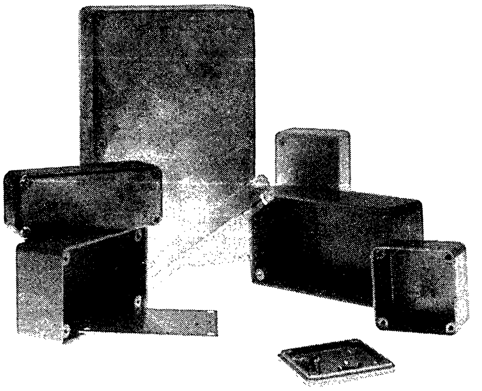
The Hammond Alternative For Small Cases



1590 Series Diecast Boxes

Cat. No.	H	W	D
1590A	3.62	1.50	1.07
1590B	4.37	2.37	1.07
1590BB	4.68	3.68	1.18
1590C	4.68	3.68	2.06
1590	7.39	4.70	2.06
1590E	7.39	4.70	3.06
1590F	7.39	7.37	2.50
1590LB	1.98	1.98	1.07

1590 Series boxes also available in pre-painted colors. See cat. 9C-4

1591 Series ABS Plastic Boxes

Cat. No.[1]	H	W	D
1591L.....	3.34	2.20	1.38
1591A.....	3.93	1.97	.82
1591B.....	4.41	2.44	1.06
1591C.....	4.72	2.55	1.41
1591D.....	5.90	3.14	1.80
1591E.....	7.47	4.33	2.24

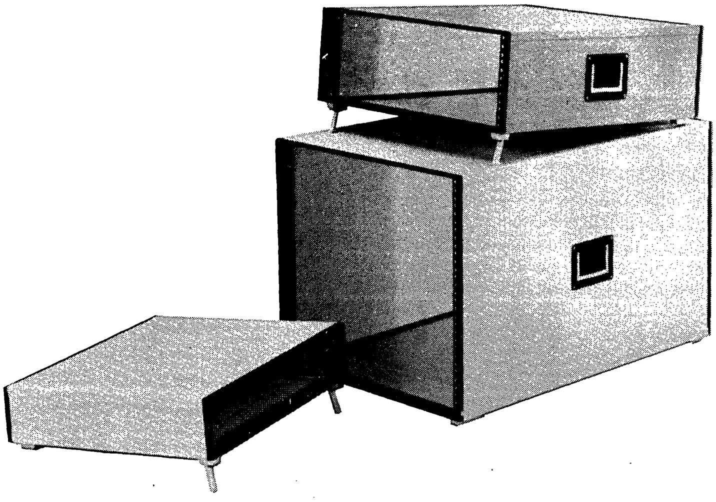
[1] Specify color OR (orange) BK (Black) BU (Blue) GY (Grey) or BG (Beige).

ABS boxes also available with unpainted metal lid or clear plastic lid. See Cat. 9C-4.

Rack Mount Cases

Part No.	Panel In.	Height In.	Depth In.
ACRM 1900313	3.5	3.468	13.0
ACRM 1900317	3.5	3.468	17.0
ACRM 1900323	3.5	3.468	23.0
ACRM 1900713	7.0	6.968	13.0
ACRM 1900717	7.0	6.968	17.0
ACRM 1900723	7.0	6.968	23.0
ACRM 1901013	10.5	10.468	13.0
ACRM 1901017	10.5	10.468	17.0
ACRM 1901023	10.5	10.468	23.0

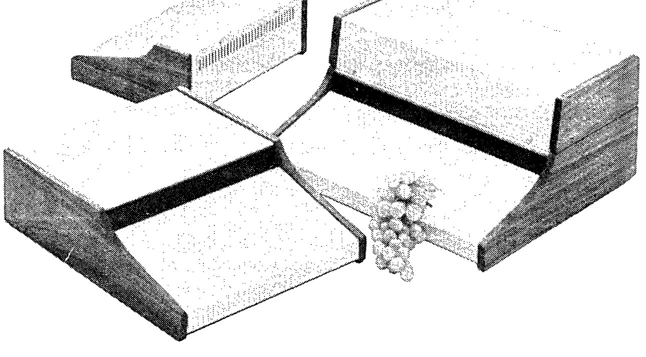
Specify color GF1 or SD1 see color chart.
Depth including handle add 1.594"



Desktop Cases

Part No.	Panel In.	Height In.	Depth In.
ACDT 1900317*	3.5	4.125	17.5
ACDT 1900717	7.0	7.625	17.5
ACDT 1900724	7.0	7.625	24.5
ACDT 1901024	10.5	11.125	24.5
ACDT 1901031	10.5	11.125	31.5
ACDT 1901424	14.0	14.625	24.5
ACDT 1901431	14.0	14.625	31.5
ACDT 1901724	17.5	18.125	24.5
ACDT 1901731	17.5	18.125	31.5

*Specify color GF1 or SD1.



Cat. No.	Panel Width	
	Inches	mm
SCED 251126	10	254
SCED 351126	14	356
SCED 431126	17	432
SCED 351143	14	356
SCED 431143	17	432
SCED 501143	20	508
SCEH 352043	14	356
SCEH 432043	17	432
SCEH 502043	20	508

And Many More . . . . . .

A wide range of cases are available including:
Styrene plastic cases, meter cases, instrument cases, keyboard consoles and 19" rack cases. Send for Hammond 9C-4 catalog today.

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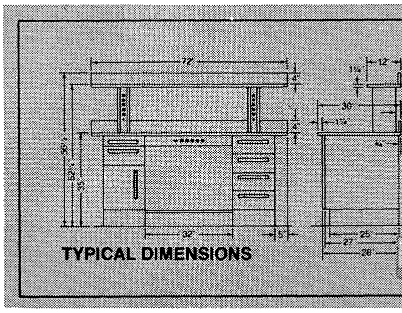
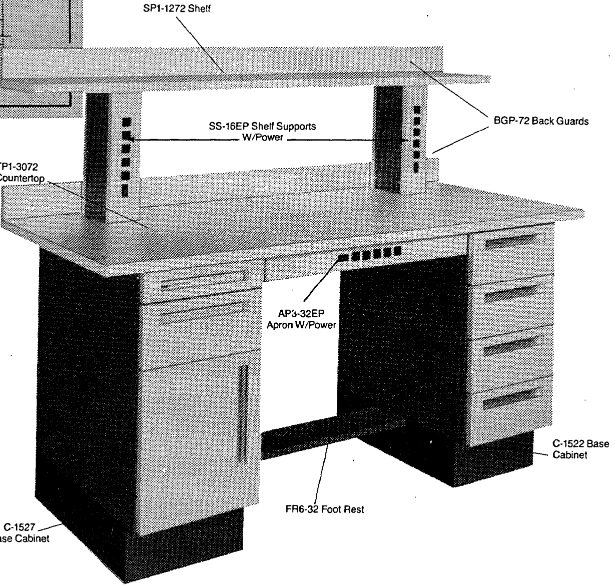

72"
12"
30"
32"
25
27
26
TYPICAL DIMENSIONS


SP1-1272 Shelf
SS-16EP Shelf Supports W/Power
BGP-72 Back Guards
TP1-3072 Countertop
AP3-32EP Apron W/Power
C-1522 Base Cabinet
FR6-32 Foot Rest
C-1527 Base Cabinet

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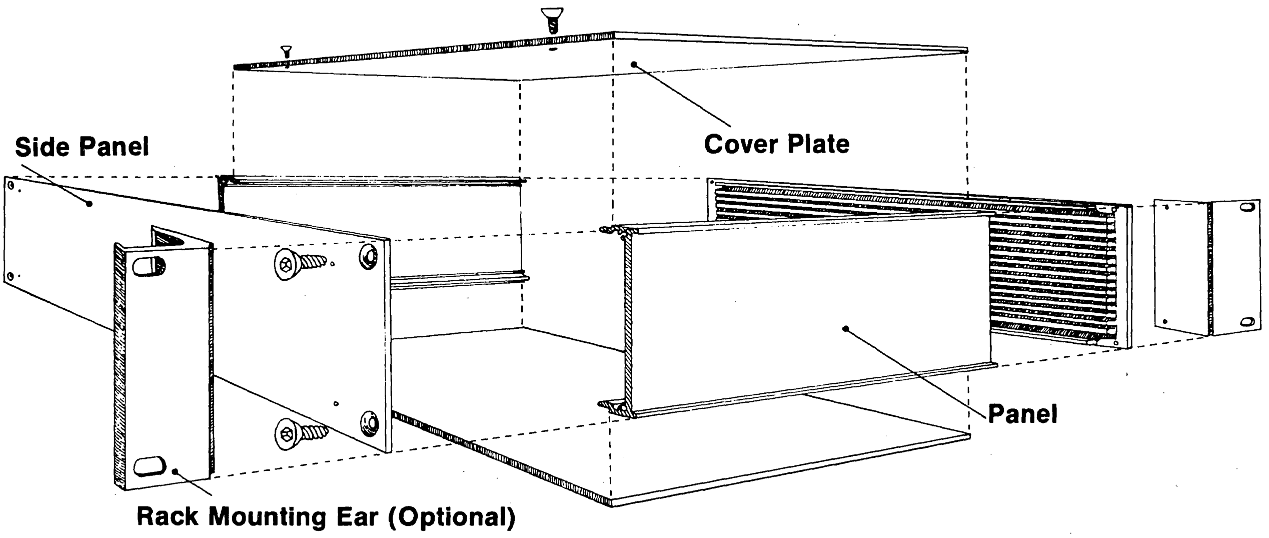
LANSING Series 89 Electronic Enclosure Systems



High Quality Cost Effective Design

Lansing Series 89 Electronic Enclosures combine engineered aluminum extrusion systems and sheet metal parts.

Modular Design
Enclosures are designed to be exact submultiples of standard rack width and height.

They can be used equally well as stand-alone or rack-mount instruments.

They group together easily both vertically and horizontally (with coupler option).

Simple in Concept
Each complete enclosure contains as few as 6 parts (2 each of side, cover, panel) plus hardware.

Parts are modular.

Easy to use, both in prototype and production quantities.

Mechanical Design
The frame is structurally rigid.

Panel area is maximized, recessed and surrounded by an attractive thin bezel.

Printed circuit boards can be mounted easily in a variety of ways.

Rack mounting ears and other options are easily attached.

All parts have close mechanical tolerances.

Manufacturing Advantages
Assembly is quick and efficient.

Inventory is low: minimal number of parts and shelf space required (parts store knocked down, not in bulky subassemblies).

Adapts easily from prototype to specific production requirements.

▶ **Introductory prototyping kits available.**

Easy Access for Servicing
Top and bottom covers remove quickly.

Front and rear panels can be removed.

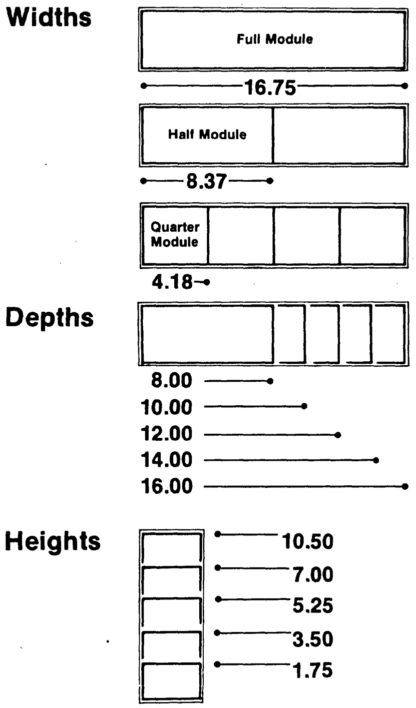
Aesthetics
Clean appearance.

Choice of styles and finishes, including satin anodizing and a variety of vinyl clad materials, provide product differentiation.

Custom Design Service
We work with you to achieve a cost effective solution by considering assembly as well as parts cost.

▶ **Send us your electronic instrument or prototype for a free packaging evaluation and cost saving suggestions.**

Options
Rack Mount Kits. Coupler Options. Extender Panels.



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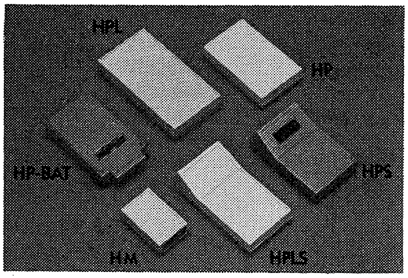
PacTec Electronics Enclosures

Prototyping kits and production units available from stock

Series H

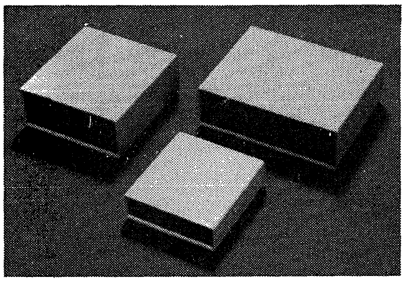


Series H

For prototype kits, add the suffix "K" to the model numbers listed below:

Ordering Code	Weight lb	Weight kg		Height in	Height mm	Width in	Width mm	Depth in	Depth mm
HP/HP-9VB			outside	1.29	32.8	3.60	91.4	5.75	146.1
	.23	.10	inside*	1.07	27.2	3.37	85.6	3.97	100.8
HPL			outside	1.12	28.5	4.00	101.6	7.50	190.5
	.29	.13	inside*	.92	23.4	3.78	96.0	7.28	184.9
HPL-9VB			outside	1.29	32.8	4.00	101.6	7.50	190.5
	.30	.14	inside*	1.09	27.7	3.78	96.0	5.65	143.4
HPS			outside	1.92	48.8	3.60	91.4	5.75	146.1
	.22	.10	inside*	.92	23.4	3.37	85.6	5.52	140.2
HPS-9VB			outside	2.09	53.1	3.60	91.4	5.75	146.1
	.22	.11	inside*	1.09	27.7	3.37	85.6	3.97	100.8
HPLS			outside	2.09	53.1	4.00	101.6	7.50	190.5
	.29	.13	inside*	.92	23.4	3.78	96.0	7.28	184.9
HPLS-9VB			outside	2.26	57.7	4.00	101.6	7.50	190.5
	.39	.15	inside*	1.09	27.7	3.78	96.0	5.75	146.1
HM			outside	.90	22.9	2.40	61.0	3.80	96.5
	.11	.05	inside*	.75	19.1	2.06	52.3	3.57	90.7
HM-9VB			outside	1.00	25.4	2.40	61.0	3.80	96.5
	.11	.05	inside*	.85	21.6	2.06	52.3	2.20	55.9

Series CM



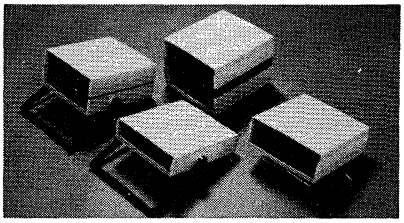
Series CM

For prototype kits, add the suffix "K" to the model numbers listed below:

CM3-150			outside	1.75	44.5	3.33	84.6	5.25	133.4
	.25	.115	inside*	1.19	30.2	2.34	59.4	4.81	122.2
CM5-125			outside	1.50	38.1	5.08	129.0	5.25	133.4
	.35	.16	inside*	.95	24.1	4.15	105.4	4.81	122.2
CM5-200			outside	2.25	57.2	5.08	129.0	5.25	133.4
	.36	.16	inside*	1.70	43.18	4.15	105.4	4.81	122.2
CM6-225			outside	2.50	63.5	6.06	153.9	6.25	158.8
	.57	.26	inside*	1.95	49.3	4.87	123.7	5.75	146.1
CM6-300			outside	3.25	82.6	6.06	153.9	6.25	158.8
	.58	.27	inside*	2.70	68.6	4.87	123.7	5.75	146.1
CM86-225			outside	2.50	63.5	8.08	205.2	6.25	158.8
	.64	.29	inside*	1.95	49.3	6.87	174.6	5.75	146.1
CM69-120			outside	1.38	35.1	6.33	160.8	9.50	241.3
	.75	.34	inside*	1.14	29.0	5.95	151.1	8.94	227.1

*Minimum inside usable dimensions

Series C



Series C

Prototype kit C-23K contains everything necessary to build the following models:

Ordering Code	Weight lb	Weight kg		Height in	Height mm	Width in	Width mm	Depth in	Depth mm
C-200			outside	2.44	61.9	8.50	215.9	9.25	235.0
	1.14	.52	inside*	1.68	42.7	6.85	174.0	8.00	203.2
C-225			outside	2.69	68.3	8.50	215.9	9.25	235.0
	1.14	.52	inside*	1.93	49.0	6.85	174.0	8.00	203.2
C-250			outside	2.94	74.6	8.50	215.9	9.25	235.0
	1.16	.53	inside*	2.18	55.4	6.85	174.0	8.00	203.2
C-275			outside	3.19	81.0	8.50	215.9	9.25	235.0
	1.16	.53	inside*	2.43	61.7	6.85	174.0	8.00	203.2
C-300			outside	3.44	87.3	8.50	215.9	9.25	235.0
	1.17	.53	inside*	2.68	68.1	6.85	174.0	8.00	203.2
C-325			outside	3.69	93.7	8.50	215.9	9.25	235.0
	1.17	.53	inside*	2.93	74.4	6.85	174.0	8.00	203.2

Series CB (tilt stand)

Prototype kit CB-23K contains everything necessary to build the following models:

CB-200			outside	2.44	61.9	8.50	215.9	9.25	235.0
	1.24	.56	inside*	1.68	42.7	6.85	174.0	8.00	203.2
CB-225			outside	2.69	68.3	8.50	215.9	9.25	235.0
	1.24	.56	inside*	1.93	49.0	6.85	174.0	8.00	203.2
CB-250			outside	2.94	74.6	8.50	215.9	9.25	235.0
	1.25	.57	inside*	2.18	55.4	6.85	174.0	8.00	203.2
CB-275			outside	3.19	81.0	8.50	215.9	9.25	235.0
	1.25	.57	inside*	2.43	61.7	6.85	174.0	8.00	203.2
CB-300			outside	3.44	87.3	8.50	215.9	9.25	235.0
	1.27	.58	inside*	2.68	68.1	6.85	174.0	8.00	203.2
CB-325			outside	3.69	93.7	8.50	215.9	9.25	235.0
	1.27	.58	inside*	2.93	74.4	6.85	174.0	8.00	203.2

Series CH (handle)

Prototype kit CH-23 contains everything necessary to build the following models:

CH-200			outside	2.44	61.9	8.50	215.9	9.25	235.0
	1.36	.62	inside*	1.68	42.7	6.85	174.0	8.00	203.2
CH-225			outside	2.69	68.3	8.50	215.9	9.25	235.0
	1.36	.62	inside*	1.93	49.0	6.85	174.0	8.00	203.2
CH-250			outside	2.94	74.6	8.50	215.9	9.25	235.0
	1.37	.62	inside*	2.18	55.4	6.85	174.0	8.00	203.2
CH-275			outside	3.19	81.0	8.50	215.9	9.25	235.0
	1.37	.62	inside*	2.43	61.7	6.85	174.0	8.00	203.2
CH-300			outside	3.44	87.3	8.50	215.9	9.25	235.0
	1.39	.63	inside*	2.68	68.1	6.85	174.0	8.00	203.2
CH-325			outside	3.69	93.7	8.50	215.9	9.25	235.0
	1.39	.63	inside*	2.93	74.4	6.85	174.0	8.00	203.2

Series CS (extended height) Series CBS (extended height & tilt stand)

For prototype kits, add the suffix "K" to the model numbers listed below:

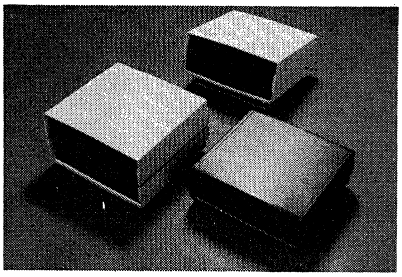
CS-400			outside	4.44	112.7	8.50	215.9	9.25	235.0
	1.53	.69	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CS-500			outside	5.44	138.1	8.50	215.9	9.25	235.0
	1.55	.71	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CS-600			outside	6.44	163.5	8.50	215.9	9.25	235.0
	1.65	.75	inside*	5.68	144.3	6.85	174.0	8.00	203.2
CBS-400			outside	4.44	112.7	8.50	215.9	9.25	235.0
	1.63	.74	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CBS-500			outside	5.44	138.1	8.50	215.9	9.25	235.0
	1.57	.71	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CBS-600			outside	6.44	163.5	8.50	215.9	9.25	235.0
	1.75	.79	inside*	5.68	144.3	6.85	174.0	8.00	203.2

Series CHS (extended height & handle)

For prototype kits, add the suffix "K" to the model numbers listed below:

Ordering Code	Weight lb	Weight kg		Height in	Height mm	Width in	Width mm	Depth in	Depth mm
CHS-400			outside	4.44	112.7	8.50	215.9	9.25	235.0
	1.75	.79	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CHS-500			outside	5.44	138.1	8.50	215 .9	9.25	235.0
	1.77	.80	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CHS-600			outside	6.44	163.5	8.50	215.9	9.25	235.0
	1.87	.81	inside*	5.68	144.3	6.85	174.0	8.0	203.2

Series CL



Series CL

Prototype kit CL-45K contains everything necessary to build the following models:

CL-400			outside	4.51	114.6	12.50	317.5	11.63	295.3
	2.32	1.05	inside*	3.50	89.0	10.85	275.6	10.40	264.2
CL-425			outside	4.76	120.9	12.50	317.5	11.63	295.3
	2.32	1.05	inside*	3.75	95.3	10.85	275.6	10.40	264.2
CL-450			outside	5.01	127.3	12.50	317.5	11.63	295.3
	2.34	1.06	inside*	4.00	102.0	10.85	275.6	10.40	264.2
CL-475			outside	5.26	133.6	12.50	317.5	11.63	295.3
	2.34	1.06	inside*	4.25	108.0	10.85	275.6	10.40	264.2
CL-500			outside	5.51	140.0	12.50	317.5	11.63	295.3
	2.35	1.07	inside*	4.50	114.3	10.85	275.6	10.40	264.2
CL-525			outside	5.76	146.3	12.50	317.5	11.63	295.3
	2.35	1.07	inside*	4.75	120.7	10.85	275.6	10.40	264.2

Series CLB (tilt stand)

Prototype kit CLB-45K contains everything neccessary to build the following models:

CLB-400			outside	4.51	114.6	12.50	317.5	11.63	295.3
	2.45	1.11	inside*	3.50	89.0	10.85	275.6	10.40	264.2
CLB-425			outside	4.76	120.9	12.50	317.5	11.63	295.3
	2.45	1.11	inside*	3.75	95.3	10.85	275.6	10.40	264.2
CLB-450			outside	5.01	127.3	12.50	317.5	11.63	295.3
	2.49	1.13	inside*	4.00	102.0	10.85	275.6	10.40	264.2
CLB-475			outside	5.26	133.6	12.50	317.5	11.63	295.3
	2.49	1.13	inside*	4.25	108.0	10.85	275.6	10.40	264.2
CLB-500			outside	5.51	140.0	12.50	317.5	11.63	295.3
	2.50	1.14	inside*	4.50	114.3	10.85	275.6	10.40	264.2
CLB-525			outside	5.76	146.3	12.50	317.5	11.63	295.3
	2.50	1.14	inside*	4.75	120.7	10.85	275.6	10.40	264.2

Series CLS (extended height) Series CLBS (extended height & tilt stand)

For prototype kits, add the suffix "K" to the model numbers listed below:

CLS-625			outside	6.76	171.7	12.50	317.5	11.63	295.3
	2.99	1.36	inside*	5.75	146.1	10.85	275.6	10.40	264.2
CLS-725			outside	7.76	197.1	12.50	317.5	11.63	295.3
	3.02	1.38	inside*	6.75	171.5	10.85	275.6	10.40	264.2
CLS-825			outside	8.76	222.5	12.50	317.5	11.63	295.3
	3.18	1.44	inside*	7.75	196.9	10.85	275.6	10.40	264.2
CLBS-625			outside	6.76	171.7	12.50	317.5	11.63	295.3
	3.11	1.41	inside*	5.75	146.1	10.85	275.6	10.40	264.2
CLBS-725			outside	7.76	197.1	12.50	317.5	11.63	295.3
	3.15	1.43	inside*	6.75	171.5	10.85	275.6	10.40	264.2
CLBS-825			outside	8.76	222.5	12.50	317.5	11.63	295.3
	3.31	1.51	inside*	7.75	196.9	10.85	275.6	10.40	264.2

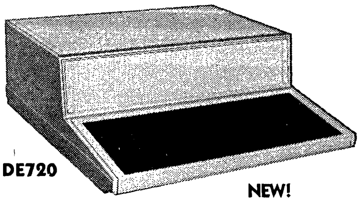
©PacTec

PacTec Systems Enclosures

Attractive . . . no tooling costs . . . off-the-shelf

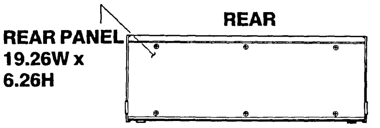
- Prototyping kits and production units
- Easily assembled
- Highly styled, rigid construction
- Built-in features simplify mounting and assembly
- Removable panels for quick internal access
- Inexpensive custom modifications
- Meets UL 94V-0 standards
- EMI/RFI shielding available
- Standard color—beige; custom colors and color combinations available

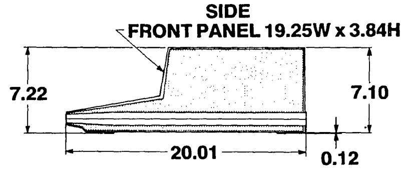
Desk Top Console

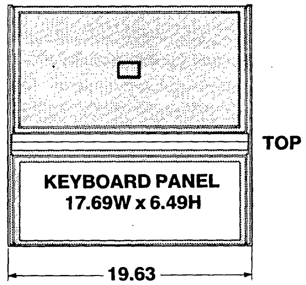


NEW!
For 1985—DE620—reduced size model. Call for information.

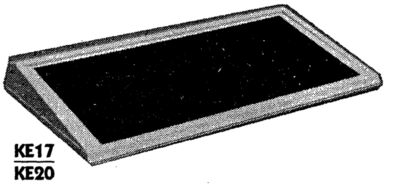
- Accommodates 5¼″ (U3) full-, half-, or quarter-rack card frames
- Available in custom widths
- All panels can be customized or modified


REAR
REAR PANEL
19.26W x
6.26H

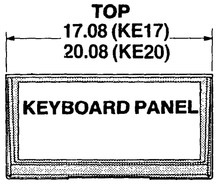

SIDE
FRONT PANEL 19.25W x 3.84H
7.22
7.10
20.01
0.12

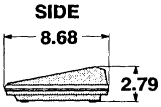

TOP
KEYBOARD PANEL
17.69W x 6.49H
19.63

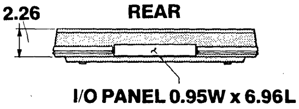
Keyboard Enclosures



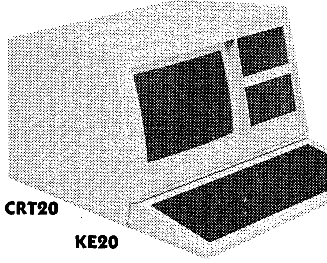
- Compatible with all standard keyboard formats
- Keyboard and I/O panels available as modified blanks or custom molded panels


TOP
17.08 (KE17)
20.08 (KE20)
KEYBOARD PANEL

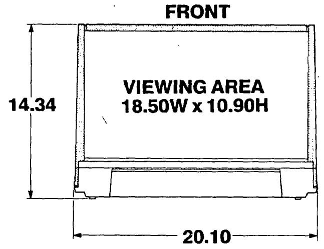

SIDE
8.68
2.79

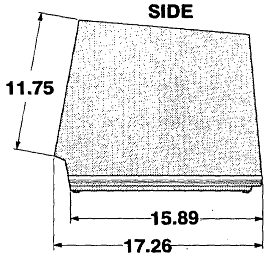

2.26
REAR
I/O PANEL 0.95W x 6.96L

CRT Terminal Housing



- Accommodates most common monitor and disc drive combinations
- Removable subchassis for quick assembly and service
- Ventilation slots—standard option


FRONT
14.34
VIEWING AREA
18.50W x 10.90H
20.10


SIDE
11.75
15.89
17.26

PacTec Systems Enclosures are highly styled units that offer flexible packaging. Molded-through color and durability give the enclosures long-lasting attractiveness. They are compatible with our standard electronics line, enabling you to design a family look for modems, power supplies, and interface hardware at a cost far below custom-molded enclosures.

PacTec can customize your enclosure with design modifications, custom front and rear panels, and special trim and finishes that will save you secondary finishing operations and give you a truly distinctive appearance. Many low-cost options and accessories are available.

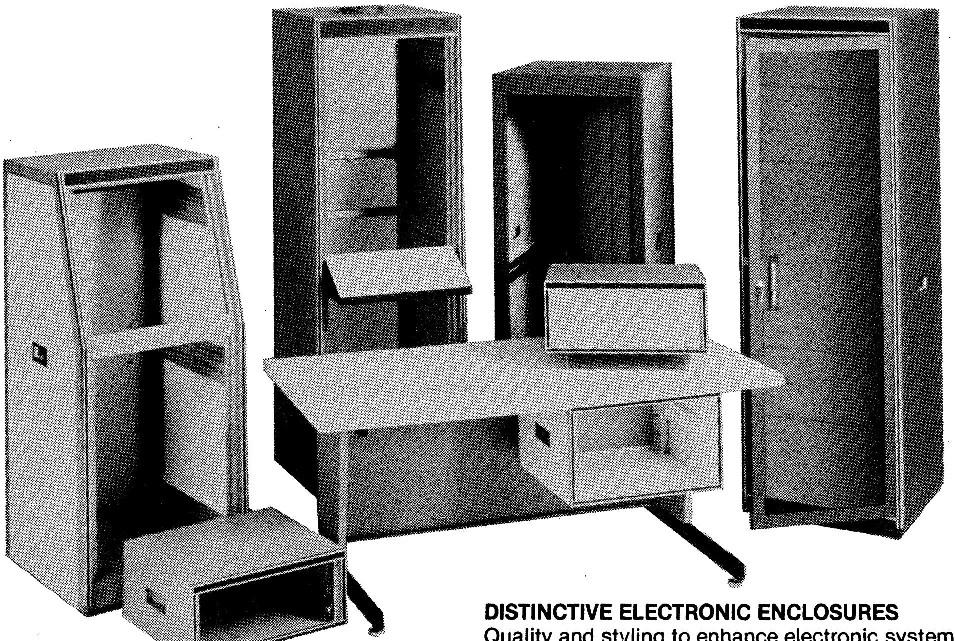
Prototyping kits include all panel blanks and assembly hardware; production units provided to meet your specifications. PacTec offers packaging design assistance and maintains single source responsibility for total control from design through production.

Additional new products are currently being developed. Consult the factory for availability.

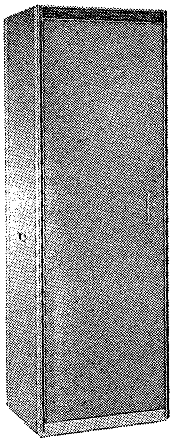
PACTEC® Corp.

Subsidiary of LaFrance Corp. Enterprise and Executive Avenues Philadelphia, PA 19153 Telephone (215) 365-8400 Telex: 506082

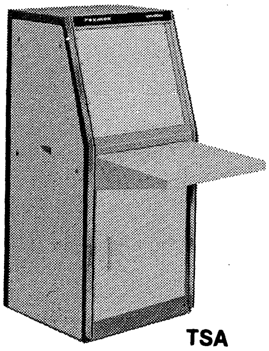
PREMIER CABINETS



DISTINCTIVE ELECTRONIC ENCLOSURES
Quality and styling to enhance electronic systems using Premier standard units

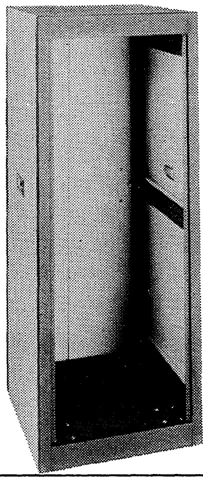


TVA



TSA

TRIMLINE SERIES
Welded modular units with extruded aluminum trim and decorative vinyl inlays. Available in 64 sizes.



SVA

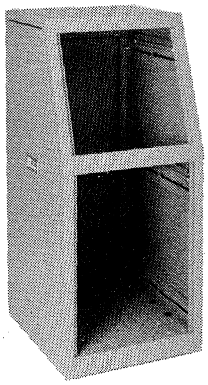
SPARTAN SERIES

19" and 24" (EIA) Standard Rack Widths

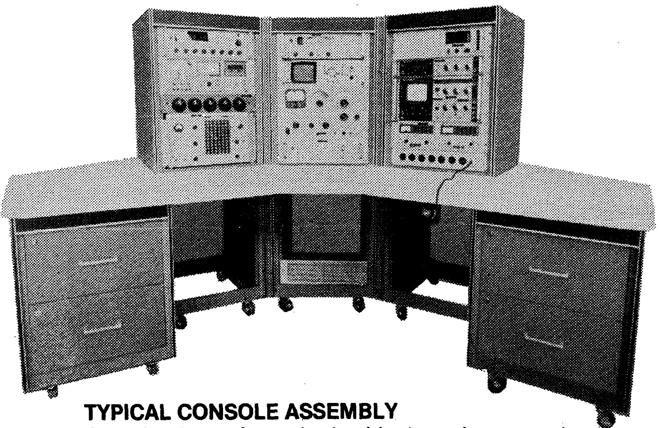
7 Panel Heights from 21" to 77"

4 Depths from 18" to 30"

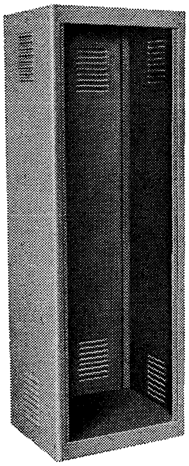
Available in 64 sizes



SSA

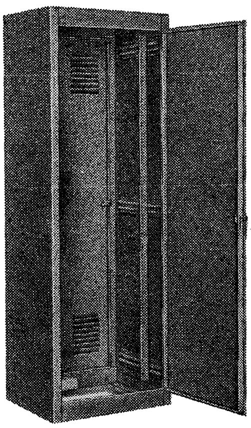


TYPICAL CONSOLE ASSEMBLY
Combinations of standard cabinets and accessories offer an endless variety of easily assembled systems for specialized applications.



R SERIES

RMX, FDX & R SERIES
Solid side skin cabinets for economical applications. RMX & FDX are welded units, R series are knock-down units.



FDX SERIES

CONSOLES & CASES

Premier Metal Products Co. has specialized in sheet metal fabrication of electronic enclosures and accessories for over 35 years.

Premier Enclosures offer maximum flexibility, adaptability and esthetic values. The extensive range of standard units in various widths, depths, heights and shapes available, offer the variety of combinations and configurations necessary for modern packaging systems.

Modified standard and special designs are manufactured on order. Our home office staff and field representatives are available for assistance in solving customer needs in the most efficient manner possible.

FULL LINE CATALOG AVAILABLE
(over 1500 items)

CATALOG CONTENTS

Trimline Series Modular Frames and Assemblies
Vertical & Sloped Front
Trim Options and Accessories
Wedge Frames for Consoles

Spartan Series Modular Frame & Assemblies
Vertical & Sloped Front

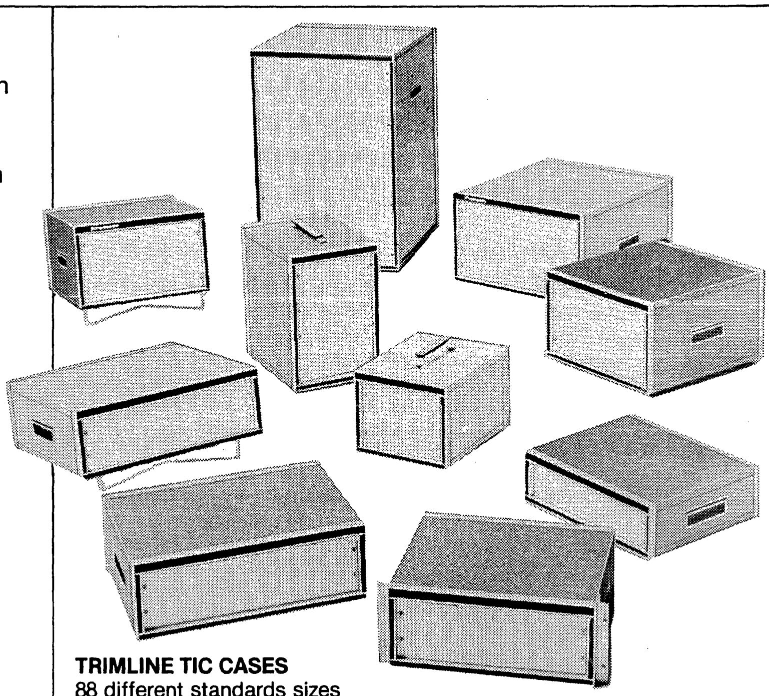
Trimline Instrument Cases & Accessories
EIA Standard Rack Panels
Chassis Slides, Blowers,
Fans & Accessories

Solid Side Cabinet Racks, Welded & KD
Open Channel Type Relay Racks
Sloped Front Instrument Cabinets
Desk Cabinets & Racks
Modular Vertical & Sloped
Front Cabinets & Accessories

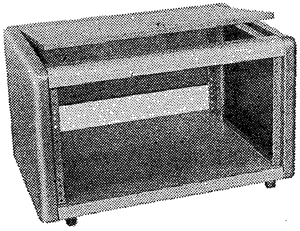
Turret Frames, Printed Circuit Card Frames & Guides, Shelves, Chassis Supports, Panel Handles, Outlet Strips, Casters, Cable Retractors, Misc. Hardware

Small cases, portable & utility, blank chassis and plates

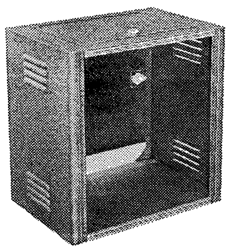
Modifications. Finish selector and color charts.



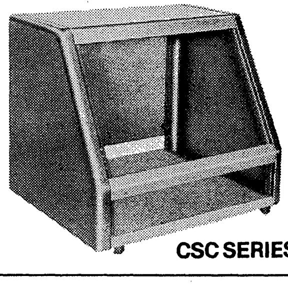
TRIMLINE TIC CASES
88 different standards sizes
11 panel heights, 3 depths, 3 widths.



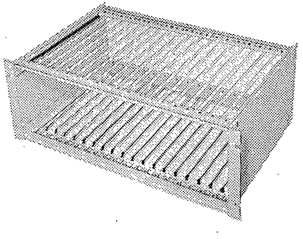
POR SERIES



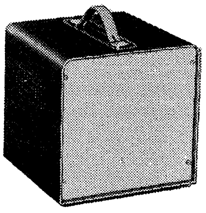
DCR SERIES



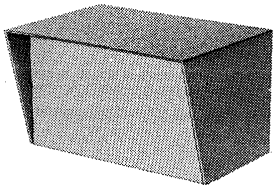
CSC SERIES



PCH SERIES



CC SERIES



SCC SERIES

PREMIER METAL PRODUCTS COMPANY
381 CANAL PLACE, BRONX, NY 10451 (212) 993-9200
16641 ORANGE WAY, FONTANA, CA 92335 (714) 829-3089

24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
62 CROSS REFERENCE CARDS
300 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
2800
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
TRW

ALL NEW with this edition of EEM

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Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

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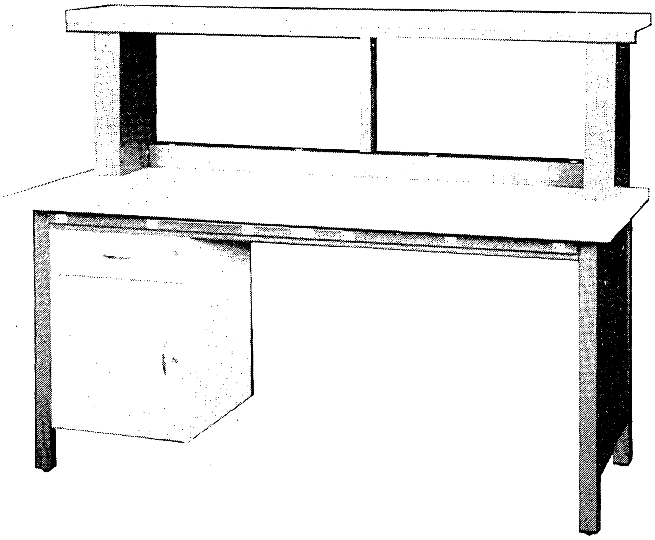
EEM FILE SYSTEM,

645 stewart ave., garden city, ny 11530

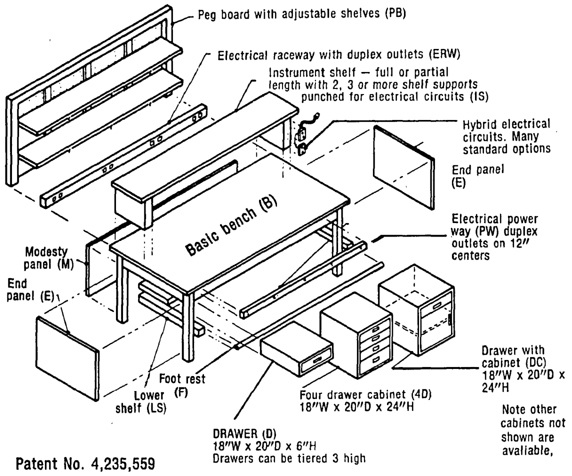
PRODUCTION INDUSTRIES, inc.
WORK STATIONS

Production Industries, Inc., maintains highest quality in modular work benches, accessories and cabinetry, most of which are interchangeable from series to series, making for a high degree of flexibility in both use and purchase. In low budget situations, bare benches with minimal electrical circuitry and only the most necessary cabinets can be purchased. Other options can be purchased at a later date for simple installation by the user. Look to Production Industries to achieve true versatility in Production, Laboratory, Test, Assembly and other electronic work bench systems.

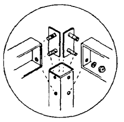
WORK MASTER



A strong, rigid work bench designed for rugged duty and support of heavy instruments. Factor of safety: 2:1 under distributed 1000 lb. load. Any length, depth or height available. Benches may be linked together using common legs to form continuous benches to any length.


Peg board with adjustable shelves (PB)
Electrical raceway with duplex outlets (ERW)
Instrument shelf — full or partial length with 2, 3 or more shelf supports punched for electrical circuits (IS)
Hybrid electrical circuits. Many standard options
End panel (E)
Electrical power way (PW) duplex outlets on 12″ centers
Basic bench (B)
Modesty panel (M)
End panel (E)
Foot rest
Lower shelf (LS)
(F)
Drawer with cabinet (DC) 18″W x 20″D x 24″H
Four drawer cabinet (4D) 18″W x 20″D x 24″H
DRAWER (D) 18″W x 20″D x 6″H Drawers can be tiered 3 high
Note other cabinets not shown are available.

Patent No. 4,235,559



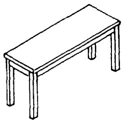
Leg to beam connection a pillar of strength

CUSTOM DESIGN YOUR OWN WORK BENCH

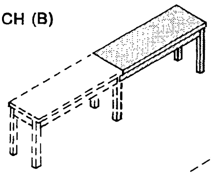
Select the standard modules and electrical circuits you need — add other modules and electrical circuits as needed.

16 STANDARD COLORS TO CHOOSE FROM

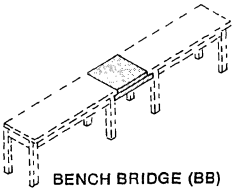
Note: Other modular components & electrical circuits, not shown, are available.



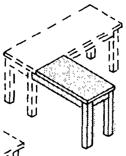
BASIC BENCH (B)



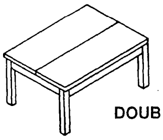
ADD-ON BENCH (A)



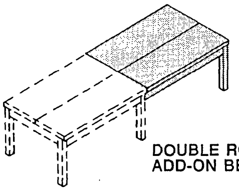
BENCH BRIDGE (BB)



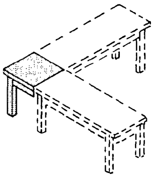
"L" RETURN OR "U" SHAPED (R)



DOUBLE ROW BENCH (DR)

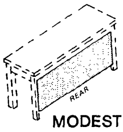


DOUBLE ROW ADD-ON BENCH (DRA)

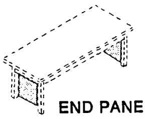


CORNER BENCH (CB)

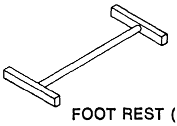
OPTIONAL ACCESSORIES:



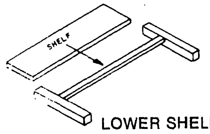
MODESTY PANEL (M)



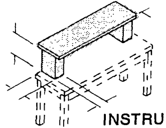
END PANEL (E)



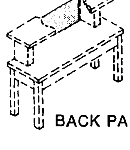
FOOT REST (F)



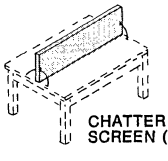
LOWER SHELF (LS)



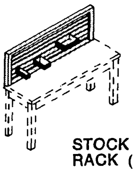
INSTRUMENTS SHELF WITH SHELF SUPPORTS (IS)



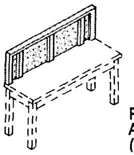
BACK PANEL (BP)



CHATTER SCREEN (CS)



STOCK BIN SUPPORT RACK (PBR)



PEG BOARD WITH ADJ. SHELF BRACKETS (SHELVES OPTIONAL) (PB)

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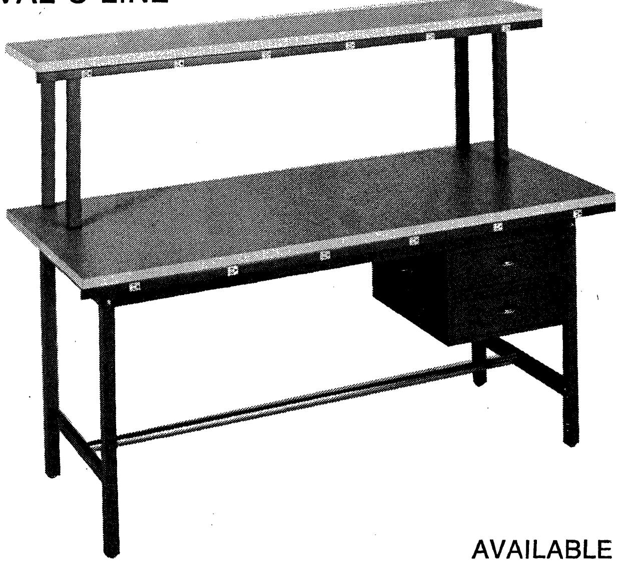
PRODUCTION INDUSTRIES, inc. WORK STATIONS

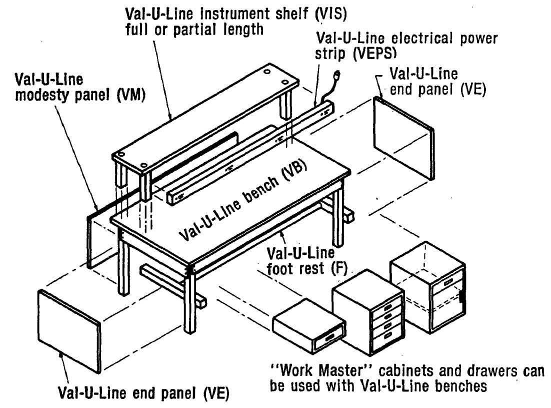
Production Industries, Inc., maintains highest quality in modular work benches, accessories and cabinetry, most of which are interchangeable from series to series, making for a high degree of flexibility in both use and purchase. In low budget situations, bare benches with minimal electrical circuitry and only the most necessary cabinets can be purchased. Other options can be purchased at a later date for simple installation by the user. Look to Production Industries to achieve true versatility in Production, Laboratory, Test, Assembly and other electronic work bench systems.

VAL-U-LINE



AVAILABLE
FOR IMMEDIATE DELIVERY

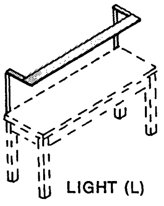
This sturdy, lighter weight utility bench is budget priced. In Military Blue with standard white top, this bench and certain basic accessories are available, K. D. only, for immediate shipment.


Val-U-Line instrument shelf (VIS) full or partial length
Val-U-Line electrical power strip (VEPS)
Val-U-Line modesty panel (VM)
Val-U-Line end panel (VE)
Val-U-Line bench (VB)
Val-U-Line foot rest (F)
"Work Master" cabinets and drawers can be used with Val-U-Line benches
Val-U-Line end panel (VE)

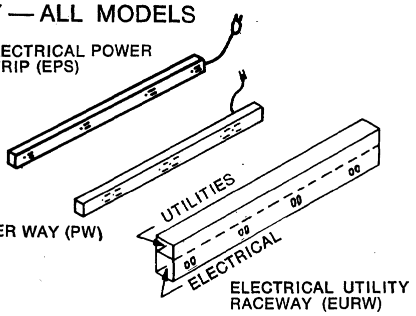
Patent No. 4,093,167

CUSTOM DESIGN YOUR OWN WORK BENCH
Select only the standard modules you need . . . add other modules as needed.
Standard color: Military blue (Fed spec. 25177). Tops and shelves are white texlin plastic (non-glare) laminated to 1¼ inch particle board. Self-edged on four sides.

ELECTRICAL CIRCUITRY — ALL MODELS



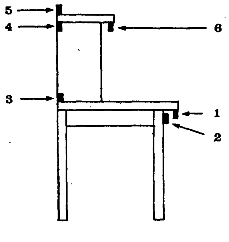
LIGHT (L)


UTILITIES
ELECTRICAL

ELECTRICAL POWER STRIP (EPS)

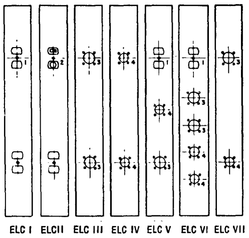
POWER WAY (PW)

ELECTRICAL UTILITY RACEWAY (EURW)



ERW, EPS, AND/OR PW MTG.
SPECIFY AS REQUIRED

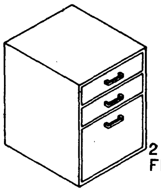
STANDARD ELECTRICAL CIRCUITRY COMBINATIONS INSTALLED IN SHELF SUPPORTS


ELC I
ELCII
ELC III
ELC IV
ELC V
ELC VI
ELC VII

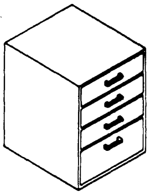
Standard shelf support combinations

Note: Same electrical circuitry combinations available in raceways. Consult factory.

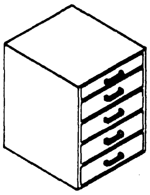
CABINETS — ALL MODELS



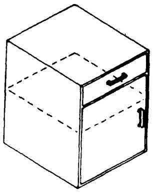
2 DRAWERS W/ FILE DRAWER (2DF)



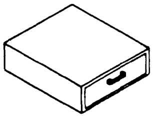
4-DRAWER CABINET (4D)



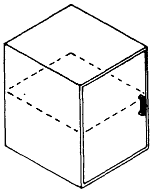
5-DRAWER CABINET (5D)



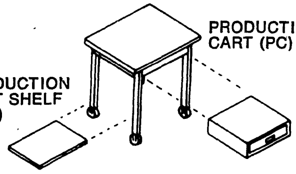
DRAWER W/ CABINET (DC)



DRAWER (D)

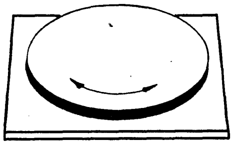


CABINET (C)



PRODUCTION CART (PC)

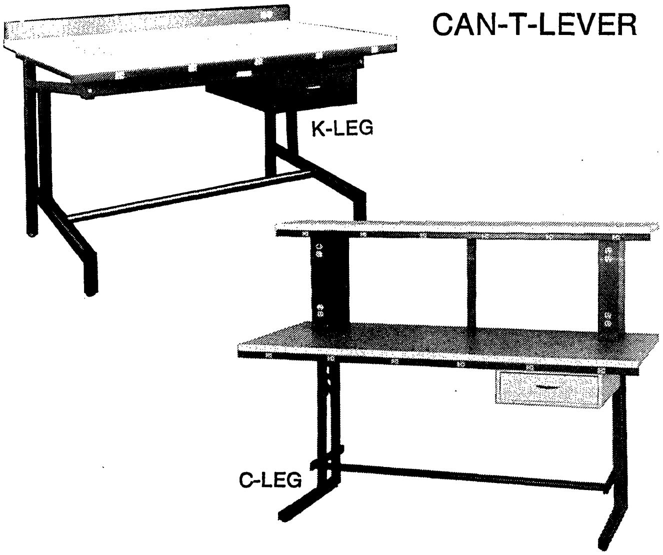
PRODUCTION CART SHELF (PCS)



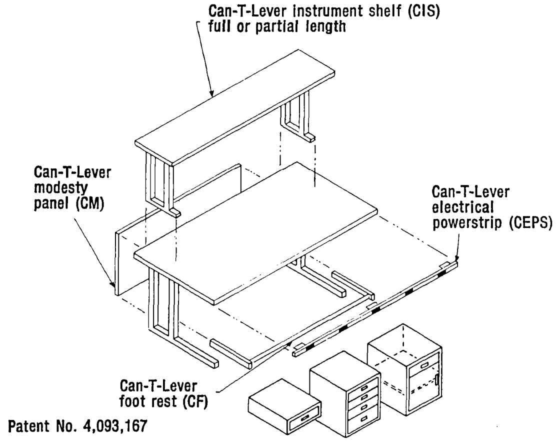
TURNTABLES

PRODUCTION INDUSTRIES, inc.
WORK STATIONS

CAN-T-LEVER



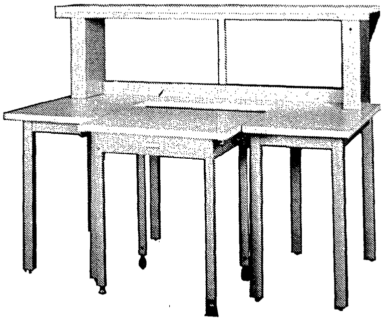
This work bench is designed for production and utility uses where continuous work stations, unimpeded by leg uprights are required. Available with K-style or C-style all-welded leg configuration.


Can-T-Lever instrument shelf (CIS) full or partial length
Can-T-Lever modesty panel (CM)
Can-T-Lever electrical powerstrip (CEPS)
Can-T-Lever foot rest (CF)

Patent No. 4,093,167

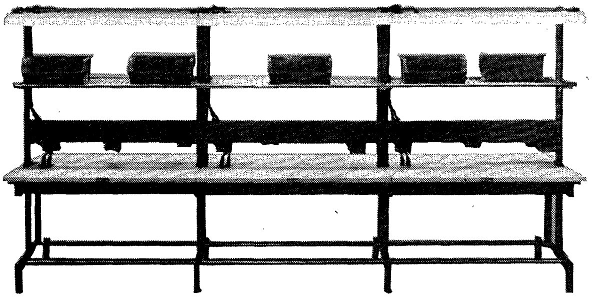
"Workmaster" cabinets and drawers can be used with Can-T-Lever benches.

CUSTOM DESIGN YOUR OWN WORK BENCH
Select only the standard modules you need . . . add other modules as needed. Sixteen standard colors from which to choose. Tops and shelves are white texlin plastic (non-glare linen pattern) laminated to 1¼-inch particle board. Self-edged on four sides.



SYSTEMS BENCH

Heavy duty benches designed for use with Production Carts. Set an item in production for work and movement from one work station to another without lifting or changing surfaces. Cart self-levels when rolled into track in bench. Production Carts may be used in lieu of conveyors in production systems. The flexibility of arrangement and staging for production is unlimited.



PRODUCTION MASTER

Double-sided bench with the benefit of can-t-lever construction. Particularly suited for assembly purposes. May stand alone or be joined together using common legs to form continuous benches to any length.

SPECIFICATIONS:

BENCH CONSTRUCTION: Heavy gauge steel tubing or heavy gauge sheet metal with baked on enamel finish. 16 standard colors. Custom colors available. All benches have sturdy leveler or feet, 1½-inch in diameter which provide 1 inch of adjustability.

BENCH FRAME:

WORKMASTER —
Legs are heavy gauge 2-inch square tubing, bolted to beams of heavy gauge 3-inch channel. All welded construction also available.

VAL-U-LINE —
Legs are of heavy gauge 1½-inch square tubing, bolted to 4-inch channel.

CAN-T-LEVER —
Two heavy gauge, 4-inch channel beams run full length between all-welded, 1½-inch tubing leg assemblies to form a box to provide solid strength and rigidity.

SYSTEMS BENCH —
Same construction as workmaster.

PRODUCTION CARTS —
Same construction as Val-U-Line.

PRODUCTION MASTER—
Same construction as Can-T-Lever.

TOPS AND SHELVES: High grade thermosetting plastic (to NEMA standards) laminated under pressure to high density particle board, **1¼-inch thick, self-edged on four sides.** Backing sheet on shelves, optional on tops. Laminated all sides for clean room environment. STATIC ELIMINATION surfaces available. Standard color: off-white. A large number of other colors and patterns are available. Other top materials as well as backsplashes, backstops, no-drip or bull-nose edges, rounded corners, metal trim, hardwood trim, cutouts, sinks, etc. also available.

ELECTRICAL ACCESSORIES: Standard circuits are 115V, 60 Hz AC. Standard circuit capacity is 15A, with individual outlets rated at 15A. In addition to standard electrical options, factory is prepared to undertake practically any special wiring requirement. In most cases, standard electrical components, slightly modified, are sufficient (208V, 250V, 3 ph, etc.). Consult factory. If particular components are desired, specify exact model numbers and brand names.

SHIPPING AND PRICING: Benches are normally shipped set up, blanket wrapped, to California locations and "knocked down" (K.D.) to other areas, packaged to ensure safe arrival. Components, including electrical connections, are easily assembled by customer personnel. Benches may be ordered set up at no additional cost for any area. Prices are F.O.B. Pacoima, California.

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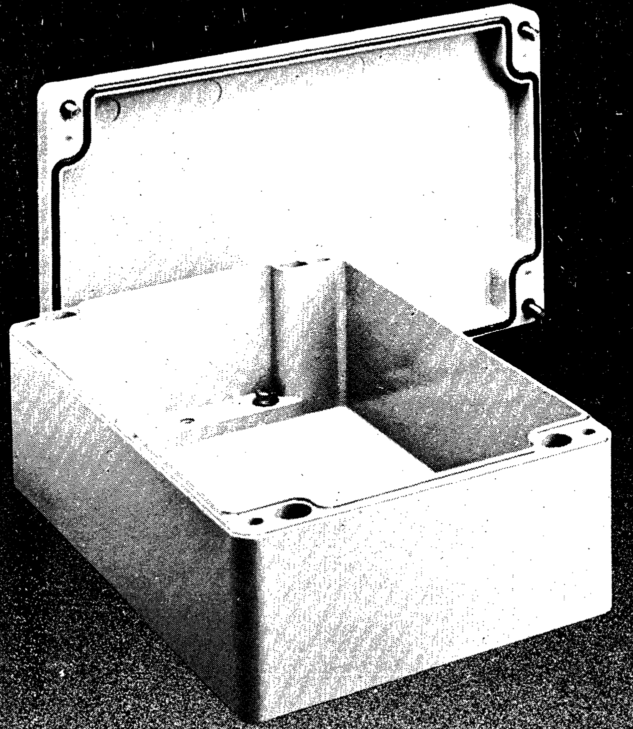
ROSE



Standard Enclosures

The best reputation in the market

Watertight standard enclosures made of aluminum, polyester, polycarbonate & ABS

• aluminum	34 sizes
• polycarbonate	23 sizes
• polyester	29 sizes
• ABS	24 sizes

- meets or exceeds NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12 & 13
- watertight aluminum boxes available in RFI/irridite for military design
- captive lid screws/stainless steel
- machining to print
- special corrosion proof aluminum version available for marine/salt water environments
- call for 60 page standard enclosures catalog aluminum, polyester, polycarbonate, & ABS

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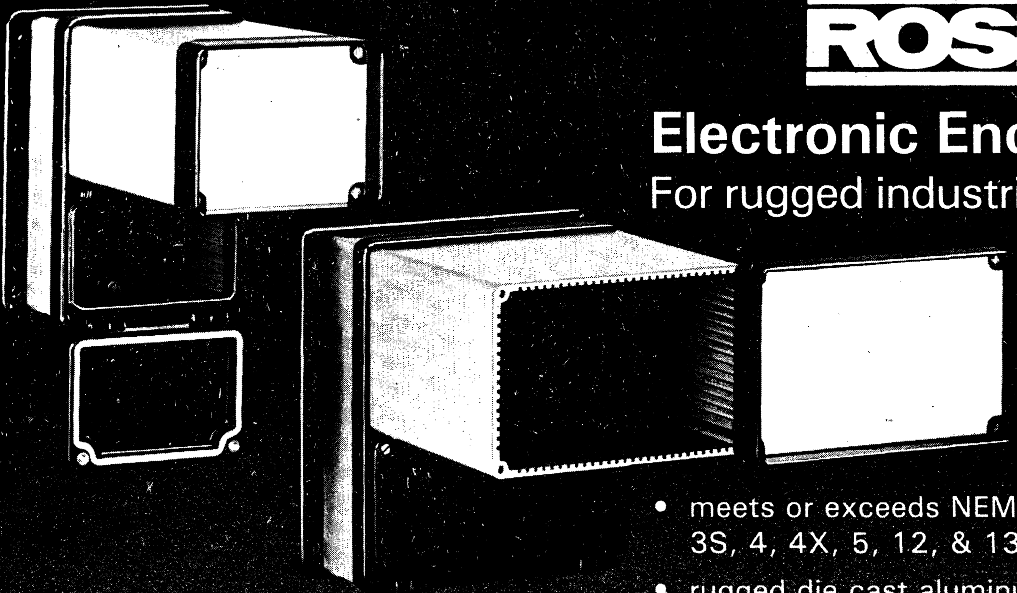
ROSE

Electronic Enclosures

For rugged industrial controls



- meets or exceeds NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, & 13
- rugged die cast aluminum covers
- molded euro-card PC board slots, lower watertight terminal compartment
- optional wall mounting bracket
- call for 52 page "Electronic Enclosures" catalog

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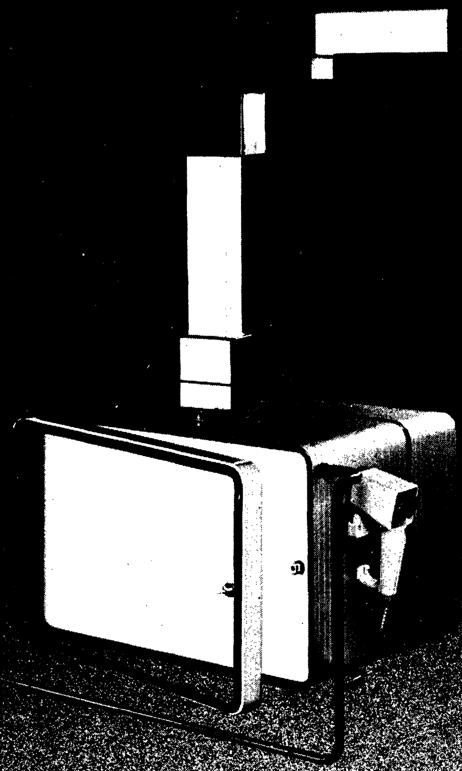

ROSE

Control Panel Systems

Off the shelf control boxes & suspension arm components

- watertight enclosure body of extruded aluminum meets NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12 & 13
- 20 standard enclosure sizes plus depth options
- suspension components in 3 sizes (watertight)
- suspension components are rugged die cast aluminum
- 50 page "Machine Control Systems" catalog

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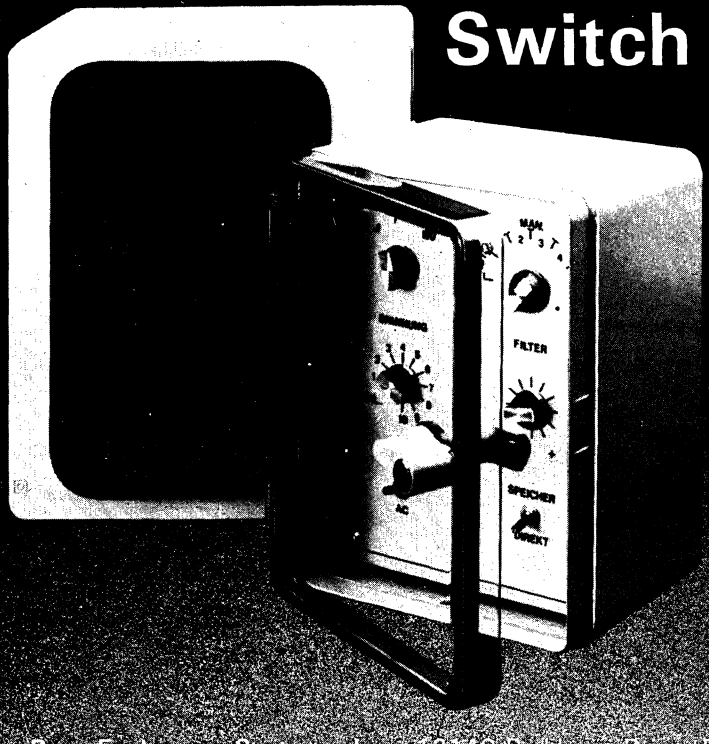
ROSE

Switch Gear Cabinets



- meets NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, & 13
- impact resistant
- totally corrossion resistant to salt water
- compression molded polyester for outdoor hostile environments
- ABS for indoor application
- safety glass or clear plastic doors, options available for all models
- full details on all sizes, call for 20 page "Switch Gear Cabinets" catalog

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19" Systems for Electronics Packaging

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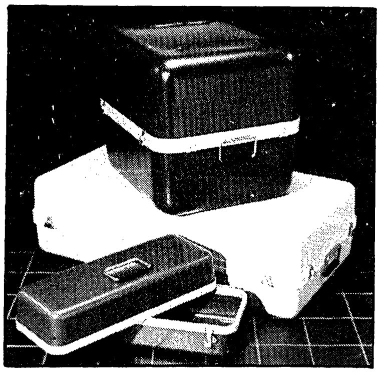
Quality Protection for Advanced Technology

If it measures, computes, records or controls...Skydyne makes it portable.

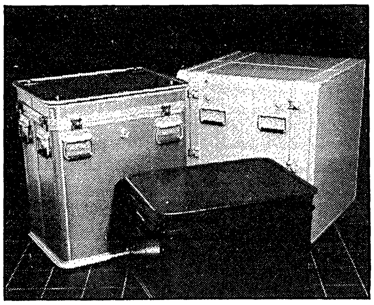
Standard Fiberglass Cases—Excellent commercial/shipping containers. Can be modified to meet mil-specs or other specific requirements. 34 sizes.

Standard Mounting Flange Cases—Adapt display or test equipment to field use with a standard, built-in mounting flange. 38 sizes.

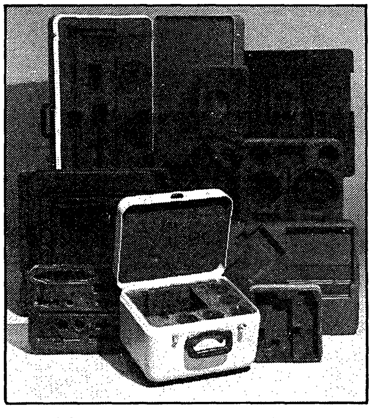
Standard Econoglass Cases—An economical fiberglass carrying case. Has standard mounting clips available for easy panel installation. 28 sizes.



Standard ABS Cases—Excellent commercial/shipping containers. Combine high strength with light weight. Easily modified. 33 sizes.



Aluminum Sandwich Cases—Skydyne can make any size case using a unique aluminum sandwich construction without expensive tooling costs.



Foam Interiors—For additional equipment protection, Skydyne can supply virtually any type of foam insert to meet your requirements.

Since 1938, Skydyne has met the growing need for durable, lightweight protective enclosures. Keeping pace with today's advancing technologies, Skydyne products are found in a wide variety of applications including Fiberoptics, Geophysical Instruments, Portable Computers, Pollution Control, Meteorological Instruments, Aircraft Maintenance, Aerospace and Military Electronics.

Customers in these and many other fields have come to call on Skydyne when quality packaging is required for portable equipment. Commercial or military; prototype or production...Skydyne's engineering staff will work with you from preliminary design through delivery. They have the ability and know-how to solve the most difficult of packaging problems. Call or write for more information, today.

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EXCLUSIVELY FOR THE ELECTRONICS INDUSTRY

Computer aided, efficient manufacturing technique makes available an unlimited variety of enclosures to exact specifications, with turn around times as fast as 24 hours, without the 'off the shelf' or molded look, and advantages as follows:

- Every size and configuration
- Thickness from .025 .250
- Finishes from flat surface mirror polish to dull
- Surface coating: Stainless, Nickel Compound, Gold, Titanium, Polyurethane or Epoxy Paint (all colors)
- Substrate: Glass Epoxy or Foam Epoxy
- Density from 50% to 70% of Aluminum
- Silk Screen logos and legends
- Odd shapes
- Perforation, cut outs, holes, and anchors to specification
- Encapsulation shells
- Encapsulation epoxies and thermal conductors
- RFI shielding
- Terminals, connectors, cords and appliances affixed
- Forced draft cooling systems, heat sinks and pipes made integral

You might consider* SIDAC *enclosures for your particular requirements, such as: highly attractive enclosures, fast turn around time, special sizes and shapes, encapsulated parts, engineered cooling or for your extra-special applications.

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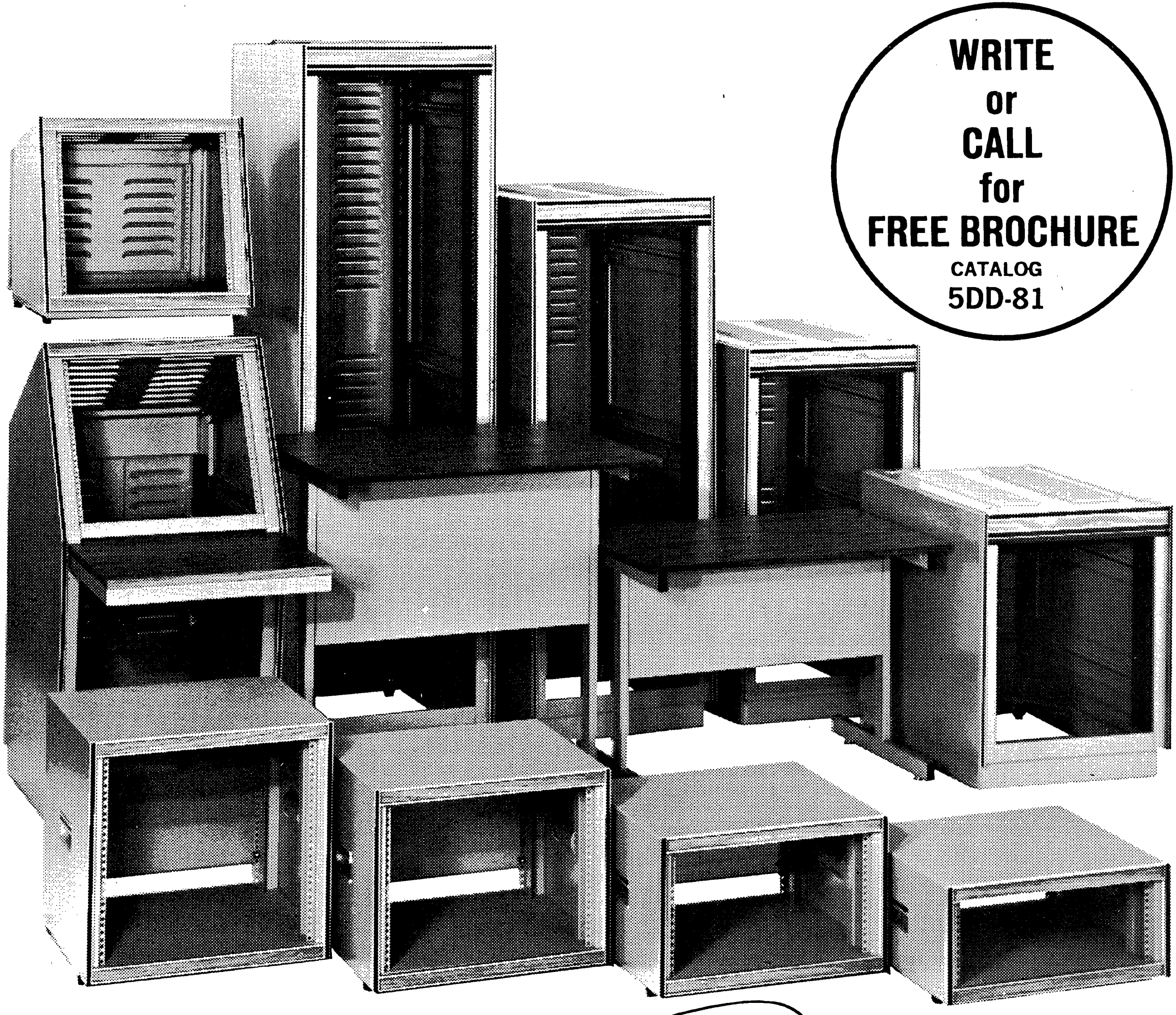

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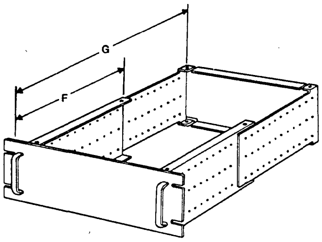
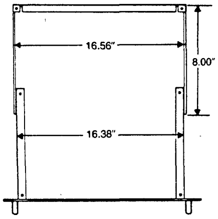
THE STRONGBOX™

E-SERIES EXTENSION KITS

E-Series depth Extension kits are user adjustable in ½″ increments for intermediate and extended chassis depth. Thus any chassis depth from 9½″ to 26″ is available off-the-shelf.

E-Series kits contain 2 Extension Side Panels and 2 Extension Perforated Covers.





EXTENSION RANGE

Kit Number	F	+E-Series = G
SB9-	9.50″	9.50″ - 16.50″
SB12-	12.00″	12.00″ - 19.00″
SB-	19.00″	19.00″ - 26.00″

E-SERIES DEPTH EXTENSION KITS

Extension Kit Number	Mates With			Price
E-3	SB9-3	SB12-3	SB-3	125.00
E-5	SB9-5	SB12-5	SB-5	128.00
E-7	SB9-7	SB12-7	SB-7	131.50
E-8	SB9-8	SB12-8	SB-8	132.50

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each, Solid and Perforated cover (deduct $10.00 from kit price).

PARTS

Order SB9, SB12, SB Series parts from this table. Parts in each column mate with others of same length.

	KIT DEPTH	KIT DASH NUMBER -3	-5	-7	-8
Front Panel	ALL	FP-3	FP-5	FP-7	FP-8
Handle	ALL	SBH-3	SBH-5	SBH-7	SBH-8
Interior Mounting Panel	ALL	IMP-3	IMP-5	IMP-7	IMP-8
Side Panel	SB9-	SP9-3	SP9-5	SP9-7	SP9-8
	SB12-	SP12-3	SP12-5	SP12-7	SP12-8
	SB-	SP-3	SP-5	SP-7	SP-8
Perforated Cover	SB9-	PAC-9	PAC-9	PAC-9	PAC-9
	SB12-	PAC-12	PAC-12	PAC-12	PAC-12
	SB-	PAC	PAC	PAC	PAC
Solid Cover	SB9-	SAC-9	SAC-9	SAC-9	SAC-9
	SB12-	SAC-12	SAC-12	SAC-12	SAC-12
	SB-	SAC	SAC	SAC	SAC
Bottom Mounting Plate	SB9-	IMP-8	IMP-8	IMP-8	IMP-8
	SB12-	BMP-12	BMP-12	BMP-12	BMP-12
	SB-	BMP	BMP	BMP	BMP
Heavy Cover Plate	SB9-	HCP-9	HCP-9	HCP-9	HCP-9
	SB12-	HCP-12	HCP-12	HCP-12	HCP-12
	SB-	HCP	HCP	HCP	HCP
Solid Bearing Slide	SB9-	SLD-9/12	SLD-9/12	SLD-9/12	SLD-9/12
	SB12-	SLD-9/12	SLD-9/12	SLD-9/12	SLD-9/12
	SB-	SLD	SLD	SLD	SLD
Depth Extension Kit	ALL	E-3	E-5	E-7	E-9

RACK-MOUNT CHASSIS KITS

Kit Dash Number	Number of Rack Units	Front Panel Height	Price SB9	SB12	SB
−3	2	3.47″	198.00	204.00	213.00
−5	3	5.22″	203.50	209.50	218.50
−7	4	6.97″	212.50	218.50	227.50
−8	5	8.72″	219.00	225.00	234.00

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each Solid and Perforated cover (deduct $10.00 from kit price).

Detailed drawings available on request. Other sizes available; call for quote.

Prices subject to change.
Order Bottom Mounting Plates, Slides and additional Interior Mounting Panels as separate items.

STRONGBOX™ P.O. BOX 84508 / LOS ANGELES, CA 90073
(213) 204-0472

THE STRONGBOX™

HEAVY-DUTY RACK-MOUNT CHASSIS

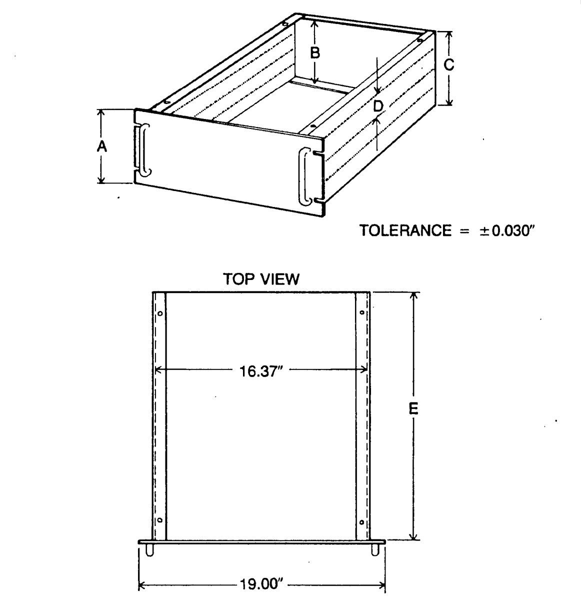
SB9, SB12, SB SERIES

Four EIA Front Panel heights: 3½", 5¼", 7" and 8¾" (3, 5, 7, 8 nominal).

Three standard depths: 9½" (SB9-Series), 12" (SB12-Series) and 19" (SB-Series).

Components can be ordered as complete kits or by the part. See kit and parts tables. Kits and parts come with all required captive machine hardware. Front, Side and Mounting Panels are clear iridited. Covers and Handles are clear anodized. All surfaces are satin grained.

Each kit contains 1 Front Panel, 2 Handles, 2 Side Panels, 2 Perforated Covers and 1 Interior Mounting Panel.



SPECIFICATIONS

PARTS

FRONT PANEL — 0.125" thick, 19.00" wide. 6061-T6 aluminum. EIA notched.

SIDE PANEL — 0.090" thick, 5052-H32 aluminum. Three rows of holes on ½" centers for mounting panels, card cages, etc.

INTERIOR MOUNTING PANEL — 0.090" thick, 16.37" wide. 5052-H32 aluminum. For use as a rear panel or vertical or horizontal mounting panel.

PERFORATED ALUMINUM COVER — 0.063" thick. 16.85" wide. 3003 aluminum. Assembles with four screws and captive stainless steel nuts.

STRONGBOX™ HANDLE — Standard aluminum handle.

ACCESSORIES

BOTTOM MOUNTING PLATE — 0.090" thick, 16.37" wide. 5052-H32 aluminum. For mounting heavy components. Clear iridite finish.

SOLID BEARING SLIDE — .38" thick. Cad plated steel. Adjustable brackets for assembling to EIA tapped-rail.

SOLID ALUMINUM COVER — 0.063" thick, 16.85" wide. 5052-H32 aluminum. Clear anodize finish.

HEAVY COVER PLATE — 0.090" thick, 16.88" wide. 5052-H32 aluminum. For mounting heavy components flush with chassis bottom. Clear iridite finish.

Detailed drawings available on request. Other sizes available; call for quote.

DIMENSIONS

Kit Number	A	B	C	D	E
SB9-3	3.47	3.09	3.15	0.75	9.50
SB9-5	5.22	4.84	4.90	1.50	9.50
SB9-7	6.97	6.59	6.65	2.00	9.50
SB9-8	8.72	8.34	8.40	3.00	9.50
SB12-3	3.47	3.09	3.15	0.75	12.00
SB12-5	5.22	4.84	4.90	1.50	12.00
SB12-7	6.97	6.59	6.65	2.00	12.00
SB12-8	8.72	8.34	8.40	3.00	12.00
SB-3	3.47	3.09	3.15	0.75	19.00
SB-5	5.22	4.84	4.90	1.50	19.00
SB-7	6.97	6.59	6.65	2.00	19.00
SB-8	8.72	8.34	8.40	3.00	19.00

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MINIGLOSSARY
ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise.* The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

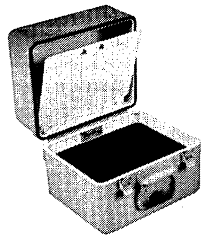
Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

Watertight Instrument Protection

- ALUMINUM
- PORTABLE
- HEAVY DUTY

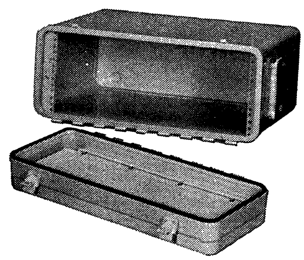


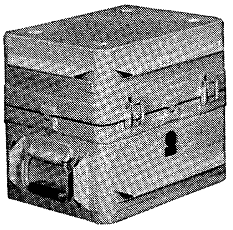
Watertight Cases

TA manufactures over 60 standard case sizes from 5″ × 9″ to 24″ × 42″ and can fabricate cases to custom sizes with no tooling charges. All TA watertight cases utilize the unique "Chevron Seal" to insure no leaks when submerged under 3 feet of water for one hour.

Consoliners for 19″ Rack Panels

TA consoliners mount 19″ NEMA/EIA rack panels from 5¼″ to 26¼″ high. Available with single or dual covers for access to rear connectors and controls, as well as tray compartments in one or both covers for accessory storage.



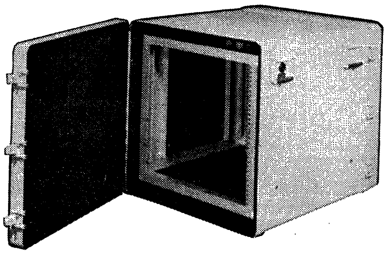


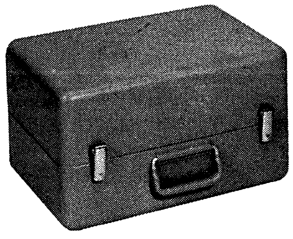
Military Cases

TA military cases are designed to meet or exceed the rigorous demands of applicable specifications such as MIL-C-4150, MIL-T-21200, MIL-T-28800, MIL-T-945 and MIL-C-4734 as well as MIL-STD-108 and MIL-STD-810. TA has supplied cases to one or more of these specifications to most aerospace prime contractors.

Isoliners

TA cases, with shock-mounted internal frames to accommodate 19″ NEMA/EIA panel-mounted equipment, absorb shock and vibration while still maintaining watertight integrity. Standard features include dual covers, automatic breather valves, and choice of bottom feet, casters, or fork-lift skids.





Econ-alum

Lightweight aluminum cases using a joggle interface to yield economical drip-proof transit cases. Recommended for light to medium-duty cases where submergence under water is not a requirement.

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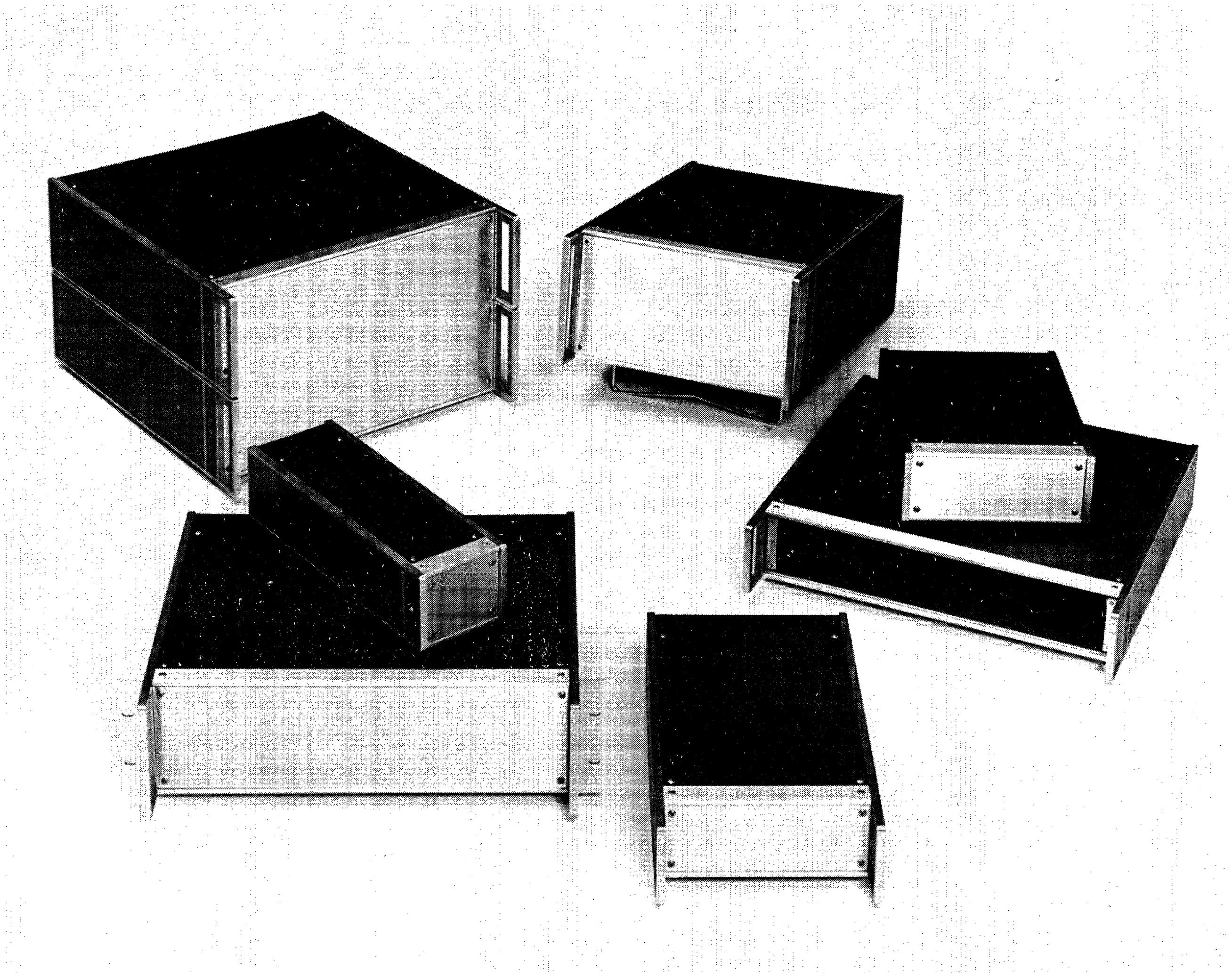
Instrument Enclosures



Available With or Without Handles

Easily Assembled

Sliding Top and Bottom Covers for Maximum Accessibility

Convenient Side Frame Mounting Hole Pattern

Will Accept Your Custom Removable Front and Rear Panels

Standard Colors — Black, Brown and Blue

Over 100 Standard Models Available

The BETA-LINE Series enclosures offer the ultimate in quality and versatility and provide an extensive range of standard packaging dimensions. Rugged die cast aluminum side frames are uniquely engineered to accommodate the latest modular construction. The top and bottom as well as the side covers are easily removed for quick internal access. The beautifully finished side frames and vinyl clad aluminum covers combine to produce a superbly crafted enclosure. Standard vinyl colors include blue, black and brown. A full complement of optional accessories include instrument bails, rack mounting kits, rack mounting slides and aluminum front or rear panels. Rack mounting complies with MIL-STD-189. A retractable instrument bail is available for bench mounting applications. The flexible design of these enclosures permits us to provide customized enclosures for your special requirements.

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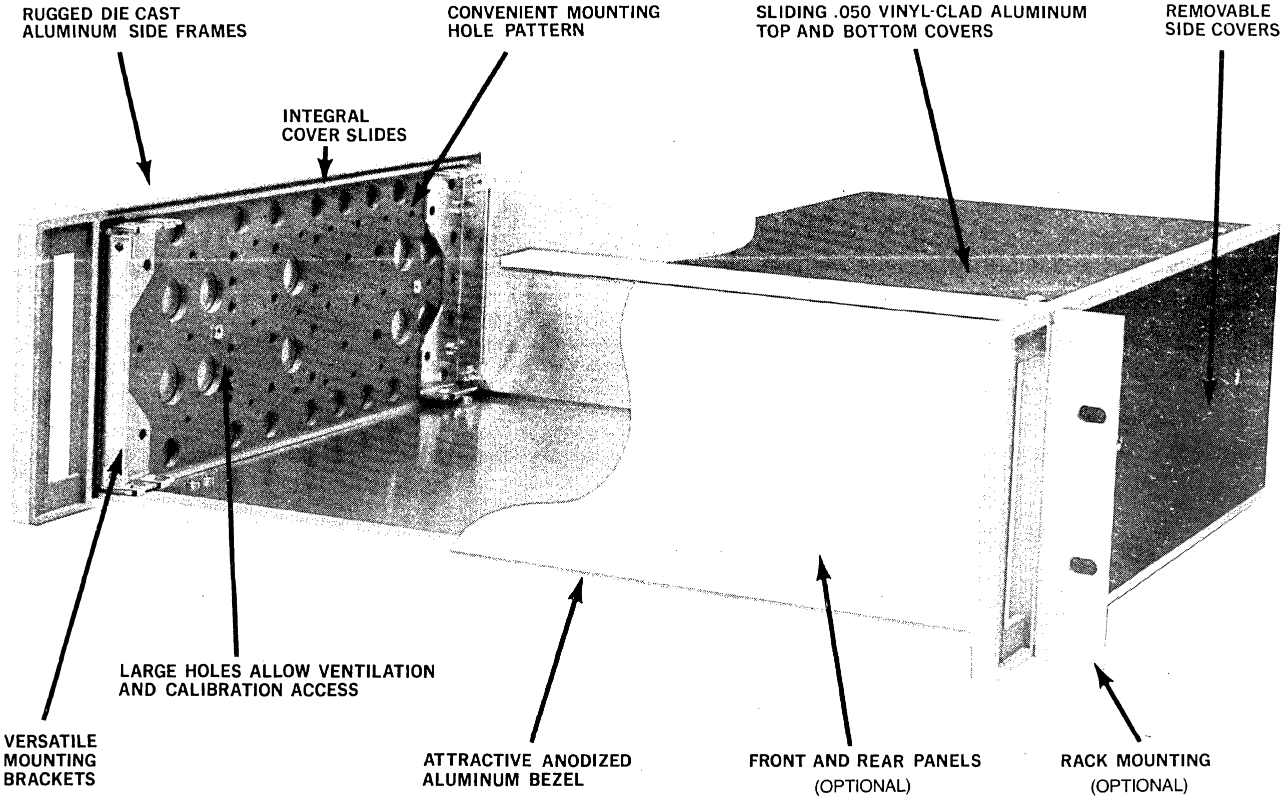
TDJ Company, Inc.

Instrument Enclosures


RUGGED DIE CAST ALUMINUM SIDE FRAMES
CONVENIENT MOUNTING HOLE PATTERN
SLIDING .050 VINYL-CLAD ALUMINUM TOP AND BOTTOM COVERS
REMOVABLE SIDE COVERS
INTEGRAL COVER SLIDES
LARGE HOLES ALLOW VENTILATION AND CALIBRATION ACCESS
VERSATILE MOUNTING BRACKETS
ATTRACTIVE ANODIZED ALUMINUM BEZEL
FRONT AND REAR PANELS (OPTIONAL)
RACK MOUNTING (OPTIONAL)

Model number is determined by outside dimensions of enclosure. Example for Model **B-350-13-1700** is:

B 350-13-1700 H

3.5 inches High
13.0 Inches Deep
17.0 Inches Wide
Add "H" to Model No. to indicate "With Handle"

3.5 Inch Height	5.25 Inch Height	7 Inch Height	8.75 Inch Height
B-350-13-1700H	B-525-13-1700H	B-S700-13-1700H	B-S875-13-1700H
B-350-13-1275	B-525-13-1275	B-S700-13-1275	B-S875-13-1275
B-350-13-0850	B-525-13-0850	B-S700-13-0850	B-S875-13-0850
B-350-13-0425	B-525-13-0425	B-S700-13-0425	B-S875-15-1700H
B-350-15-1700H	B-525-15-1700H	B-S700-15-1700H	B-S875-15-1275
B-350-15-1275	B-525-15-1275	B-S700-15-1275	B-S875-15-0850
B-350-15-0850	B-525-15-0850	B-S700-15-0850	B-S875-17-1700H
B-350-15-0425	B-525-15-0425	B-700-17-1700H	B-S875-17-1275
B-350-17-1700H	B-525-17-1700H	B-700-17-1275	B-S875-17-0850
B-350-17-1275	B-525-17-1275	B-700-17-0850	
B-350-17-0850	B-525-17-0850		
	B-525-21-1700H		
	B-525-21-1275		
	B-525-21-0850		

10.5 Inch Height	12.25 Inch Height	14 Inch Height	15.75 Inch Height
B-S1050-13-1700H	B-S1225-13-1700H	B-S1400-13-1700H	B-S1575-17-1700
B-S1050-13-1275	B-S1225-13-1275	B-S1400-13-1275	B-S1575-17-1275
B-S1050-13-0850	B-S1225-13-0850	B-S1400-13-0850	B-S1575-17-0850
B-S1050-15-1700H	B-S1225-15-1700H	B-S1400-15-1700H	B-S1575-21-1700
B-S1050-15-1275	B-S1225-15-1275	B-S1400-15-1275	B-S1575-21-1275
B-S1050-15-0850	B-S1225-15-0850	B-S1400-15-0850	B-S1575-21-0850
B-S1050-17-1700H	B-S1225-17-1700H	B-S1400-17-1700H	
B-S1050-17-1275	B-S1225-17-1275	B-S1400-17-1275	
B-S1050-17-0850	B-S1225-17-0850	B-S1400-17-0850	
B-S1050-21-1700H			
B-S1050-21-1275			
B-S1050-21-0850			

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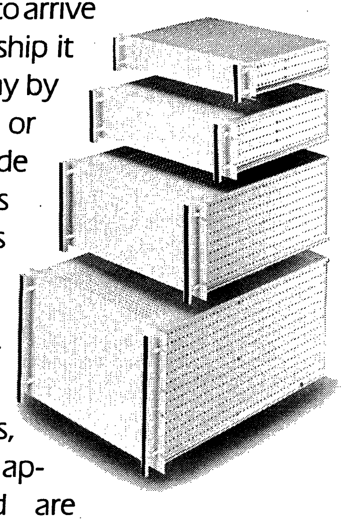
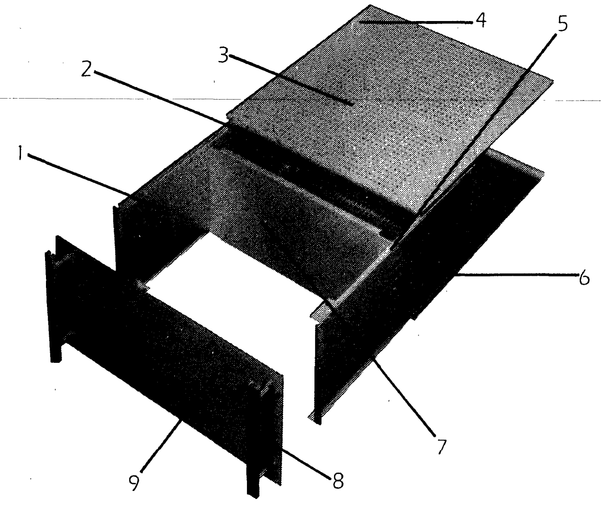
We are more than a manufacturer of

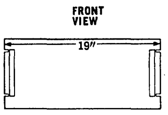
ready-made rack-mounting enclosures, we are your SUPPORT GROUP. *Before you buy* we help you select the right parts for your application, out of the $10^{10}+n$ combinations that can be assembled from our shelves. We're happy to furnish mechanical drawings, specs, and quotations whenever you ask. *When your order is phoned in* we pack it to arrive in mint condition and ship it within one working day by reliable carrier, surface or air as needed. We include assembly instructions and all hardware plus spares, at no extra charge. *After you receive your shipment* we welcome consultation on modifications, assembly, and other application needs, and are happy to arrange any exchanges or replacements. And we accept returns under our money-back warranty up to $500.00 and 60 days, regardless of the condition of the parts. *Any* time you phone toll-free 1-800-TECHMAR (1-800-832-4627), or from California 1-800-CHASSIS (1-800-242-7747), for whatever reason, you'll reach a friendly, outgoing, experienced member of our staff to help you solve your problems. That's what we're here for.

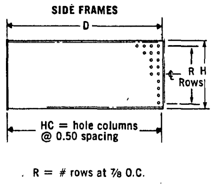


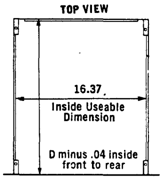
HERE'S ONE OF THE LARGE NUMBER OF ASSORTMENTS OF PARTS YOU CAN ORDER FOR SHIPPING IN 1 DAY IN 28 COMBINATIONS OF HT & DEPTH



1. Floating captive nuts in each side frame for securing covers.
2. Heavy-duty Mounting Panel (HMP7) for use as rear panel, .090 thick, 16.37 wide. Stainless captive nuts for easy assembly to side frames. Can be recessed for protecting rear-panel components.
3. *Two Perforated Aluminum Non-sliding Covers (PANC 19D), .063 thick, grained and deep* etched, clear-anodized finish. Prepunched hole pattern aids ventilation.
4. Non-sliding covers are stiffened by flanges on all four edges.
5. Notched top & bottom flanges permit installing, removing or rotating internal parts past edges of side frame for maintenance.
6. Two Seven-Eighths Side Frames (SF-SE 7H-19D) with 4 tabs for top and bottom clearance and ⅞" vertical hole spacing between hole rows for easy assembling of mounting plate and vast interchangeability of accessories. Surface is grained or deep etched or bead blasted. .090 thick aluminum alloy, 5052-H32, depths 12", 15", 19" or 24", with double bends top and bottom for strength.
7. Second Heavy-duty Mounting Panel (HMP7), like rear panel for mounting internal components. Can be assembled vertically for convection cooling, or horizontally for other purposes. And see other options on opposite page.
8. Two Variable Profile Handles (VPH7), clear anodized, with decorative black vinyl. Two optional handle styles: T-section & Oval-section.
9. EIA Front Panel (FP7). 6061-T6, grained surface. ⅛" thick (option 3⁄16" thick. Stocked in seven EIA heights from 3.49 to 13.97 (Electronic Industry Association dimensions.) All assembly hardware furnished. Clear chemical film finish.







SPECS: Surfaces except covers and handles are satin grained and finished in clear chemical film per MIL Spec C-5541, Class 1A, insuring electrical continuity when parts are assembled using the stainless captive nuts and internal tooth washers furnished. Covers and handles are deep-etched and are anodized per Mil Spec A-8625, Type 2, Class 1.

SIDE FRAMES

HEIGHTS & NOS. OF HOLE ROWS

H	3.15	4.90	6.65	8.40	10.15	11.90	13.65
R	3	5	7	9	11	13	15

DEPTHS & NUMBERS OF HOLE COLUMNS

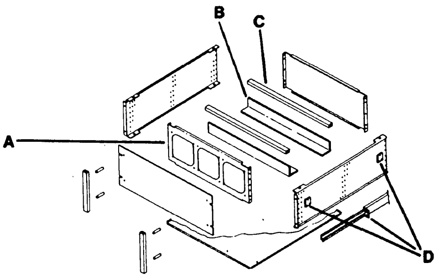
DEPTH	12"	15"	19"	24"
HC	23"	29"	37"	51"

Techmar continues to offer the SRK, HRK and ARK series rack-mounting kits and their component parts.

TECHMAR®

TECHMAR CORPORATION, 2232 South Cotner Ave., Los Angeles, CA 90064-1875
Toll-Free 800-TECHMAR (800-832-4627); from Calif. 800-CHASSIS (800-242-7747)

OPTIONS AND ACCESSORIES FOR TECHMAR'S PREFAB CHASSIS SYSTEM



A Fan Mounting Panel to mount standard sized fans for use in all Techmar enclosures. Can be installed horizontally in any height or vertically in heights 5¼" or larger. Models for accommodating 1, 2 or 3 each 3⅛" or 4½" fans with help of cutout covers.

B Mounting Angles with additional screw holes to facilitate a variety of mounting configurations from 1.25 × 1.25 × .25 × 16.37 to 1.75 × 1.75 × .25 × 16.37.

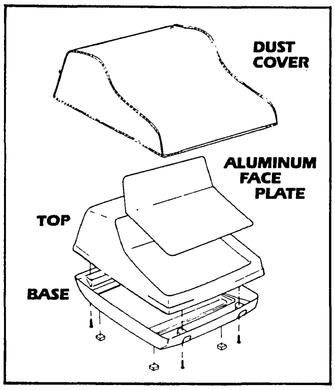
C Mounting Bars for use with large or heavy components. Ends are predrilled and tapped for easy assembly. From. 25 × .75 × 16.37 to .50 × 6.00 × 16.37.

D Slides with mounting adapters to fit all side frame styles and depths. Slides fasten to any EIA tapped mounting rail. Ball-bearing and solid-bearing slides available in 16 versions.

OTHER OPTIONS AND ACCESSORIES STOCKED FOR IMMEDIATE SHIPPING:

1. Side-hinged & bottom-hinged front panels for use with front-loading orientation of Techmar card cages in any Techmar rack heights & depths.
2. Two handle options besides the 3-piece variable-profile: oval-section & T-section, for all heights.
3. Quarter-inch-spacing or 0.2-inch-spacing card cages in 3 heights to mate with many off-shelf mother boards. Can assemble for top, front or rear loading for many card widths, using prepunched holes in side frames.
4. Continuous-flange side frames, .090 thick, 19" deep in 7 EIA-related heights.
5. Full Bottom Plate for mounting components, .090" aluminum with grained surface and clear chem film, 16.37 wide × four depths.
6. .063 thick Mounting Plates: CMP series
7. Four depths 12", 15", 19", 24". Seven EIA heights from 3.47 to 13.97.

MINI-CONSOLES (MC SERIES)



For enclosing small instruments economically in high style. Formed from textured high-impact thermo-plastic. Strong, light-weight, heat and scratch resistant, non-conducting. Easy to drill, punch and clean. Top and base assemble with screws from underneath base. Stocked in four sizes and four color combinations for immediate shipping Assembly, hardware included.

COLOR COMBINATIONS	DASH NO.
Blue Top, Black Base	—BL–BK
Blue Top, Cocoa Base	—BL–CO
Beige Top, Black Base	—BE–BK
Beige Top, Cocoa Base	—BE–CO

To order: Select model number from table, add dash numbers for color combinations from the other table.

Material: Kydex® or flame-retardant ABS thermoplastic and textured surface.

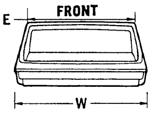
Workability: May be drilled and punched as required special metal-working tools not needed.

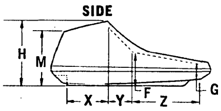
Chemical stability: Not affected by short-term exposure, at normal ambient temperature, to many acids, alkalies, greases, alcohols, gases, and petrochemical compounds.

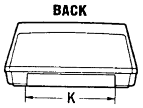
Decorating: May be hot stamped or silk-screen printed.

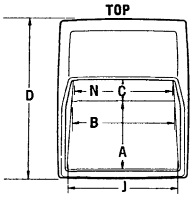
Dimensional stability: Excellent rigidity. Stable to at least 160°F.

Fire retardation: UL-approved self-extinguishing.









A & C MEASURED ALONG SLOPES
B MEASURED AT INTERSECTION OF SLOPES
N MEASURED AT TOP OF UPPER SLOPE
J MEASURED AT BOTTOM OF LOWER SLOPE

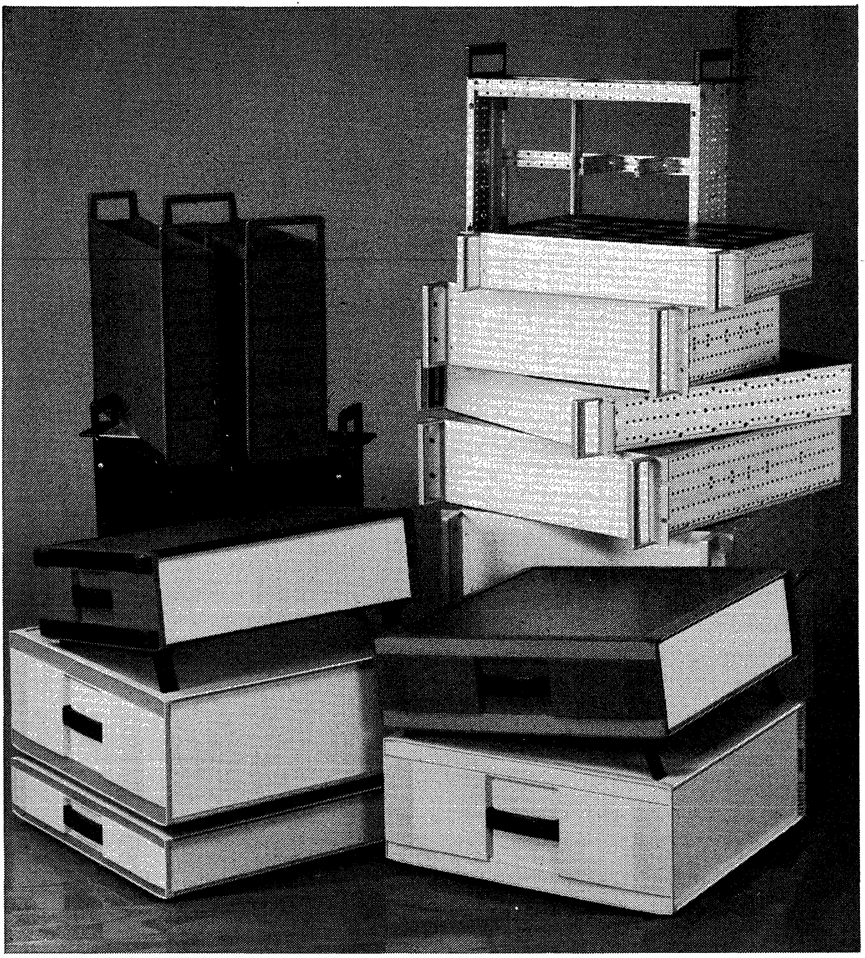
DIMENSIONS

MODEL NO.	H	W	D	A	B	C	E	F	G	J	K	M	N	X	Y	Z	LOWER SLOPE	UPPER SLOPE	SHIPPING WEIGHT
MC-3H	3.8	6.8	8.4	3.5	5.2	1.4	5.4	2.0	1.3	5.4	4.1	3.0	4.8	2.6	0.9	3.4	9°	48°	4 lbs.
MC-4H	4.6	8.9	10.9	4.4	6.7	2.1	7.3	2.7	1.5	7.3	5.8	3.8	6.4	3.2	1.4	4.2	10°	45°	4 lbs.
MC-6H	5.8	10.9	13.6	5.6	8.3	2.7	8.8	3.2	1.9	9.0	7.7	5.0	8.0	4.1	1.8	5.4	10°	43°	5 lbs.
MC-9H	9.5	15.8	18.5	8.7	12.6	3.7	13.7	5.0	2.0	13.3	9.6	8.0	12.6	5.5	1.9	8.1	15°	58°	9 lbs.

TO RECEIVE CATALOG, PRICE LIST, AND ANSWERS TO QUESTIONS, USE TOLL-FREE PHONE NUMBER BELOW.

TECHMAR®

TECHMAR CORPORATION, 2232 South Cotner Ave., Los Angeles, CA 90064-1875
Toll-Free 800-TECHMAR (800-832-4627); from Calif. 800-CHASSIS (800-242-7747)



Rack Mount and Stand Alone Enclosures

Aluminum die castings and fabrications provide mechanical ruggedness. Features such as mounting rails, die cast handles, popular sizes, and attractive color choices and finishes give you design flexibility. Call now for detailed catalogs or to discuss your application requirements.

Rack Mount

- **CH Series.** Heavy duty rack mount units in four EIA panel heights (3½″, 5¼″, 7″, and 8¾″). Die cast handles. Easy access from top, bottom, or rear.

Rack Mount or Stand Alone

- **R Series.** Precision die cast aluminum R series enclosures are available in two EIA heights: 3½″ and 5¼″. Rack and half rack sizes.

- **SR Series.** Features side bumpers and flush-mounted retractable carrying handles. Vacuum-formed protective front panel cover.

Stand Alone

- **L Series.** Aluminum L series cases feature interior mounting rails for PC boards. Two standard sizes: 12″W x 5″H x 10″D and 8½″W x 4″H x 10″D. Optional lock-position carrying handles for tilt-up use.

All available in a wide range of finishes and colors.

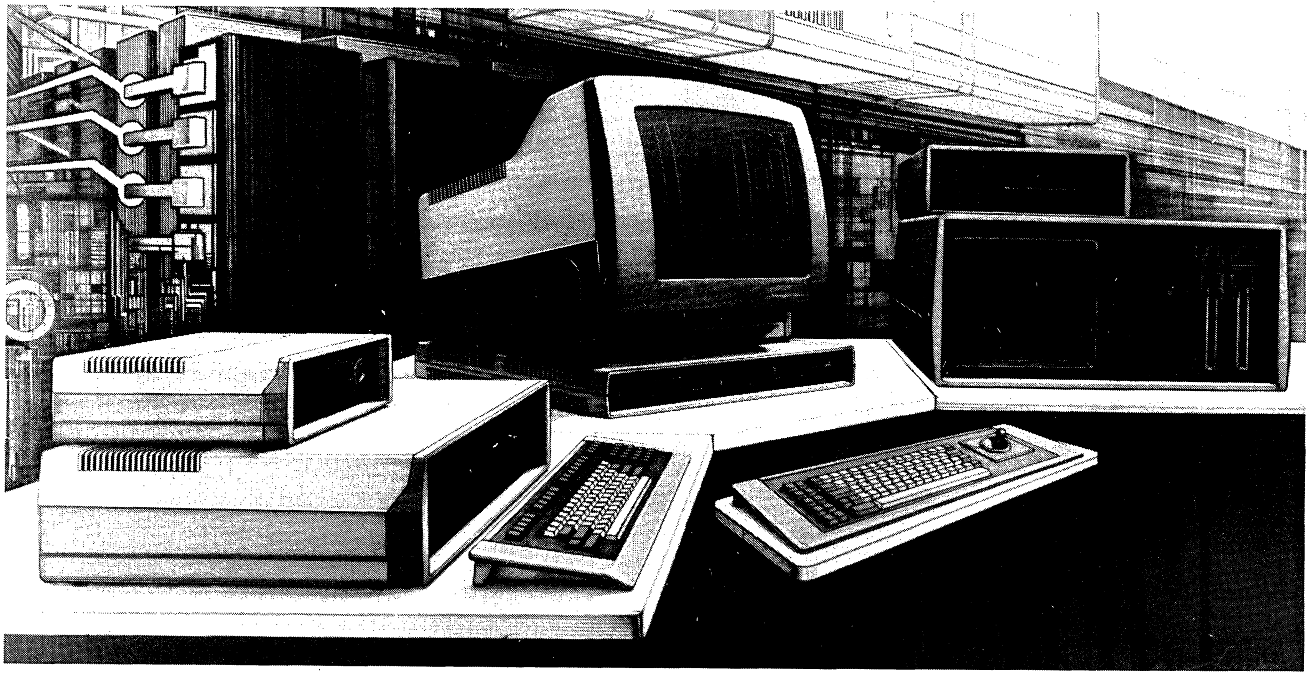
Other enclosure models feature pistol grips, panel mounts, belt clips, and underdash mobile mounts.

Custom printed and CNC turret punched panels.

Tracewell Enclosures, Inc.
7032 Worthington Galena Rd.
Columbus, OH 43085
Telephone: (614) 846-6175

1-800-848-4525

Tracewell Enclosures



Real design freedom in new Tracewell Enclosures

New injection molded OEM computer enclosures provide maximum design freedom. Highly refined NC Series enclosures are molded from high impact engineering plastic for an extremely attractive finish and fit.

Design Freedom

NC Series enclosures are versatile pretooled units that house most current designs for CRTs, disk drives, keyboards, and all popular busses including VME.

RFI/EMI Shielding

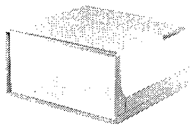
Provision for RFI/EMI shielding can be provided by you or by Tracewell Enclosures. NC Series enclosures are designed with overlapping joints and proper slot geometry for superior shielding solutions. Custom punched panels and chassis are available.

Tracewell Enclosures, Inc.
7032 Worthington-Galena Road
Columbus, Ohio 43085
In Ohio call: 614-846-6175

System Enclosures

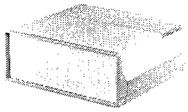
- Removable top vent for plug-in PC cards. Accepts 19" EIA front panel.

NC 917



- 10"H x 20"W x 20"D.
- Sized for 12" CRT, two 8" floppy disks, card cage and power supply.

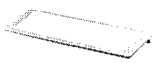
NC 717



- 8"H x 20"W x 20"D.
- Sized for 9" CRT, 5¼" disk, card cage, and power supply.

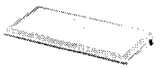
Keyboard Enclosures

NC 116



- 1.5"H x 20"W x 7"D with a 9° angle.
- Sized for 5 row low profile keyboard.

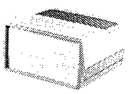
NC 316



- 2"H x 20"W x 9"D with a 9½° angle.
- Sized for 7 row keyboard with palm rest and joystick or track ball.

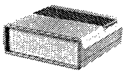
Extension Enclosures

NC 681



- 7"H x 13"W x 13"D.
- Sized for 7" CRT, and 5¼" disk or bus system with power supply.

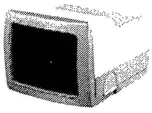
NC 381



- 4"H x 13"W x 13"D.
- Sized for 5" CRT, and mini or micro floppy disk.

CRT Enclosures

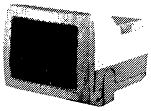
NC 151



CRT Enclosures
- Sized for 14" color or 15" black and white CRT.

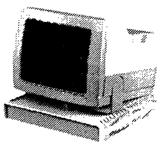
Kit or chassis mount.

NC 152



Enclosure and yoke
- Tilts and swivels.
- Mounts on 917, 717, and 153 base.

NC 153



Enclosure, yoke, and base
- Base sized for two half high 5¼" floppy disk and large PC board.

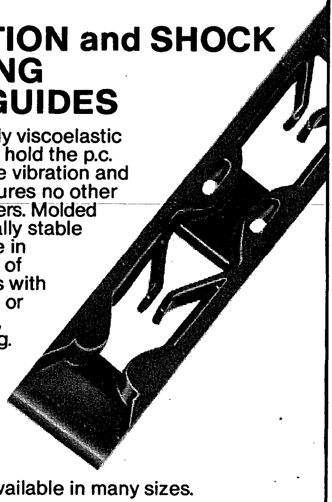
Call: 1-800-848-4525

Tracewell Enclosures

UNITRACK

VIBRATION and SHOCK DAMPING CARD GUIDES

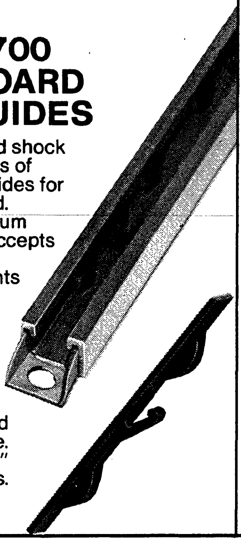
Smooth, sturdy viscoelastic spring fingers hold the p.c. card to reduce vibration and shock... features no other card guide offers. Molded of dimensionally stable polycarbonate in a wide variety of sizes. All sizes with snap-in button or hole for quick, easy mounting. For 1/16" cards for military or commercial applications. Slotted card guides available in many sizes.



UNITRACK

Series 4700 "BIG" BOARD CARD GUIDES

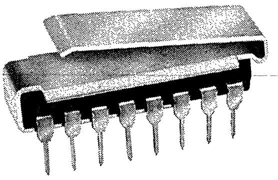
Get vibration and shock damping features of UNITRACK'S guides for any size p.c. card. Extruded aluminum guide housing accepts 1½" long spring fingered segments to any length.



Segments molded of polycarbonate. for 1/16" or 1/8" cards.

UNITRACK

I-C KOOLER™ Heat Sink for IC's



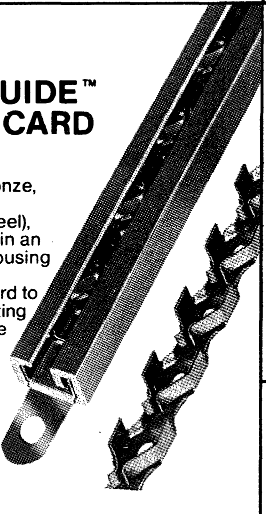
I-C Kooler slips over IC and holds firmly in place. Spring grade copper alloy transfers heat from bottom and top of IC and dissipates heat to air. Tests show I-C Kooler dissipates over 2 watts!

- Sizes to fit most IC's.

UNITRACK

KOOLER-GUIDE™ HEAT SINK CARD GUIDE

A metal (phosphor bronze, heat treated beryllium copper or stainless steel), spring fingered guide in an extruded aluminum housing which very effectively transfers heat from card to chassis. Various mounting methods: studs, swage nut, clips. For 1/16" or 1/8" boards for military and commercial applications.



UNITRACK®

UNITRACK Div., Calabro Industries, Inc.

Goshen Corporate Park
1372 Enterprise Drive
P.O. Box 1927
West Chester, PA 19380
Telephone (215) 692-0800
TWX 510-663-0000

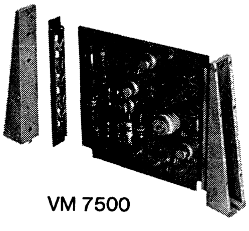
Sales Reps and Distributors in major industrial areas

Call or write for
COMPLETE CATALOG
& PRICES

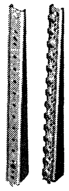
UNITRACK

VERSAMOUNT™

Mounts isolated p.c. cards to chassis or motherboard. Firm support brackets molded of dimensionally stable polycarbonate. A rigid mount with just one stud. Also available in metal for larger boards.



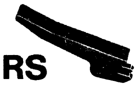
VM 7500



VM 7700

UNITRACK

CARD EXTRACTORS (EJECT - INJECT)



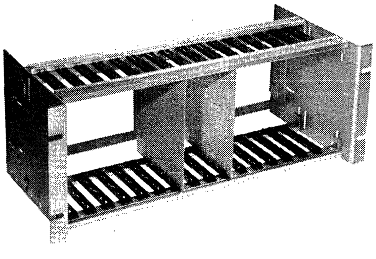
Lightweight and thin (for dense packaging). Formed of stainless steel – epoxy color coded. For 1/16" or 3/32" or 1/8" boards. Plastic, stable polycarbonate extractors also available for 1/16", 3/32" or 1/8" boards.

UNITRACK

VERSACAGE™

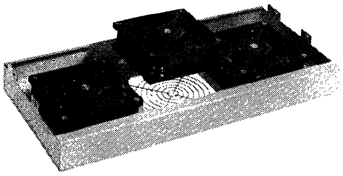
Card Cages

Low cost, easy to assemble, sturdy cages built to standard EIA sizes. Eleven standard sizes and specials available to meet any requirement. All parts available separately and individually priced in catalog.



Cages for Cooling

Fan-Pan™ are built to use with all standard size cages and specials. Fans mount directly below p.c. cards or power pack for efficient, evenly distributed air flow. Available with one, two or three fans. Quiet, long life fans deliver 100 cfm each.

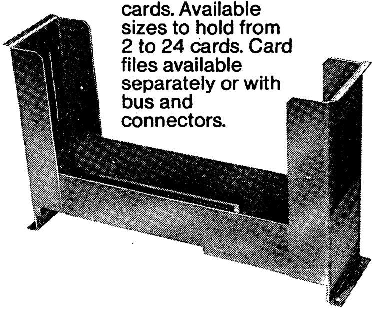


UNITRACK

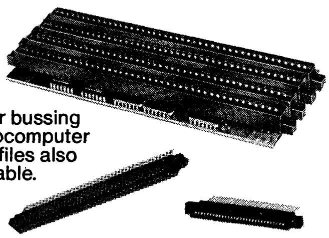
M80 CARD FILES

for microcomputers

Low cost, lightweight, sturdy card file holds Multibus® (Intel) cards. Available sizes to hold from 2 to 24 cards. Card files available separately or with bus and connectors.



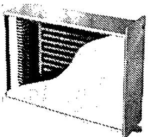
Bus or motherboard cards available to hold 2 to 24 cards. Available separately or with card file. 86 position on .156 centers connections mounted in 100% inspected bus board. P-2 connectors are available with card file and bus board or they are available separately. P-2 connectors are 22 position on .100 centers.



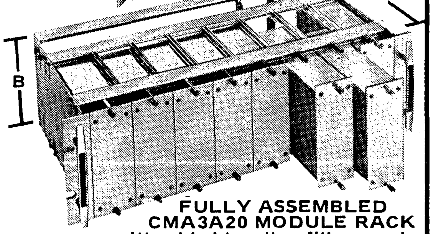
Other bussing microcomputer card files also available.

RACK MOUNTING CARD & MODULE RACKS DESK TOP INSTRUMENT CASES

Vector



EFP204A66 type module

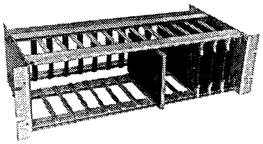


FULLY ASSEMBLED CMA3A20 MODULE RACK with added handles, filler panels, EFP204A66 modules

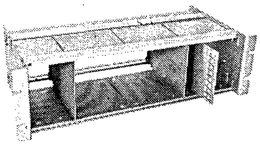
Vector-Pak Module Racks are supplied completely assembled, ready for EFP modules. Connectors mount anywhere along bracket-mounted struts which are pre-loaded with 4-40 nuts. All aluminum, natural anodized finished racks provide sturdy custom-looking housing. Fit standard 19" racks.

Part No.	Description	"A" Dim.	"B" Dim.
CMA3A16	Assembled module rack for ten 1.6"w. x 6.6"lg. modules (EFP164A66)	9"	5¼"
CMA3A20	Assembled module rack for eight 2"w. x 6.6"lg. modules (EFP204A66)	9"	5¼"
CMA4A20	Assembled module rack for eight 2"w. x 9.6"lg. modules (EFP204A97)	12"	5¼"
CMA4A30	Assembled module rack for five 3" w. × 9.7" lg. modules. (EFP304A97)	12"	5.25

Order modules separately ● 66 module, 6 rack models available off the shelf ● Contact Vector for special requirements



CCK13 Type



CCK3 Type

CARD RACKS FULLY ASSEMBLED

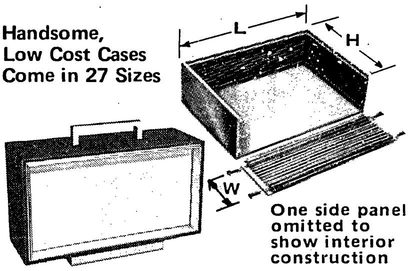
Vector Card Racks fit 19-inch racks and are supplied completely assembled ready for cards. Connectors mount without hole drilling to bracket mounted aluminum struts which have captive 4-40 nuts. 5¼" high unit holds cards 3" to 4½" wide by 6.5" or 9.6" long. 8¾" high unit holds cards 6½" to 7.98" wide by 9.6" long. Sturdy aluminum construction used throughout except on CCK13P which has nylon guides.

Part No.	Description
CCK13	Assembled rack 5¼"h. x 19" w. x 8.9" deep with 21 pairs of guides installed on ¾" centers. Also available -- CCK13P w/plastic guides
CCK17	Assembled rack 8¾"h. x 19" w. x 12" deep with 21 pairs of guides installed on ¾" centers
CCK3	Assembled rack 5¼"h. x 19" w. x 8.9" deep with continuous card guides top & bottom

Table top cases, doors, & accessories available ● 20 models available off the shelf ● Fast production on custom models

MULTI MOD SMALL INSTRUMENT CASES

Handsome, Low Cost Cases Come in 27 Sizes



Special

One side panel omitted to show interior construction

Elegant finish is clear anodize.

Extruded aluminum frames for light weight, high strength, and fine appearance.

Internal extruded grooves position and hold 1/16" circuit cards, spaced .150 or .160.

Base and two side panels are quickly removable for easy access to contents.

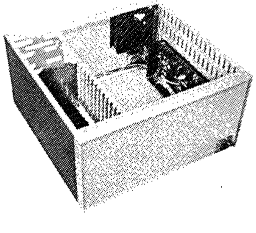
Optional accessories include bezels and handles.

Catalog No.	Width	Length	Height
W45-10-66B	4.5	10.00	6.61
W45-10-46B	4.5	10.00	4.61
W45-86-46B	4.5	8.61	4.61
W30-66-46B	3.0	6.61	4.61
W20-46-31B	2.0	4.61	3.10
W16-31-31B	1.6	3.10	3.10

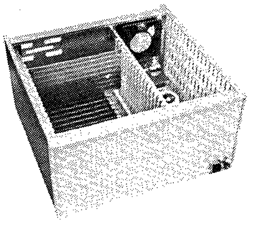
USER DESIGNED PACKAGING

All parts of the extensive Vector-Pak system may be purchased separately to speed packaging prototypes.

STD-BUS & S100-BUS COMPUTER MAINFRAMES



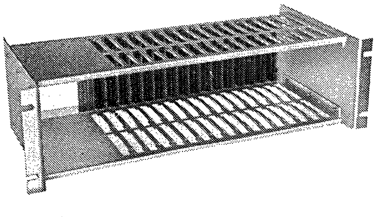
VP200
STD BUS MAINFRAME



VP100
S100 BUS MAINFRAME

- **Heavy duty power supplies**
- **All-metal construction for shielding: 9" × 17" × 17"**
- **EMI line filter and spike limiter**
- **Cooling fan with EMI filter and finger guard**
- **Easy access by sliding out top cover**
- **Beige vinyl clad aluminum covers, brushed clear anodized aluminum trim and panels**
- **Rack-mountable on customer-supplied slides**
- **STD-Bus 16-slot motherboard, S100-Bus 12-slot motherboard with faraday shield lines, superior power and ground busing and decoupling capacitors**
- Mainframe includes key-operated power switch; lighted reset button; one unswitched and two switched 110 V AC convenience outlets; covered holes on rear for DB25 connectors for terminal, printer, modem and networking, two DB50 connectors for disk drives; two centronics connectors for printers and BNC connector for video out

STD BUS AND S100 CARD RACKS WITH AND WITHOUT MOTHERBOARDS



FEATURES:

- All metal construction
- Precision stamping eliminates guide alignment
- Motherboards/backplanes mount easily using predrilled holes.
- Open slot design maximizes air flow over cards to reduce cooling demands.
- Meets EIA standard RS 310 Rev. C mechanical specifications for mounting.
- Constructed of .0598" cold-rolled steel or aluminum.

Card Size .062" Thick Cards		Guide Spacing	No. Card Positions in Rack	Rack with Motherboard	Rack Only
Width	Length				
10.00	5.30	.75	18	CCK100C-12	—
10.00	5.30	.75	18	—	CCK100C
4.50	6.50	.75	16	CCK13C-16	—
4.50	6.50	.75	16	—	CCK13C

Rack No.	Height	Depth	Width	Motherboard	Bus System Accommodated
CCK100C-12	12.219	7.25	19.00	12-Slot Included	S100
CCK100C	12.219	7.25	19.00	8803 Series	
CCK13C-16	5.219	8.50	19.00	16-Slot Included	STD
CCK13C	5.219	8.50	19.00	4610 Series	

FAST PRODUCTION ON CUSTOM MODELS

VECTOR ELECTRONIC COMPANY, Inc., 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 Phone (818) 365-9661

PRECISE SOLDER PREFORMS FROM THE COMPANY WHOSE NAME MEANS QUALITY.....

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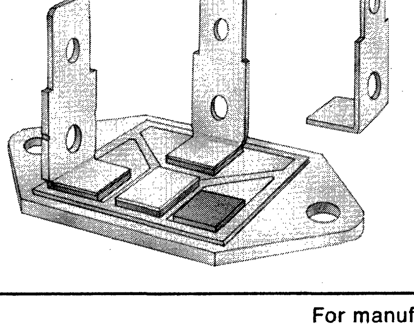
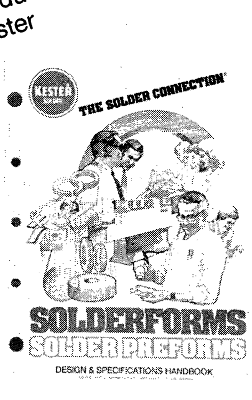
THE SOLDER CONNECTION®

You probably have an application for Kester Solderforms®.
Today's rapidly changing marketplace demands that your products embrace latest technology, and at the same time be more reliable and cost competitive. Kester Solderforms® guarantee consistent production with less touch-up work since they always deliver precisely the same amount of solder and flux. You can make maximum use of cost saving automated assembly techniques, and reduce time consuming inspections and manual operations. Even make close proximity joints without worry of bridges or shorts. All this results in fewer field related failures since there's never too much flux or too little solder. Assembly is correct every time.

Kester Solder. Quality since 1899.
Due to the custom nature of any solder preform, the company you do business with will become part of your design team. It makes sense to get involved with a company you can really rely on. Kester Solder is a proven leader who supplies solder preforms with precise dimensional tolerances and strict alloy purity, and who has mastered the making of reliable mechanical and electrical connections. Customer service is a critical element as well, and this is where the Kester Engineered Products Laboratory and the sales engineers help you apply Solderforms® technology to your application.

We'd like you to have more information.
If you have regular production runs of products requiring solder, you should consider Kester Solderforms®. Kester's 12 page Solderforms® Design and Specifications Handbook describes the design considerations and the pros and cons of this technology. Call or write today for your copy.

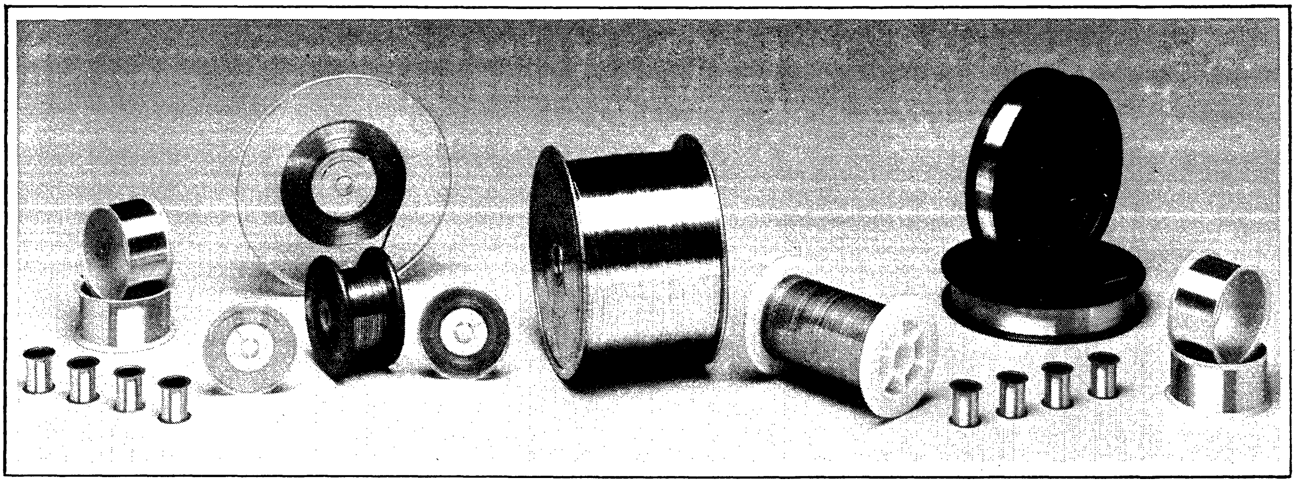




KESTER SOLDER
Litton 4201 W. Wrightwood Ave., Chicago, Illinois 60639

SEMICONDUCTOR PACKAGING MATERIALS CO., INC.
431 Fayette Avenue, Mamaroneck, New York 10543
(914) 698-5353 TWX: 710-566-1103

Precision Wire and Ribbon



SPM wire is widely used in the manufacturing of semiconductor devices as an electrical interconnect, either between a chip and substrate or between two chips.

The materials described in this brochure are of the highest quality, refined and alloyed by **SPM** to produce the excellent properties demanded of finished wire and ribbon products.

In addition to a discussion of **pure gold**, the applications of which are well established, other alloys which offer alternate specific cost/performance characteristics are described.

Aluminum alloys, for example, are generally preferred to pure aluminum except in high-current devices because of greater drawing ease to fine sizes and higher pull-test strengths in finished devices. Commercially pure aluminum and 1% silicon-aluminum are most commonly used.

All-aluminum systems in semiconductor device fabrication, eliminate the "purple plague" (brittle gold-aluminum intermetallic compound) sometimes associated with pure gold bonding wire. Aluminum is particularly suitable for ultrasonic bonding.

SPM wire and ribbon standards are unsurpassed in the industry. Wires, for example, are supplied in diameters from 0.0005″ and up for applications where uniformity of elongation, tensile strength and diameter are of paramount importance. High-purity wire, like all **SPM** products for the electronics industry, is vacuum-processed from highly refined metals. Wire for automatic bonders are an **SPM** specialty.

Ribbons of pure gold and base metals for microwave and other applications are also available from **SPM** and are customed-manufactured to close specifications. As with wire, many of the base metals can be supplied plated with other metals for PC board repair and other applications.

Precision Stampings

SPM preforms, for brazing and soldering assembly operations, deliver controlled melting and flow points, high thermal conductivity, precise dopant characteristics, and close dimensional and volumetric tolerances.

SPM supplies all the popular alloys in soft base metal solders, gold eutectic solders, and hard braze materials. We also offer base metal alternatives to gold preforms.

Many shapes and sizes are available made from spectrographically analyzed metals, cast, rolled, and heat-treated under strictly controlled conditions. **SPM** preforms are stamped on precision equipment under continuous inspection, with tools, and dies made by **SPM**'s own toolmakers to tolerances of ±0.0001″.

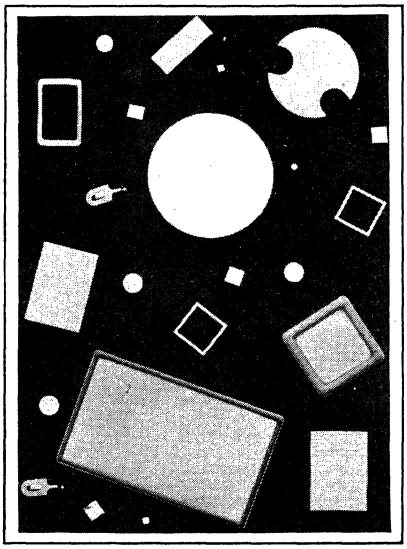
Nickel, F-15, alloy 42, molybdenum, stainless steel, and various other base metals and alloys are manufactured into lids, base tabs, and other parts by **SPM**.

PREFLOW® LID

A low cost alternative to the gold plated lid, gold tin preform assembly — available NOW!

BRAZING ALLOYS AND TEMPERATURES

The **SPM** alloys shown below require moderate to high temperatures for brazing, and are often used to assemble metal parts, to metal and metalized ceramic packages, pedestals to bases, and other special applications.



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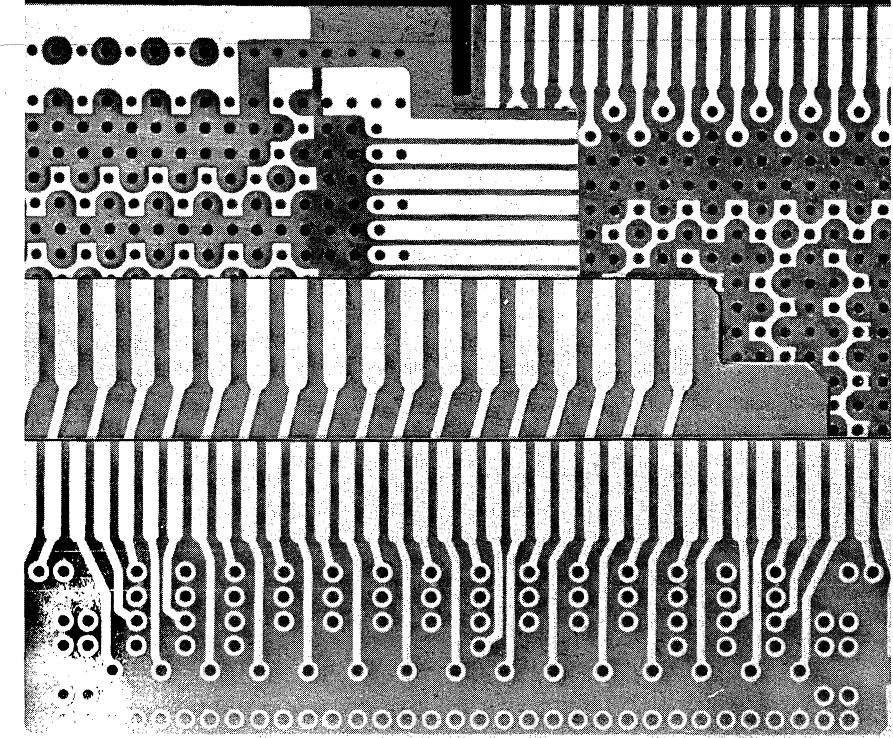
Universal Plugbords for any job!



- Plated thru pad-per-hole for "bare board" freedom of component placement . . .
- Solder or wrap wire with 3-hole pads, interposed power & ground buses . . .
- Wire wrapping with two buses . . .
- Clearance ground plane for high speed, high frequencies . . .
- Bare boards for unlimited freedom of component placement . . .
- 0.042" diameter holes on 0.1" grid for DIP ICs, leadless chip carrier sockets, or any 0.1" grid discrete components . . .

TOP QUALITY—LOW COST

Everything you need through one company — card racks, prototyping boards, connectors, extenders, backplane boards, NEW IBM personal computer boards available.

Hardware support for STD Bus, S-100, Multibus, Motorola Exorcisor and Rockwell AIM 65 Expansion, Apple, Heath H8, DEC PDP 8-11, TI 980, IBM Personal Computer.

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SECTION

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SYSTEMS

FOR

PRINTED

CIRCUIT

BOARDS

CIRCUIT BOARDS

Manufacturer	EEM Page No.	Type of Board				
		Printed Circuit		Clad	Unclad	Rigid
		1-side	2-sides			
Datak	C•1100			●		
Injectorall	C•1101	●	●	●	●	●
Vector	C•1102 C•1103			●	●	

ACCESSORIES & SERVICES

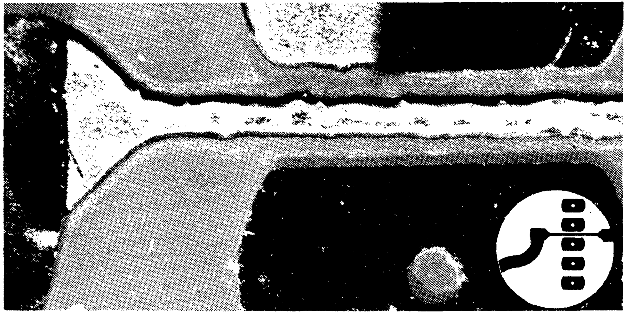
Manufacturer	EEM Page No.	Etchants	Dry Transfer Patterns & Symbols	Cleaners & Solvents	Assembly & Fabrication Services	Terminals & Pins
Datak	C•1100	●	●	●		
Injectorall	C•1101	●	●	●	●	
Vector	C•1102 C•1103					●

DATAK-PRINTED CIRCUIT KITS

PHOTO ETCH™ Printed Circuit Kit

Photograph original 1:1 master art or PC patterns directly from a magazine page using remarkable POS-NEG™ system (patented). No darkroom or camera needed. Set has all materials to make original artwork masters, film negatives and positives. Use the 5"x 6" print frame, copper clad boards, negative photoresist and chemicals to sensitize, expose, develop and etch printed circuit boards. 12 page instruction book covers the theory and practical instructions. Photoflood bulb must be purchased separately at any camera store.

ER-4 PHOTO ETCH PRINTED CIRCUIT KIT $34.95



Dry Transfer DIRECT ETCH™ Resist in Action

OTHER PRINTED CIRCUIT PRODUCTS

TINNIT™ Electroless Bright Tin Plate

TINNIT is supplied as a dry powder. Dissolved in a pint of water, it will plate about 700 sq. ins. of clean copper with a bright tin plating. No electricity is needed. Use to enhance solderability and conductivity on edge card connector patterns.

ER-18 TINNIT™ BRIGHT TIN PLATE $3.50

Etch Resist Pen

Felt pen has lacquer ink that is impervious to PC etchants.

ER-15 ETCH RESIST PEN $1.80

Dry Concentrated Etchant

¼ pound anhydrous ferric chloride in vapor tight pack makes 1 pint etchant, enough for 200 sq. in. of copper board. Cost less than liquids.

ER-3 DRY CONCENTRATED ETCHANT $2.50

Power Etch Pump Kit

Circulates etchant with air to speed etch rate. Kit has pump, coupling hose, perforated distributor tube.

ER-12 POWER ETCH PUMP $7.25

POS-NEG™ Photocopy Film and Accessories

Makes negatives or positives from opaque or translucent original art in one step without a camera. No darkroom needed but use subdued light. Use with yellow filter (ER—17) and EAL photoflood lamp. Read ER-16 Photo Etch Manual before opening this film.

ER-5 SIX SHEETS 5" x 6" POS—NEG FILM $6.50
ER-9 TWO SHEETS 8" x 11" POS-NEG FILM 6.50
ER-16 PHOTO ETCH MANUAL 1.50
ER-17 8½" x 11½" YELLOW FILTER 2.00

Contact Printing Frame

A solidly made plated steel and glass exposure frame. Spring back adjusts for film or circuit board exposure. Kit includes ER-17 yellow filter and ER-16 Photo Etch Manual. 9"x 12" size.

ER-10 CONTACT PRINTING FRAME, 9" x 12" $12.95

Film Process Chemicals

Three packets make 1 pint lithographic film developer and 1 pint acid fixer. Handles 15 sheets 5" x 6" Pos-Neg film.

ER-6 FILM PROCESS CHEMICALS $3.25

Negative Photo Resist Liquid and Developer

Spray on PC board and expose through negative. Unexposed areas are dissolved by developer. Exposed areas harden and are etch resistant. Four ounce bottle with pump spray coats over 1700 sq. in. Develop ONLY with ER-8 or Kodak KPR developer.

ER-71 PHOTO RESIST LIQUID, 4 ounce $6.95
ER-8 NEGATIVE RESIST DEVELOPER, 16 ounce $4.20

DIRECT ETCH™ Printed Circuit Kit

This one step kit uses a unique dry transfer resist that makes razor-sharp patterns on copper clad boards. Lay out circuits right on the copper with these etch resistant dry transfers. Connect with dry transfer lines or the special tape, then etch in ferric chloride or in any commercial PC etchant. Results are equal to or better than commercial boards. Kit includes PC boards, dry transfer resist patterns, resist tapes, ferric chloride etchant, etch tray and instructions.

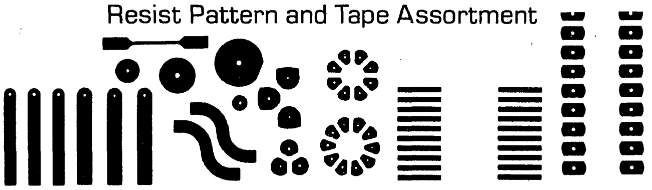
ER-1 DIRECT ETCH PRINTED CIRCUIT KIT $9.50

DRY TRANSFER ETCH RESIST PATTERNS

DATAK prints a broad range of dry transfer resist patterns with an ink that is impervious to all commercial etchants. This ink is identical to that used in printing the JotDraft and Microseries range of donuts and connector patterns. See our full line catalog for additional etch resist patterns.

17.6X BLOWUP shows .015" line between .100" spaced DIP pads. Resist pattern is from DATAK ER-2 set. Circuit board is 2 ounce copper etched in a still bath of ferric chloride for 30 minutes at 125°F. Measured undercut is less than .0015".

Resist Pattern and Tape Assortment



Our best selling set includes 8 sheets of donuts, .125" and .156" connector fingers, transistors, round IC's, DIPs of any size, dry transfer traces and 2 rolls of resist tape. This set is in the ER-1 and ER-4 kits.

ER-2 DRY TRANSFER ETCH RESIST ASSORTMENT . . $5.75

Resist Donut Pad Assortment

Set contains 4 sheets of donuts 1/16" through ¼" dia. with .025" center holes.

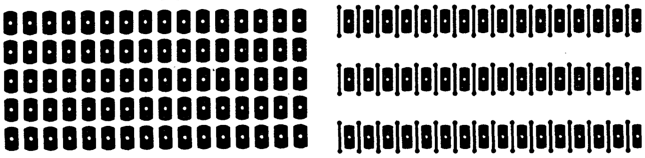
ER-13 DONUT PAD ASSORTMENT $2.95

Resist DIP Pattern Assortment

Set has 4 sheets of continuous .100" x .300" DIP patterns and .050" spaced flatpack fingers. Rub down the length you need. See also JD-171, JD-174.

ER-14 DIP PATTERN ASSORTMENT $2.95

Continuous Resist DIP Pads



From JD-171 From JD-174

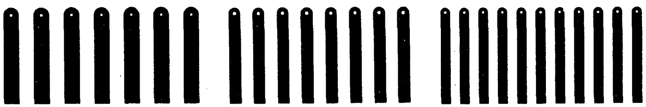
JD-171 set contains 24 sheets of continuous .125"D x .070" cut pads spaced on .100" x .150" centers. Transfer pads on any multiple of .150" or .100". Do any size DIP pattern accurately and fast.

JD-171 RESIST DIP PADS $11.95

JD-174 has 24 sheets of continuous .125"D x .053" cut pads spaced on .100" x .150" centers with a trace between adjacent pads. Pads transfer alone or with traces on any multiple of .100" or .150". Do a large ROM or a ½ DIP with equal ease.

JD-174 RESIST DIP PADS WITH TRACES $11.95

Edge Card Connector Fingers



.156 Spacing .125 Spacing .100 Spacing

Sets contain 24 strips of spaced connector fingers. Each strip of fingers is 8" long. Butt strips for any connector length.

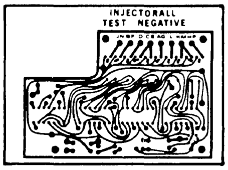
JD—122R ASST. CONNECTOR FINGERS: .156" & .125" $11.95
JD-168 CONNECTOR FINGERS: .100" $11.95

See Sections 2400 and 6000 for DATAK Panel Marking Sets and Wire Markers

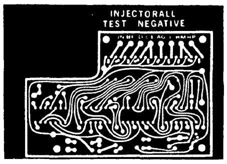
QUALITY PRODUCTS FOR PROFESSIONAL RESULTS

INJECTORALL

COPPER CLAD LAMINATES



POSITIVE ARTWORK



NEGATIVE ARTWORK

Copper clad laminates available as:
1. Uncoated; 2. Negative resist coating; or,
3. Positive resist coating.

UNCOATED

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEM	PC9-CEM	PC1	PC5	PC40	2 oz.	PC5-CEM	PC9	PC51	1 oz.	PC44
*3 9/16 x 6″	1/16″	—	—	—	PC5A	PC40A	1/16″	—	—	—	1/32″	—
4 x 6″		PC2-CEM	PC10-CEM	PC2	PC6	PC41		PC6-CEM	PC10	PC52		PC45
†5 1/16 x 6″		—	—	—	PC5C	PC40C		—	—	—		—
†5 1/16 x 9″		—	—	—	PC5D	PC40D		—	—	—		—
6 x 9		PC3-CEM	PC11-CEM	PC3	PC7	PC42		PC7-CEM	PC11	PC53		PC46
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5B	PC40B		—	—	—		—
‡6 5/16 x 6		—	—	—	PC5E	PC40E		—	—	—		—
‡6 5/16 x 9		—	—	—	PC5F	PC40F		—	—	—		—
12 x 18		PC4-CEM	PC12-CEM	PC4	PC8	PC43		PC8-CEM	PC12	PC54		PC47
24 x 36		PC4-CEM-1	PC12-CEM-1	PC4-1	PC8-1	PC43-1		PC8-CEM-1	PC12-1	PC54-1		PC47-1
36 x 48		PC4-CEM-2	PC12-CEM-2	PC4-2	PC8-2	PC43-2		PC8-CEM-2	PC12-2	PC54-2		PC47-2

NEGATIVE RESIST BOARDS (BLACK BAG—RED HEADER) USE WITH INJECTORALL D2 DEVELOPER

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEMS	PC9-CEMS	PC13	PC17	PC40S	2 oz.	PC5-CEMS	PC9S	PC51S	1 oz.	PC44S
*3 9/16 x 6″	1/16″	—	—	—	PC5AS	PC40AS	1/16″	—	—	—	1/32″	—
4 x 6		PC2-CEMS	PC10-CEMS	PC14	PC18	PC41S		PC6-CEMS	PC10S	PC52S		PC45S
†5 1/16 x 6″		—	—	—	PC5CS	PC40CS		—	—	—		—
†5 1/16 x 9″		—	—	—	PC5DS	PC40DS		—	—	—		—
6 x 9		PC3-CEMS	PC11-CEMS	PC15	PC19	PC42S		PC7-CEMS	PC11S	PC53S		PC46S
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5BS	PC40BS		—	—	—		—
‡6 5/16 x 6″		—	—	—	PC5ES	PC40ES		—	—	—		—
‡6 5/16 x 9″		—	—	—	PC5FS	PC40FS		—	—	—		—
12 x 18″		PC4-CEMS	PC12-CEMS	PC16	PC19A	PC43S		PC8-CEMS	PC12S	PC54S		PC47S

POSITIVE RESIST BOARDS (BLACK BAG—BLUE HEADER) USE WITH INJECTORALL D3 DEVELOPER

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEMP	PC9-CEMP	—	PC17P	PC40P	2 oz.	PC5-CEMP	PC9P	PC51S	1 oz.	PC44P
*3 9/16 x 6	1/16″	—	—	—	PC5AP	PC40AP	1/16″	—	—	—	1/32″	—
4 x 6		PC2-CEMP	PC10-CEMP	—	PC18P	PC41P		PC6-CEMP	PC10P	PC52P		PC45P
†5 1/16 x 6		—	—	—	PC5CP	PC40CP		—	—	—		—
†5 1/16 x 9		—	—	—	PC5DP	PC40DP		—	—	—		—
6 x 9		PC3-CEMP	PC11-CEMP	—	PC19P	PC42P		PC7-CEMP	PC11P	PC53P		PC46P
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5BP	PC40BP		—	—	—		—
‡6 5/16 x 6″		—	—	—	PC5EP	PC40EP		—	—	—		—
‡6 5/16 x 9″		—	—	—	PC5FP	PC40FP		—	—	—		—
12 x 18″		PC4-CEMP	PC12-CEMP	—	PC19AP	PC43P		PC8-CEMP	PC12P	PC54P		PC47P

* FITS 22/44 CARD EDGE CONNECTOR
† FITS S-100 CARD EDGE CONNECTOR—.100 Centers
‡ FITS S-100 CARD EDGE CONNECTOR—.125 Centers

Special Cuts available in sizes from 3″ x 3″ up to 12″ x 18″. One or two sides copper clad and as uncoated or positive or negative coated. Please specify coating required and type from chart shown above. There is no charge for cutting and price is based on area. Minimum order for special cuts: 6 pieces each size.

DRAFTING AIDS

POSITIVE PHOTO RESIST

PC197-3

INJECTORALL
PC197-3
POSITIVE
SPRAY
PHOTO RESIST
FOR
PRINTED CIRCUIT
BOARDS
Contents under pressure
Read back panel carefully

For sensitizing boards. High quality positive resist which will cause less pinholing. Available in 3 oz. aerosol spray can. Has less sensitivity to white light than other resists.

SUPER JET AIR COMPUTER CLEANER

SUPER JET AIR is a pressurized chemical at 70 P.S.I. which is used for blowing dust, lint and dirt from electronic instruments as well as projection and camera lenses. It is ideal to use in computers and other precision instruments where a moisture and lint free dust remover is necessary. Replaces the use of a brush or cloth which may disturb circuitry or break fine wiring. Available in 14 oz. spray can.

ANTI-FUNGUS VARNISH

INJECTORALL
ANTI-FUNGUS
VARNISH

ANTI-FUNGUS VARNISH is a moisture and fungus resistant varnish conforming to MIL-173C specifications. It will produce a hard antifungus film that is acid and salt water resistant. It is an air drying varnish, natural in color and is recommended to be used on all electronic equipment especially in hot and humid climates. This insulating varnish is suitable for use on electrical windings, generators, transformers and electronic equipment. Available in 12 oz. spray and gallons.

SUPER 100

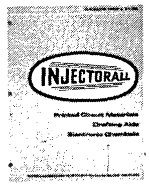
CLEANER AND LUBRICANT

INJECTORALL
SUPER
100

SUPER 100 is a fast drying cleaner and lubricant that is excellent for all TV tuners and controls as well as electrical contacts and machined parts. SUPER 100 causes no destructive action on plastics, electrical insulation and wire coatings. Specially formulated with TF Freon for the industrial electronic industry. When you care to use the very best, this is the cleaner for you. Available in 3 oz., 6 oz., 16 oz.

OTHER INJECTORALL QUALITY PRODUCTS

- P/C Chemicals and Suppplies
- IC Sockets
- "D" Sub-min Connectors
- Breadboards and Terminals
- Conformal Coatings: Anti-fungus Varnish Polyurethane Resin Acrylic
- Cleaners and Lubricants
- Freezer Sprays
- Drafting Aids
- Flat Ribbon Cable
- P.C. Wick
- Printed Circuit Kits



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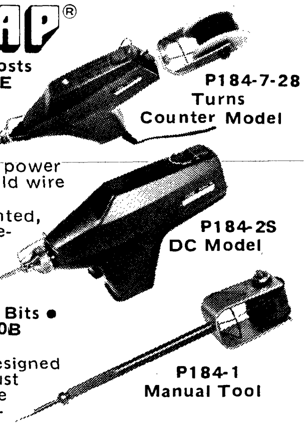
INJECTORALL ELECTRONICS CORP. • 98-100 GLEN STREET • GLEN COVE, NY 11542 • (516) 671-6010

Vector WIRE WRAPPING TOOLS, P.C. CARDS, TERMINALS, VECTORBORD®

SLIT-N-WRAP®

wiring tools — wire for .025" sq. posts

P184 SERIES FOR 28 & 30 GAGE TEFZEL INSULATED WIRE



- Wire spools mounted with tension regulators reduce wire breakage.
- Removable wire-grip housing on power tools eliminates need to hand-hold wire end at start of wrap.
- Replaceable bits, set-screw mounted, simplify maintenance & insure reliability, reduce costs and downtime.

No Stripping • No Precutting • No Premeasuring • No Loading • Daisy Chain Wraps • Quick Change Bits • Reliable Wraps Meet MIL-STD 1130B • U. S. & Foreign Patents

The patented tool has a specially designed tip which slits the wire insulation just before it is wrapped on a post. Wire feeds from a spool on the tool making "daisy chain" connections with single level wraps. Insulation is slit only during wrapping.

MANUAL SLIT-N-WRAP TOOLS

P184-1. Supplied with two 50′ spools of 28 ga. Tefzel wire, tension regulator wire spool bracket, wrap bit No. 02, P183 cutoff and forming tool.

P184-6. Supplied with one 200′ spool of 30 ga. Tefzel wire and No. .04 wrap bit.

TURNS COUNTER 110V AC SLIT-N-WRAP TOOLS

P184-7-28. Electronic 7-turn counter, also adjustable to 3, 5, 7, 9 turns or continuous run, assures uniform number of turns for each pull of trigger. Supplied with 150′ spool of Tefzel 28 ga. wire with tension regulator wire spool bracket, wrap bit No. 02, P183 cutoff and forming tool, external power transformer with cord. 2-piece wrap bit shaft with stationary wire grip avoids need to hold wire end at start of wrap.

P184-7-30. Same as P184-7-28 except supplied with No. 04 bit and 200′ spool of 30 ga. Tefzel wire.

CONTINUOUS RUN SLIT-N-WRAP POWER TOOLS

P184-3S. 110V AC with external power transformer and cord, P183 cutoff and forming tool. Order bits, wire spools and wire bracket separately (see table below).

P184-2S. DC with nickel/cadmium battery, AC recharging unit, P183 cutting and forming Tool. Order bits, wire spools and bracket separately (see table below).

ALL SLIT-N-WRAP TOOLS CAN BE USED WITH ALL SLIT-N-WRAP & CONVENTIONAL WRAP BITS AND WIRE TYPES LISTED BELOW.

Set-Screw Mounted Wrapping Bits for Easy Low Cost Replacement. For Use With All Slit-N-Wrap Tools

	For Use With Wire		
Part No.	**Type**	**AWG**	**Wiring Method**
01	Polyurethane	28	Slit-N-Wrap
02	Tefzel	28	Slit-N-Wrap
03	Kynar	26-30	Conventional Wrap
04	Tefzel	30	Slit-N-Wrap

Wire tension regulator bracket P160-6A for Slit-N-Wrap modeled where not furnished. Not needed for conventional wrap tools.

WIRE FOR SLIT-N-WRAP METHOD

Tefzel Insulated Silver Plated Wire.

FOR USE WITH 02 BIT

Part No.	AWG	Color	Ft. Per Spool
W28-6A	28	Green	50
W28-6B	28	Red	50
W28-6D	28	Blue	50
W28-6E	28	White	50
W28-6F	28	Yellow	50
W28-6H	28	Black	50
W28-6AU	28	Green	150
W28-6BU	28	Red	150
W28-6DU	28	Blue	150
W28-6EU	28	White	150
W28-6FU	28	Yellow	150
FOR USE WITH 04 BIT			
W30-6E	30	White	200
W30-6D	30	Blue	200
W30-6J	30	Orange	200
W30-6F	30	Yellow	200

Polyurethane—Nylon Insulated Wire For Use with No. 01 Bit.

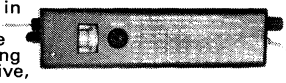
Part No.	AWG	Color	Ft. Per Spool
W28-2 A	28	Green	100′
W28-2 B	28	Red	100′
W28-2 C	28	Clear	100′
W28-2 D	28	Blue	100′

WIRE FOR CONVENTIONAL WIRE WRAPPING METHOD

Kynar Insulated Wire, Silver Plated, Solid Conductor, Easy Stripping, For Use With 03 Bit.

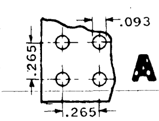
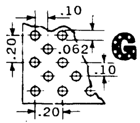
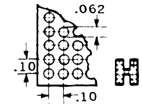
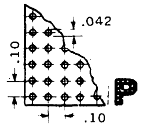
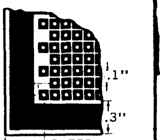
Part No.	AWG	Color	Ft. Per Spool
2323A28-4	28	White	50
W30-5A	30	Green	75
W30-5AS	30	Green	300
W30-5B	30	Red	75
W30-5BS	30	Red	300
W30-5E	30	White	75
W30-5ES	30	White	300
W30-5F	30	Yellow	75
W30-5FS	30	Yellow	300

P210 MILLIOHM PROBE

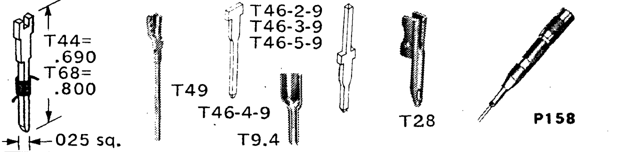


P210—For use in verifying wrap connection from post to post. Determines wrap resistance in milliohms (0-30, 0-300 and 0-3000) in accordance with MIL-STD 1130B. Hand held, battery operated convenience (9V battery). Many other uses: verifying power and ground lines in automotive, marine and avionics.

VECTORBORD® — MICROVECTORBORD®

Pattern	Material	Catalog Number	Length Inches	Width Inches	Thick. Inches
 Pattern "A"	phenolic	32AA18	8.51	4.80	3/32
		64AA18	16.99	4.80	3/32
	epoxy glass comp.	64A18WE	16.99	4.80	1/16
	epoxy paper	85G24EP	16.99	4.80	1/16
 Pattern "G"	epoxy glass comp.	42G24WE	8.51	4.80	1/16
		85G24WE	16.99	4.80	1/16
		85G42WE	16.99	8.51	1/16
	epoxy glass	85H48WE	8.50	4.80	1/16
		85H85WE	8.51	8.51	1/16
		170H48WE	16.99	4.80	1/16
		170H48-032	16.99	4.80	1/32
		170H85WE	16.99	8.51	1/16
 Pattern "H"	Note 1: boards with "WE" in part no. are epoxy glass; boards without "WE" are epoxy glass comp.	59P44-032	6.00	4.50	1/32
		64P44	6.50	4.50	1/16
		64P44WE	6.50	4.50	1/16
		84P44	8.50	4.50	1/16
		84P44WE	8.50	4.50	1/16
		169P44	17.00	4.50	1/16
		164P44WE	17.00	4.50	1/16
		169P59-032	17.00	6.00	1/32
		169P59-047	17.00	6.00	3/64
 Pattern "P"		169P79	17.00	8.00	1/16
		169P84	17.00	8.50	1/16
		169P84WE	17.00	8.50	1/16
		169P99	10.00	17.00	1/16
		349P84	36.00	8.50	1/16
 PATTERN "P" "PAD/HOLE"	copper clad; see Note 1 above	169P44C1	17.00	4.50	1/16
		169P44C2	17.00	4.50	1/16
		169P44WEC1	17.00	4.50	1/16
		169P59C1	17.00	6.00	1/32
		169P84C1	17.00	8.50	1/16
		169P84WEC1	17.00	8.50	1/16
	epoxy paper	64P44EP	6.50	4.50	1/16
		169P44EP	17.00	4.50	1/16
		169P47EP	17.00	4.80	1/16
		169P84EP	17.00	8.50	1/16
	epoxy paper Cu 1	64P44EPC1	6.50	4.50	1/16
		169P44EPC1	17.00	4.50	1/16
	phenolic	64P44XXXP	6.50	4.50	1/16
		169P44XXXP	17.00	4.50	1/16
		169P59XXXP	17.00	6.00	1/16
	ep. gl. comp. pad/hole	45P80-1	8.08	4.50	1/16
		106P106-1	10.60	10.60	1/16

Following pad-per-hole Vectorbord has P-pattern holes with etched and tinned 2 ounce copper pads on both sides around each hole.



TERMINAL DIMENSIONS AND INSTALLING TOOLS

Part No. Tin Plated	Length Below 1/16" Board	Height Above Board	Hand Tool	P158 Tool w/Die Point
T9.4	.219	.190		—
T28	.175	.200	P91A	—
T42-1	.107	.281	P149A	—
T46-2-9	.300	.360	P133B	D7-4
T46-3-9	.520	.460		D7-4
T46-4-9	.300	.040	or	D7-4
T46-5-9	.24	.280		D7-4
T49	.560	.210	P156	D8
T49-1	.388	.21	P156	D8
T44	.477	.120	A13	D11
T68	.790	.172	A13-1	D17
T68A	.540	.172	A13-1	D17

WRAPPABLE & SOLDERABLE TERMINALS & PINS

T44/T68 Mini-Wrap for 0.042″ Holes—Low profile wire wrappable terminals have slotted upper end for soldered wires. Ideal for miniature assemblies.

T49 Trifurcated Klip-Wrap—Unique three-fingered clip on upper end makes this a time-saving terminal for production or experimental uses. Spring clip holds leads from 0.018″ to 0.025″, 0.032″ or 0.040″ until soldered.

T46 Series Press-In Wrap Posts have rectangular base with stepped shank for better holding in 0.042″ holes.

T42-1 Miniaturized Compact Push-in fits 0.042″ dia. holes such as in "P" pattern Micro-Vectorbord and can be mounted on 0.1″ centers side-to-side. Tintillate plated. Ideal for IC work because leads can be laid in slots or pass through terminal vertically.

T28-Compact push-in terminals fit 0.062″ dia. holes in printed circuit boards and Vectorbord. Patterns, B, F, G, and H. Tintillate plated copper alloy.

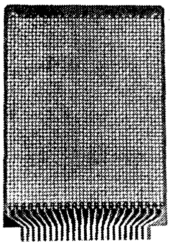
T9.4-Push-in type fits 0.093″ dia. holes in printed circuit boards or Vectorbord "A" and "AA" patterns. Serrated teeth hold leads 0.032″ to 0.040″ in slots until soldered. Supplied with intillate plating for easy soldering.

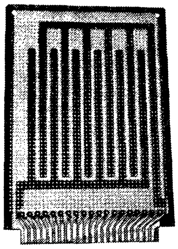
P158 Spring Impact Tool accepts screw-in terminal die points listed above. When depressed, tool delivers sharp impact force to drive terminals into circuit board holes.

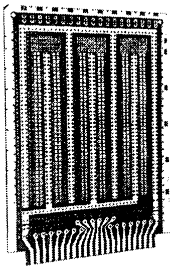
VECTOR ELECTRONIC COMPANY, 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336, Phone (818) 365-9661

PLUGBOARDS ● P. C. CONNECTORS ● EXTENDER CARDS ● CIRCBORDS

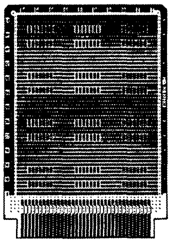
Vector

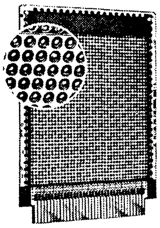

3662

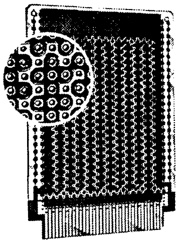

3682-2 (Wiring Side)

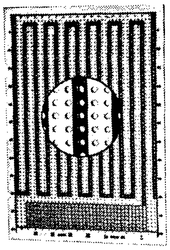

3677-2

3719-3 - X Side




4112-4 (Wiring Side)


4066-4 (Wiring Side)


8002

BARE BOARDS ● BOARDS FOR WIRE WRAPPING ● BOARDS FOR SOLDERING

UNIVERSAL PLUGBOARDS

Use for prototype, test, and short run plug-in circuits. All boards are 1/16" thick and have an overall grid of 0.042" holes on 0.1" centers (pattern "P"). All etched circuitry above contact area is tinned for easy soldering. Boards are available with varied contact arrangements and mating connectors are listed. Back-to-back contacts terminate in independent hole pads. Layout paper furnished with all boards.

PLUGBOARD AND CIRCBORD SPECIFICATION

Flame Retardant Epoxy Glass Composite.
Copper Cladding: 2 oz. (.0027" thick) 1 or 2 sides. Solder coated except contacts.
Plugboard Contacts: Nickel plated and gold flashed.

CARD EXTENDERS SPECIFICATIONS

Flame retardant epoxy glass composite. Nickel/gold plug tips. High quality top connector installed.

ORDERING INFORMATION

Part No.	Size	Contacts		Max. No. 16-pin DIPs Accom.	Circuitry Description	Mating Connectors		Mating Extenders
		No.	Spacing			Solder Tail	Wrap Tail	
3662	4.5 × 6.5	44	.156	50	Contacts only.	R644	R644-3	3690
3662-2	4.5 × 9.6	44	.156	90		R644	R644-3	3690
3662-5	4.5 × 4.5	44	.156	40		R644	R644-3	3690
3662-9	4.5 × 6.5	44	.156	50	Same as 3662 but with plated thru holes.	R644	R644-3	3690
3662A6	4.5 × 6.5	44	.156	54	Ground plane, component side.	R644	R644-3	3690
3673	7.98 × 9.6	80	.125	152	Contacts only.	R680-2	R680	3690-14
3677	4.5 × 9.6	44	.156	21	3-hole pad groups for component mounting and interconnection. Interleaved ground & voltage buses.	R644	R644-3	3690
3677-2	4.5 × 5.5	44	.156	12		R644	R644-3	3690
3677-6	4.5 × 8.1	none	none	21	Similar to 3677, but without contacts.	none	none	none
3682	4.5 × 9.6	44	.156	48	For wire wrapping. Interleaved ground & voltage buses. 3682-4 has ground plane on component side.	R644	R644-3	3690
3682-2	4.5 × 6.5	44	.156	24		R644	R644-3	3690
3682-4	4.5 × 6.5	44	.156	24		R644	R644-3	3690
3719-1	4.5 × 6.5	72	.100	60	Contacts only.	R636-2	R636-1	3690-2
3719-2	4.5 × 6.5	72	.100	12	Horizontal etched conductor lines.	R636-2	R636-1	3690-2
3719-3	4.5 × 6.5	72	.100	12	Horizontal etched conductors one side, vertical other side, broken for 14-pin DIP only.	R636-2	R636-1	3690-2
3719-4	4.5 × 9.6	72	.100	90	Contacts only.	R636-2	R636-1	3690-2
3719-5	4.5 × 4.5	72	.100	30	Contacts only.	R636-2	R636-1	3690-2
3719-6	4.5 × 6.5	72	.100	48	Contacts with or without pads and plated through holes.	R636-2	R636-1	3690-2
3795	2.73 × 4.5	44	.100	16	Contacts only. Commodore compatible.	—	R644-2	3690-8
3795-1	2.73 × 4.5	44	.100	4	Interleaved power & ground buses and 3-hole solder pads. Commodore compatible.	—	R644-2	3690-8
3797	2.73 × 4.5	30	.156	16	Contacts only.	R630	R630-1	3690-10
3797-2	2.73 × 4.5	30	.156	4	Power & ground buses and 3-hole solder pads.	R630	R630-1	3690-10
4050-1	4.5 × 6.5	44	.156	12	Vertical etched conductor lines.	R644	R644-3	3690
4050-2	4.5 × 6.5	44	.156	12	Vertical lines one side, horizontal lines opposite side.	R644	R644-3	3690
4066-4	4.5 × 6.5	72	.100	34	Interleaved power & ground buses plus "free" space for large components. Ground plane on component side.	R636-2	R636-1	3690-2
4066-5	4.5 × 4.5	72	.100	18		R636-2	R636-1	3690-2
4112	4.5 × 9.6	44	.156	40	3-hole pads plus interleaved zig-zag voltage bus, overall ground plane other side.	R644	R644-3	3690
4112-4	4.5 × 6.5	44	.156	25		R644	R644-3	3690
4112-5	4.5 × 4.5	44	.156	15		R644	R644-3	3690
4493	4.5 × 6.5	72	.100	42	2 regulator positions, 1 prewired to powers input, ground plane, other position uncommitted. Full ground plane network 1 side, other side interdigital.	R636-2	R636-1	3690-2
4493-1	4.5 × 9.6	72	.100	63		R636-2	R636-1	3690-2
4494	4.5 × 6.5	44	.156	42		R644	R644-3	3690
8001	4.5 × 6.5	—	—	20	3-hole pads, 2 buses, solder or wrap.	These circbords except 8001 are Vector's popular Plugbord patterns without the expensive plug section.		
8002	4.5 × 6.5	—	—	35	2 buses—best for wire wrapping.			
8003	4.5 × 6.5	—	—	60	Pad-per-hole board.			
8004	4.5 × 6.5	—	—	40	Clearance ground plane.			
8005	4.5 × 6.5	—	—	60	Bare, Unclad			
8006	5.0 × 13.25	—	—	154	Pad-per-hole plated through			
8007	4.5 × 6.5	—	—	60	Pad-per-hole one side, Clearance Hole ground plane other side.			

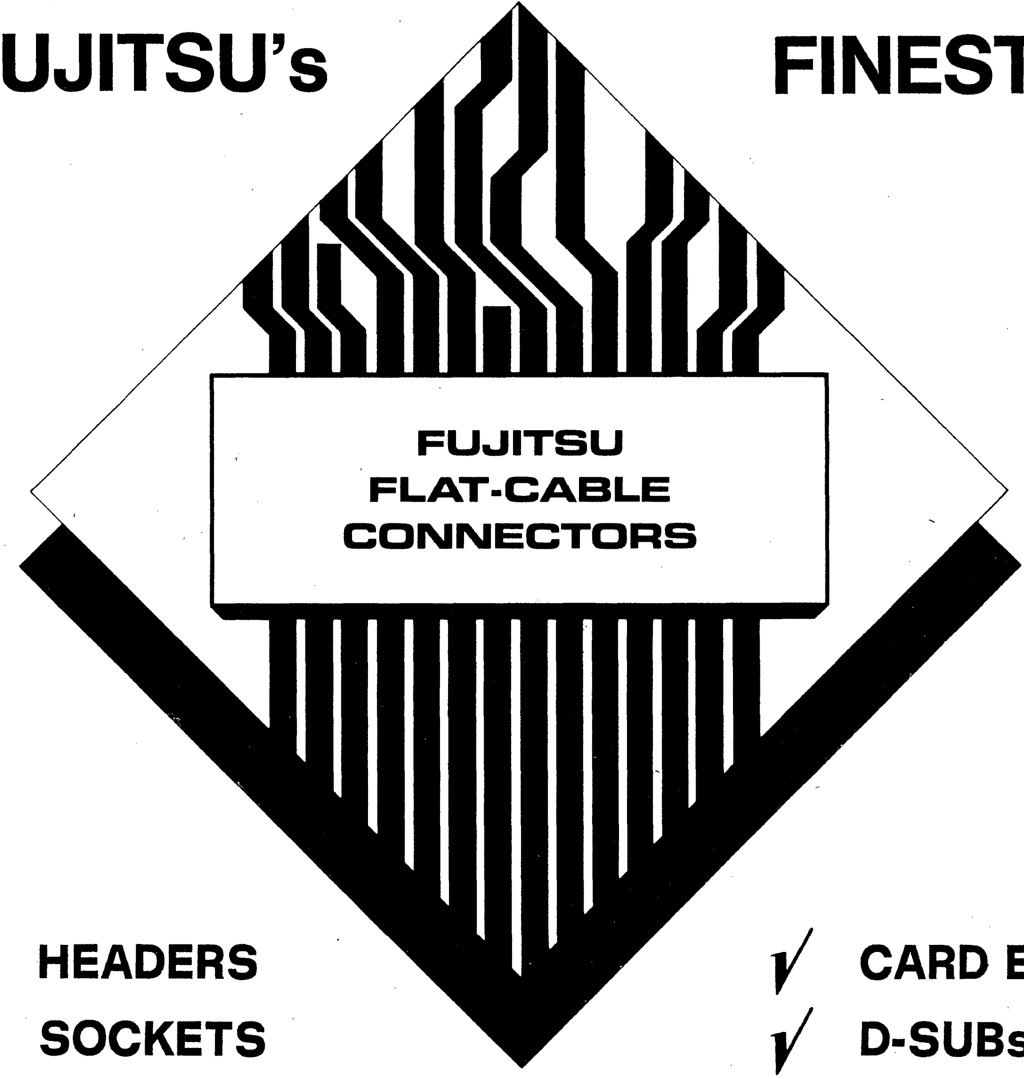
Many Other Standard Models Available—Fast Production of Custom Models. See Sec. 1400, P. 2 • 1065 for Card Racks and Enclosures.

VECTOR ELECTRONIC COMPANY, Inc. 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 Phone (818) 365-9661

LOOKING FOR FLAT CABLE CONNECTORS?

...See our catalog pages C·1195 - C·1224 for

FUJITSU's FINEST



- ✓ HEADERS
- ✓ SOCKETS
- ✓ TRANSITION
- ✓ CARD EDGE
- ✓ D-SUBs
- ✓ RIBBON

SEE FACING PAGE FOR MORE DETAILS ➡

FUJITSU

FUJITSU AMERICA, INC./COMPONENT DIVISION
918 Sherwood Drive, Lake Bluff, Illinois 60044
(312) 295-2610 / Telex: 206196 / TWX: 910-651-2259

CONNECTORS, CABLE-TO-CABLE/PANEL

Manufacturer	EEM Starting Page	Series/Model No.	Type Connector						Con-nector		No. Con-ductors		Angle		Special Features												
			Circular	Coax/Triax	Flat Cable	Rectangular	D-Submin.	DIN	Solder	Solderless	Single	Multi	Right Angle	Parallel	Herm. Seal	Envir. Resis.	High Density	Power	Hi Rel	Low Signal	Quick Disconnect	Locking	LIF ZIF	Free Hanging	Header	Polarization	Mil. Spec.
Amlan	C•1125						●		●	●		●	●	●										●	●		●
AMP	C•1134	MATE-N-LOK				●			●			●	●	●								●		●	●		
	C•1136	AMPLIMITE			●		●			●		●	●	●				●	●					●			
	C•1141	Plastic	●	●						●		●		●			●	●	●		●	●		●	●	●	
	C•1144	CHAMP			●	●				●		●	●	●		●								●	●		
	C•1146	MTA			●	●				●		●	●	●													
Asmann/ebm	C•1160						●			●												●					
Beau Products	C•1170	3300/5400				●			●			●		●										●			
Breeze-Illinois	C•1171		●							●	●			●				●	●								●
Ceramaseal	C•1173	Hi-temp./vac.		●					●		●				●									●			
	C•1173	Instr.	●						●			●			●									●	●		
Dai-Ichi Shoji	C•1179	TC/PR/RD	●	●					●			●									●			●	●		
Fischer America	C•1193	Swiss made		●					●		●			●					●	●	●	●					
Fujitsu	C•1195				●				●	●		●	●	●								●					
Richard Hirschmann	C•1232		●					●					●	●													
	C•1233		●					●					●	●													
Holmberg	C•1247	H2/3/4					●		●	●		●	●	●						●							
ITT Cannon	C•1278	D-series		●			●		●	●		●		●					●					●	●		
	C•1280	KO/KPT, etc.	●						●	●					●	●			●	●	●			●	●		
ITT Pomona	C•1290	Audio	●						●			●		●						●	●	●		●			
LEMO	C•1431	B/E/S	●	●					●		●	●				●			●		●	●					
Malco	C•1446	D-series	●			●	●		●				●	●	●		●		●				●				●
Metuchen Capacitors	C•1454	Filtered					●		●			●		●													
National Tel•Tronics	C•1473	Co-axial	●						●		●			●													
Power Dynamics	C•1489	Power Cord				●			●	●		●		●				●							●		
Rowe	C•1501	G/LL/RMC	●	●							●	●		●							●	●		●	●		
Shogyo	C•1508	Various/RF	●	●					●	●	●	●	●	●													
SP America	C•1510	Shin-Etsu										●		●									●				
Spectrum Control	C•1513	Filtered					●		●	●		●	●	●			●							●	●		
Switchcraft	C•1527	Audio	●						●				●	●							●	●		●	●		
	C•1526	DIN	●						●			●	●	●						●		●		●	●		
Symbex	C•1529	RS-232/449, etc.					●		●			●		●						●		●					
TRW	C•1546	Super D				●				●		●	●	●					●			●	●	●		●	
	C•1559	Dura-Con				●			●			●	●			●	●	●							●		
	C•1566	Vibra-Lok	●							●		●		●		●	●		●			●		●	●	●	●
Virginia Plastics	C•1567	PCB											●	●								●		●		●	
Wall-Able	C•1570	F/Phono		●					●		●			●													
Wells Electronics	C•1585	420/421/423					●		●				●	●											●		

CONNECTORS, PCB/FLAT CABLE

Manufacturer	EEM Starting Page	Series/ Model No./ I.D.	Board to Chassis/ Mother Bd.		Board to Cable/ I/O		For Ex- tender Bd.	Type or Feature	Contact Style			Special Features											
			One* Piece	Two† Piece	One* Piece	Two† Piece			Canti- lever	Pin	Bel- low	ZIF-LIF	Extractors	Gold Contact	Cup/Eye/Tail Solder	DIP/Flow Solder	Inst. Dis. Contact	Wirewrap	Rt. Angle Contacts	Positive Lock	Mil. Spec.	Coax Adder	Polarization
AirBorn	C•1113	WT/WTB		●		●				●			●	●	●	●		●	●	●		●	●
		WTBT					●			●			●	●	●	●		●	●	●			●
	C•1114	WGB/ WTKA		●				2-Rows		●			●	●	●	●		●	●	●			●
	C•1116	Hi Density		●				3-Rows							●	●		●					
	C•1117	Lead-Edge		●					●							●							
	C•1113- C•1118	WTA/WTD				●		Crimp Remov- able					●	●	●	●	●	●	●	●	●		
AMP	C•1149	STD	●				●		●					●		●		●					
		Low Profile	●					Bifurcated	●					●	●	●							
	C•1150	Pace	●					Remov- able Contacts	●					●				●					
Bead	C•1162	Strip Headers	●	●				Shrouded		●				●		●		●	●				
Caton	C•1167	EC	●					Card Edge	●					●							●		
Dale	C•1180	EB4/6	●					Card Edge	●					●		●		●	●		●		●
Eby	C•1184	Card Edge	●	●		●		Flat Cable		●				●	●	●			●				
Elfab	C•1190	Press-Pac		●				DIN	●	●						●		●					
	C•1191	Box-Pac		●				Surface Mount	●							●							
H&T Components	C•1226					●		Socket	●		●			●			●				●		●
	C•1226			●				Headers		●	●			●		●			●		●		●
Holmberg	C•1239	Card Edge	●					Many Cent.-To- Cent.		●				●	●	●		●	●				●
Hypertronics	C•1271	Submin.		●						●		●			●	●		●	●				

* One Piece: Etched fingers on board or exposed flat-cable-wires plug directly into mating connector.
† Two Piece: Board or cable has attached connector, or header, that mates with socket.

CONNECTORS, PCB/FLAT CABLE (Con't.)

			Board to Chassis/ Mother Bd.		Board to Cable/ I/O				Contact Style			Special Features											
Manufacturer	EEM Starting Page	Series/ Model No./ I.D.	One* Piece	Two† Piece	One* Piece	Two† Piece	For Ex- tender Bd.	Type or Feature	Canti- lever	Pin	Bel- low	ZIF-LIF	Extractors	Gold Contact	Cup/Eye/Tail Solder	DIP/Flow Solder	Inst. Dis. Contact	Wirewrap	Rt. Angle Contacts	Positive Lock	Mil. Spec.	Coax Adder	Polarization
Indl. Elctrn. Hardware	C•1272	IEH		●				Hypertac Contacts		●		●									●		
ITT Cannon	C•1288	GO3/PB	●						●						●	●		●					
		GO6/60		●				DIN/IDC		●	●					●	●	●	●				
Kel-Am	C•1419	PR/PS				●		Headers	●							●		●					
	C•1421	PF				●		Ribbon	●							●							●
	C•1417	6300				●		Ribbon									●						●
	C•1418	RC		●				To PC Socket								●		●	●				
	C•1422	DIN		●						●	●			●		●		●	●				
Mhotronics	C•1459	FFC/MFC		●		●		Headers		●					●	●			●	●			●
Molex	C•1463	c-Grid/ IDT/KK/ MX-50	●	●	●	●	●	Modular		●							●		●				
Panduit	C•1475	Lat-Con				●		Flat Cable		●	●						●				●		●
	C•1474	Hi-Con		●				DIN		●	●					●		●	●				
Phoenix Contact	C•1485	Term. Blocks			●			Screw Type								●			●				
Sullins	C•1518	EZ		●				Lo-Hi Profile				●		●	●	●							●
Symbex	C•1528	Flat Cable			●	●		Headers	●	●	●						●						
TRW	C•1541	Header	●	●	●	●		Flat Cable	●	●	●					●	●	●		●	●		●
	C•1561	Cardcon	●					Edge				●		●		●				●	●		●
WECO	C•1572	Term. Blocks			●			Screw Type								●			●				
Weidmuller		Term. Blocks			●			Screw Type								●			●				

* One Piece: Etched fingers on board or exposed flat-cable-wires plug directly into mating connector.
† Two Piece: Board or cable has attached connector, or header, that mates with socket.

CONNECTORS, RACK & PANEL

Manufacturer	EEM Starting Page(s)	Series/ Model No.	Contact			Two-Piece		Special Features							
			Pin	Canti-lever	Bellow	Mating	Mating	Crimp	Wirewrap	DIP Solder	Cup/Eye Solder	Locking	Hoods	Jack Screw	Hi Rel/ Mil.
Dale	C•1183	MM22/24	●			●				●	●	●	●		
ITT Cannon	C•1274	D/DP/CA	●			●		●	●	●			●	●	●
Rowe	C•1501		●			●									

JACKS, PLUGS, ADAPTERS, PINS

Manufacturer	EEM Page(s)	Jacks	Jack Adapters	Plug & Jack Sets	Plugs, Electrical	Plug Adapters	Binding Posts	Pins, Elec. Cond.	Contacts, Electrical	Plugs, Power	Recep-tacles, Power	Jumpers, Circuit Board	Clips, Test	Leads, Test	High Volt.
Alden	C•1119-1124									●	●				●
Aries	C•1155-1158	●		●					●			●			
Asmann/ebm	C•1160											●			
Bead	C•1166								●						
Concord	C•1174, C•1175	●	●	●	●	●	●	●	●						
Connector Corp.	C•1176, C•1177	●			●				●						
Eby	C•1185						●								
Grayhill	C•1225						●						●		
Hiram Jones	C•1228-1231	●							●						
Richard Hirschmann	C•1234-1237	●	●	●	●	●	●						●	●	
Hypertronics	C•1271								●						
International Comps. Corp.	C•1273	●			●	●									
ITT Pomona	C•1290	●	●	●	●	●	●					●	●	●	
Jettron Prods.	C•1408-1410														●
Lear Siegler	C•1430							●	●						
LEMO	C•1433-1439	●			●										
Mueller	C•1468-1470												●	●	
Natl. Tel-Tronics	C•1473	●		●	●		●								
Panel Comps.	C•1478-1482									●	●				
PCK Elasto-merics	C•1483								●						
Power Dynamics	C•1489-1492									●	●				
Preh Electronics	C•1497								●						
Shogyo	C•1508	●	●	●	●	●							●		
Smith, H.H.	C•1509	●		●	●		●								
Superior Elec. Co.	C•1523			●			●								
Switchcraft	C•1524-1527	●		●	●						●				
Tecknit	C•1530-1535								●						
Wall-Able	C•1570-1571	●							●						
WECO	C•1572-1578			●											

TERMINALS & TERMINAL BOARDS, BLOCKS, ETC.

Manufacturer	EEM Page(s)	Barrier Blocks	Terminal Boards	Terminal Strips	Terminals								
					Feed-thru	Lug	PCB	Standoff	Threaded	Wirewrap	Solderless	Push-on/ Quick Discon.	Turret
AMP	C•1131-1148					●					●		
	C•1152		●	●									
Arcoelectric	C•1153	●											
Asmann/ebm	C•1160			●									
Beau Products	C•1168-1170	●		●									
Caton	C•1172	●		●									
Curtis Inds.	C-1178	●		●	●	●	●		●			●	
Electronic Molding	C•1188				●			●					
ITT Pomona	C•1290												●
Hiram Jones	C•1228-1231			●	●	●	●	●	●				●
Kulka Smith	C•1424-1429	●	●*	●	●	●					●	●	●
Magnum	C•1440-1442	●	●	●	●		●		●	●	●		
National Tel•Tronics	C•1473		●	●		●							
Panduit	C•1474-1476					●							
Phoenix Contact	C•1484-1488	●		●									
Precicontact	C•1494-1495							●		●			●
RDI/Reed Devices	C•1498-1501	●	●	●					●	●			
Shogyo	C•1508		●	●									
Smith, HH	C-1509	●	●										
Wall-Able	C•1571		●	●							●		
WECO	C•1578			●									

sockets/terminals-2100

SOCKETS

Manufacturer	EEM Page(s)	IC	DIP/SIP	Pin Grid Array	Carrier	Transistor	Crystal	Lamp	Relay	Tube	Test	Adapter
Alden Products	C•1122									●		
AMP	C•1151	●	●									
Aries	C•1155-1158		●	●								
Asmann/ebm	C•1161	●	●			●					●	
Connector Corp.	C•1144, C•1145	●				●	●			●		
Eby	C•1185					●*	●*		●	●*		
Electronic Molding	C•1186	●	●	●								
Elfab	C•1190, C•1191	●	●									
Grayhill	C•1225					●		●				
H & T Comps.	C•1226	●*	●*									
ITT Pomona	C•1290										●	●
Jettron Prods	C•1408-1410									●		
Kel-Am	C•1413	●			●							
Molex, Inc.	C•1467		●	●		●						●
Panduit	C•1474-1476	●	●									
Precicontact	C•1494	●	●				●		●			●
RDI/Reed Devices	C•1498-1501								●	●		
Smith, HH	C•1509		●									●
TRW	C•1552-1555	●	●								●	
Wall-Able	C•1570-1571					●			●			
WECO	C•1573-1578	●	●									
Wells Electronics	C•1580-1587	●	●	●	●							

* Mil. Spec.

"Our Commitment to Quality Begins And Ends With Me!"

Warren R Hogan

—Warren Hogan
President

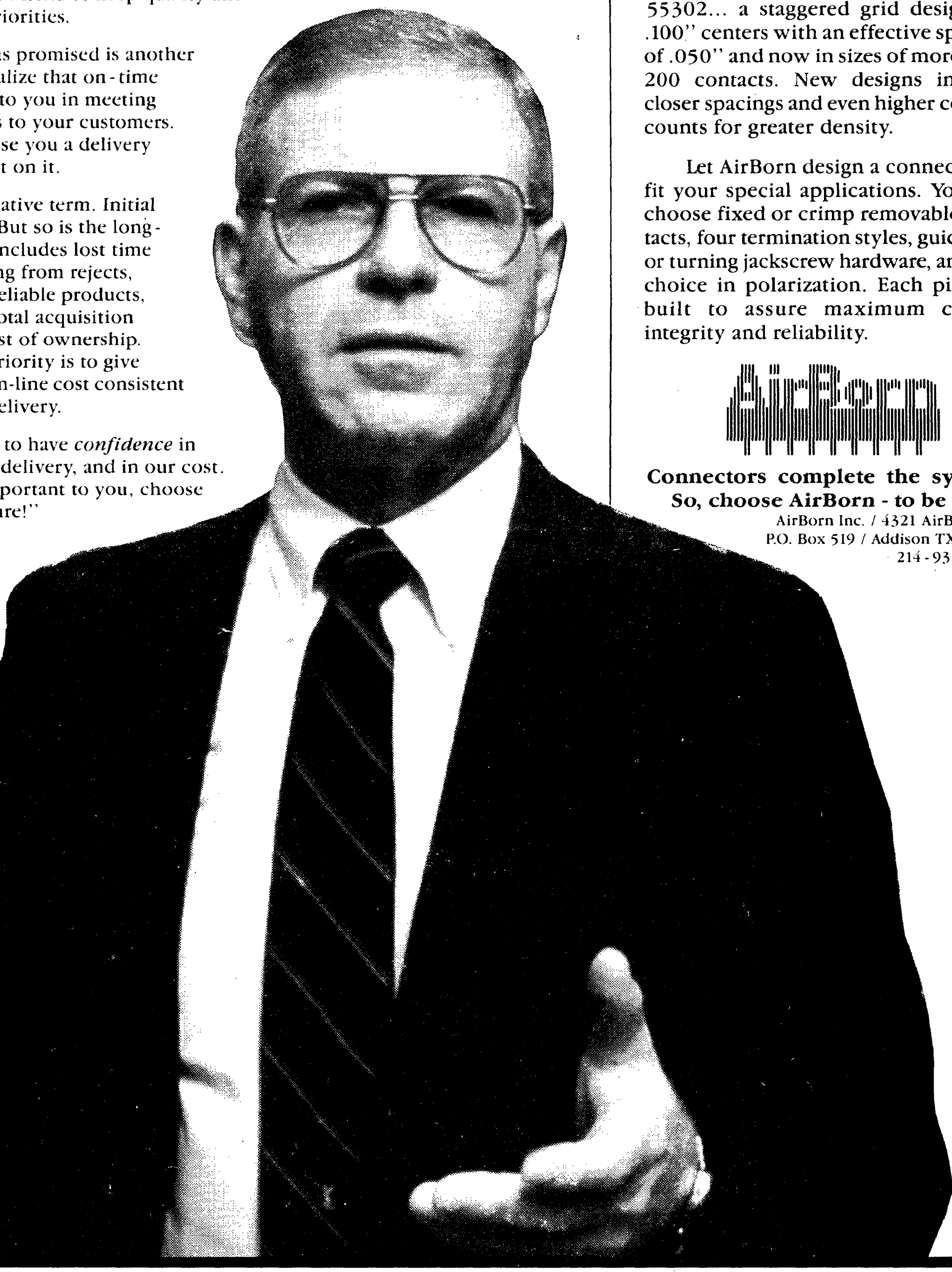
"I insist on quality. I provide our people with the tools, training, environment, and incentive to deliver reliable, defect-free products. And then I follow through to make sure the program is working.

"**QUALITY** is a word that's easy to use but hard to live up to. The measure of a product's quality and reliability is in the satisfaction of its users and the repeat business they generate. After all, only reliable components can keep their systems on line and working. AirBorn's products and services are of the highest quality. We like it that way and intend to keep quality and reliability as top priorities.

"**DELIVERY** as promised is another top priority. We realize that on-time delivery is critical to you in meeting your commitments to your customers. So when we promise you a delivery date, you can count on it.

"**COST** is a relative term. Initial price paid is cost. But so is the long-term price which includes lost time and money resulting from rejects, late deliveries, unreliable products, etc. These reflect total acquisition cost — the true cost of ownership. So our other top priority is to give you the best bottom-line cost consistent with quality and delivery.

"We want you to have *confidence* in our quality, in our delivery, and in our cost. When these are important to you, choose AirBorn — to be sure!"



Military and Commercial Connectors for PC Board, Rack/Panel & Lead Edge.

At our plants in Texas, we design and manufacture the most reliable subminiature printed circuit connectors in the industry. AirBorn molds connector bodies, makes contacts and hardware, and assembles every piece to exacting customer specifications.

Applications include both military and commercial projects in aviation, aerospace, computers, communications, data, and many other high reliability electronic and electromechanical systems.

AirBorn pioneered the .030" dia. right-angle PC connector for MIL-C-55302... a staggered grid design on .100" centers with an effective spacing of .050" and now in sizes of more than 200 contacts. New designs include closer spacings and even higher contact counts for greater density.

Let AirBorn design a connector to fit your special applications. You can choose fixed or crimp removable contacts, four termination styles, guide sets or turning jackscrew hardware, and any choice in polarization. Each piece is built to assure maximum circuit integrity and reliability.

AirBorn

Connectors complete the system.
So, choose AirBorn - to be sure!

AirBorn Inc. / 4321 AirBorn Dr.
P.O. Box 519 / Addison TX 75001
214-931-3200.

AirBorn Connectors
4321 AirBorn Drive
Post Office Box 519
Addison, Texas 75001-0519
Telephone 214-931-3200 / TWX 910-860-5230

PC CONNECTORS / CODE INFORMATION / SPECIFICATIONS

MATERIAL AND FINISH SPECIFICATIONS

Pin Contact BE CU, per QQ-C-530

Socket Contact BE CU, per QQ-C-530 and/or QQ-C-533

Contact Finish Gold plate per MIL-G-45204

Jackscrews, Guides Stainless Steel, Series 303 per ASTM-A582, passivated per QQ-P-35

Molded Inserts Glass filled diallyl phthalate per MIL-M-14G

Guide Sockets (Polarized "D" Type) BE CU, per QQ-C-530, Nickel plated per QQ-N-290

Face Seal Gasket Silicone rubber per ZZ-R-765

Hoods Nylon, glass filled, for strain relief

PERFORMANCE SPECIFICATIONS

Contact Rating 5 Amperes

Wire Size #22 AWG stranded (adapter sleeves available)

Test Voltage 1000 V, 60 cps RMS @ sea level 300 V, 60 cps RMS @ 70,000 feet

Operating Temperature −65° to +125°C or −85° to +257°F

Durability 500 mating cycles

Insulation Resistance 5000 Megohms min. @ 500 VDC

Contact Resistance 0.025 volt maximum drop at 5 amps

Contact Separating Force .50 oz. minimum with .029 dia. test pin; 12.00 oz. maximum with .031 dia. test pin

Low Force Sockets 4.0 oz. Max.; 2.0 oz. Avg.

SERIES IDENTIFICATION

WT — 1 row, .100″ centers

WG, WGA, WGE — 3 row, .100″ centers, offset .050″

WTA, WTB, WTBT, WTKA, WTDXA — 2 row, .100″ centers, offset .050″

HARDWARE

SY — guide set (Note - Polarized "D shaped" guide sets available in 64 keying positions)

SYL — guide set - .247 mounting extension

J — fixed jackscrew set

JL — fixed jackscrew set — .247 mounting extension

JT — turning jackscrew set

JTA — short turning packscrew set

JTB — short turning jackscrew set/ internal hex

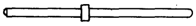
JTL — long turning jackscrew set

CONTACTS

PC

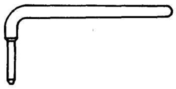
Pin, solder cup

PD



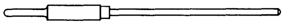
Pin, dip solder

PR



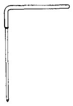
Pin, right angle, dip solder

PW



Pin, wirewrap

PRW

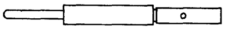


Pin, right angle, wirewrap

PF

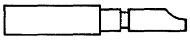
Pin, flexcable

WTK2222PA



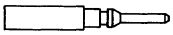
Pin, crimp removable 22 gage barrel

SEC, SAC



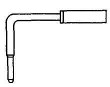
Closed entry socket, solder cup

SED, SAD



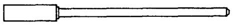
Closed entry socket, dip solder

SER, SAR



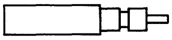
Closed entry socket, right angle, dip solder

SW, SAW



Closed entry socket, wirewrap

SF, SAF



Closed entry socket, flexcable

WTK2222S
WTK2220S

Closed entry socket, crimp removable 20 & 22 gage barrel

Examples of termination lengths:

PD9, 11 — 9/64, 11/64 extensions
PR7, 9, 11 — 7/64, 9/64, 11/64 extensions
PRW40 — 40/64 extension
PF3 — 3/64 extension
SED9, 11, 15 — 9/64, 11/64, 15/64 extensions
SER7 — 7/64 extension
SW40 — 40/64 extension
SF3 — 3/64 extension
SF6 — 6/64 extension

LOW FORCE CONNECTORS

3-row connectors

Size	Mating Forces*
WG 160	20.0 lbs.
WGA 122	15.25 lbs.
WGR 92	11.5 lbs.
WG 80	10.0 lbs.

* Average force per contact: .125 lbs. or 2.0 oz.

2-row connectors

Size	Mating Forces*
WTB 120	15.0 lbs.
WTB 100	12.5 lbs.
WTB 90	11.25 lbs.
WTB 70	8.75 lbs.
WTB 66	8.25 lbs.
WTB 60	7.5 lbs.
WTB 56	7.0 lbs.
WTB 54	6.75 lbs.

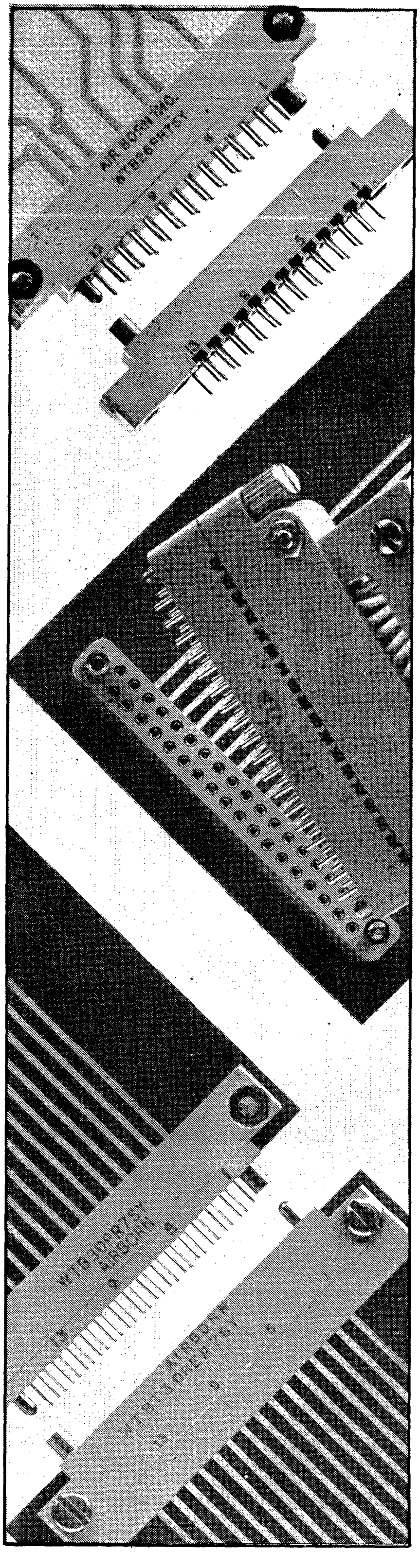
Low Force Code	Original Code
SAC	SEC
SAD9, 11, 15	SED9, 11, 15
SAF3, SAF6	SF3, SF6
SAW40	SW40

Example: WG160SAD11 SY

A minimum withdrawal force of .08 lbs. times the number of contacts applies.
Individual contact forces with test pins per MS 3197:
Minimum Separation Force .5 oz . (.029″ Steel Pin)
Maximum Engagement Force 12.0 oz. (.031″ Steel Pin)
Availability: Standard production schedule.
Pricing: Same as standard connector.
No change in connector code number is required. Previously assigned low force codes, such as WG160SAD11SY will continue to be honored.

AirBorn Connectors
4321 AirBorn Drive
Post Office Box 519
Addison, Texas 75001-0519
Telephone 214-931-3200 / TWX 910-860-5230

PC BOARD AND CHASSIS COMBINATIONS



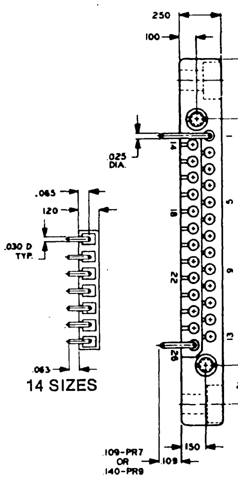
AirBorn Connectors for PC Card to Chassis or Mother Board Connections

Two series of subminiature, right-angle .030″ dia. BeCu pin to socket connectors.

Series WT: Single-row connectors on .100″ centers.

Series WTB: Double-row connectors on .100″ centers, offset .050″. Three or six 50-ohm Coax available with 20-contact connectors.

Terminations: Soldercup, wave solder, Wire-Wrap*.



Con tacts	Length Overall
10	1.350
14	1.550
20	1.850
24	2.050
26	2.150
30	2.350
36	2.650
40	2.850
44	3.050
50	3.350
54	3.550
56	3.650
60	3.850
66	4.150
70	4.350
90	5.650
100	6.150
120	7.150
20+3	2.850
20+6	4.050

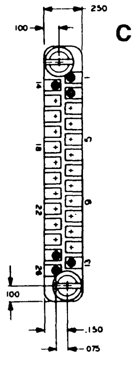
AirBorn Connectors for PC Board Input-Output, Cable to Panel and Cable to Chassis Connections

Series WTA: Subminiature, rectangular plug and receptacle, .100″ centers, two rows offset .050″, .030″ dia. BeCu contacts.

Terminations: Soldercup, wave solder, and Wire-Wrap*: Flexcable.

Series WTD: Subminiature, rectangular plug and receptacle, .100″ centers, two rows offset .050″, .030″ dia. BeCu contacts.

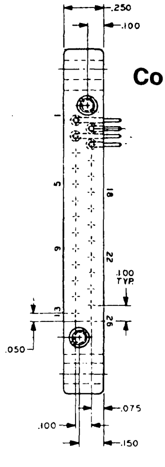
Terminations: Crimp Removable Socket.



Contacts	Overall Length
10	.850
14	1.050
20	1.350
24	1.550
26	1.650
30	1.850
36	2.150
40	2.350
44	2.550
50	2.850
54	3.050
56	3.150
60	3.350
66	3.650
70	3.850

AirBorn Connectors for Extender Board and Test Applications

Series WTBT: Right angle receptacles combine with right angle plugs for extender board applications. Available in combinations from 10 to 70 contacts. Choice of .109″ or .140″ termination lengths. Also provides a test vehicle using conventional plugs with guiding or jackscrew locking devices.



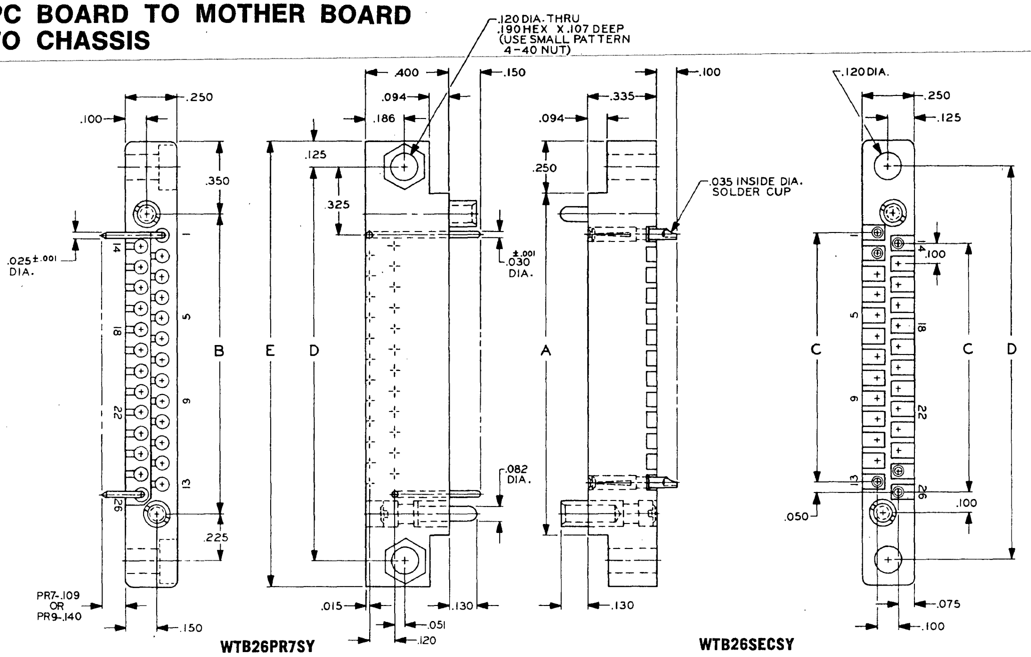
Contacts	Length Overall
10	1.350
14	1.550
20	1.850
24	2.050
26	2.150
30	2.350
36	2.650
40	2.850
44	3.050
50	3.350
54	3.550
56	3.650
60	3.850
66	4.150
70	4.350

*Registered TM of Gardner-Denver Company.

AirBorn Connectors
4321 AirBorn Drive
Post Office Box 519
Addison, Texas 75001-0519
Telephone 214-931-3200 / TWX 910-860-5230

PC CONNECTORS / APPLICATIONS

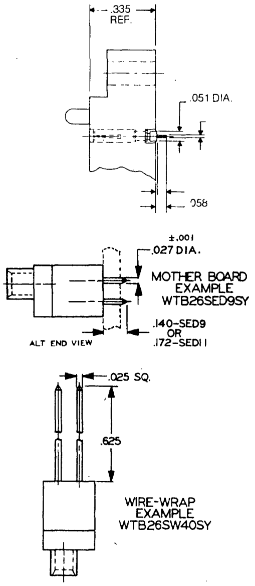
PC BOARD TO MOTHER BOARD TO CHASSIS


.120 DIA. THRU
.190 HEX X .107 DEEP
(USE SMALL PATTERN 4-40 NUT)
.250
.100
.350
.025±.001 DIA.
14
18
22
26
1
5
9
13
B
E
D
.225
PR7-.109 OR PR9-.140
.150
.400
.150
.094
.186
.125
.325
±.001 .030 DIA.
.082 DIA.
.015
.130
.051
.120
.335
.100
.094
.250
.035 INSIDE DIA. SOLDER CUP
A
.130
.120 DIA.
.250
.125
.100
C
C
D
.050
.100
.075
.100

WTB26PR7SY

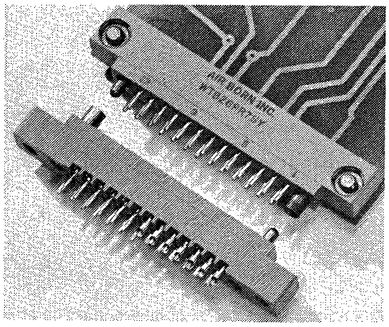
WTB26SECSY

SF3—FLEXIBLE CIRCUIT TERMINAL

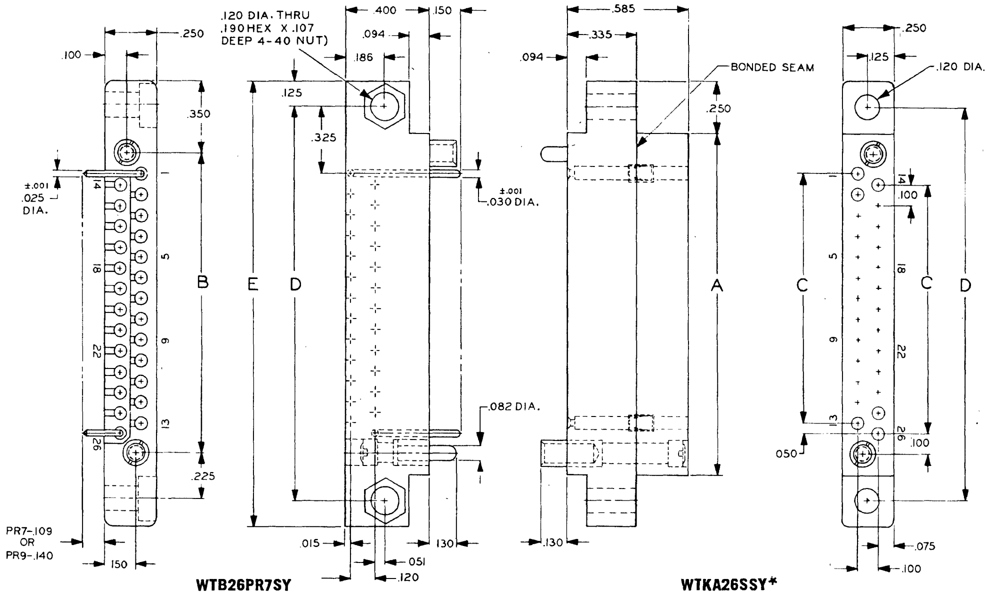

.335 REF.
.051 DIA.
.058
±.001 .027 DIA.
MOTHER BOARD EXAMPLE WTB26SED9SY
ALT END VIEW
.140-SED9 OR .172-SED11
.025 SQ.
.625
WIRE-WRAP EXAMPLE WTB26SW40SY

Series WGB, WTKA
2 row, right angle plug with .100″ centers, offset .050″

Size	Dimensions				
	A	B	C	D	E
10	.850	.650	.400	1.100	1.350
14	1.050	.850	.600	1.300	1.550
20	1.350	1.150	.900	1.600	1.850
24	1.550	1.350	1.100	1.800	2.050
26	1.650	1.450	1.200	1.900	2.150
30	1.850	1.650	1.400	2.100	2.350
36	2.150	1.950	1.700	2.400	2.650
40	2.350	2.150	1.900	2.600	2.850
44	2.550	2.350	2.100	2.800	3.050
50	2.850	2.650	2.400	3.100	3.350
54	3.050	2.850	2.600	3.300	3.550
56	3.150	2.950	2.700	3.400	3.650
60	3.350	3.150	2.900	3.600	3.850
66	3.650	3.450	3.200	3.900	4.150
70	3.850	3.650	3.400	4.100	4.350


AIR BORN INC

PC BOARD TO CHASSIS


.120 DIA. THRU
.190 HEX X .107
DEEP 4-40 NUT)
.250
.100
.350
±.001 .025 DIA.
14
18
22
26
1
5
9
13
B
E
D
.225
PR7-.109 OR PR9-.140
.150
.400
.150
.094
.186
.125
.325
±.001 .030 DIA.
.082 DIA.
.015
.130
.051
.120
.585
.335
.094
BONDED SEAM
.250
A
.130
.250
.125
.120 DIA.
.100
C
C
D
.050
.100
.075
.100

WTB26PR7SY

WTKA26SSY*

WTKA(*) — Includes full complement of WTK2222S crimp removable socket contacts.

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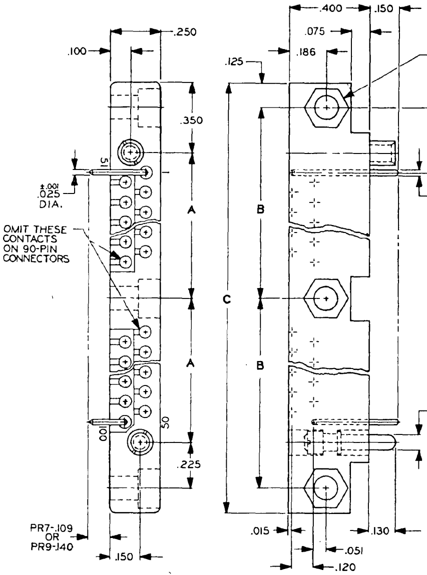
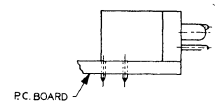
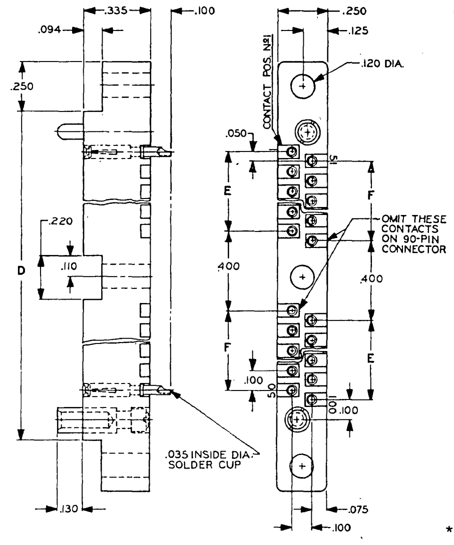
PC & COAX CONNECTORS / APPLICATIONS



.400
.150
.250
.100
.075
.186
.125
.120 DIA. THRU. .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.350
.325
±.001 .025 DIA.
±.001 .030 DIA.
51
A
B
C
OMIT THESE CONTACTS ON 90-PIN CONNECTORS
.082 DIA.
100
50
.225
PR7-.109 OR PR9-.140
.150
.015
.051
.120
.130



WTB100PR7SY



.335
.100
.094
.250
.220
.110
D
.035 INSIDE DIA. SOLDER CUP
.130
.250
.125
CONTACT POS. №1
.120 DIA.
.050
51
E
F
OMIT THESE CONTACTS ON 90-PIN CONNECTOR
.400
.400
.100
50
100
.100
.075
.100

WTB100SECSY

Terminations:
Solder cup, dip
pin, or Wire Wrap*

* Registered TM of
Gardner-Denver Company

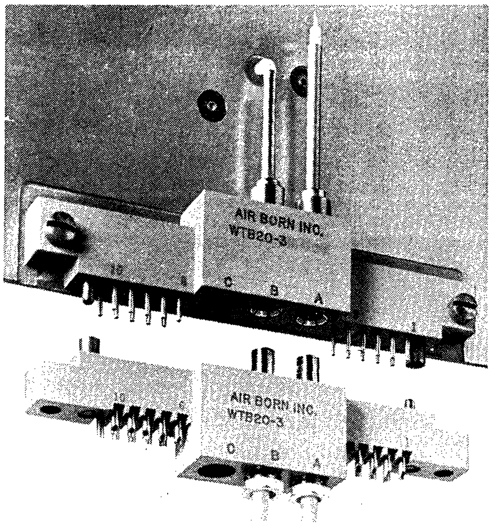
PC BOARD TO CHASSIS
PC BOARD TO MOTHER BOARD

Size	Dimensions A	B	C	D	E	F
90	2.475	2.700	5.650	5.150	2.200	2.100
100	2.725	2.950	6.150	5.650	2.400	2.400
120	3.225	3.450	7.150	6.650	2.900	2.900

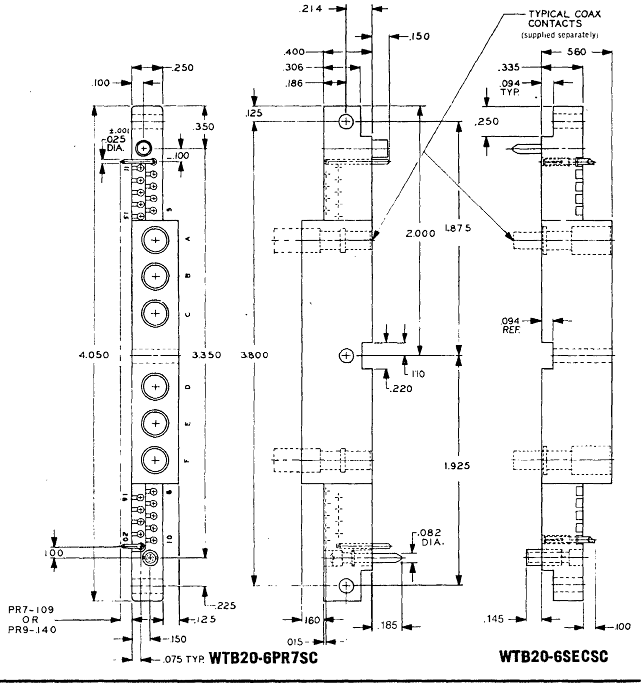
COAX PLUS 20...

This combination connector offers even more versatility by combining either 3 or 6 removable coaxial contacts for 50 ohm cable with 20 standard signal contacts in one compact unit. Designed for semi-rigid or flexible cable, AirBorn's Series WTB-Coax right-angle PC board connector features .100″ spacing in 2 staggered rows.

Tools Available



AIR BORN INC.
WTB20-3
C
B
A
10



.214
.150
.400
.306
.186
.100
.250
±.001 .025 DIA.
.350
.100
.125
11
15
A
B
C
D
E
F
4.050
3.350
3.800
2.000
1.875
.110
.220
1.925
.082 DIA.
20
10
16
.100
PR7-109 OR PR9-140
.225
.125
.150
.075 TYP.
.160
.015
.185
TYPICAL COAX CONTACTS (supplied separately)
.560
.335
.094 TYP.
.250
.094 REF.
.145
.100

WTB20-6PR7SC

WTB20-6SECSC

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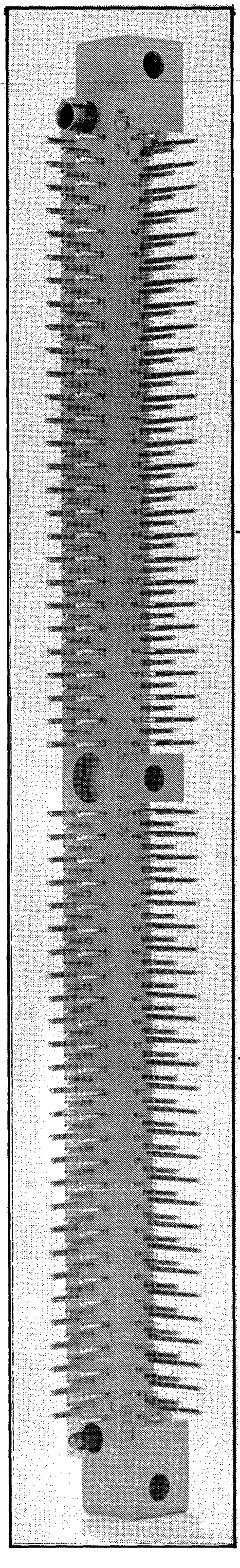
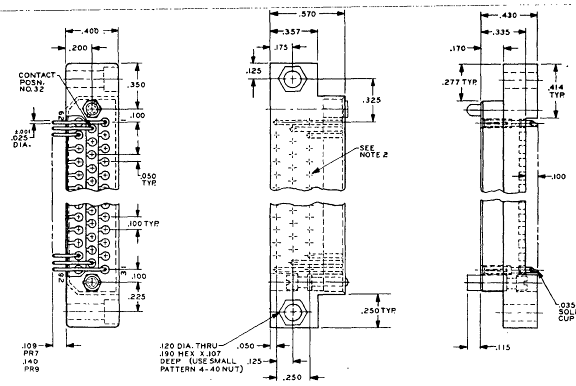
PC CONNECTORS/3-ROW HIGH DENSITY



92 Contacts PCB to MB
PCB to Chassis

Series WGE: 3.9″ long
Three rows staggered with contacts centered on .100″

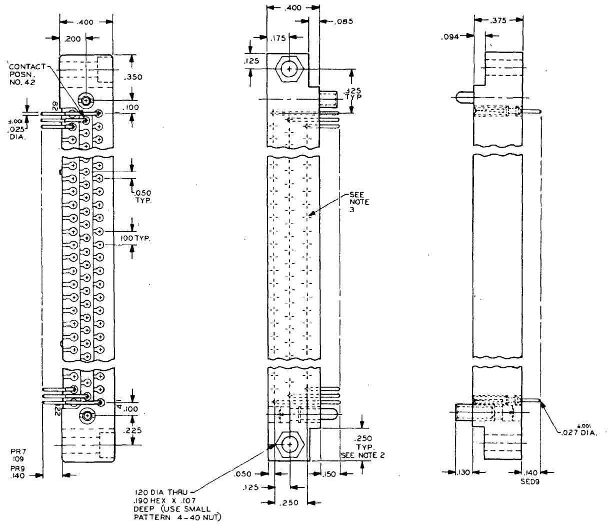
Terminations: solder cup, dip pin, or Wire-Wrap*.


.400
.200
CONTACT POSN. NO.32
.350
.100
±.001 .025 DIA.
29
.050 TYP.
.100 TYP.
92
31
.100
.225
.109 PR7
.140 PR9
.570
.357
.175
.125
.325
SEE NOTE 2
.250 TYP.
.120 DIA. THRU .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.050
.125
.250
.430
.335
.170
.277 TYP.
.414 TYP.
.100
.035 DIA SOLDER CUP
.115

122 Contacts PCB to MB
PCB to Chassis

Series WGA: 4.9″ long
Three rows staggered with contacts centered on .100″

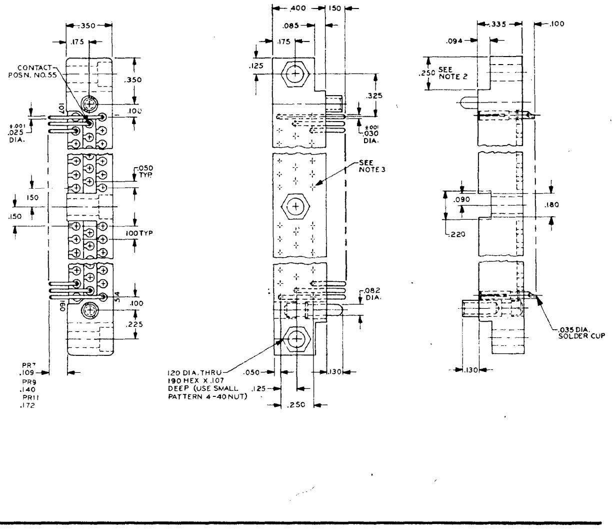
Terminations: solder cup, dip pin, or Wire-Wrap*.


.400
.200
CONTACT POSN. NO. 42
.350
.100
82
±.001 .025 DIA.
.050 TYP.
100 TYP.
122
41
.100
.225
PR7 .109
PR9 .140
.400
.085
.175
.125
.325 TYP
SEE NOTE 3
.250 TYP. SEE NOTE 2
.050
.150
.125
.250
120 DIA THRU .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.375
.094
±.001 .027 DIA.
.130
.140 SED9

80 Contacts — 3.5″ long
160 Contacts — 6.4″ long
PCB to MB
PCB to Chassis

SERIES WG
Three rows staggered with contacts centered on .100″

Terminations: solder cup, dip pin, or Wire-Wrap*


.350
.175
CONTACT POSN. NO.55
.350
.100
107
±.001 .025 DIA.
.050 TYP.
150
.150
100 TYP.
160
54
.100
.225
PR7 .109
PR9 .140
PR11 .172
.400
150
.085
.175
.125
.325
±.001 .030 DIA.
SEE NOTE 3
.082 DIA.
120 DIA. THRU 190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.050
.130
.125
.250
.335
.100
.094
.250 SEE NOTE 2
.090
.180
.220
.035 DIA. SOLDER CUP
.130

*Registered TM of Gardner-Denver Company.

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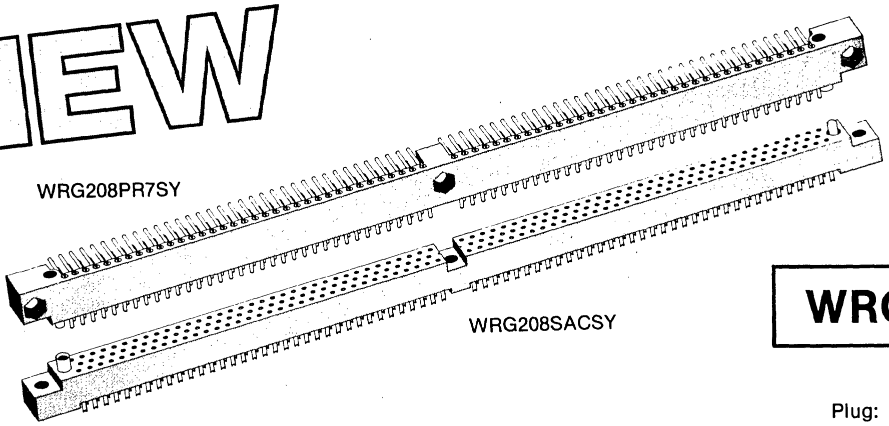
NEW


WRG208PR7SY
WRG208SACSY

3 • ROW Connectors

PC Card to Board or Chassis

WRG-WRG (208)

Examples:

Plug:	WRG	208	PR7	SY
Receptacle:	WRG	208	SAC	SY

PLUG

RECEPTACLE

SERIES

Plug:
WRG = 3-row, right-angle, plug, mntg. ears.

Receptacle:
WRG = 3-row, straight, receptacle, mntg. ears.

NUMBER OF CONTACTS

Plug:
208

Receptacle:
208

TYPE OF CONTACTS

Plug:
PR7 = Pin, right-angle, dip solder, .109
PR9 = Pin, right-angle, dip solder, .140
PR11 = Pin, right-angle, dip solder, .172

Receptacle:
SAC = Low force socket, straight, solder cup
SAD9 = Low force socket, straight, dip solder, .140
SAD11 = Low force socket, straight, dip solder, .172
SAD15 = Low force socket, straight, dip solder, .234

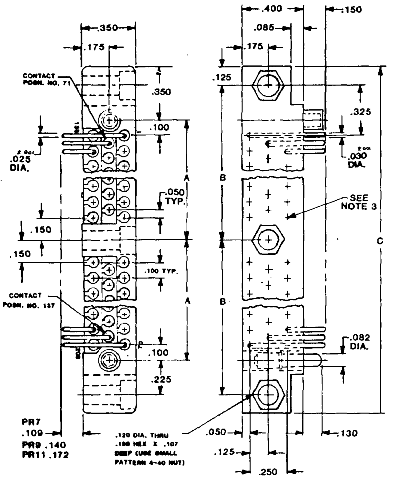
TYPE OF HARDWARE

Plug:
SY = Guide set

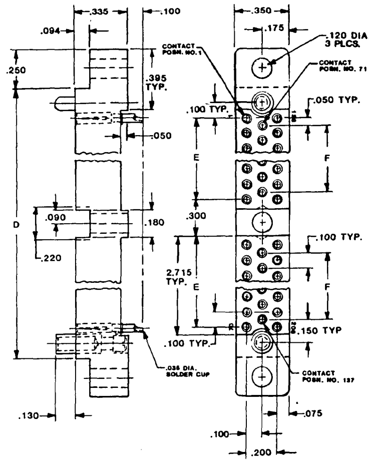
Receptacle:
SY = Guide set

NOTES

342 • Remove .250-long mounting ears.
548 • Include nuts bonded into box recess in mounting holes.
• For polarized "D"-shaped guides, add dash and code number (Example: -7). See "Polarization" under next tab for codes.


.350
.175
.400
.085
.150
.125
CONTACT POSN. NO. 71
.350
.325
.100
.025 DIA.
.030 DIA.
.050 TYP.
SEE NOTE 3
.150
.150
.100 TYP.
A
B
C
CONTACT POSN. NO. 137
.082 DIA.
.100
.225
PR7 .109
PR9 .140
PR11 .172
.120 DIA. THRU .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.050
.125
.250
.130

EXAMPLE: WRG208PR7SY


.335
.100
.350
.175
.094
.120 DIA. 3 PLCS.
CONTACT POSN. NO. 1
CONTACT POSN. NO. 71
.250
.395 TYP.
.050 TYP.
.100 TYP.
.050
E
F
D
.090
.180
.300
.220
.100 TYP.
2.715 TYP.
.100 TYP.
.150 TYP
.036 DIA. SOLDER CUP
CONTACT POSN. NO. 137
.130
.075
.100
.200

EXAMPLE: WRG208SACSY

WRG-WRG (208)

DIMENSIONS

SIZE	A	B	C	D	E	F
208	3.650	3.875	8.000	7.500	3.400	3.300

AirBorn Connectors
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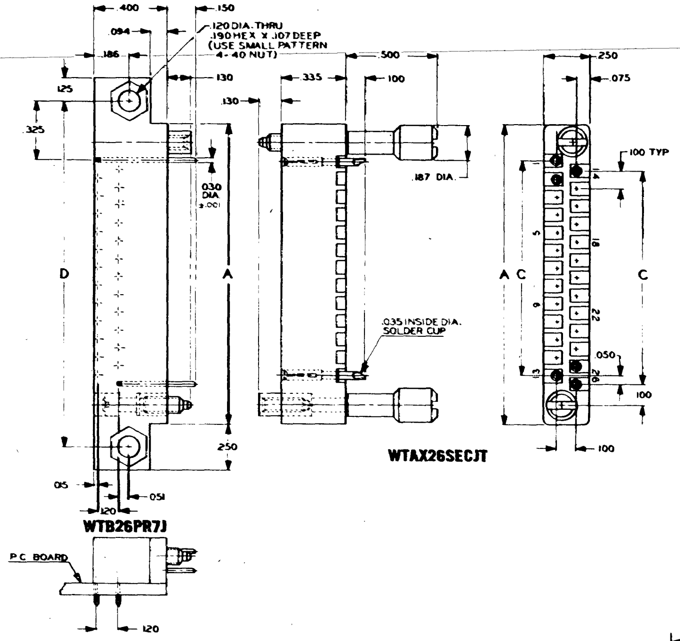
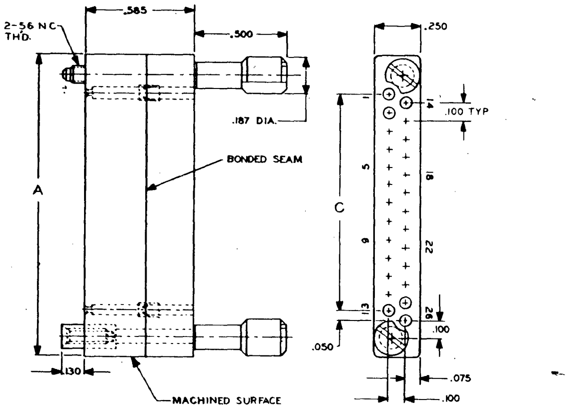
CABLE CONNECTORS / APPLICATIONS


.400
.150
.094
.120 DIA. THRU .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.186
.125
.325
.130
.030 DIA ±.001
D
A
.250
.05
.051
.120
P.C. BOARD
.120
.500
.335
.100
.130
.187 DIA.
.035 INSIDE DIA. SOLDER CUP
.250
.075
.100 TYP
A
C
C
1
14
5
18
9
22
13
26
.050
.100
.100

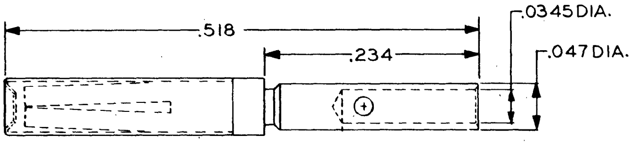
WTB26PR7J

WTAX26SECJT


2-56 NC THD.
.585
.500
.187 DIA.
BONDED SEAM
A
.130
MACHINED SURFACE
.250
.100 TYP
C
1
14
5
18
9
22
13
26
.050
.100
.075
.100

WTDXA26SJT

REMOVABLE CRIMP SOCKET
P/N WTK 2222 S
MAX. WIRE SIZE NO. 22

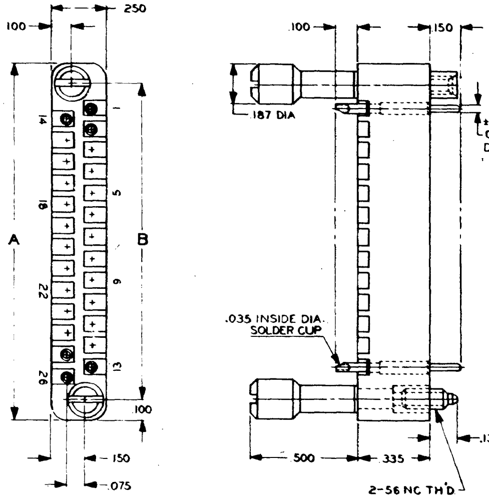

.518
.234
.0345 DIA.
.047 DIA.

NOTE: Crimp Removable Contact Tools Available

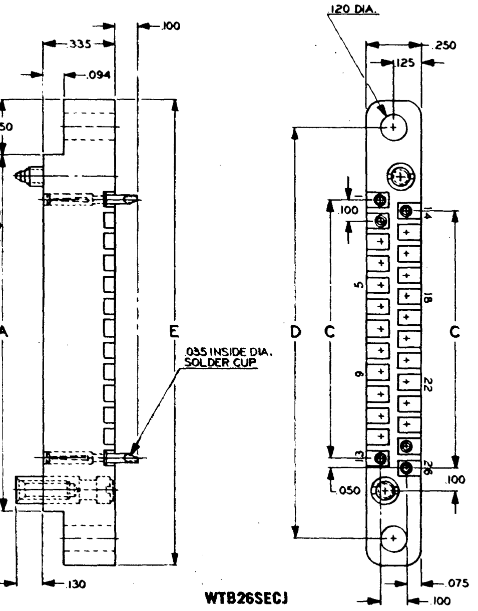
CABLE TO MOTHER BOARD

Size	Dimensions A	B	C	D	E
10	.850	.650	.400	1.100	1.350
14	1.050	.850	.600	1.300	1.550
20	1.350	1.150	.900	1.600	1.850
24	1.550	1.350	1.100	1.800	2.050
26	1.650	1.450	1.200	1.900	2.150
30	1.850	1.650	1.400	2.100	2.350
36	2.150	1.950	1.700	2.400	2.650
40	2.350	2.150	1.900	2.600	2.850
44	2.550	2.350	2.100	2.800	3.050
50	2.850	2.650	2.400	3.100	3.350
54	3.050	2.850	2.600	3.300	3.550
56	3.150	2.950	2.700	3.400	3.650
60	3.350	3.150	2.900	3.600	3.850
66	3.650	3.450	3.200	3.900	4.150
70	3.850	3.650	3.400	4.100	4.350

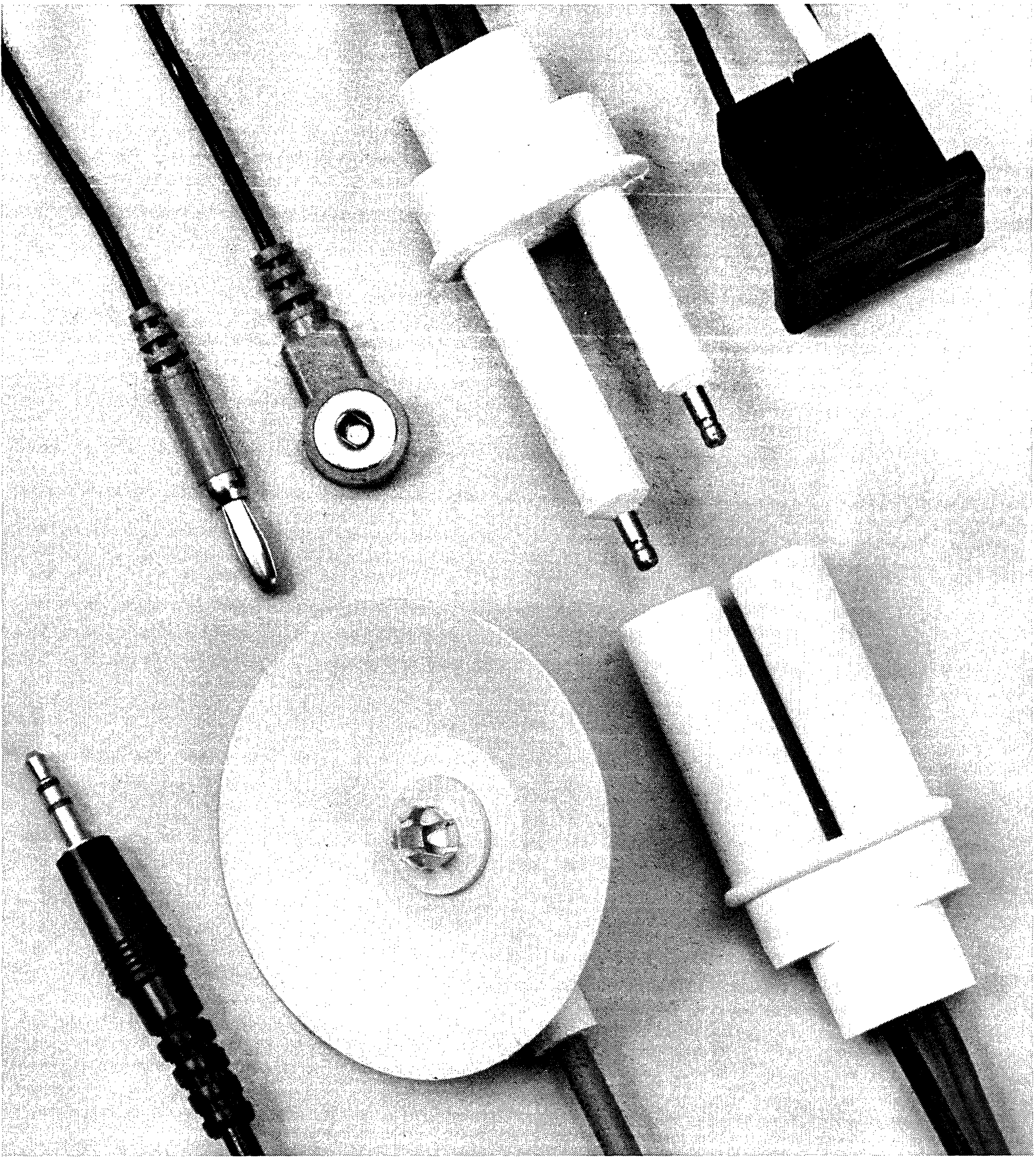
CABLE TO PANEL


.100
.250
A
B
1
14
5
18
9
22
13
26
.100
.150
.075
.100
.150
.187 DIA
±.001 .030 DIA.
.035 INSIDE DIA. SOLDER CUP
.500
.335
.130
2-56 NC TH'D

WTA26PCJT


.100
.335
.094
.250
A
E
.035 INSIDE DIA. SOLDER CUP
.130
.120 DIA.
.250
.125
.100
D
C
C
1
14
5
18
9
22
13
26
.050
.100
.075
.100

WTB26SECJ



Electrical Products and Accessories

Alden offers a variety of general purpose electrical products including: A.C. receptacles and accessories, CRT sockets, test jacks and plugs, plugs and sockets, terminals, indicator lights, static discharge cords and relay sockets.

High Voltage Connectors

Alden manufactures a broad range of low cost, high quality H.V. connectors rated up to 40 KVDC. Connectors feature integrally molded-in contacts and leads and are offered in panel mount, in-line, and polarized, multi-circuit configurations.

Custom Molding

Specialists in custom molded connectors and circuit modules for applications including copiers, lasers, medical, military, radar, business and scientific equipment. Contact Alden's Product Engineers for prompt assistance on your application.

ALDEN

ALDEN PRODUCTS COMPANY
P.O. Box 860, 117 North Main Street, Brockton, MA 02403
Tel.: (617) 583-0160 • Telex 924451

HIGH VOLTAGE CONNECTORS

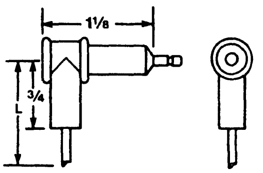
MATERIALS

THERMOPLASTIC	Resistance to Heat °F	°C	Dielectric strength Volts/Mil	SUMMARY
LDPE - Low Density Polyethylene	180	82	750 Min	Low cost, standard for most HV connectors
HDPE - High Density Polyethylene	250	122	750 Min	Structural rigidity, heat resistance
FRPP - Flame Retardant Polypropylene	240	116	875 Min	UL listed 94V-O
E-CTFE - Fluoropolymer	330	165	490 Min	Environmental, nonflammable
Nylon - Polyamide	221	105	400 Min	Primarily used for tube caps

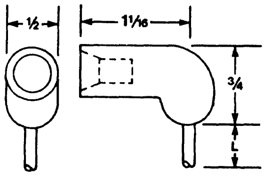
HIGH VOLTAGE WIRE TYPES

A large stock of standard and custom high voltage wires is available in all standard gages, including UL listed types to 40KVDC. Our Sales Engineers will advise of the most appropriate type.

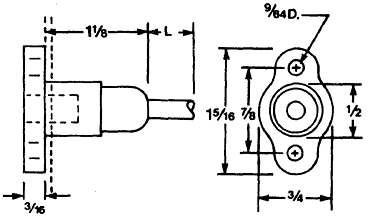
TO 15 KVDC



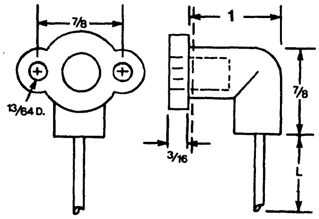
8101M90-S
Right angle in-line male connector. Mates with any female in the 8101S series.



8101FSL
Right angle female connector. Mates with any male in the 8101 or 8101S series.

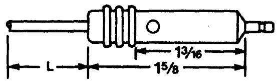


8101FSP
Panel-mounting female connector. Mates with any male in the 8101 or 8101S series.

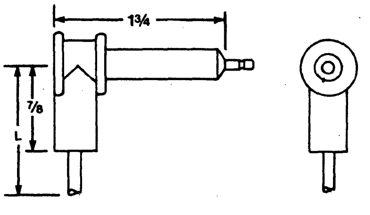


8101FSP-90
Panel-mounting right angle female connector. Mates with any male in the 8101 or 8101S series.

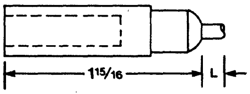
TO 20 KVDC



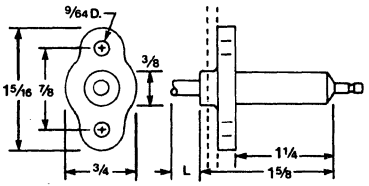
8101M
In-line male connector. Rated to 20 KVDC. Mates with any female in the 8101 or 8101S series.



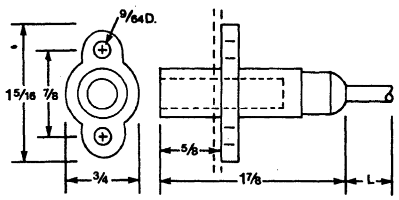
8101M-90
Right angle male connector. Rates to 15 KVDC. Mates with any female in the 8101 or 8101S series.



8101F
In-line female connector. Rated to 15 KVDC. Mates with any male in the 8101 series.

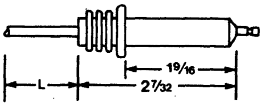


8101MP
Panel-mounting male connector. Rated to 15 KVDC. Mates with any female in the 8101 or 8101S series.

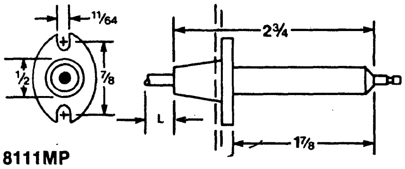


8101FP
Panel-mounting female connector. Rated to 20 KVDC. Mates with any male in the 8101 series.

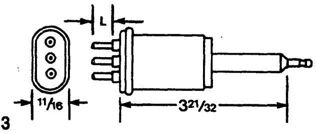
TO 30 KVDC



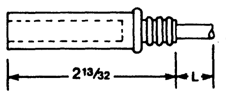
8111M
In-line male connector. Rated to 30 KVDC. Mates with any female in the 8111 or 8111L series.



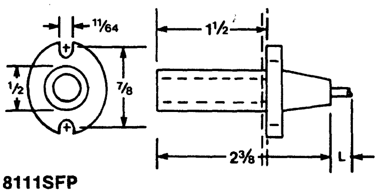
8111MP
Panel-mounting male connector. Rated to 30 KVDC. Mates with any female in the 8111 or 8111L series.



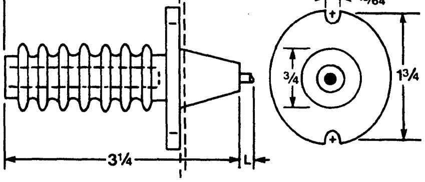
8111M-3
In-line male three-way voltage splitter. Rated to 40 KVDC. Mates with any female in the 8111 or 8111L series.



8111F
In-line female connector. Rated to 20 KVDC. Mates with any male in the 8111 or 8111L series.



8111SFP
Panel-mounting female connector. Rated to 25 KVDC. Mates with any male in the 8111 or 8111L series.



8111FP
Panel-mounting female connector. Rated to 30 KVDC. Mates with any male in the 8111 or 8111L series.

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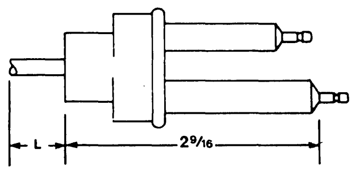
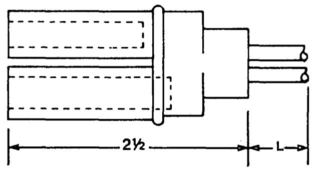
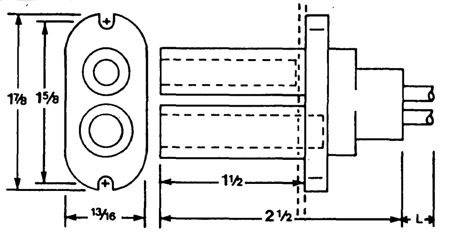
POLARIZED TO 15 KVDC



8102M
Polarized in-line male connector. Mates with 8102F and 8102FP.

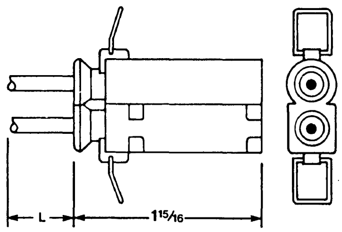


8102F
Polarized in-line female connector. Mates with 8102M.

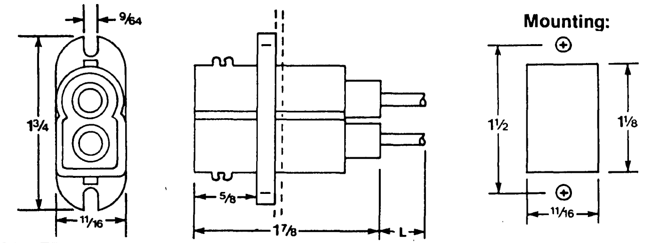

1⅞
1⅝
13/16
1½
2½
L

8102FP
Polarized panel-moutning female connector. Mates with 8102M.

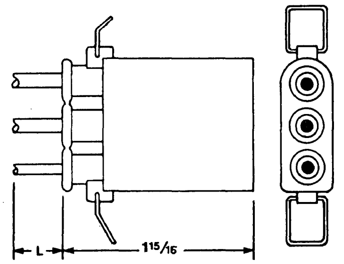
POLARIZED TO 30 KVDC



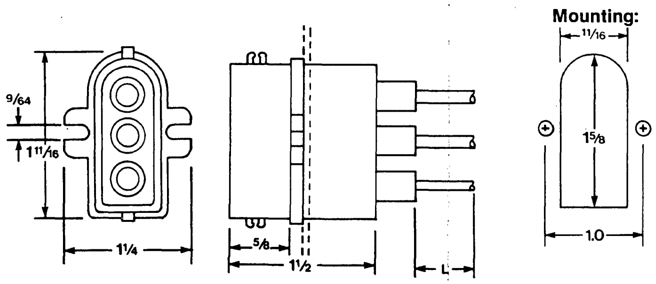
8112M
Polarized two-circuit, male connector with optional locking wire latches. Mates with 8112FP.


9/64
1¾
11/16
⅝
1⅞
L
Mounting:
1½
1⅛
11/16

8112FP
Polarized two-circuit, panel-mounting, female connector. Mates with 8112M.

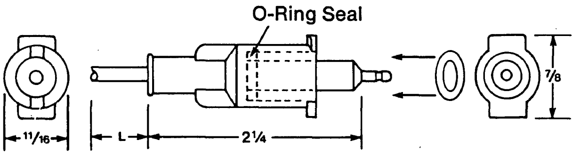


8113M
Polarized, two-circuit, male connector with ground lead and optional locking wire latches. Mates with 8113FP.

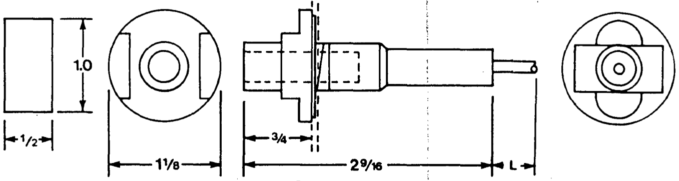

9/64
1 11/16
1¼
⅝
1½
L
Mounting:
11/16
1⅝
1.0

8113FP
Polarized, two-circuit, panel-mounting, female connector with ground lead. Mates with 8113M.

TWIST LOCKING TO 40 KVDC

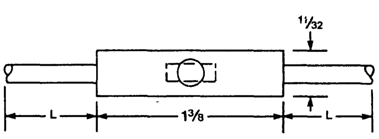

O-Ring Seal
11/16
L
2¼
⅞

8101QM/8101QMM
Quick-locking male connector. 8101QMM supplied without lead. Available with .125", .140" ID for insertion of lead, or specify. Mates with the 8101QFP.

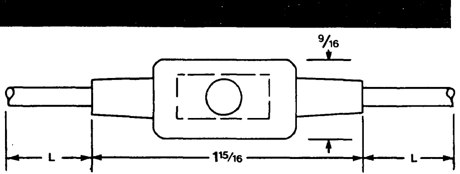

1.0
1/2
1⅛
¾
2 9/16
L

8101QFP (Also available in PC mount. Specify 8101QFPC-90)
Quick panel-mounting female connector. Mates with any male in the 8101 series.

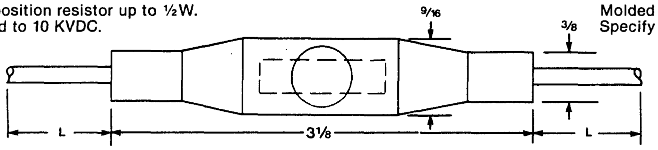
IN-LINE RESISTORS



4178RI
Molded in-line carbon composition resistor up to ½W. Specify resistor value. Rated to 10 KVDC.


9/16
L
1 15/16
L

4174RI
Molded in-line carbon composition resistor up to 2W. Specify resistor value. Rated to 15 KVDC.



4176RI
Molded in-line special high voltage resistor (ACI HVW series, or other). Specify resistor value. Rated to 30 KVDC.

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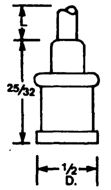
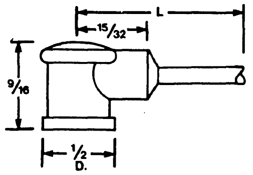
END CAP CONNECTORS
CRT SOCKETS & ANODE CONNECTORS

TUBE CAP & FLASH TUBE CONNECTORS

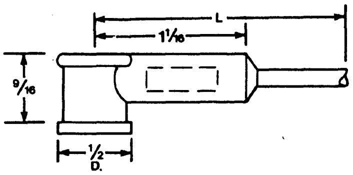
Alden's broad range of tube cap and flash tube connectors are designed to fit most standard end cap diameters, from ¼″ - 9/16″. The most popular styles are shown below. Call us for assistance.



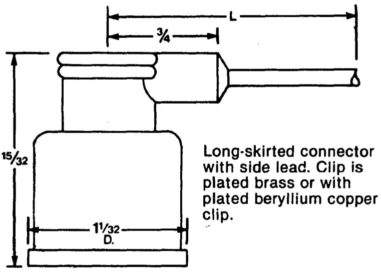
In-line axial lead connector with plated brass clip or with plated beryllium copper clip.



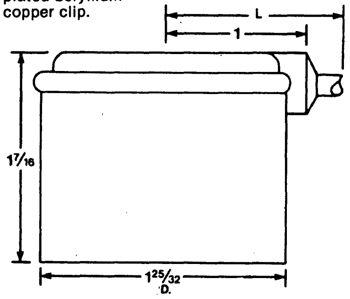
Side lead connector with plated brass clip or with plated beryllium copper clip.



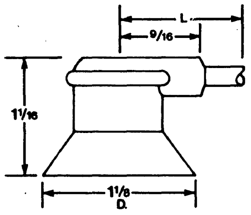
Side lead connector with molded-in ½ watt resistor. Specify resistor. Plated brass clip or with plated beryllium copper clip.



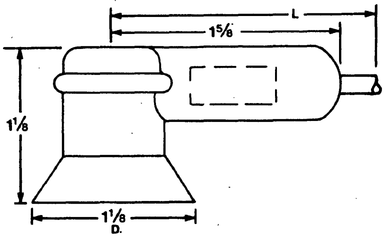
Long-skirted connector with side lead. Clip is plated brass or with plated beryllium copper clip.



Deep-skirted connector with side lead. Clip is corona-shielded plated beryllium copper.

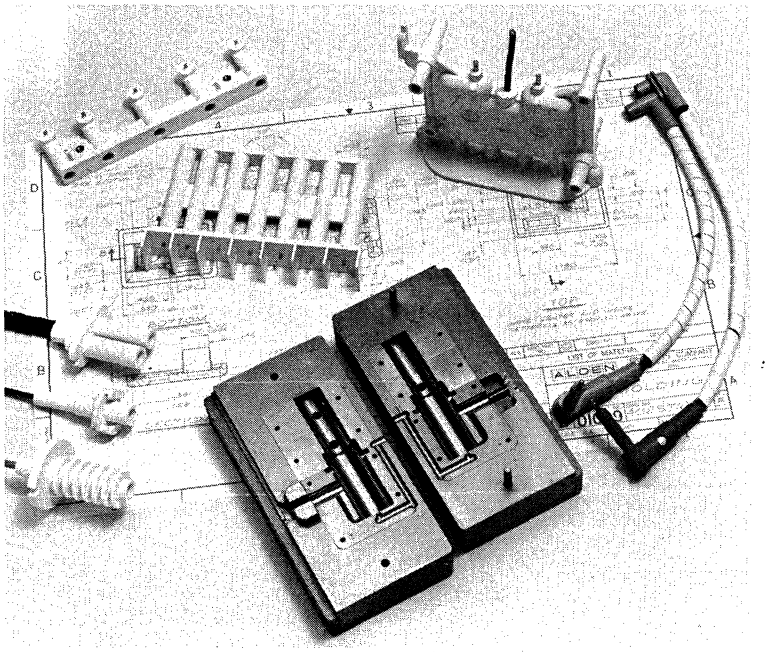


Silicone end cap connector with side lead and flared skirt. Clip is corona-shielded plated beryllium copper.



Silicone end cap connector with side lead, and molded-in ½ or 1 watt resistor. Specify resistor. Clip is corona-shielded plated beryllium copper.

CUSTOM MOLDING



Alden maintains a fully equipped in-house tool room and mold making facility with the capability and flexibility to serve each customer's specific needs. A wide variety of mold styles and molding equipment enables Alden to handle all jobs. From simple single cavity molds to complex multi-cavity molds for high volume runs on our automatic presses, Alden delivers.

Alden's highly skilled team of product and mold designers work together to coordinate the development of each new product. Whether blueprints and specifications are submitted or design effort is required, Alden welcomes all inquiries.

PROTOTYPES — As a means of proving a new design or providing functional parts before tooling a production mold, Alden offers the following prototyping options.

- **PROTOTYPE MOLDS** — Injection molded prototypes are produced from a low cost, single cavity, aluminum mold.
- **MACHINED PROTOTYPES** — Functional prototypes are machined from modern engineering plastics.
- **EPOXY RESIN CASTING** — Liquid resins are used to cast functional prototypes to close tolerances in a temporary rubber mold.

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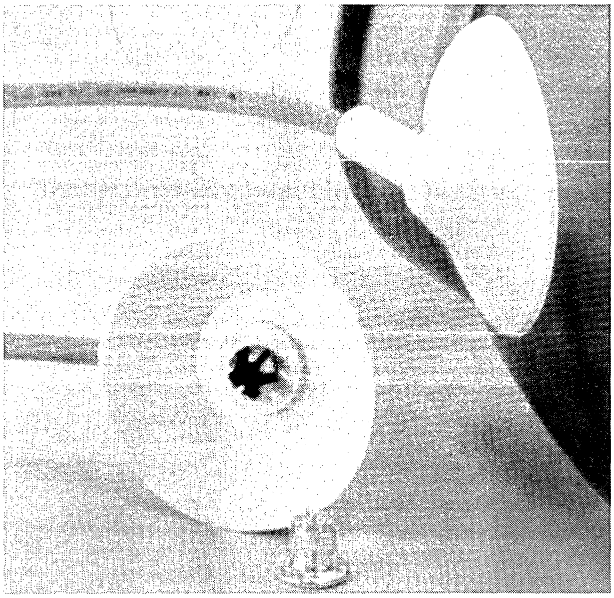
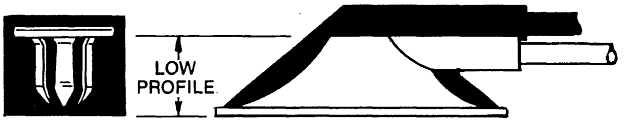
3228-RA SERIES CRT ANODE CONNECTORS



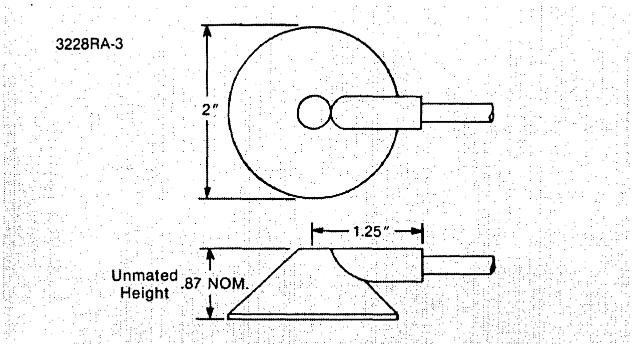
Alden's 3228RA-3 and -4 Series CRT Anode Connectors are designed to meet current demands for J1-21 style CRT receptacles with the following important features:

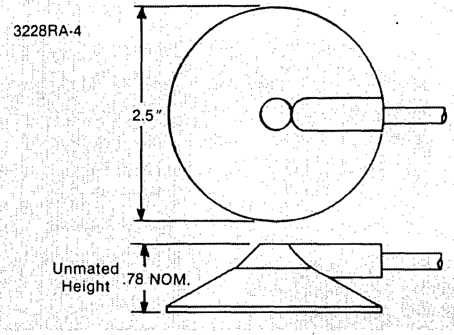
- High Voltage (to 40KVDC)
- Flame Retardant (UL 94-VO)
- Low Cost
- Low Profile
- High Flexibility



THE CAP — the 3228RA-3 and -4 Series takes advantage of the latest developments in flame retardant thermoplastic rubber to achieve a flexible low-profile seal that rivals silicones in performance, yet is low in cost.

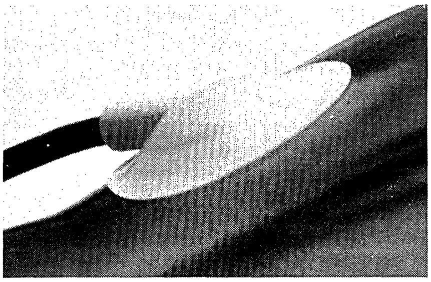
THE CONTACT — Alden's multi-prong contact insures a positive corona-free connection, plus easy removal and installation. Nickel plated spring steel guarantees long contact life.

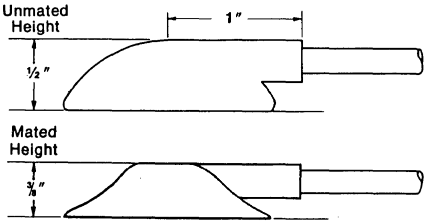


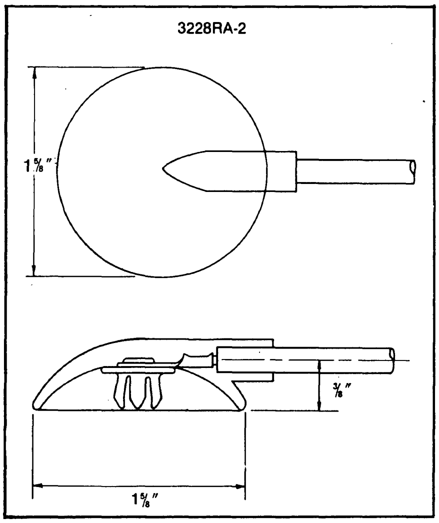


Alden's exclusive integral molding technique of directly molding onto lead wires maximizes high voltage performance. Standard wire is fully rated at 40 KVDC and meets UL 3239 VW-1 105°C. Other wires and configurations available upon request.

3228RA-2 SILICONE CRT ANODE CONNECTOR







NEW!

The 3228RA-2 is an integrally molded anode cap/lead assembly incorporating the same multi-prong positive contact used on the -3 and -4 models. The silicone rubber boot actually bonds to the wire insulation maximizing its high voltage performance. A super low profile allows this anode cap to fit minimum clearance applications where only potting epoxies could be used before.

Alden offers a variety of other anode connectors as well as CRT sockets. For additional information please contact our sales office directly.

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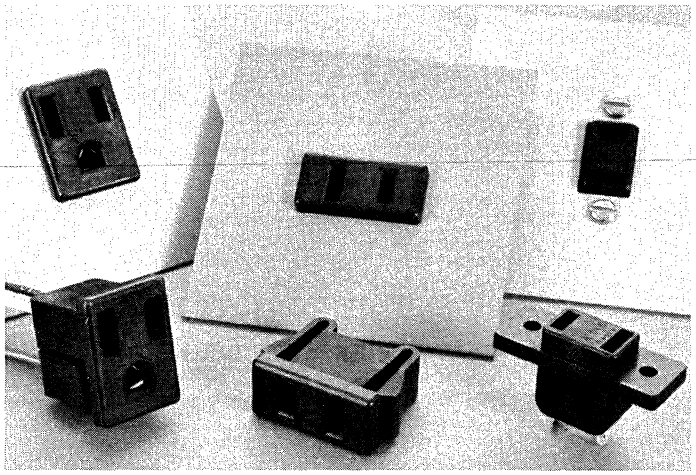
402 SERIES CONVENIENCE OUTLETS

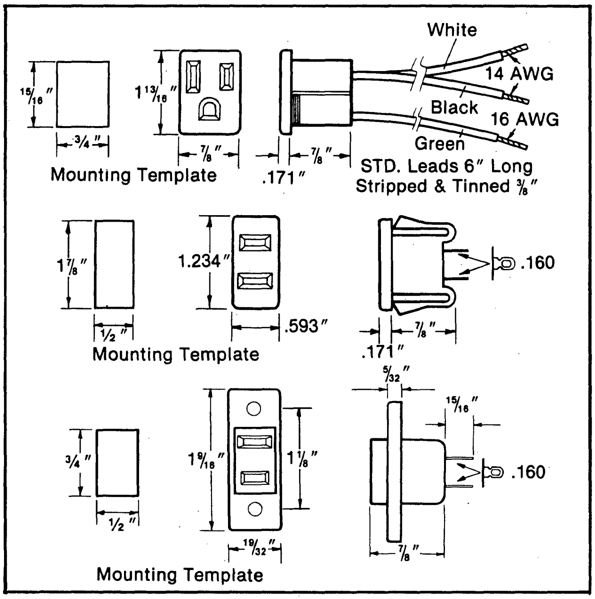
- **Rugged**
- **Low Cost**
- **Dependable**

Alden's 402 Series Convenience Outlets are compact, UL/CSA approved A.C. receptacles suitable for both the electronics and appliance industries. The clean, contemporary styling of this line complements the latest trends in product design.

Injection molded in a glass-filled, UL 94-VO engineering thermoplastic, the high-impact housings of the 402 series outlet are ultrasonically welded, creating a rugged bond which securely retains the electrical contacts.

Available in a wide variety of colors with several termination options, the 402 Series is offered in the following three models.





402 SACGL-1

This compact, polarized A.C. receptacle with ground circuit fits neatly into even the most crowded panel. Integrally molded mounting tabs provide the user with a fast, inexpensive means of assembly. Snaps into panel thicknesses of 24G (.025") to 16G (.062"). Standard lead length is 6". Other lengths are available upon request.

402 SPACE(L)

The 302 SPACE is a versatile, polarized convenience outlet designed to fit a wide range of panel thicknesses. Unique dual-range mounting tabs allow this model to accommodate panels from .030" to .100" thick. Available with either solder tab (402 SPACE) or wire lead (402 SPACEL) terminations.

402 PACE

The 402 PACE is one of the smallest UL/CSA approved convenience outlets available. This rugged polarized A.C. outlet fits where ordinary outlets are too bulky, making them ideal for all types of electronic equipment. Eyelet, rivet or screw mounting to chassis with standard production tools.

HIGH QUALITY STATIC CONTROL CORDS NEW!

Designed with user comfort and product reliability in mind, Alden's 2200 Series static control cords offer the following features:

VERSATILE

- Available in a variety of snap fastener sizes.
- Order with or without one megohm ¼ watt resistor.
- Offered with a practical 6′ extended length coil cord or a straight cord of customer specified length.
- Banana plug fits all standard mat fasteners.

RELIABLE

- Standard 24 AWG, 105 strand copper wire for long life and flexibility.
- Tough polyurethane insulation provides 100% coil cord memory.
- Flexible vinyl strain reliefs eliminate unnecessary stress on cord.

ANTI-STATIC

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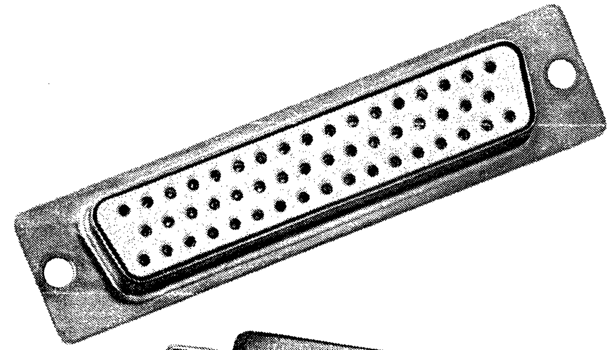
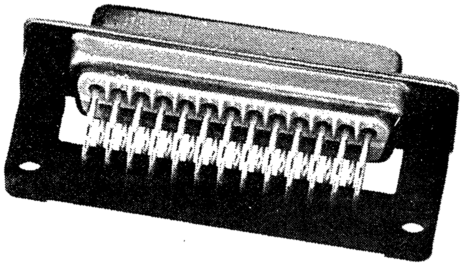
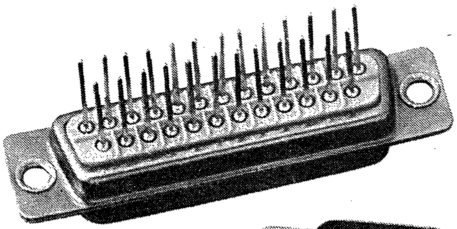
amlan inc.

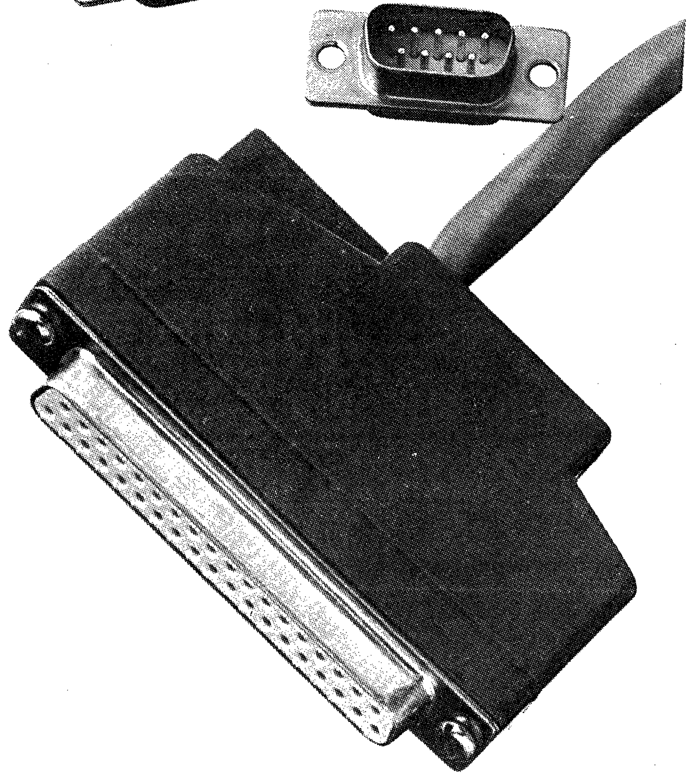
LOW COST D subminiature connectors





- High quality connectors. Design conforms to MIL-C-24308 and IEC 48B recommendations. Second source for all major suppliers.
- Connectors mate with all industry standard 9, 15, 25, 37, and 50 contact D subminiature connectors
- UL recognized solder cup, wire wrap, crimp, straight and 90° printed circuit terminations
- UL recognized metal shell, flat cable IDC connectors
- Filtered and fiber optic connectors for maximum EMI/RFI control
- Straight and 90° hoods available.
- Samples available. Please contact us.





Call 203-322-1913
or write today for our free 24 page
D Subminiature Connector Catalog
containing connector options
and accessories, plus complete
specifications, design features,
and ordering information.

Distributor inquiries welcomed.

amlan inc.

97 Thornwood Road
Stamford, CT 06903
Telephone (203) 322-1913
Telex: 643647

Specifications

Insulation
Thermoplastic-polyester

Shell
Steel, zinc plated, with yellow chromate surface

Contact material
Copper alloy, machined

Contact surface
Hard gold plate (0.5 micron) over nickel (2.0 micron)

Operating life
Greater than 100 connect/disconnect cycles

Operating force
.44 lbf (2.0N) typical per contact, .75 lbf (3.4N) maximum

Current
5A max., each contact, to 96°C ambient temperature

Voltage
125 Vac, continuous, according to VDE 110/A

Breakdown voltage
1000 Vac to 50 Hz for 1 minute; 250 Vdc; contact to contact and contact to housing

Contact resistance
Less than .0025 ohms (mated)

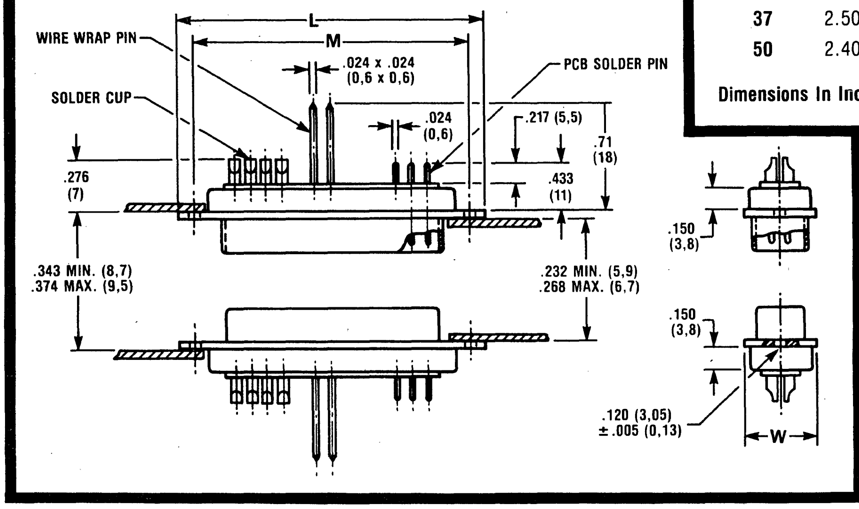
Insulation resistance
Greater than 10^{11} ohms

Temperature range
−55° to 125°C (−67° to 257°F). Derate to 4A @ 110°C, to 2A @ 120°C, to 0A @ 125°C ambient temperature

All connectors mate with all industry standard 9, 15, 25, 37, and 50 contact D subminiature connectors.

NO. CONTACTS	M	L	W
9	.985 (25,0)	1.213 (30,8)	.492 (12,5)
15	1.311 (33,3)	1.544 (39,2)	.492 (12,5)
25	1.850 (47,0)	2.087 (53,0)	.492 (12,5)
37	2.500 (63,5)	2.733 (69,4)	.492 (12,5)
50	2.406 (61,1)	2.638 (67,0)	.606 (15,4)

Dimensions In Inches (mm)



Accessories

NO. CONTACTS	9	15	25	37	50
ANGLE BRACKETS (1 req'd per connector)	BR 9	BR 15	BR 25	BR 37	BR 50
CABLE HOODS STRAIGHT	CG 9 G	CG 15 G	CG 25 G	CG 37 G	CG 50 G
90°	CG 9 S	CG 15 S	CG 25 S	CG 37 S	CG 50 S

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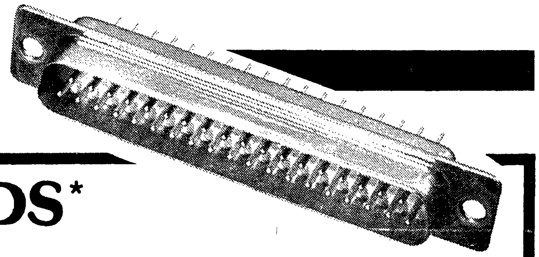
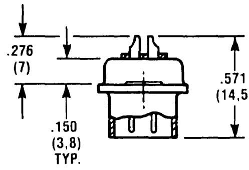
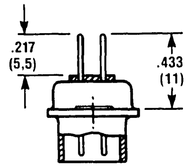
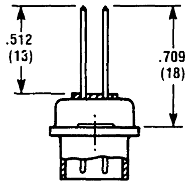
Ordering Information

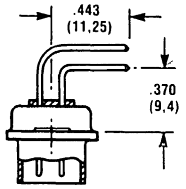


Male Connectors - Type CDS*


.276
(7)
.571
(14,5)
.150
(3,8)
TYP.

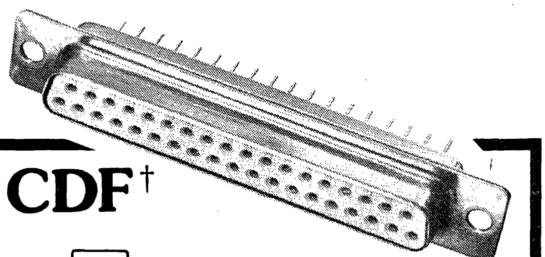

.217
(5,5)
.433
(11)


.512
(13)
.709
(18)

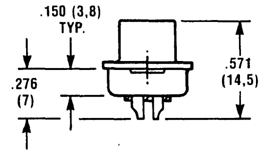

.443
(11,25)
.370
(9,4)

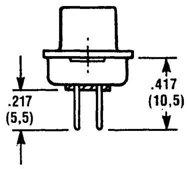
NO. CONTACTS	SOLDER CUP	PCB SOLDER TAIL	WIRE WRAP POST	RIGHT ANGLE PCB
9	CDS 9 L	CDS 9 P	CDS 9 WW	CDS 9 A
15	CDS 15 L	CDS 15 P	CDS 15 WW	CDS 15 A
25	CDS 25 L	CDS 25 P	CDS 25 WW	CDS 25 A
37	CDS 37 L	CDS 37 P	CDS 37 WW	CDS 37 A
50	CDS 50 L	CDS 50 P	CDS 50 WW	CDS 50 A

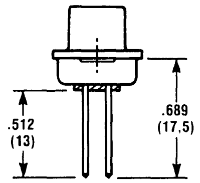
*Add -F to part # for grounding dimples
*Add -S to part # for float mount
Example: CDS 25 L-F

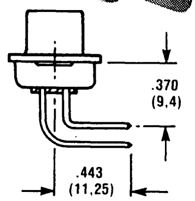


Female Connectors - Type CDF†


.150 (3,8)
TYP.
.276
(7)
.571
(14,5)


.217
(5,5)
.417
(10,5)


.512
(13)
.689
(17,5)


.370
(9,4)
.443
(11,25)

NO. CONTACTS	SOLDER CUP	PCB SOLDER TAIL	WIRE WRAP POST	RIGHT ANGLE PCB
9	CDF 9 L	CDF 9 P	CDF 9 WW	CDF 9 A
15	CDF 15 L	CDF 15 P	CDF 15 WW	CDF 15 A
25	CDF 25 L	CDF 25 P	CDF 25 WW	CDF 25 A
37	CDF 37 L	CDF 37 P	CDF 37 WW	CDF 37 A
50	CDF 50 L	CDF 50 P	CDF 50 WW	CDF 50 A

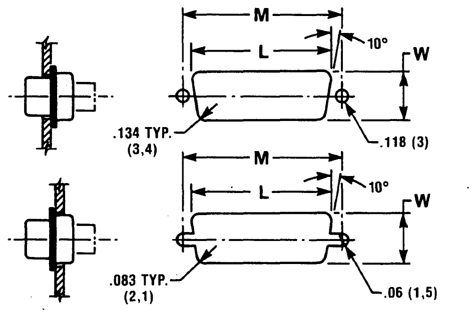
†Add -S to part # for float mount
Example: CDF 25 L-S

Mounting Information

Dimensions are inches (mm in parentheses).
All dimensions ±.008" (±.2 mm)

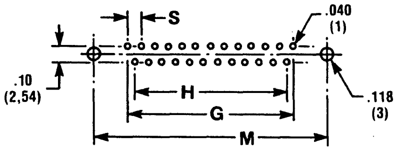
NO. CONTACTS	M	L	W
9	.985 (25,0)	.807 (20,5)	.449 (11,4)
15	1.311 (33,3)	1.134 (28,8)	.449 (11,4)
25	1.850 (47,0)	1.673 (42,5)	.449 (11,4)
37	2.500 (63,5)	2.327 (59,1)	.449 (11,4)
50	2.406 (61,1)	2.217 (56,3)	.555 (14,1)
9	.985 (25,0)	.874 (22,2)	.485 (12,3)
15	1.311 (33,3)	1.201 (30,5)	.485 (12,3)
25	1.850 (47,0)	1.744 (44,3)	.485 (12,3)
37	2.500 (63,5)	2.390 (60,7)	.485 (12,3)
50	2.406 (61,1)	2.295 (58,3)	.603 (15,3)

Panel mounting hole configurations

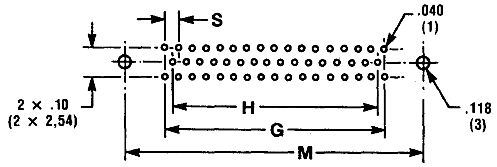

M
L
10°
W
.134 TYP.
(3,4)
.118 (3)
M
L
10°
W
.083 TYP.
(2,1)
.06 (1,5)

NO. CONTACTS	M	G	H
9	.985 (25,0)	4 x S = .433 (4 x S = 11)	3 x S = .325 (3 x S = 8,25)
15	1.311 (33,3)	7 x S = .758 (7 x S = 19,25)	6 x S = .650 (6 x S = 16,5)
25	1.850 (47.0)	12 x S = 1.300 (12 x S = 33,0)	11 x S = 1.192 (11 x S = 30,25)
37	2.500 (63.5)	18 x S = 1.950 (18 x S =49,5)	17 x S = 1.841 (17 x S = 46,75)
50	2.406 (61,1)	16 x S = 1.733 (16 x S = 44,0)	15 x S = 1.625 (15 x S = 41,25)

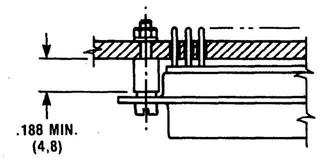
Printed circuit layouts for straight PCB solder pins


S
.040
(1)
.10
(2,54)
.118
(3)
H
G
M

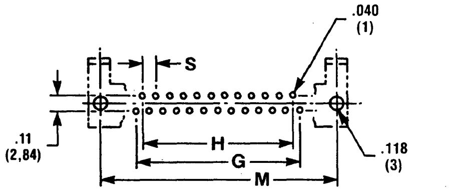
S = .1083 (2,75)


S
.040
(1)
2 x .10
(2 x 2,54)
.118
(3)
H
G
M

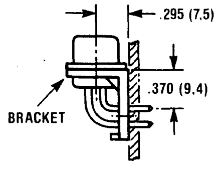
S = .1083 (2,75)

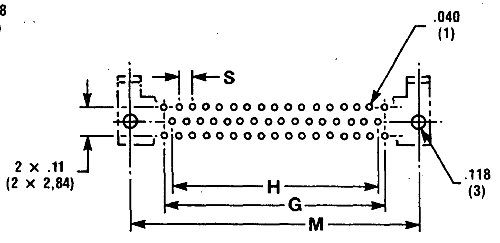


Printed circuit layouts for right angle PCB solder pins

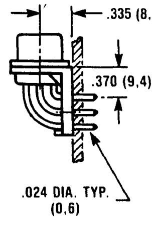

.040
(1)
S
.11
(2,84)
.118
(3)
H
G
M

S = .1083 (2,75)


.295 (7,5)
.370 (9,4)
BRACKET


.040
(1)
S
2 x .11
(2 x 2,84)
.118
(3)
H
G
M

S = .1083 (2,75)


.335 (8,5)
.370 (9,4)
.024 DIA. TYP.
(0,6)

amlan inc.

97 Thornwood Road
Stamford, CT 06903
Telephone (203) 322-1913
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eem

MINIGLOSSARY CONNECTORS

Connector terminology is often quite confusing. This confusion starts with the very names of connectors. The name of a connector may derive from its shape, application, type of conductor or even method of termination.

Shape—Circular, cylindrical, and rectangular.

Electrical application—High voltage, RF, microwave, input/output, etc.

Mechanical application—Printed circuit, rack & panel, cable, etc.

Conductor type—Coaxial, flat cable, ribbon cable, flex circuit, etc.

Termination method—Wirewrap, soldercup, solderless, etc.

Hardware such as clamps, hoods, and adapters are frequently used to convert cable connectors to rack and panel types. This adds to the name confusion. A very common telephone connector, for example (the "C" type) got its name from the model number of the original maker.

Contact: The part(s) of the connector that actually provides circuit continuity between its two sections—the parts which are normally mated. The back end of the connector should properly be called the *termination.* This is the point where the wires or PC board is attached to the connector.

Contact alignments: Often called *contact float.* Describes the amount of allowable contact movement within the connector body. Permits self-alignment.

Male vs. female: In the U.S. this describes the contact construction. In Europe this term is more often used to describe the outer shell mating action which may be the reverse of the contacts.

Closed entry: A female contact which prevents entry of a male contact larger than a specific size.

Open entry: A female contact designed for a specific size of male contact but which will allow entry of larger male contacts by spring action.

Hermaphrodite: Contacts or connector bodies which are the same configuration. Male/female designations do not apply. Bodies usually have some mechanical means for maintaining polarity.

Hermetic seal: Glass-to-metal seals at terminations. Often used improperly to describe vacuum-tight seals.

Waterproof seal: May or may not be truly *waterproof.* May prevent easy entrance of casual water by means of a rubber or other boot.

Printed circuit connector: Connectors which are used in conjunction with printed circuit boards. There are two distinctly different styles.

Edgeboard. May be called *edge* or *card.* The printed circuit (PC) board edge enters the connector.

Two-piece: One part of the connecting pair is physically attached to the PC board itself. The other part is attached to something else such as a cable or a motherboard.

Readout: Describes the arrangement at the terminating edge of a PC board. May be single or double. A double readout PC board has termination strips on each side not usually interconnected.

Ribbon connectors: A type of connector which allows flat "ribbon" cable to be attached to a round or rectangular connector but also used interchangeably for flat connectors to flat cable.

Ribbon contact connector: Describes the contacts in a rectangular connector which have a self-wiping mating action. Not the same as ribbon connector.

Solderless terminal: Any style of termination which does not require solder for a permanent connection. See *crimp* and *insulation displacement.*

Crimp termination: A stripped wire is inserted into a barrel or trough which is then crimped to the conductor with a suitable tool.

Insulation displacement: Unstripped insulated wire is fitted into a channel containing metal teeth which are forced through the insulation to make contact with the conductor.

Service rating: The maximum rated voltage and/or current which may be applied continuously. May be called *working voltage.* Can be confused with the term used to describe how many times a connector may be mated and separated.

Withstanding voltage: Also called *test voltage.* The voltage a connector must withstand for one minute without breakdown. Applied between connectors and between connectors and shell and any grounding devices of the connector.

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AMP Interconnecting ideas

for AMP

AMP Solderless Terminals and Splices

AMP's solderless terminals and splices meet and exceed today's requirements for reliable terminations in applications ranging from control circuits to heavy duty power wiring.

Tooling

Hand Tools:

PIDG and PLASTI-GRIP Terminals, Butt Splices and FASTON Receptacles — 22-10 AWG — CERTI-LOK Tool No. 169400 or TETRA-CRIMP Tool No. 59824-1.

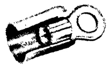
DIAMOND GRIP and SOLISTRAND Terminals and Splices — 22-10 AWG — Tool No. 49835.

PLASTI-GRIP Parallel Splices and Closed End Splices — 22-10 AWG — Tool No. 69364.

Other hand, power and automatic tooling is available for different production needs. Consult AMP Incorporated for information.

Insulated PIDG Terminals, Splices and FASTON Receptacles

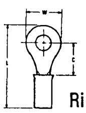
Insulated PLASTI-GRIP Terminals, Splices and FASTON Receptacles



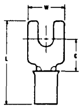
Uninsulated DIAMOND GRIP Terminals

Uninsulated SOLISTRAND Terminals and Splices

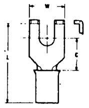
Insulation Color Code
22-16 AWG — Red
16-14 AWG — Blue
12-10 AWG — Yellow



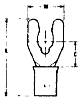
Ring



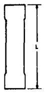
Spade



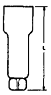
Flanged Spade



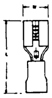
Spring Spade



Splice



Closed End Splice



FASTON Receptacle

Splices, Closed End

Wire Size	Vinyl (VS)	
	L	Part No.
22-14	.740	36964
16-14	.800	34864
12-10	.975	34308

Request Catalog No. 75-338 for complete listings.

Rings

Wire Size	Stud Size	Dimensions		PIDG		PLASTI-GRIP		DIAMOND GRIP		SOLISTRAND	
		C	W	L	Part No.	L	Part No.	L	Part No.	L	Part No.
22-16	4	.156	.218	.672	31878	.684	32944	.603	31094	.449	34104
	6	.156	.218	.672	31879	.684	32945	.603	31906	.449	34105
	8	.281	.312	.844	31888	.856	32951	.775	30996	.625	34111
	10	.281	.312	.844	31889	.856	32952	.775	30997	.625	34112
	¼	.437	.469	1.078	31892	1.090	32953	1.009	31251	.855	34113
	5⁄16	.437	.469	1.078	31893	1.090	32954	1.009	31252	.855	34114
16-14	4	.171	.250	.703	32439	.715	32956	.634	32187	.480	34119
	6	.171	.250	.703	32440	.715	32957	.634	32188	.480	34120
	8	.281	.343	.859	31899	.871	32959	.790	30992	.636	34122
	10	.281	.343	.859	31900	.871	32960	.790	30993	.636	34123
	¼	.437	.469	1.078	31904	1.090	32961	1.009	31256	.855	34124
	5⁄16	.437	.469	1.078	31905	1.090	32962	1.009	31257	.855	34125
12-10	8	.302	.375	1.083	32543	1.083	32968	1.007	31826	.760	32994
	10	.302	.375	1.083	32544	1.083	32969	1.007	31771	.760	33457
	5⁄16	.468	.531	1.322	32546	1.327	32971	1.251	31827	1.004	33459
	⅜	.531	.593	1.414	32547	1.421	32972	1.345	31828	1.098	33220
	½	.625	.750	1.594	35151	1.594	34837	—	—	1.273	35135

Spades

22-16	6	.203	.297	.753	34080	.765	327735	.684	33766	.530	36195
	8	.312	.375	.908	32050	.920	32981	.839	31638	.685	34117
	10	.312	.375	.908	32051	.920	32962	.839	31639	.685	34118
16-14	6	.312	.375	.908	32055	.920	32964	—	—	.685	34127
	8	.312	.375	.908	32056	.920	32965	—	—	.685	34128
12-10	8	.296	.406	1.095	32588	1.095	32974	1.019	31830	.772	32995
	10	.296	.406	1.095	32589	1.095	32975	1.019	31831	.772	33479

Spades, Flanged

22-16	6	.203	.296	.737	32561	.749	322249	.668	32419	.514	320749
	8	.250	.416	.830	32497	.842	324169	.761	32495	.607	323124
	10	.203	.296	—	—	.749	328516	—	—	—	—
16-14	8	.203	.294	.737	320862	.685	320859	—	—	.514	320856
	10	.203	.294	.737	320863	—	—	.685	320860	.514	320857
12-10	6	.250	.296	1.017	324577	1.017	324581	.941	324580	.694	324578
	8	.250	.416	1.017	32510	1.017	324172	.941	32417	.694	323143
	10	.250	.416	1.017	326865	—	—	.941	322715	.694	323144

Spades, Spring

22-16	6	.250	.250	.799	52929	.811	52949	—	—	.576	53120-1
	8	.281	.375	.860	52930	.872	52950	—	—	—	—
	10	.281	.406	.908	52931	.920	52951-2	—	—	—	—
16-14	6	.250	.250	.799	52935	.811	52955	—	—	.576	53123-1
	8	.281	.375	.860	52936	.872	52956	—	—	.637	53124-1
	10	.281	.406	.908	52937	.920	52957	—	—	.685	53125-1
12-10	6	.174	.250	.959	52941	.959	52961	—	—	.636	53126-1
	8	.276	.375	1.052	52942	1.052	52962	—	—	.729	53127-1
	10	.276	.406	1.100	52943	1.100	52963	—	—	.777	53128-1
	¼	.338	.625	1.225	52945	1.225	52965	—	—	.902	53138-1

FASTON Receptacles, 250 Series Fits Tab (thk.) .032

Wire Size	W	PIDG		PLASTI-GRIP	
		L	Part No.	L	Part No.
22-18	.300	.900	640903-1	.900	640933-1
16-14	.300	.900	640905-1	.900	640935-1
12-10	.300	1.012	640907-1	1.035	640937-1

Splices, Butt

Wire Size	PIDG		PLASTI-GRIP		SOLISTRAND	
	L	Part No.	L	Part No.	L	Part No.
22-16	1.265	320559	1.065	34067	.591	31818
16-14	1.265	320562	1.065	34071	.572	31819
12-10	1.656	320570	1.160	34072	.567	32151

Splices Parallel

Wire Size	PLASTI-GRIP		SOLISTRAND	
	L	Part No.	L	Part No.
22-16	.760	34131	.301	34130
16-14	.760	34133	.301	34137
12-10	.843	34135	.343	34138

Listed here are some of the more popular terminals and splices produced by AMP. For information about other terminating devices not listed here, call Customer Service at (717) 780-4400 or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, CERTI-LOK, DIAMOND GRIP, FASTON, PIDG, PLASTI-GRIP, SOLISTRAND, TETRA-CRIMP — Trademarks of AMP Incorporated.

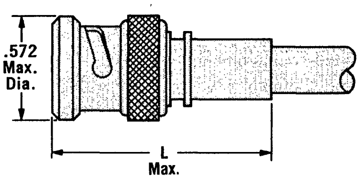
AMP
INCORPORATED

AMP RF Connectors

BNC Series Dual Crimp Type
MIL-C-39012, Class II Category B

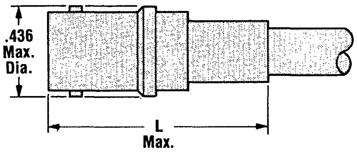
Features: ■ Low VSWR ■ Low initial cost ■ Low applied cost, solderless crimp ■ Fully intermateable with comparable UG/U Series connectors ■ Bayonet lock coupling for quick connect/disconnect ■ Positive insulation grip with crimped braid ferrule

Plugs



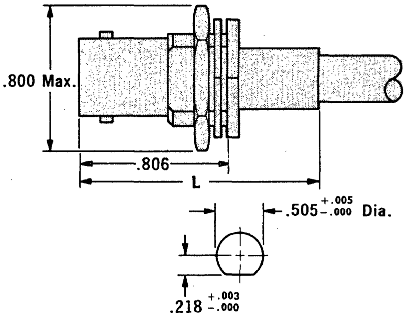
RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.500	225395-1	2-331350-1	16-0004	69478-1	69727
58A, 58C	1.500		2-331350-1	16-0004	69478-3	69726
59, 59A, 59B 62, 62A, 62B, Belden 8241, 8279	1.500	225395-2	331350	16-0008	69477-1	69669-1
55B, 223 55, 55A,	1.500	225395-3	2-331350-7	16-0005	69478-1	69727
71, 71A, 71B	1.500	225395-4	2-331350-3	16-0012	69477-1	69669-1
141, 141A	1.500	225395-5	2-331350-8	16-0006	69478-3	69726
142, 142A, 142B	1.500	225395-6	2-331350-9	16-0007	69478-3	69726
174, 188	1.500	225395-7	2-331350-4	—	220009-1	220026-1
179, 187	1.500	225395-8	2-331350-5	—	220009-1	220026-1
180, 180A, 195	1.500	225395-9	2-331350-6	—	69477-2	69669-2
Amphenol 21-597, Beldon 8218	1.500	1-225395-0	2-331350-2	—	69477-2	69669-2
Belden 8281, 9231	1.500	—	4-331350-0	—	220043-1	220088-1

Jacks



RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.500	225396-1	2-331351-1	17-0004	69478-1	69727
58A, 58C	1.500		2-331351-1	17-0004	69478-3	69726
59, 59A, 59B 62, 62A, 62B, Belden 8241, 8279	1.500	225396-2	331351	17-0008	69477-1	69669-1
174, 188	1.500	225396-7	2-331351-4	—	220009-1	220026-1
179, 187	1.500	225396-8	2-331351-5	—	220009-1	220026-1
180, 180A, 195	1.500	225396-9	2-331351-6	—	69477-2	69669-2

Bulkhead Jacks



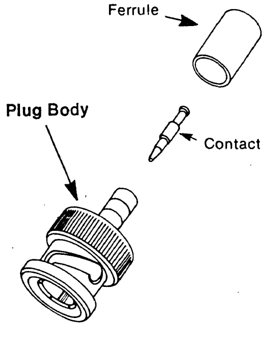
RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.296	225398-1	1-331693-1	19-0003	69478-1	69727
58A, 58C	1.296		1-331693-1	19-0003	69478-3	69726
59, 59A, 59B, 62, 62A, 62B, Belden 8241, 8279	1.296	225398-2	331693	19-0007	69477-1	69669-1
55, 55A, 55B, 223	1.296	225398-3	1-331693-6	19-0004	69478-1	69727
71, 71A, 71B	1.296	225398-4	1-331693-5	19-0012	69477-1	69669-1
174, 188	1.296	225398-7	1-331693-2	—	220009-1	220026-1
179, 187	1.296	225398-8	1-331693-3	—	220009-1	220026-1
180, 180A, 195	1.296	225398-9	1-331693-4	—	69477-2	69669-2
Amphenol 21-597, Belden 8218	1.296	1-225398-0	1-331693-0	—	69477-2	69669-2

*Government designation applies only to silver plated parts.

Request Catalog No. 73-116

Commercial BNC Dual Crimp Connector

Features: ■ Low cost ■ Smaller and lighter than standard BNC connectors ■ Fully crimpable ■ Captive center contact ■ Fully intermateable with all BNC UG/U connectors ■ Low VSWR ■ Tarnish resistant finish ■ Machine or hand tool applied.



RG/U Cable	Plug Part Numbers			CERTI-CRIMP Hand Tool Part Number	Die Number for Commercial Hand Tool No. 220190-1	Die Number for Terminating Machine No. 220152-1
	Tin Plated Center Contact	Gold Plated Center Contact	Silver Plated Center Contact			
58, 58A, 58B, 58C, 141, 141A	227079-1	227079-5	227079-9	220187-1	220189-1	220191-1
55, 55A, 55B, 223, 142, 142A, 142B	227079-2	227079-6	1-227079-0	220187-1	220189-1	220191-1
59, 59A, 59B 62, 62A, 62B	227079-3	227079-7	1-227079-1	220187-2	220189-2	220191-2
71, 71A, 71B	227079-4	227079-8	1-227079-2	220187-2	220189-2	220191-2
RG174, 188, 316	1-227079-4	1-227079-6	1-227079-5	220009-5	220210-1	220198-1
RG179, 187	2-227079-0	2-227079-2	2-227079-1	220009-5	—	220198-1
AMPHENOL 21-597 Belden 8218 Essex 2003	1-227079-7	1-227079-9	1-227079-8	69477-4	—	220206-1
Belden 9248	3-227079-1	3-227079-0	3-227079-2	220247-1	220244-1	—
Belden 9266	—	1-227079-3	—	220187-2	220189-2	220191-4

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

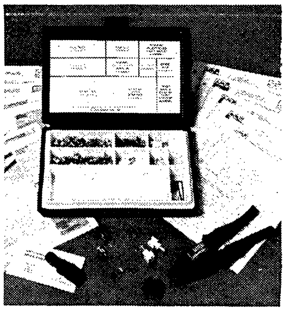
AMP, CERTI-CRIMP – Trademark of AMP Incorporated

AMP INCORPORATED

AMP RF Connectors Commercial BNC Designers Kits

Features: ■ Enough components for 40 BNC connectors ■ Vertical and right angle BNC pcb packs ■ Stripping and crimping tools ■ Strong, compact carrying case

Kits contain the following:



Request Catalog No. 78-478

Description	Quantity Mil. Kit Part No. 227070-3	Quantity Mil. Kit Part No. 227070-7	Quantity Mil. Kit Part No. 227070-8	Part No.
BNC Connector-Military (RG-58)	40	20	—	227074-1
BNC Connector-Military (RG-59)	—	20	40	227080-1
Ferrule (RG-58)	40	20	—	50427-4
Ferrule (RG-59)	—	20	40	50428-2
Contact (RG-58)	40	20	—	226943-2
Contact (RG-59)	—	20	40	226943-4
PCB Connector-Right Angle	1	1	1	226990-1
PCB Connector-Right Angle (w/Lugs)	1	1	1	226978-1
PCB Connector-Vertical	1	1	1	226993-1
PCB Connector-Vertical (w/Lugs)	1	1	1	226987-1
Jam Nut	4	4	4	1-329631-2
Lockwasher	4	4	4	1-329632-2
Cable Stripper	1	1	1	603995-2
Commercial Hand Tool	1	1	1	220190-1
Crimping Dies (RG-58)	1	1	—	220189-1
Crimping Dies (RG-59)	—	1	1	220189-2
Hex Socket Key-3/32	1	1	1	—
Hex Socket Key-1/16	1	1	1	—

Kits contain military style collars.

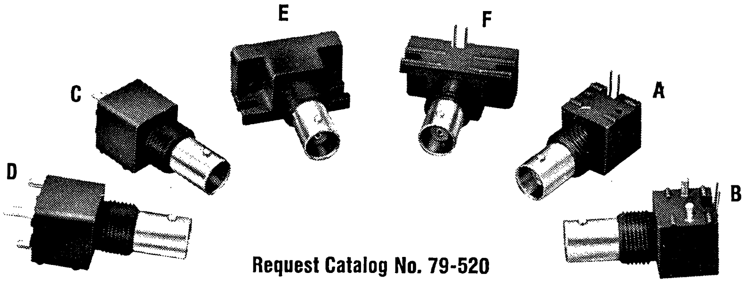
Commercial BNC Receptacles

Features BNC Solder Receptacle ■ Low initial cost ■ Nylon insulating bushing ■ Front mounted ■ Accommodates .046-.250 panel thickness ■ Optional solder tab ■ Optional dielectric and contact plating ■ Contact will accept .059 max. wire

Assemblies	Part No.	Center Contact Pl.	Dielectric
Standard Receptacle with Standard Lockwasher and Nut	227169-1	Tin	Valox*
	227169-2	Tin	Teflon†
	227169-3	Gold	Valox*
	227169-4	Gold	Teflon†
	227169-9	Silver	Valox*
	1-227169-0	Silver	Teflon†
Standard Receptacle with Lockwasher Terminal and Nut	227169-5	Tin	Valox*
	227169-6	Tin	Teflon†
	227169-7	Gold	Valox*
	227169-8	Gold	Teflon†
	1-227169-1	Silver	Teflon†
	1-227169-2	Silver	Valox*
Isolated Receptacle with Standard Lockwasher and Nut	227726-1	Tin	Valox*
	227726-2	Silver	
	227726-3	Gold	
Sealed Receptacle	227426-1	Gold	Polypropylene Epoxy

†Trademark of E. I. DuPont

Features: BNC Receptacles for PCB and Panel Mount Applications ■ Right angle and vertical styles ■ Mounting flanges or mounting posts ■ Isolated ground ■ Threaded body ■ Slim profile for high density packaging ■ Accommodates up to a .125 thick pc board and .250 panel thickness ■ .025 high standoff pads ■ Can be mounted inboard or at pcb edge



Request Catalog No. 79-520

- **A** Without Mounting Posts Part No. 226990-2
- **B** With Solder Mounting Posts Part No. 227161-2
- **C** Without Mounting Posts Part No. 226993-2
- **D** With Solder Mounting Posts Part No. 227222-2
- **E** Vertical PCB BNC Receptacle with Mounting Flanges Part No. 226987-2
- **F** Right Angle PCB/Panel Mount BNC Receptacle with Mounting Flanges Part No. 226978-3

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

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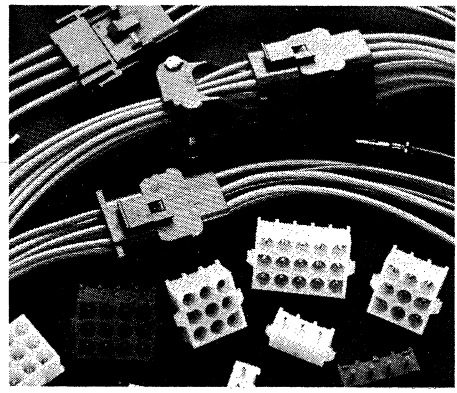
Specifications subject to change. Consult AMP Incorporated for latest design specifications.

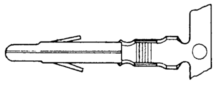
AMP – Trademark of AMP Incorporated
†TEFLON – Trademark of E.I. duPont, Inc.
*VALOX – Trademark of General Electric Co.

AMP Universal MATE-N-LOK Connectors— meet international standards and also handle 600 volts safely.

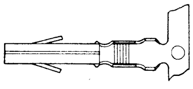
Features

- Pins and sockets can be intermixed in the same housing
- Positive polarization
- Pin or socket contact can be hot
- Positive locking housings
- Insulation capability to .200 diameter
- Removable, crimp snap-in contacts
- Panel mount or free-hanging





Pin



Socket

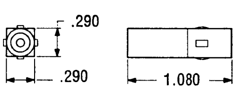
Universal Contacts — Pin and Sockets can be used in either plug or cap housings (Pin Diameter .084)

Wire Size Range AWG	Ins. Dia. Range	Stock Thickness	Material & Finish	Strip Form Contact No.		Loose Piece Contact No.		Miniature Applicator Part No.	Hand Tool Part No.
				Pin	Socket	Pin	Socket		
24-18	.040-.100	.012	Brass, Pre-tin	350561-1	350570-1* 350851-1	350690-1	350689-1*	466320-1 466320-2	90300-1
			Brass, Gold	350561-2	350570-2* 350851-2	350690-2	350689-2* 640347-2		
20-14	.060-.130	.012	Brass, Pre-tin	350218-1	350536-1	350547-1	350550-1	687763-1	90296-1
			Brass, Gold	350218-2	350536-2	350547-2	350550-2	687763-2	
20-14	.130-.200	.012	Brass, Pre-tin	350538-1	350537-1	350552-1	350551-1	687926-1	90298-1
			Brass, Gold	350538-2	350537-2	350552-2	350551-2	687926-2	90299-1
18-14‡	.130-.200	.012	Brass, Pre-tin	350873-1	350874-1	—	—	466588-1	90299-1
			Brass, Gold	350873-2	350874-2	—	—	466588-2	

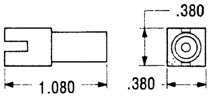
*Socket Contact — .010 stock thickness.
Contact Extraction Tool **Part No.** 458994-1. Contact Insertion Tool **Part No.** 455830-1.
‡Has larger wire barrel. Recommended for predominant use of #14 AWG.

Connector Housing Specifications

1 Circuit Free-Hanging



Plug



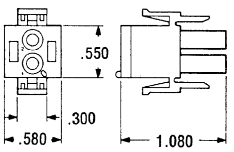
Cap

No. of Circuits	A Dim.	Housing Part Numbers			
		Plug Nylon 94V-2	Plug Nylon 94V-0	Cap Nylon 94V-2	Cap Nylon 94V-0
1	—	1-350867-0	350865-1	1-350868-0	350866-1
2	—	1-480698-0	350777-1	1-480699-0	350778-1
3	.800	1-480700-0	350766-1	1-480701-0	350767-1
4	1.050	1-480702-0	350779-1	1-480703-0	350780-1
5	1.300	1-480763-0	350809-1	1-480764-0	350810-1
6	1.550	640585-1*	640581-1*	—	—
		1-480704-0	350715-1	1-480705-0	350781-1
8	2.050	640586-1	640582-1	—	—
9	.800	1-480706-0	350720-1	1-480707-0	350782-1
12	1.050	1-480708-0	350735-1	1-480709-0	350783-1
15	1.300	1-480710-0	350736-1	1-480711-0	350784-1

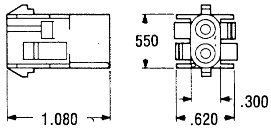
*In-line version.
Note: 5 position cavity identification located on side of housing.

Request Catalog No. 73-104 for complete listing.

2 Circuit

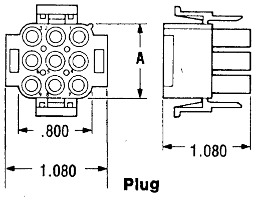


Plug

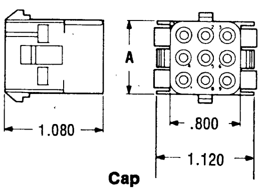


Cap

9, 12 and 15 Circuit



Plug



Cap

NOTES:

1. Nylon 94V-2 part numbers listed are for natural nylon color (NEMA colors available upon request).
2. Nylon 94V-0 is brick red color only.
3. Contacts are on .250 centerline spacing.

- Available in 94V-0 flame retardant material
- pc board capability using pin or socket header assemblies
- Recognized under Component Program of Underwriters Laboratories Inc. File No. E28476
- CSA Certified — File No. LR 16455
- Tested by VDE under their Test Report 4751-800-2/A

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.
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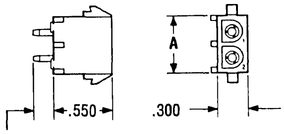
AMP Universal MATE-N-LOK Connectors

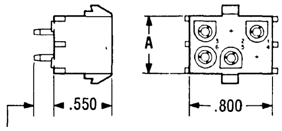
Printed Circuit Board Pin/Socket Header Assemblies

2, 3, 4 and 5 Circuit



.175 Standard Tail,
.235 Long Tail

6, 9, 12 and 15 Circuit



.175 Standard Tail,
.235 Long Tail

NOTES:

Housing Material: 94V-2 rating, natural color (NEMA colors available); 94V-0 rating, brick red.

Pin Material: Phos. Bronze, pre-tin plate or .000030 min. gold over .000050 min. nickel.

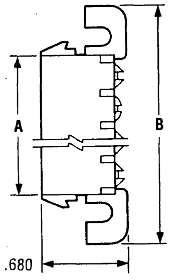
No. of Circuits	Pin Assembly Part Number		Socket Assembly Part Number		Housing Material (Nylon)	A Dim.	Finish
	Standard Tail*	Long Tail**	Standard Tail*	Long Tail**			
2	350428-1	350582-1	350759-4	350986-4	94V-2	.550	Pre-tin
	350428-2	350582-2	350759-3	350986-3			Gold
	350786-1	350787-1	350824-1	350831-1	94V-0		Pre-tin
	350786-2	350787-2	350824-2	350831-2			Gold
3	350429-1	350583-1	350760-4	350987-4	94V-2	.800	Pre-tin
	350429-2	350583-2	350760-3	350987-3			Gold
	350789-1	350790-1	350825-1	350832-1	94V-0		Pre-tin
	350789-2	350790-2	350825-2	350832-2			Gold
4	350430-1	350584-1	350761-4	350988-4	94V-2	1.050	Pre-tin
	350430-2	350584-2	350761-3	350988-3			Gold
	350792-1	350793-1	350826-1	350833-1	94V-0		Pre-tin
	350792-2	350793-2	350826-2	350833-2			Gold
5	640466-1	—	640467-1	643061-1	94V-2	1.300	Pre-tin
	640900-1	—	640901-1	643062-1	94V-0		
6	350431-1	350585-1	350762-4	350989-4	94V-2	.550	Pre-tin
	350431-2	350585-2	350762-3	350989-3			Gold
	350711-1	350732-1	350827-1	350834-1	94V-0		Pre-tin
	350711-2	350732-2	350827-2	350834-2			Gold
9	350432-1	350586-1	350763-4	350990-4	94V-2	.800	Pre-tin
	350432-2	350586-2	350763-3	350990-3			Gold
	350712-1	350742-1	350828-1	350835-1	94V-0		Pre-tin
	350712-2	350742-2	350828-2	350835-2			Gold
12	350433-1	350587-1	350764-4	350991-4	94V-2	1.050	Pre-tin
	350433-2	350587-2	350764-3	350991-3			Gold
	350713-1	350737-1	350829-1	350836-1	94V-0		Pre-tin
	350713-2	350737-2	350829-2	350836-2			Gold
15	350434-1	350588-1	350765-4	350992-4	94V-2	1.300	Pre-tin
	350434-2	350588-2	350765-3	350992-3			Gold
	350714-1	350738-1	350830-1	350837-1	94V-0		Pre-tin
	350714-2	350738-2	350830-2	350837-2			Gold

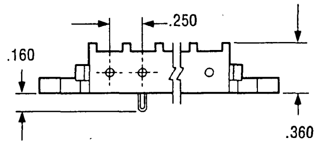
*Use Standard Tail for .062 thick printed circuit board.

**Use Long Tail for .125 thick printed circuit board.

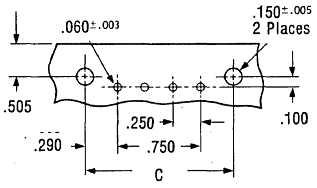
Right Angle Pin Header Assemblies

Contacts: Phos. Bronze





Board Layout



Use 6-32 UNC Pan Head Screw
3/8 long and hex nut for mounting

No. of Circuits	Dimensions			Assembly Part No.		Pin Finish
	A	B	C	94V-2	94V-0	
2	.550	1.245	.830	1-350946-0	1-350942-0	Pre-Tin
				2-350946-0	2-350942-0	Gold
3	.800	1.495	1.080	1-350947-0	1-350943-0	Pre-Tin
				2-350947-0	2-350943-0	Gold
4	1.050	1.745	1.330	1-350948-0	1-350944-0	Pre-Tin
				2-350948-0	2-350944-0	Gold
5	1.300	1.995	1.580	1-350949-0	1-350945-0	Pre-Tin
				2-350949-0	2-350945-0	Gold
6	1.550	2.245	1.830	640587-1	640583-1	Pre-Tin
				640587-2	640583-2	Gold
8	2.050	2.745	2.330	640588-1	640584-1	Pre-Tin
				640588-2	640584-2	Gold

Request Catalog No. 73-104 for complete listing.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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AMPLIMITE High Density 20 and 22 Pin and Socket Connectors (Subminiature "D" Type)

Materials:
Shell—Steel, Class G; Cadmium plated per QQ-P-416, Type II, Class 2*
Insert—Diallyl Phthalate per MIL-M-14, Type SDG-F; Color, Blue
Retention Springs—Stainless Steel*

*Shells in non-magnetic brass and retention springs in beryllium copper can be supplied upon request.

AMPLIMITE High Density 20 and 22 (HDM-20 & HDD-22) Connectors are compact pin and socket connectors especially designed for state-of-the-art high density packaging. They are ideally suited for such diverse applications as military and ground support, computer peripheral equipment, modems, and industrial control instrumentation. HDD-22 Connectors provide even higher density than the HDM-20 Connectors.

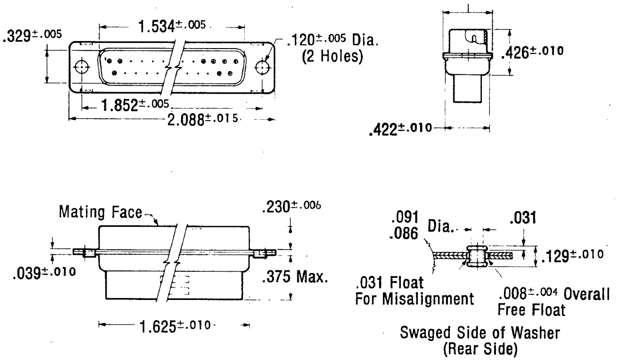
Features (HDM-20 Connectors) ■ Wide choice of sizes — 9, 15, 25, 37 and 50 contact positions ■ Conforms to latest amendments of MIL-C-24308 ■ Optional mounting — standard or with floating bushings ■ Machine applied terminations of size 20 screw-machined and precision formed contacts assure highest production rates and lowest applied cost ■ Contacts accept 24-20 AWG wire range.

Features (HDD-22 Connectors) ■ Wide choice of sizes — 15, 26, 44, 62, 78 and 104 contact positions ■ Connectors conform to latest amendments of MIL-C-24308 ■ High density connections — contacts spaced as close as .090" (in 15, 26 and 44 positions) ■ Size 22 contacts available in screw-machined or precision formed versions, accommodate No. 28-22 AWG wire range ■ Cadmium plated steel shells ■ Machine applied terminations assure highest production rates at lowest applied cost

The HDM-20 and HDD-22 Connectors are also available with gold plated non-magnetic brass shells.

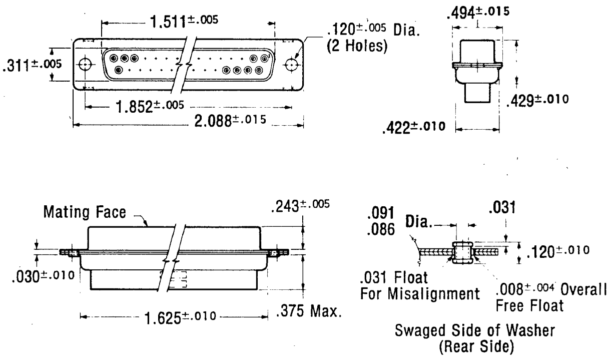
HDM-20 Connector

Plug Assemblies



Floating Bushing

Receptacle Assemblies



Floating Bushing

(25 position connector illustrated.)

No. of Contact Pos.	Standard Mount		Floating Bushing Mount		Description
	Military Part No. (M24308/)	AMP Part No.	Military Part No. (M24308/)	AMP Part No.	
9	4-259	205162-1	4-324	205412-1	Plug only
	4-1	205556-2	4-302	205486-2	Plug with pins
	4-6	205556-3	4-313	205486-3	Plug with pins and tool*
15	4-260	205164-1	4-325	205408-1	Plug only
	4-2	205558-2	4-303	205409-2	Plug with pins
	4-7	205558-3	4-314	205409-3	Plug with pins and tool*
25	4-261	205166-1	4-326	205413-1	Plug only
	4-3	205560-2	4-304	205487-2	Plug with pins
	4-8	205560-3	4-315	205487-3	Plug with pins and tool*
37	4-262	205168-1	4-327	205414-1	Plug only
	4-4	205562-2	4-305	205488-2	Plug with pins
	4-9	205562-3	4-316	205488-3	Plug with pins and tool*
50	4-263	205170-1	4-328	205415-1	Plug only
	4-5	205564-2	4-306	205431-2	Plug with pins
	4-10	205564-3	4-317	205431-3	Plug with pins and tool*

No. of Contact Pos.	Standard Mount		Floating Bushing Mount		Description
	Military Part No. (M243081/)	AMP Bit No.	Military Part No. (M243081/)	AMP Bit No.	
9	2-281	205161-1	2-292	205416-1	Recpt. only
	2-1	205555-2	2-23	205483-2	Recpt. with sockets
	2-6	205555-3	2-34	205483-3	Recpt. with sockets and tool*
15	• 2-282	205163-1	2-293	205417-1	Recpt. only
	2-2	205557-2	2-24	205433-2	Recpt. with sockets
	2-7	205557-3	2-35	205433-3	Recpt. with sockets and tool*
25	2-283	205165-1	2-294	205418-1	Recpt. only
	2-3	205559-2	2-25	205484-2	Recpt. with sockets
	2-8	205559-3	2-36	205484-3	Recpt. with sockets and tool*
37	2-284	205167-1	2-295	205419-1	Recpt. only
	2-4	205561-2	2-26	205485-2	Recpt. with sockets
	2-9	205561-3	2-37	205485-3	Recpt. with sockets and tool*
50	2-285	205169-1	2-296	205420-1	Recpt. only
	2-5	205563-2	2-27	205432-2	Recpt. with sockets
	2-10	205563-3	2-38	205432-3	Recpt. with sockets and tool*

*Insertion/Extraction Tool, AMP **Part No.** 91067-2; Military **Part No.** M24308/18-2.

Note: Pins and sockets supplied with connectors are loose piece. For ordering loose piece and/or tape-mounted pins and sockets separately, refer to Catalog No. 79-547.

Request Catalog No. 79-547 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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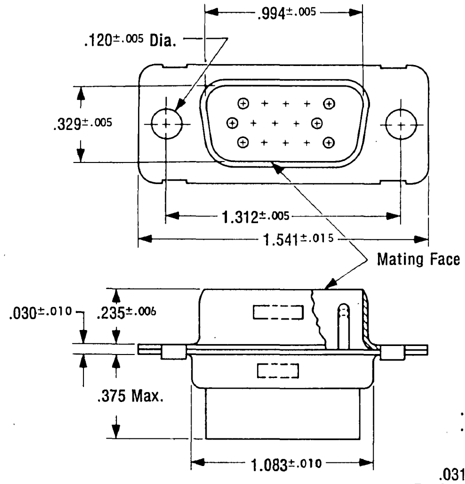
AMPLIMITE High Density 20 and 22 Pin and Socket Connectors (Subminiature "D" Type)

Materials:
Shell—Steel, Class G; Cadmium plated per QQ-P-416, Type II, Class 2*
Insert—Diallyl Phthalate per MIL-M-14, Type SDG-F; Color, Blue
Retention Springs—Stainless Steel*

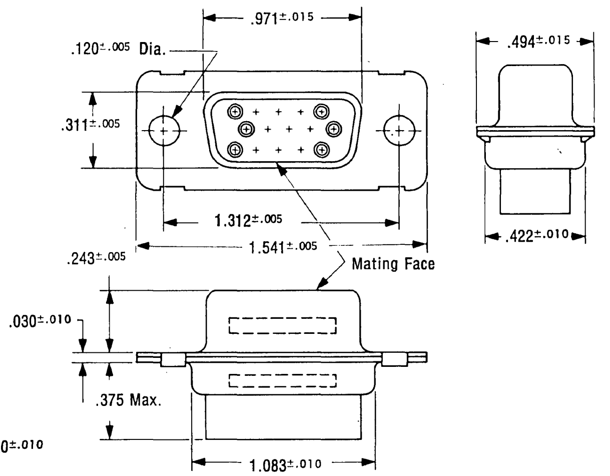
*Shells in non-magnetic brass and retention springs in beryllium copper can be supplied upon request.

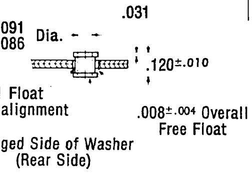
HDD-22 Connector

Plug Assemblies



Receptacle Assemblies





Floating Bushing

(26 position connector illustrated.)

No. of Contact Pos.	Standard Mount Military Part No. (M24308/)	Standard Mount AMP Part No.	Floating Bushing Mount Military Part No. (M24308/)	Floating Bushing Mount AMP Part No.	Description
15	4-264	204501-1	4-329	204525-1*	Plug only
	—	204513-1*	—	204537-1*	Plug with Tool**
	4-11	204513-2	4-307	204537-2*	Plug with Pins
	4-17	204513-3	4-318	204537-3*	Plug with Pins and Tool**
26	4-265	204503-1	4-330	204527-1*	Plug only
	—	204515-1*	—	204539-1*	Plug with Tool**
	4-12	204515-2	4-308	204539-2*	Plug with Pins
	4-18	204515-3	4-319	204539-3*	Plug with Pins and Tool**
44	4-266	204505-1	4-331	204529-1*	Plug only
	—	204517-1*	—	204541-1*	Plug with Tool**
	4-13	204517-2	4-309	204541-2*	Plug with Pins
	4-19	204517-3	4-320	204541-3*	Plug with Pins and Tool**
62	4-267	204507-1	4-332	204531-1*	Plug only
	—	204519-1*	—	204543-1*	Plug with Tool**
	4-14	204519-2	4-310	204543-2*	Plug with Pins
	4-20	204519-3	4-321	204543-3*	Plug with Pins and Tool**
78	4-268	204509-1	4-333	204533-1*	Plug only
	—	204521-1*	—	204545-1*	Plug with Tool**
	4-15	204521-2	4-311	204545-2*	Plug with Pins
	4-21	204521-3	4-322	204545-3*	Plug with Pins and Tool**
104	4-269	204511-1	4-334	204535-1*	Plug only
	—	204523-1*	—	204547-1*	Plug with Tool**
	4-16	204523-2	4-312	204547-2*	Plug with Pins
	4-22	204523-3	4-323	204547-3*	Plug with Pins and Tool**

Standard Mount Military Part No. (M24308/)	Standard Mount AMP Part No.	Floating Bushing Mount Military Part No. (M24308/)	Floating Bushing Mount AMP Part No.	Description
2-286	204500-1	2-297	204524-1	Recpt. only
—	204512-1*	—	204536-1*	Recpt. with Tool**
2-11	204512-2	2-28	204536-2	Recpt. with Sockets
2-17	204512-3	2-39	204536-3	Recpt. with Sockets and Tool**
2-287	204502-1	2-298	204526-1	Recpt. only
—	204514-1*	—	204538-1*	Recpt. with Tool**
2-12	204514-2	2-29	204538-2	Recpt. with Sockets
2-18	204514-3	2-40	204538-3	Recpt. with Tool and Sockets**
2-288	204504-1	2-299	204528-1	Recpt. only
—	204516-1*	—	204540-1*	Recpt. with Tool**
2-13	204516-2	2-30	204540-2	Recpt. with Sockets
2-19	204516-3	2-41	204540-3	Recpt. with Tool and Sockets**
2-289	204506-1	2-300	204530-1	Recpt. only
—	204518-1*	—	204542-1*	Recpt. with Tool**
2-14	204518-2	2-31	204542-2	Recpt. with Sockets
2-20	204518-3	2-42	204542-3	Recpt. with Tool and Sockets**
2-290	204508-1	2-301	204532-1	Recpt. only
—	204520-1*	—	204544-1*	Recpt. with Tool**
2-15	204520-2	2-32	204544-2	Recpt. with Sockets
2-21	204520-3	2-43	204544-3	Recpt. with Tool and Sockets**
2-291	204510-1	2-302	204534-1	Recpt. only
—	204522-1*	—	204546-1*	Recpt. with Tool**
2-16	204522-2	2-33	204546-2	Recpt. with Sockets
2-22	204522-3	2-44	204546-3	Recpt. with Tool and Sockets**

*No specific military part no. assigned. May be quoted and/or purchased by equivalent military part no., stating any variation from the military part no., or by AMP part no. only.

Insertion/Extraction Tool, AMP **Part No. 91067-1; Military **Part No.** M24308/18-1.

Note: Pins and sockets supplied with connectors are loose piece. For ordering loose-piece and/or tape-mounted pins and sockets separately, refer to Catalog No. 79-547.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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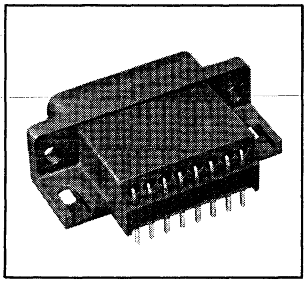
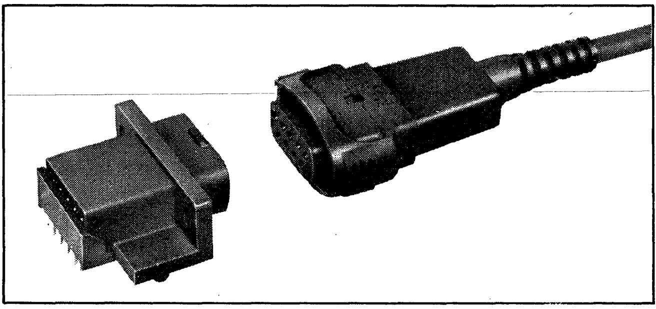
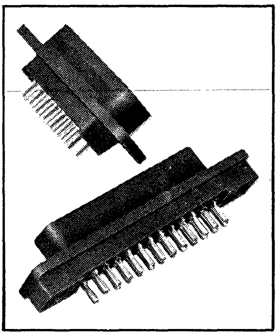
AMPLIMITE Subminiature HD-20 High Density Pin and Socket Connectors



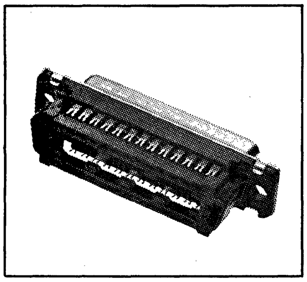
HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts for Pc Board Mounting



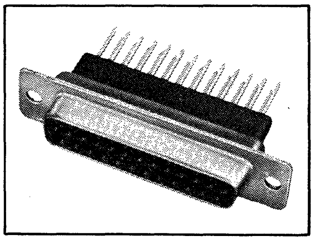
HDJ-20 All-Plastic Connectors for Jacketed Cable



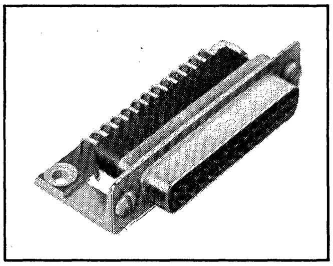
HDP-20 All-Plastic Connectors With and Without Integral Standoffs, Preloaded with .026 [0.66] or .040 [1.02] Dia. Straight Posted Contacts for Pc Board Mounting



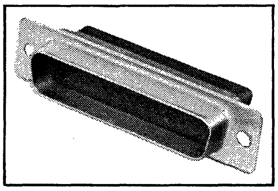
HDF-20 Low Profile Metal-Shell Connectors for Flat Ribbon Cable



HD-20 Metal-Shell Connectors Preloaded with .025 [0.64] Sq. Straight Posted Contacts for Pc Board Mounting and Wrap-Type Terminations



HD-20 Metal-Shell Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts for Pc Board Mounting



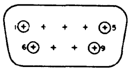
HD-20 Metal-Shell Connectors for Snap-In Contacts

Features

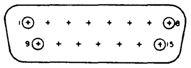
- ■ Available in various styles: metal shell, plastic insert HD-20 connectors for snap-in contacts and HDF-20 connectors for round conductor. Flat cable: all-plastic HDP-20 connectors for pc board mounting and HDJ-20 connectors for jacketed cable.
- ■ Shell sizes 1 thru 5 offer wide choice of contact positions: 9, 15, 25, 37 and 50.
- ■ HD-20 metal-shell connectors accept size 20 DF precision-formed and size 20 DM screw-machined contacts.
- ■ HD-20 metal-shell connectors employ captivated plastic retention tines to eliminate need for spring clips.
- ■ HDP-20 all-plastic connectors employ 94V-0 rated thermoplastic housings with straight and right-angle posted contacts.
- ■ Broad selection of accessories for strain relief/cable clamping, connector-to-connector mating, connector-to-pc board mounting, circuit commoning and keying.
- ■ Machine-applied terminations of size 20 DF and size 20 DM and insulation displacement contacts assure highest production rates at lowest applied cost.
- ■ Filtered AMPLIMITE connectors are available, request Catalog No. 78-487 for specifications.

Insert Arrangements

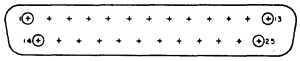
9 Position (Shell Size 1)



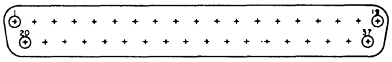
15 Position (Shell Size 2)



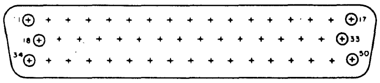
25 Position (Shell Size 3)



37 Position (Shell Size 4)



50 Position (Shell Size 5)



Note: Mating face of plug assembly shown; receptacle assembly is mirror image.

HD-20 Connectors (for Snap-In Contacts)

Material and Finish:

Shell—Steel per QQ-S-698; Zinc plated per QQ-Z-325, Type II, Class 3 (Yellow Chromate)

Insert—Black Glass-Filled Nylon, Self-Extinguishing, 94V-0 Rated

HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts

Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated

Post Spacer—Black Thermoplastic, 94V-0 Rated

Pin Contacts (Posted)—Brass per MIL-C-50; plated

Socket Contacts (Posted)—Phosphor Bronze per QQ-B-750 plated as follows:

A—Gold flash over .000050 [0.00127] nickel on entire contact, with additional .000030 [0.00076] gold on mating end for length of .150 [3.81] min.

B—Gold flash over .000030 [0.00076] nickel

Gold plating per MIL-G-45204;
Nickel plating per QQ-N-290

Request Catalog No. 79-546 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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AMPLIMITE Subminiature HD20 High Density Pin and Socket Connectors (Continued)

HDP-20 All-Plastic Connectors Preloaded with Straight Posted Contacts (for Pc Board Mounting)

Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated

Pin Contacts (Posted)—Brass per MIL-C-50: plated

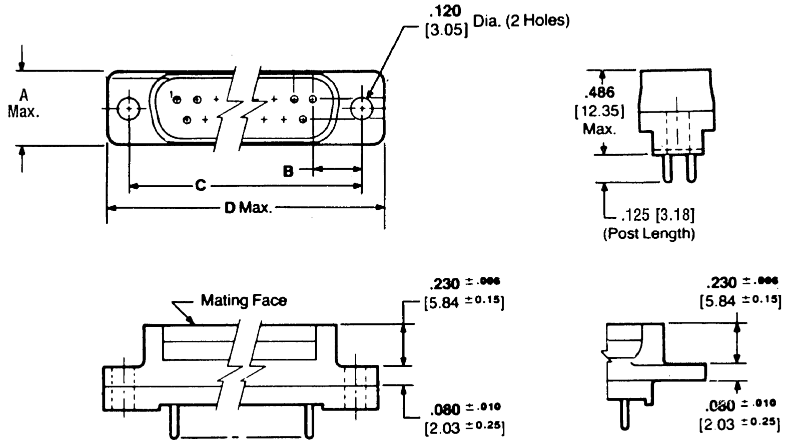
Socket Contacts (Posted)—Phosphor Bronze per QQ-B-750 plated as follows

A—Gold flash over .000050 [0.00127] nickel on entire contact, with additional .000030 [0.00076] gold on mating end for length of .150 [3.81] min.

B—Gold flash over .000030 [0.00076] nickel

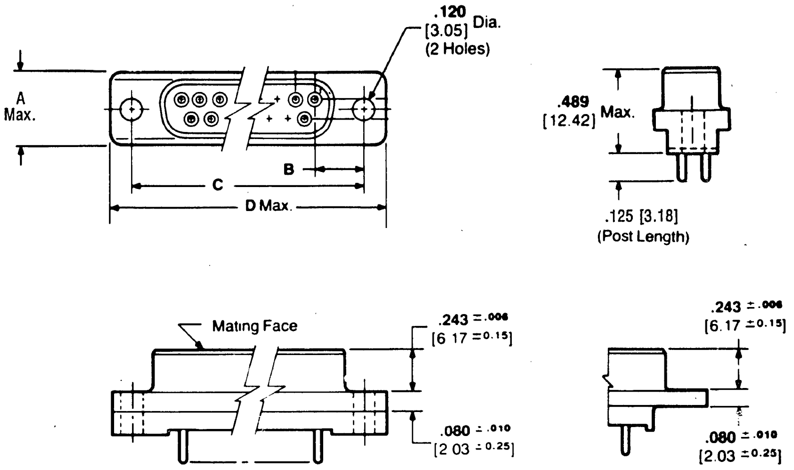
Gold plating per MIL-G-45204; Nickel plating per QQ-N-290

Plug Assemblies 9, 15, 25, 37 and 50 Positions



without Integral Standoff

Receptacle Assemblies 9, 15, 25, 37 and 50 Positions



without Integral Standoff

Request Catalog No. 79-546 for complete product listing.

No. of Contact Pos. Shell Size	Dimensions				Contact Finish Plating Code)	.040 [1.02] Dia. Post				.026 [0.66] Dia. Post			
						Plug Assembly		Receptacle Assembly		Plug Assembly		Receptacle Assembly	
	A	B	C	D		Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes
9	.420	.278	.984	1.228	A	208003-6	207663-4	208002-6	207665-4	208084-2	208006-2	208079-4	207826-4
(1)	10.67	7.06	24.99	31.19	B	208003-5	207663-3	208002-5	207665-3	208084-1	208006-1	208079-3	207826-3
15	.420	.278	1.312	1.546	A	208065-4	207325-4	208066-4	207323-4	208085-2	208007-2	208080-4	207827-4
(2)	10.67	7.06	33.32	39.27	B	208065-3	207325-3	208066-3	207323-3	208085-1	208007-1	208080-3	207827-3
25	.420	.274	1.852	2.095	A	207879-6	207089-6	207878-6	207090-6	208086-2	208008-2	208081-4	207828-4
(3)	10.67	6.96	47.04	53.22	B	207879-5	207089-5	207878-5	207090-5	208086-1	208008-1	208081-3	207828-3
37	.420	.272	2.500	2.737	A	208005-6	207329-4	208004-6	207327-4	208087-2	208009-2	208082-4	207829-4
(4)	10.67	6.91	63.5	69.52	B	208005-5	207329-3	208004-5	207327-3	208087-1	208009-1	208082-3	207829-3
50	.527	.333	2.406	2.643	A	208067-4	207667-4	208068-4	207669-4	208088-2	208010-2	208083-4	207830-4
(5)	13.39	8.46	61.11	67.13	B	208067-3	207667-3	208068-3	207669-3	208088-1	208010-1	208083-3	207830-3

Plug and Receptacle Assemblies are available with .170 [4.32] and .250 [6.35] post lengths. Refer to AMP Catalog No. 79-546 for specifications.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

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Specifications subject to change. Consult AMP Incorporated for latest design specifications.
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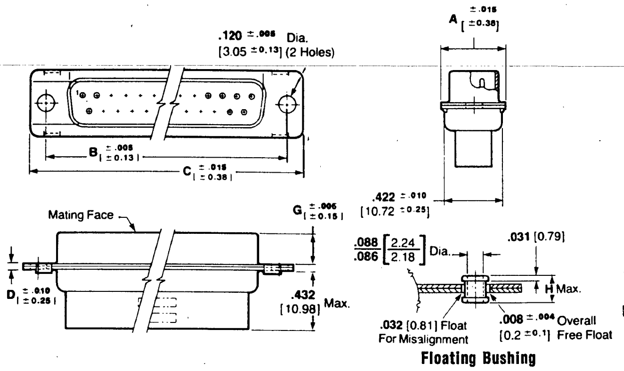
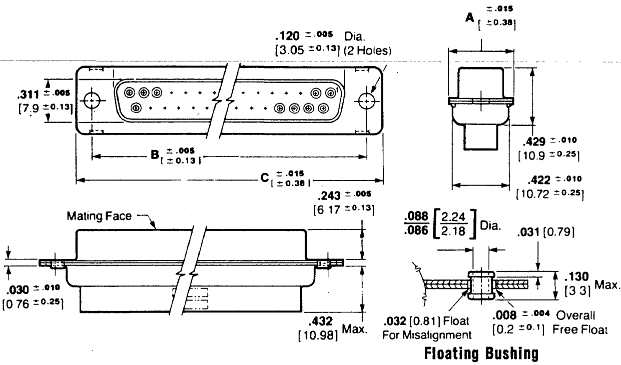
AMPLIMITE Subminiature HD20 High Density Pin and Socket Connectors (Continued)

HD-20 Connectors (for Snap-In Contacts)

Plugs 9, 15, 25, 37 and 50 Positions


.120 ±.005 Dia. [3.05 ±0.13] (2 Holes)
A ±.015 [±0.38]
B ±.005 [±0.13]
C ±.015 [±0.38]
.422 ±.010 [10.72 ±0.25]
G ±.006 [±0.15]
Mating Face
D ±.010 [±0.25]
.432 [10.98] Max.
.088 .086 [2.24 2.18] Dia.
.031 [0.79]
H Max.
.032 [0.81] Float For Misalignment
.008 ±.004 Overall [0.2 ±0.1] Free Float
Floating Bushing

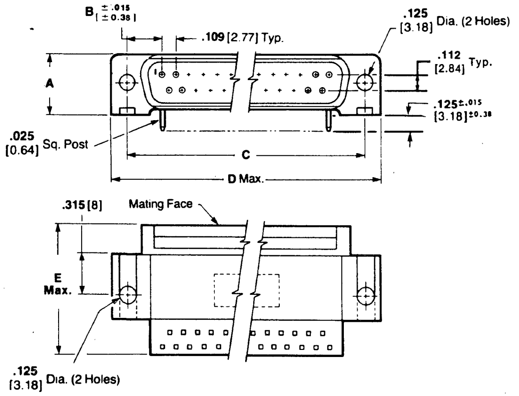
Receptacles 9, 15, 25, 37 and 50 Positions


.120 ±.005 Dia. [3.05 ±0.13] (2 Holes)
A ±.015 [±0.38]
.311 ±.005 [7.9 ±0.13]
B ±.005 [±0.13]
C ±.015 [±0.38]
.429 ±.010 [10.9 ±0.25]
.422 ±.010 [10.72 ±0.25]
.243 ±.005 [6.17 ±0.13]
Mating Face
.030 ±.010 [0.76 ±0.25]
.432 [10.98] Max.
.088 .086 [2.24 2.18] Dia.
.031 [0.79]
.130 [3.3] Max.
.032 [0.81] Float For Misalignment
.008 ±.004 Overall [0.2 ±0.1] Free Float
Floating Bushing

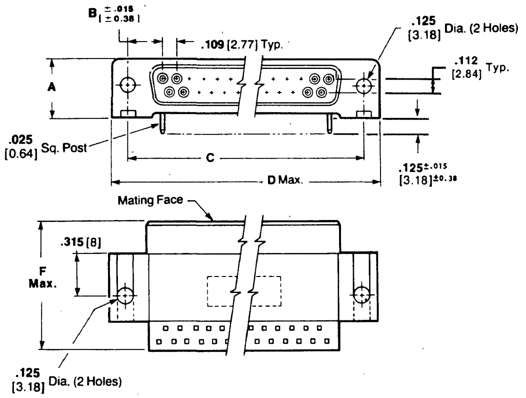
No. of Contact Pos. (Shell Size)	Dimensions						Part Nos.		Mounting Method
	A	B	C	D	G	H	Plug	Receptacle	
9	.494	.984	1.213	.030	.235	.130	205204-1	205203-1	Standard
(1)	12.55	24.99	30.81	0.76	5.97	3.3	205434-1	205439-1	Floating Bushing
15	.494	1.312	1.541	.030	.235	.130	205206-1	205205-1	Standard
(2)	12.55	33.32	39.14	0.76	5.97	3.3	205435-1	205440-1	Floating Bushing
25	.494	1.852	2.088	.039	.230	.139	205208-1	205207-1	Standard
(3)	12.55	47.04	53.04	0.99	5.84	3.53	205436-1	205441-1	Floating Bushing
37	.494	2.500	2.729	.039	.230	.139	205210-1	205209-1	Standard
(4)	12.55	63.5	69.32	0.99	5.84	3.53	205437-1	205442-1	Floating Bushing
50	.605	2.406	2.635	.039	.230	.139	205212-1	205211-1	Standard
(5)	15.37	61.11	66.93	0.99	5.84	3.53	205438-1	205443-1	Floating Bushing

HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts (for Pc Board Mounting)

Plug Assemblies 9, 15, 25, 37 and 50 Positions


B ±.015 [±0.38]
.109 [2.77] Typ.
.125 [3.18] Dia. (2 Holes)
.112 [2.84] Typ.
A
.125±.015 [3.18]±0.38
.025 [0.64] Sq. Post
C
D Max.
.315 [8]
Mating Face
E Max.
.125 [3.18] Dia. (2 Holes)

Receptacle Assemblies 9, 15, 25, 37 and 50 Positions


B ±.015 [±0.38]
.109 [2.77] Typ.
.125 [3.18] Dia. (2 Holes)
.112 [2.84] Typ.
A
.025 [0.64] Sq. Post
C
D Max.
.125±.015 [3.18]±0.38
Mating Face
.315 [8]
F Max.
.125 [3.18] Dia. (2 Holes)

No. of Contact Pos. (Shell Size)	Dimensions						Contact Finish (Plating Code)	Part Nos.	
	A	B	C	D	E	F		Plug Assembly	Receptacle Assembly
9	.452	.276	.984	1.228	1.023	1.035	A	207081-2	207084-2
(1)	11.48	7.01	24.99	31.19	25.98	26.29	B	207081-1	207084-1
15	.452	.278	1.312	1.556	1.023	1.035	A	206913-2	206914-2
(2)	11.48	7.06	33.32	39.53	25.98	26.29	B	206913-1	206914-1
25	.452	.274	1.852	2.095	1.023	1.035	A	206604-2	206584-2
(3)	11.48	6.96	47.04	53.22	25.98	26.29	B	206604-1	206584-1
37	.452	.272	2.500	2.742	1.023	1.035	A	206816-2	206817-2
(4)	11.48	6.91	63.5	69.65	25.98	26.29	B	206816-1	206817-1
50	.558	.333	2.406	2.648	1.135	1.147	A	206971-2	206973-2
(5)	14.17	8.46	61.11	67.26	28.83	29.13	B	206971-1	206973-1

Notes: 1. All plug assemblies are preloaded with size 20 DF posted pin contacts.
2. Recommended board thickness is .093 [2.37] max.; recommended pc board hole size is .047 [1.19].
Request Catalog No. 79-546 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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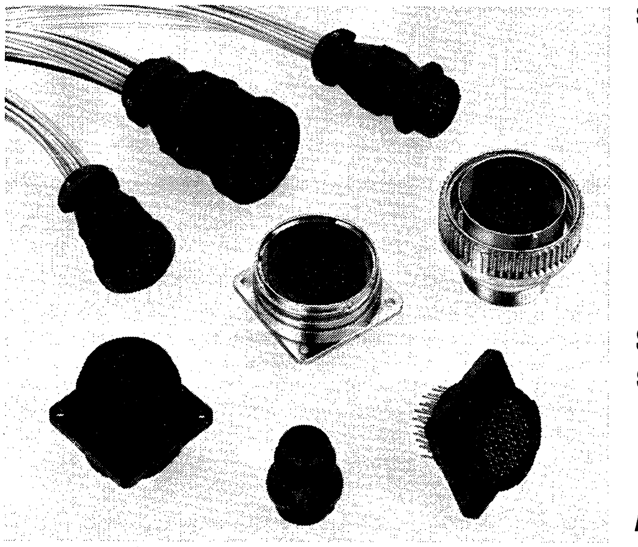
AMP Circular Plastic Connectors

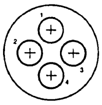


AMP CPC and metal-shell CPC connectors are designed for such commercial applications as automotive, aircraft, instrumentation, computer and peripheral equipment. These connectors offer many advanced design features to assure top quality performance.

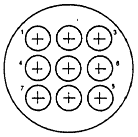
Features: ■ Light-weight, all-plastic connectors and metal-shell versions available. ■ CPC connectors made of UL recognized, high grade thermoplastic material. ■ Recognized under the Component Program of Underwriters Laboratories Inc. for 250-volt service*, File No. E28476. ■ CSA Certified, File No. LR16455. ■ Four connector series for different interconnection needs: • Series 1 — Standard density applications with Multimate contacts. • Series 2 — High density applications with Size 20 DM and 20 DF contacts (.040 [1.02] pin diameter). • Series 3 — Power density applications with Type XII contacts capable of carrying up to 35 amperes of current. • Series 4 — Combination standard and power density applications with Series 1 and Series 3 contacts. ■ Available in panel or chassis mount versions and in free-hanging versions. ■ Quick connect/disconnect capability with thread assist, positive detent coupling. ■ Built-in pin and socket protection. ■ 5-key polarization for proper mating of connector halves. ■ Special connector configurations offer mixed coaxial cable sizes, special solder and posted contacts, special mounting designs, built-in strain relief and adaptability to snap-on cable boots. ■ Full complement of optional accessories.

Series 1 Contact Arrangement

Shell Size 11 and 13

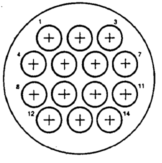


Arrangement 11-4



Arrangement 13-9

Shell Size 17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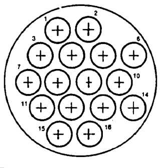
Arrangement 17-14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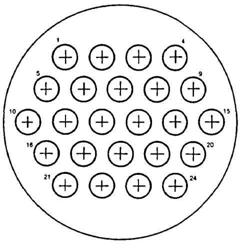
Arrangement 17-16

Shell Size 23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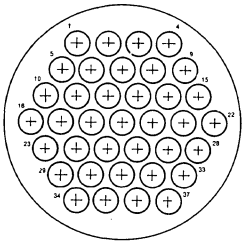
Arrangement 23-24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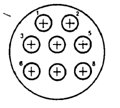
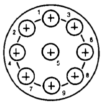
Arrangement 23-37

Series 2 Contact Arrangement

Shell Size 11

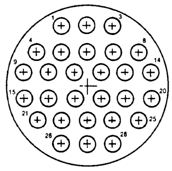


Arrangement 11- 8



Arrangement 11-9

Shell Size 17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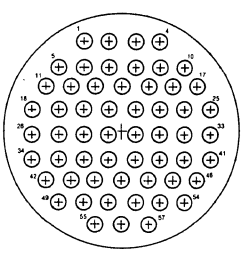
Arrangement 17-28

Shell Size 23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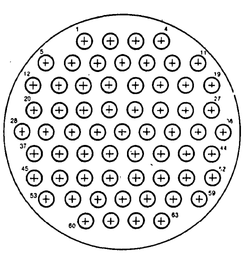
Arrangement 23-57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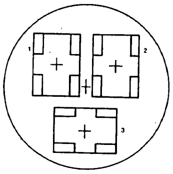
Arrangement 23-63

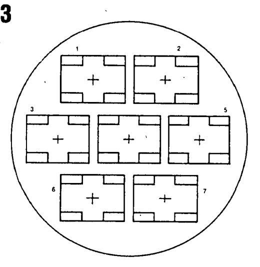
Series 3 Contact Arrangements

Shell Size 17



Arrangement 17-3

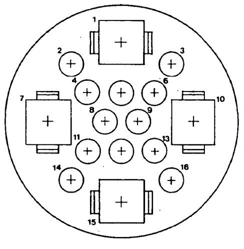
Shell Size 23



Arrangement 23-7

Series 4 Contact Arrangements

Shell Size 23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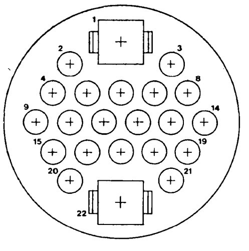
Arrangement 23-16M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Arrangement 23-22M

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

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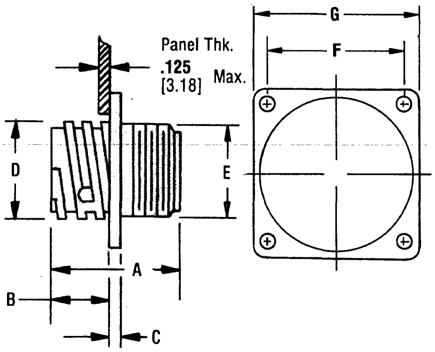
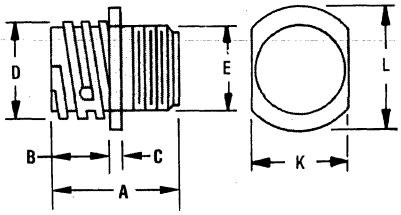
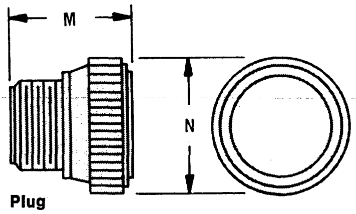
AMP Circular Plastic Connectors (Continued)



Square Flange Receptacle



Free Hanging Receptacle



Plug

Contacts:
Series 1 — Size 16 (Signal, subminiature coaxial and fiber optic).
Series 2 — Size 20 (Signal).
Series 3 — Power.
Series 4 — Mix of Size 16 and Power.
Request Catalog No. 73-204 for complete specifications.

Series Class	Arrangement No.	Sex*	Dimensions											Receptacles		Plugs
			A Max.	B ±.015 0.38	C ±.010 0.25	D ±.010 0.25	E Max.	F ±.010 0.25	G ±.025 0.64	K Max.	L Max.	M Max.	N Max.	Square Flanged	Free Hanging	
1	11-4	Rev.	**1.070** 27.18	**.420** 10.67	**.094** 2.39	**.687** 17.45	**.740** 18.8	**.844** 21.44	**1.125** 28.58	**.817** 20.75	**.935** 23.75	**1.365** 34.68	**.942** 23.93	206430-1	206430-2	206429-1
		Std.	**1.350** 34.29									**1.080** 27.43		206061-1	206153-1	206060-1
	13-9	Std.	**1.350** 34.29	**.420** 10.67	**.094** 2.39	**.812** 20.62	**.879** 22.33	**.969** 24.61	**1.281** 31.01	**.874** 22.2	**1.072** 27.23	**1.080** 27.43	**1.070** 27.18	206705-1	206705-2	206708-1
	17-14	Rev.	**1.070** 27.18	**.420** 10.67	**.094** 2.39	**1.050** 26.67	**1.110** 28.2	**1.125** 28.58	**1.435** 36.45	**1.161** 29.49	**1.310** 33.27	**1.365** 34.68	**1.315** 33.4	206043-1	206043-3	206044-1
	17-16	Std.	**1.350** 34.29									**1.080** 27.43		206036-1	206036-3	206037-1
	23-24**	Std.	**1.350** 34.29	**.520** 13.21	**.156** 3.96	**1.438** 36.53	**1.510** 38.36	**1.438** 36.53	**1.750** 44.45	**1.505** 38.23	**1.733** 44.02	**1.080** 27.43	**1.743** 44.27	206838-1	206838-2	206837-1
	23-37	Rev.	**1.070** 27.18	**.520** 13.21	**.156** 3.96	**1.438** 36.53	**1.510** 38.36	**1.438** 36.53	**1.750** 44.45	**1.505** 38.23	**1.733** 44.02	**1.365** 34.68	**1.743** 44.27	206306-1	206306-2	206305-1
		Std.	**1.350** 34.29									**1.080** 27.43		206151-1	206151-2	206150-1
2	11-8†	Std.	**.809** 20.55	**.420** 10.67	**.094** 2.39	**.688** 17.48	**.630** 16	**.844** 21.44	**1.125** 28.58	**.817** 20.75	**.935** 23.75	**.800** 20.32	**.942** 23.93	205841-1	205841-2	205838-1
		Rev.												206433-1	206433-2	206434-1
	11-9	Std.	**.809** 20.55	**.420** 10.67	**.094** 2.39	**.688** 17.48	**.630** 16	**.844** 21.44	**1.125** 28.58	**.817** 20.75	**.935** 23.75	**.800** 20.32	**.942** 23.93	206486-1	206486-2	206485-1
	17-28	Std.	**.809** 20.55	**.420** 10.67	**.094** 2.39	**1.050** 26.67	**.943** 23.95	**1.125** 28.58	**1.435** 36.45	**1.161** 29.49	**1.310** 33.27	**.800** 20.32	**1.315** 33.4	205840-3	206152-1	205839-3
		Rev.												206038-1	206038-2	206039-1
	23-57	Rev.	**.924** 23.47	**.420** 10.67	**.156** 3.96	**1.438** 36.53	**1.515** 38.48	**1.438** 36.53	**1.750** 44.45	**1.500** 38.1	**1.733** 44.02	**.915** 23.24	**1.743** 44.27	206438-1	206438-2	206437-1
	23-63	Std.												205843-1	205843-2	205842-1
3	17-3	Std.	**1.635** 41.53	**.420** 10.67	**.094** 2.39	**1.050** 26.67	**1.110** 28.2	**1.125** 28.58	**1.435** 36.45	**1.161** 29.49	**1.310** 33.27	**1.645** 41.78	**1.315** 33.4	206036-2	206207-1	206037-2
		Rev.												206425-1	206425-2	206426-1
	23-7	Std.	**1.635** 41.53	**.520** 13.21	**.156** 3.96	**1.438** 36.53	**1.510** 38.35	**1.438** 36.53	**1.750** 44.45	**1.505** 38.23	**1.733** 44.02	**1.645** 41.78	**1.743** 44.27	206137-1	206137-2	206136-1
		Rev.												206227-1	206227-2	206226-1
4	23-16M	Std.	**1.635** 41.53	**.520** 13.21	**.156** 3.96	**1.438** 36.53	**1.510** 38.35	**1.438** 36.53	**1.750** 44.45	**1.500** 38.1	**1.733** 44.02	**1.645** 41.78	**1.743** 44.27	207486-1	207486-2	207485-1
	23-22M	Std.												206613-1	206613-3	206612-1

*Standard sex: pin contacts in receptacle housings, socket contacts in plug housings. Reverse sex: socket contacts in receptacle housings, pin contacts in plug housings.

**Plug and receptacle accept Type II, III +, VI, X or subminiature COAXICON contacts. Contacts for insulation diameters up to .150 [3.81]

†Filtered Adapter available for the std. 11-8 arrangement. **Request Catalog No. 78-487.**

Accessories available include:

Cable Clamps, Various Seals, Back-Shell Extender, Panel Mount Adaptor and Flexible Strain Relief.

Request Catalog No. 73-204 for complete product listing

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, COAXICON — Trademarks of AMP Incorporated.

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AMP Metal-shell CPC Connectors

Materials:

Inserts—Black thermoplastic

Outer shells, plug coupling ring—
Zinc alloy, nickel plated per QQ-N-290 over copper per Mil-C-14550A

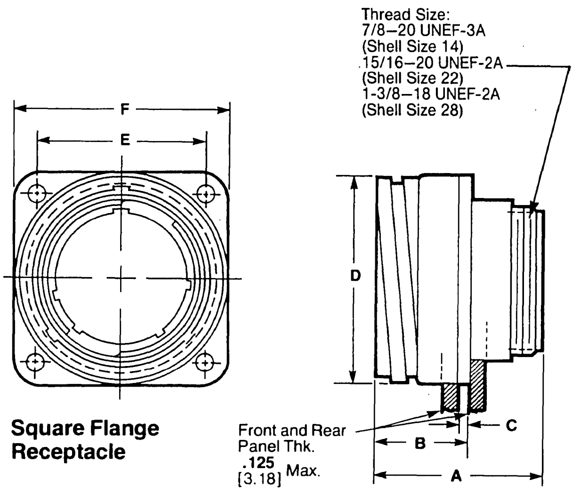
Plug retainer ring and snap ring—
Stainless steel

O-ring—Neoprene (peripheral seal); Fluorocarbon Elastomer (Tetraseal)

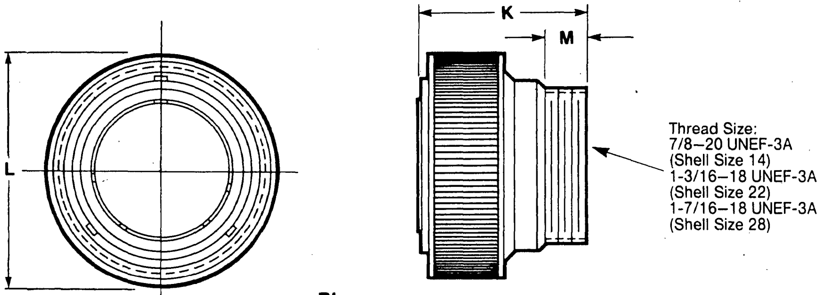
Contacts:
Series 1 — Size 16 (Signal, subminiature coaxial and fiber optic).
Series 2 — Size 20 (Signal).
Series 3 — Power.
Series 4 — Mix of Size 16 and Power.
Request Catalog No. 73-204 for complete specifications.

Protective Caps

Shell Size 22
Part Number 211903-1
Shell Size 28
Part Number 211904-1



Square Flange Receptacle



Plug

Series	Arrangement No.	Sex[1]	Dimensions									Square Flange Receptacles		Plugs	
			A Max.	B ±.010 ±0.25	C ±.010 ±0.25	D Max.	E ±.010 ±0.25	F ±.015 ±0.38	K Max.	L ±.015 ±0.38	M ±.005 ±0.13	Without Peripheral Seal	With Peripheral Seal	Without Peripheral Seal	With Peripheral Seal
1	14-5	Std.	1.415 35.94	.745 18.92	.100 2.54	1.031 26.19	.906 23.01	1.185 30.1	1.395 35.43	1.225 31.12	.380 9.65	208719-1	—	208718-1	208718-2
		Rev.										208721-1	—	208720-1	208720-2
	14-7	Std.	1.415 35.94	.745 18.92	.100 2.54	1.031 26.19	.906 23.01	1.185 30.1	1.395 35.43	1.225 31.12	.380 9.65	208715-1	—	208714-1	208714-2
		Rev.										208717-1	—	208716-1	208716-2
	22-14	Rev.	1.195 30.35	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.715 43.56	1.885 47.88	.380 9.65	208487-1	208487-2	208486-1	—
	22-16	Std.	1.470 37.34	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.435 36.45	1.885 47.88	.380 9.65	208489-1 —	208489-2 208489-3*	208488-1 —	— 208716-3*
	28-24	Std.	1.555 39.5	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.575 40.01	2.270 57.66	.380 9.65	208459-1	208459-2	208457-1	—
	28-37	Std.	1.555 39.5	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.575 40.01	2.270 57.66	.380 9.65	208471-1	208471-2	208470-1	—
		Rev.	1.260 32.01						1.840 46.74			208473-1	208473-2	208472-1	—
2	22-28	Std.	1.075 27.31	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.251 31.78	1.885 47.88	.380 9.65	208491-1	208491-2	208490-1	—
		Rev.										208493-1	208493-2	208492-1	—
	28-57	Rev.	1.200 30.48	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.400 35.56	2.270 57.66	.380 9.65	208475-1	208475-2	208474-1	—
	28-63	Std.	1.200 30.48	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.400 35.56	2.270 57.66	.380 9.65	208477-1	208477-2	208476-1	—
3	22-3	Std.	1.755 44.58	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.985 50.42	1.885 47.88	.380 9.65	208495-1	208495-2	208494-1	—
		Rev.										208497-1	208497-2	208496-1	—
	28-7	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	208483-1	208483-2	208482-1	—
		Rev.										208485-1	208485-2	208484-1	—
4	28-13M	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	211823-1 —	211823-2 211823-3*	211822-1 —	— 211822-3*
	28-16M	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	208479-1	208479-2	208478-1	—
	28-22M	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	208481-1	208481-2	208480-1	—

[1] Standard sex: pin contacts in receptacle housings, socket contacts in plug housings.
Reverse sex: socket contacts in receptacle housings, pin contacts in plug housings.

*Tetraseal.

Notes: 1. All connectors are supplied unloaded.
2. Metal-shell CPC connectors preloaded with posted contacts are available, consult AMP Incorporated.

Request Catalog No. 73-204

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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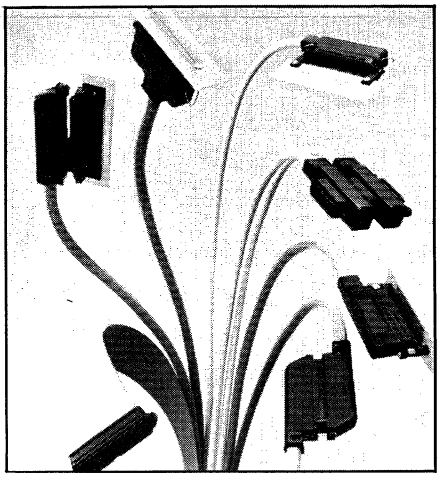
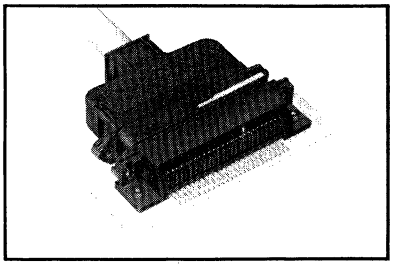
CHAMP Connector Systems

The CHAMP Connector is fully intermateable and interchangeable with existing connectors of a similar design. Applications for this type of connector are widely diversified and include all phases of the Telecommunications Industry, including original telephone manufacturing, Operating Telephone Companies, Cable Reclamation, Cable Manufacturing and Bay Connectorization. In addition the CHAMP connector line is ideally suited for use in computer terminals, test equipment, business and copying machines, telemetering and various equipment used in the security industry.



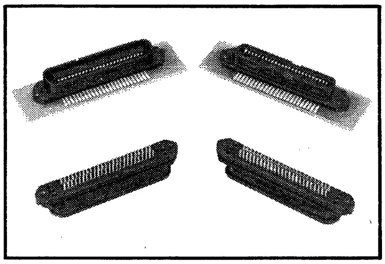
Insulation Displacement Connectors

Features: ■ Wide wire range ■ Eliminates costly wire preparation ■ Terminates unstripped solid and stranded (7 strand) wire, multi-conductor cable, and ribbon and laminated cable ■ Replaceable contacts ■ Accommodates wire with most soft insulation types in diameters to .045 [1.14] ■ Connectors fully intermateable and interchangeable with others of similar design ■ Ideally suited for cable-to-cable and cable-to-panel connector applications ■ Exceptionally stable performance under various environmental conditions ■ Self-extinguishing thermoplastic housings and accessories ■ Contacts on .085 [2.16] centers in dual-position arrangement ■ Optional accessories include: • Dust covers to protect contacts • Snap-on strain relief covers for 90° and 180° cable dress • Snap-in panel mount strain reliefs • 90° Slide-on strain relief covers for 50 position only ■ High speed applicator tooling assures reliable electrical and mechanical terminations at lowest installed cost ■ Connectors available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods, screw type, bail mount type or locking latch type ■ Recognized under the Components Recognition Program of Underwriters Laboratories Inc., File No. E-28476



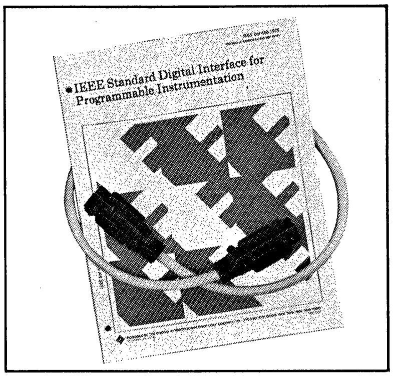
CHAMP PC Board Connectors

Available as Vertical Mount, Edge Mount and Right Angle Mount. Fully intermateable with existing connectors of a similar design. They are capable of accommodating printed circuit board thicknesses from .062–.125 [1.57-3.18]



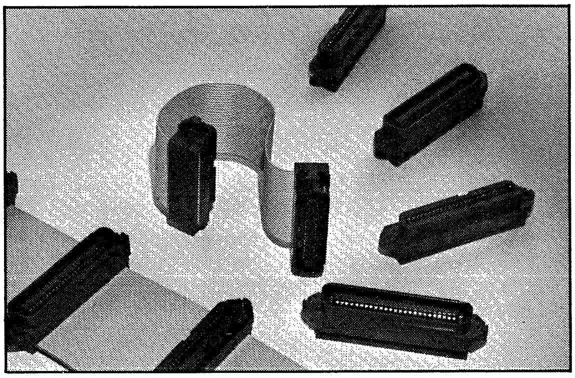
ACTION PIN PC Board Connectors

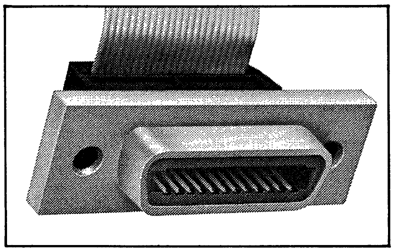
Combine the high reliability of the CHAMP insulation displacement connector interface with the utilization and cost savings of ACTION PIN terminals.


IEEE Standard Digital Interface for Programmable Instrumentation

CHAMP Connectors for Interface Bus Applications per IEEE-488

Designed for the instrumentation industry and conforms to the applicable standard IEEE #488-1978. Also available shielded.





Shielded CHAMP Connectors

Afford excellent protection from electromagnetic interference or electrostatic discharge to sensitive circuitry. For discrete wire, jacketed cable, ribbon cable or printed circuit board mounting.

CHAMP Latch Connectors (for ribbon cable on .050 [1.27] centerline)

Provide a fast reliable means of mass terminating ribbon cable without time consuming soldering and prestripping of wire.

Request Catalog No. 73-152.

Need more details? Call AMP Customer Service at (717) 780-8400.
or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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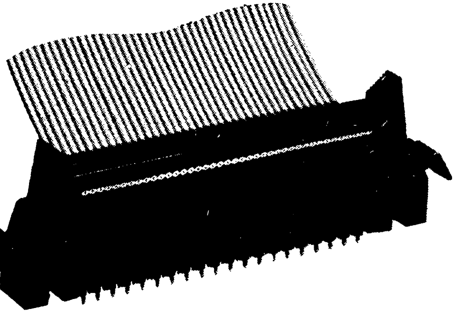
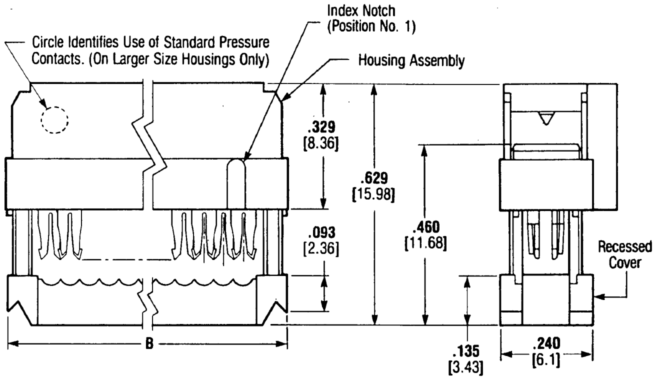
AMP INCORPORATED

AMP Universal Ejection Style Receptacle Connector and Pin Headers

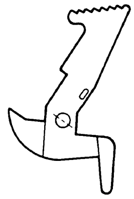


■ Broad line of products — straight-thru for vertical attachment, right angle for horizontal attachment and long feed-thru post tails to facilitate wrap-type terminations or thick printed circuit boards ■ Ejection latch accessory ■ One hand ejection of mated system ■ Headers accept all existing receptacle connectors with double row .100 center configurations ■ Polarized housing accepts double- or single-interference style polarization — also military-style polarization ■ Complete pin protection on all four sides, 3 sided headers also available ■ Duplex plated pins facilitate soldering to a printed circuit board, while retaining noble plating on mating end ■ Pin pattern on .100 centers and standard mounting holes ■ One-step termination of housing and cover ■ All-plastic system prevents shorting ■ All plastic parts made from UL recognized 94V-0 rated materials ■ Receptacle material: phosphor bronze; pin material: brass or phosphor bronze ■ Pins and receptacles plated .000030 gold over contact areas, .000100 to .000200 tin over solder and termination areas — both have nickel underplating ■ Filtered pin header assemblies are available, request Catalog No. 78-487.

Receptacle Connector

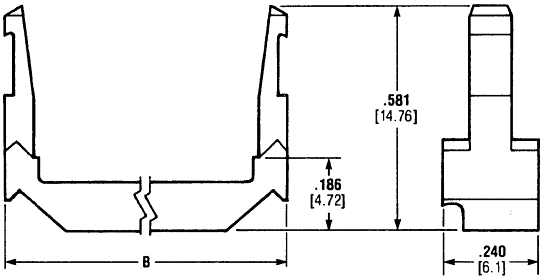

Index Notch (Position No. 1)
Circle Identifies Use of Standard Pressure Contacts. (On Larger Size Housings Only)
Housing Assembly
.329 [8.36]
.629 [15.98]
.093 [2.36]
.460 [11.68]
Recessed Cover
B
.135 [3.43]
.240 [6.1]

Latches

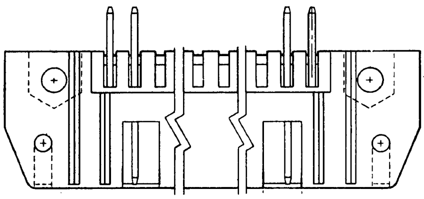


For use with	Part No.
Connector with Strain Relief Cover	102186-1
Connector without Strain Relief Cover	102185-1

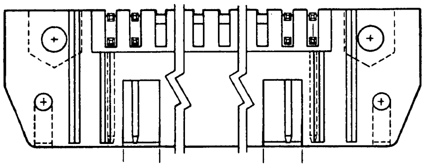
Strain Relief Cover



Straight Thru Pin Header Assemblies



Right Angle Pin Header Assemblies



No. of Positions	Polarized Connector Kit Nos. With Strain Relief	Polarized Connector Kit Nos. Without Strain Relief	Strain Relief Part Nos.	Straight Thru Pin Headers .110 Tail	Straight Thru Pin Headers .155 Tail	Straight Thru Pin Headers .610 Tail	Right Angle Pin Headers .110 Tail	Right Angle Pin Headers .155 Tail	Right Angle Pin Headers .610 Tail
10	499499-1	746186-1	499252-5	102154-1	102156-1	499437-1	102160-1	102162-1	499439-1
14	499499-2	746186-2	499252-9	102154-2	102156-2	499437-2	102160-2	102162-2	499439-2
16	499499-3	746186-3	499252-8	102154-3	102156-3	499437-3	102160-3	102162-3	499439-3
20	499499-4	746186-4	499252-2	102154-4	102156-4	499437-4	102160-4	102162-4	499439-4
24	499499-6	746186-6	1-499252-0	102154-5	102156-5	499437-5	102160-5	102162-5	499439-5
26	499499-7	746186-7	499252-3	102154-6	102156-6	499437-6	102160-6	102162-6	499439-6
30	499500-8	746187-8	1-499252-2	102154-7	102156-7	499437-7	102160-7	102162-7	499439-7
34	499500-9	746187-9	499252-6	102154-8	102156-8	499437-8	102160-8	102162-8	499439-8
40	1-499500-0	1-746187-0	499252-1	102154-9	102156-9	499437-9	102160-9	102162-9	499439-9
50	1-499500-2	1-746187-2	499252-4	1-102154-0	1-102156-0	1-499437-0	1-102160-0	1-102162-0	1-499439-0
60	1-499500-3	1-746187-3	499252-7	1-102154-1	1-102156-1	1-499437-1	1-102160-1	1-102162-1	1-499439-1
64	1-499500-4	1-746187-4	1-499252-3	1-102154-2	1-102156-2	1-499437-2	1-102160-2	1-102162-2	1-499439-2

Request Catalog No. 73-177

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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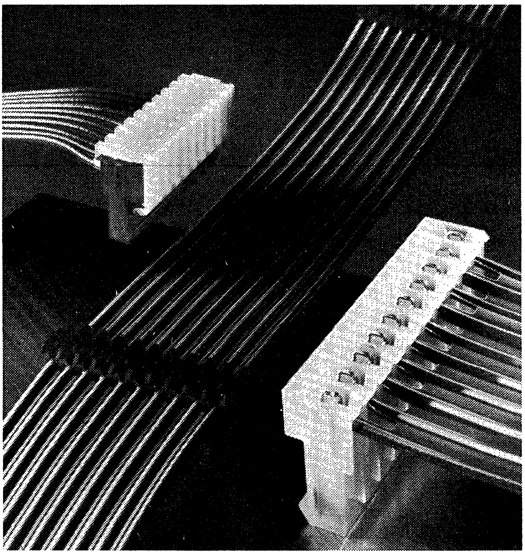
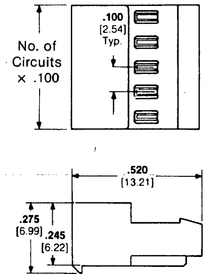
AMP Mass Termination Assembly (MTA) System



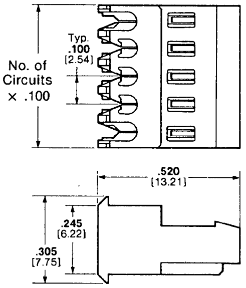
MTA-100 Closed End Housings .100 [2.54] Centers

Wire Size	Base Part No.*
28 AWG [0.08-0.09 mm^2]	640443
26 AWG [0.12-0.15 mm^2]	640442
24 AWG [0.2 mm^2]	640441
22 AWG [0.3-0.4 mm^2]	640440



MTA-100 Feed-Thru Housings .100 [2.54] Centers

Wire Size	Base Part No.*
28 AWG [0.08-0.09 mm^2]	640623
26 AWG [0.12-0.15 mm^2]	640622
24 AWG [0.2 mm^2]	640621
22 AWG [0.3-0.4 mm^2]	640620



Features: ■ Mass termination for low applied cost ■ Four complete systems: MTA-100 for .025 square posts on .100 centers; MTA-156 for .045 round or square posts on .156 centers; MTA-156 cable-to-cable posted connectors on .156 centers; and MTA-156 card edge connectors for .062 thick printed circuit boards on .156 centers ■ Complete family of post headers ■ Available as components or complete ribbon cable assemblies ■ Preloaded dual beam insulation displacement contacts eliminate hand loading and the need for pre-stripped wires ■ Available in wire size range #28 AWG thru #18 AWG, solid, fused stranded or stranded wire (7 strands) ■ Accommodates discrete, ribbon or jacketed flat cable ■ Contacts post lubricated to prevent fretting corrosion ■ Wire-to-post housings made of thermoplastic 94V-2 material and color coded for wire size. Card edge housings made of 94V-0 rated material ■ Contacts are post tin-plated, copper alloy ■ Capable of terminating wire with an outside diameter of .060 max. for MTA-100 housings and .095 max. for MTA-156 housings ■ Meets the material requirements of Table 23.1 of UL 1410 Standards for Television Receiver and Video Products (wire-to-post connectors only)
■ Recognized under the Component Program of Underwriters Laboratories Inc.—File No. E28476
■ CSA Certified under File No. LR 16455-54

*When ordering add prefix and suffix numbers to base part number to signify number of assembly circuits. See Ordering Code table.
Example:
18 circuit MTA-100 Closed End Housing for 26 AWG wire — 1-640442-8.

Ordering Code

No. of Circuits	Base No. Prefix and Suffix	No. of Circuits	Base No. Prefix and Suffix
2	-2	16	1- -6
3	-3	17	1- -7
4	-4	18	1- -8
5	-5	19	1- -9
6	-6	20	2- -0
7	-7	21	2- -1
8	-8	22	2- -2
9	-9	23	2- -3
10	1- -0	24	2- -4
11	1- -1	25	2- -5
12	1- -2	26	2- -6
13	1- -3	27	2- -7
14	1- -4	28	2- -8
15	1- -5		

Additional options plus gold-plated receptacles and posts are available, **request Catalog No. 77-451 for complete product listing.**

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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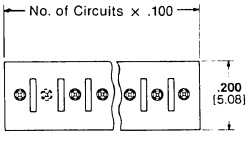
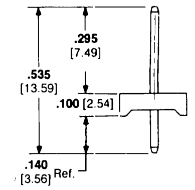
AMP Mass Termination Assembly (MTA) System

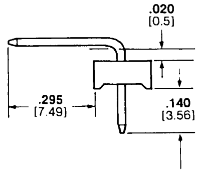
MTA-100 Post Header Assemblies
.100 [2.54] Centers
.025 x .025 [0.64 x 0.64] Posts

Header Assembly Type	Base Part No.*
Straight Post	640452
Polarized Straight Post	640454
Friction Lock Straight Post	640456
Right Angle Post	640453
Polarized Right Angle Post	640455
Friction Lock Right Angle Post	640457

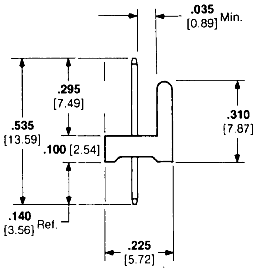

No. of Circuits x .100
.200
[5.08]


.295
[7.49]
.535
[13.59]
.100 [2.54]
.140
[3.56] Ref.

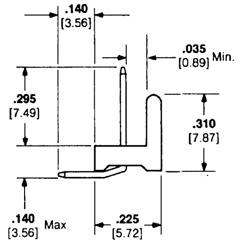
Straight Post
Header Assembly


.020
[0.5]
.295
[7.49]
.140
[3.56]

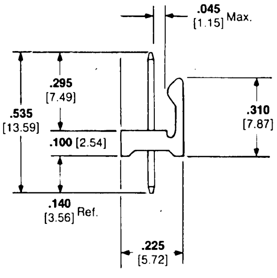
Right Angle Post
Header Assembly


.035
[0.89] Min.
.295
[7.49]
.535
[13.59]
.100 [2.54]
.310
[7.87]
.140
[3.56] Ref.
.225
[5.72]

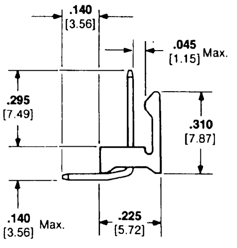
Polarized
Straight Post
Header Assembly


.140
[3.56]
.035
[0.89] Min.
.295
[7.49]
.310
[7.87]
.140
[3.56] Max
.225
[5.72]

Polarized
Right Angle Post
Header Assembly


.045
[1.15] Max.
.295
[7.49]
.535
[13.59]
.100 [2.54]
.310
[7.87]
.140
[3.56] Ref.
.225
[5.72]

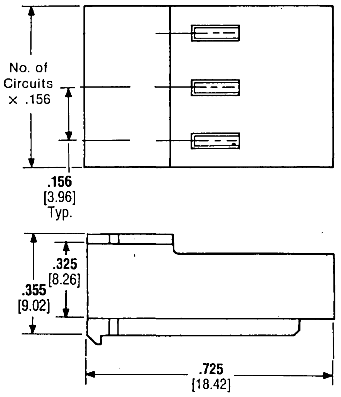
Friction Lock
Straight Post
Header Assembly


.140
[3.56]
.045
[1.15] Max.
.295
[7.49]
.310
[7.87]
.140
[3.56] Max.
.225
[5.72]

Friction Lock
Right Angle Post
Header Assembly

MTA-156 Closed End Housings
without Lock
.156 [3.96] Centers

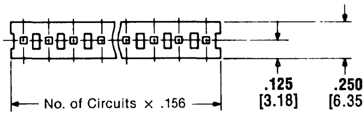
Wire Size	Base Part No.*
26 AWG [0.12-0.15 mm2]	640435
24 AWG [0.2 mm2]	640434
22 AWG [0.3-0.4 mm2]	640433
20 AWG [0.5-0.6 mm2]	640432
18 AWG [0.8-0.9 mm2]	640431

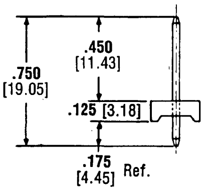

No. of
Circuits
x .156
.156
[3.96]
Typ.
.325
[8.26]
.355
[9.02]
.725
[18.42]

MTA-156 Post Header Assemblies
.156 [3.96] Centers
.045 [1.14] Square and Round Posts

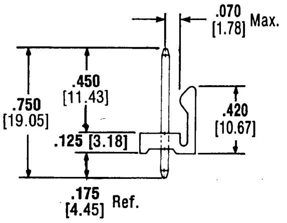
Header Assembly Type	Base Part No.*	
	Square Post	Round Post
Straight Post	640383	640384
Polarized Straight Post	640444	640386
Friction Lock Straight Post	640445	640338
Right Angle Post	640385	—

*When ordering add prefix and suffix numbers to base part number to signify number of assembly circuits. See Ordering Code table on previous page. Example:
18 circuit MTA-156 Closed End Housing w/o Lock for 26 AWG wire— 1-640435-8.

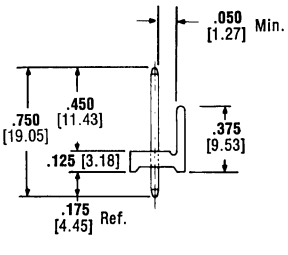

No. of Circuits x .156
.125
[3.18]
.250
[6.35]


.450
[11.43]
.750
[19.05]
.125 [3.18]
.175
[4.45] Ref.

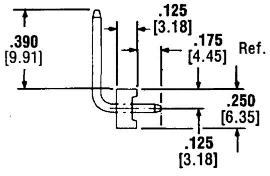
Straight Post Header
Assembly (.045 [1.14]
Square and Round Posts)


.070
[1.78] Max.
.450
[11.43]
.750
[19.05]
.125 [3.18]
.420
[10.67]
.175
[4.45] Ref.

Friction Lock Straight Post
Header Assembly (.045
[1.14] Square and Round Posts)


.050
[1.27] Min.
.450
[11.43]
.750
[19.05]
.125 [3.18]
.375
[9.53]
.175
[4.45] Ref.

Polarized Straight Post
Header Assembly (.045
[1.14] Square and Round Posts)


.125
[3.18]
.175
[4.45] Ref.
.390
[9.91]
.250
[6.35]
.125
[3.18]

Right Angle
Post Header Assembly
(.045 [1.14] Square Posts)

Additional options plus gold-plated receptacles and posts are available, **request Catalog No. 77-451 for complete product listing.**

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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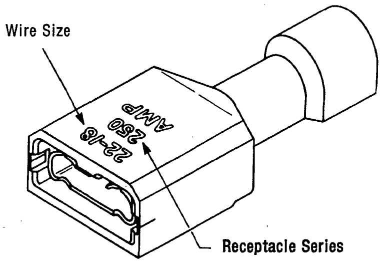
AMP Ultra-Fast Receptacles and Tabs

These fully-insulated terminals, now available in right angle flag and tab configurations, are your most cost effective way to meet safety hazard requirements. With good reason. A one-step operation gets rid of a whole array of costly post insulation problems. And the result is compatible with the safety requirements of Underwriters Laboratories standards 1410, 478 and 560.

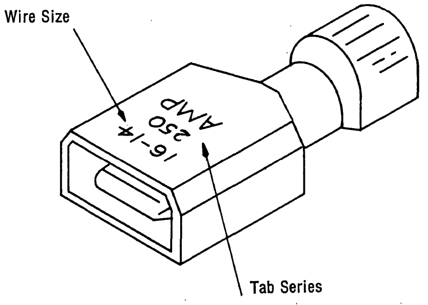
Ultra-Fast Fully Insulated FASTON Receptacle

Material:
Housing — Nylon Type 6/6, 94V-2
Terminal — Tin-plated, copper alloy



Ultra-Fast Fully Insulated FASTON Tab

Material:
Housing — Nylon Type 6/6
Terminal — Tin-plated, copper alloy



.250 Series

Wire Range	Ins. Dia. Max.	Mating Tab	Terminal Material	Color Code (Translucent)	Part Numbers	
					Strip Form	Loose Piece
22-18	.135	.032 x .250	Brass	Red	2-520102-2	2-520103-2
16-14	.160			Blue	3-520106-2	3-520107-2

Request Catalog No. 75-357

Features

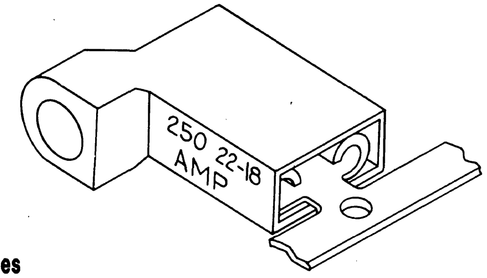
■ Prevents shock and short hazards ■ Insures correct lead-in of tab ■ Insures full mating with a variety of tab styles including those with shoulders ■ Terminals are color coded by wire size ■ Terminals contain wire size and tab size designation ■ Recognized under the Component Program of Underwriters Laboratories Inc., Electrical File No. E-66717 ■ CSA Certified under File No. LR-42168 ■ Nylon Type 6/6 housing meets UL temperature rating of 105°C ■ Terminates 22-14 AWG stranded wire ■ Meets UL-310 specification for quick connect terminals

Wire Range†	Ins. Dia. Max.	Mating Tab	Terminal Material	Part Nos.	
				Strip	Loose Piece
.110 Series					
26-22	.100	.020 x .110	Brass	7-520365-2	7-520366-2
22-18	.120	.016 x .110	Brass	2-520080-2	2-520081-2
		.020 x .110	Brass	2-520083-2	2-520084-2
			Phosphor Bronze	2-520137-2	2-520138-2
		.032 x .110	Brass	2-520272-2	2-520273-2
	.230	.016 x .110	Brass	2-520308-2	2-520309-2
		.020 x .110	Brass	2-520306-2	2-520307-2
		.032 x .110	Brass	2-520310-2	2-520311-2
16-14	.260	.020 x .110	Brass	3-520370-2	3-520371-2
		.032 x .110	Brass	3-520372-2	3-520373-2
.187 Series					
22-18	.135	.020 x .187	Brass	2-520181-2	2-520182-2
			Phosphor Bronze	2-520181-4	2-520182-4
		.032 x .187	Brass	2-520193-2	2-520194-2
			Phosphor Bronze	2-520193-4	2-520194-4
	.230	.020 x .187	Brass	2-520261-2	2-520262-4
		.032 x .187	Brass	2-520274-2	2-520275-2
16-14	.160	.020 x .187	Brass	3-350815-2	3-350816-2
		.032 x .187	Brass	3-520124-2	3-520125-2
	.260	.020 x .187	Brass	3-520150-2	3-520151-2
		.032 x .187	Brass	3-520276-2	3-520277-2
.250 Series					
22-18	.135	.032 x .250	Brass	2-520183-2	2-520184-2
			Phosphor Bronze	2-520183-4	2-520184-4
	.230	.032 x .250	Brass	2-520263-2	2-520264-2
			Phosphor Bronze	2-520263-4	2-520264-4
16-14	.160	.032 x .250	Brass	3-350819-2	3-350820-2
			Phosphor Bronze	3-520116-2	3-520117-2
	.260	.032 x .250	Brass	3-520140-2	3-520141-2
			Phosphor Bronze	3-520140-4	3-520141-4

†Stranded wire only.

Ultra-Fast Fully Insulated FASTON Flag Receptacle

Material:
Housing — Nylon Type 6/6
Terminal — Tin-plated, copper alloy



.187 Series

22-18	.165	.020 x .187	Brass	2-520334-2	2-520335-2
		.032 x .187	Brass	2-520336-2	2-520337-2
16-14	.185	.020 x .187	Brass	3-520338-2	3-520339-2
		.032 x .187	Brass	3-520340-2	3-520341-2

.250 Series

Wire Range*	Ins. Dia. Max.	Tab Size	Terminal Base Material	Part Nos.	
				Strip Form	Loose Piece
22-18	.165	.032 x .250	Brass	2-520128-2	2-520129-2
16-14	.185	.032 x .250	Ph. Brz.	2-520128-4	2-520129-4
			Brass	3-520132-2	3-520133-2

*Stranded wire only.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, FASTON — Trademarks of AMP Incorporated

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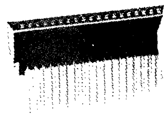
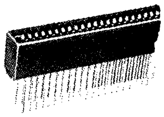
AMP Standard Edge Connectors

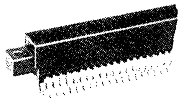
Wrap-Type



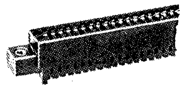
Wrap-Type with ACTION PIN



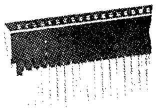
Mid-High Mt. Ears



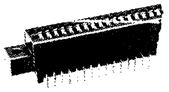
Mid-High Mt. Ears and Inserts



w/o Mt. Ears

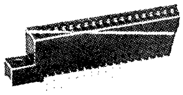


Solder Posts



Card Extender

Low Mt. Ears



Low Mt. Ears and Inserts

Features: ■ Maximum number of dual positions:
.100 [2.54] ℄ — 70
.125 [3.18] ℄ — 60
.156 [3.96] ℄ — 43
■ Selective gold plating of contacts for high performance at low cost ■ .025 [0.64] square solid posts meet standard wrap-type specifications ■ .028 [0.71] diameter solid posts for flow solder applications ■ Recognized under the component program of Underwriters Laboratories Inc., Electrical File No. E 28476 ■ Glass-filled polyester housing is 94V-0 rated ■ Accepts double sided pc boards, .054-.070 [1.27-1.78] thick

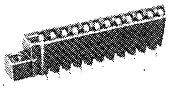
Request Catalog No. 74-253

Contact Spacing	No. of Dual Positions	Post Type & Row-to-Row Spacing	Mid-High Mounting Ears		Without Mounting Ears	Low Mounting Ears	
			With Mounting Ears	With Mounting Ears and Inserts		With Mounting Ears	With Mounting Ears and Inserts
.100	6, 10, 12, 15, 18, 22, 25, 28, 30, 35, 36, 40, 43, 50, 60, 70	Solder .200	X	X	X	X	X
		Wrap-Type .200	X	X	X	—	—
	6, 25, 28, 30, 35, 36, 40, 43, 50, 57, 60, 70	Wrap-Type with ACTION PIN .200	—	—	X	X	—
.125	6, 10, 15, 18, 22, 28, 30, 35, 36, 40, 43, 50, 60	Solder .250	X	X	X	X	X
	6, 10, 15, 18, 22, 28, 30, 31, 35, 36, 40, 43, 50, 60	Wrap-Type .250	X	X	X	—	—
	6, 10, 18, 22, 25, 28, 36, 40, 50, 60	Wrap-Type with ACTION PIN .250					
.156	6, 10, 18, 22, 36, 43	Solder .200	—	—	X	X	—
		Wrap-Type .200	—	—	X	X	—
		Wrap-Type with .200	—	—	X	X	—
.100	10, 12, 15, 18, 22, 25, 28, 30, 35, 36, 40, 43, 50, 60, 70	Card Extender .054-.070 Pc Boards	X	—	X	—	—
.100	6, 10, 15, 18, 22, 28, 30, 31, 35, 36, 40, 43, 50, 60	Card Extender .054-.070 Pc Boards	X	—	X	—	—

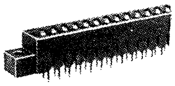
.000030 gold in contact area over nickel. Bright tin plating on posts.

AMP Low Profile Edge Connectors

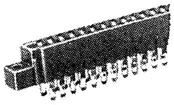
Solder Posts .200 Row-to-Row



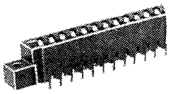
Solder Posts .140 Row-to-Row



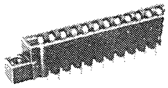
Solder Eyelet



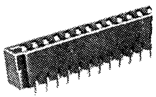
Mt. Ears



Mt. Ears and Inserts



w/o Mt. Ears



Features: ■ Low profile housing is .460 [11.68] deep ■ 6 through 44 dual positions on .156 [3.96] centerline; 6 through 50 dual positions on .125 [3.18] centerline ■ Solder eyelet for wire-to-board or solder post for mother-daughter board application ■ Selective gold plating of contact area for high performance at low cost ■ Alternate platings, including tin, are available on request ■ Contacts bifurcated for redundancy ■ Accepts .055-.070 [1.4-1.78] thick printed circuit boards ■ UL 94V-0 rated, glass-filled polyester housings ■ Variety of solder post lengths ■ 5 amp current rating per contact

Request Catalog No. 75-336

Contact Spacing	No. of Dual Positions	Post Type & Row-to-Row Spacing	Mounting Configuration		
			With Mounting Ears	With Mounting Ears and Inserts	Without Mounting Ears
.156	6, 10, 12, 15, 18, 22, 24, 25, 28, 30, 36, 43, 44	Solder .200	X	X	X
		Solder .140	X	X	X
		Solder Eyelet .235	X	X	—
.125	6, 10, 15, 18, 22, 28, 30, 31, 36, 40, 43, 50	Solder .200	X	X	X
		Solder .140	X	X	X
		Solder Eyelet .235	X	X	—

.000030 gold in contact area over nickel. Bright tin plating on posts.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP — Trademarks of AMP Incorporated

AMP
INCORPORATED

AMP PACE Printed Circuit Card Edge Connectors

AMP PACE (Pre-Assembled Card Edge) Connectors are the latest innovation in the evolution of backplane architecture. Designed to shorten manufacturing time and reduce applied costs, these one-step, preassembled connectors come ready for mounting and mass terminating. In addition, design features such as removable housings and contacts that are replaceable through the top of the connector housing assure maximum flexibility in your backplane packaging.

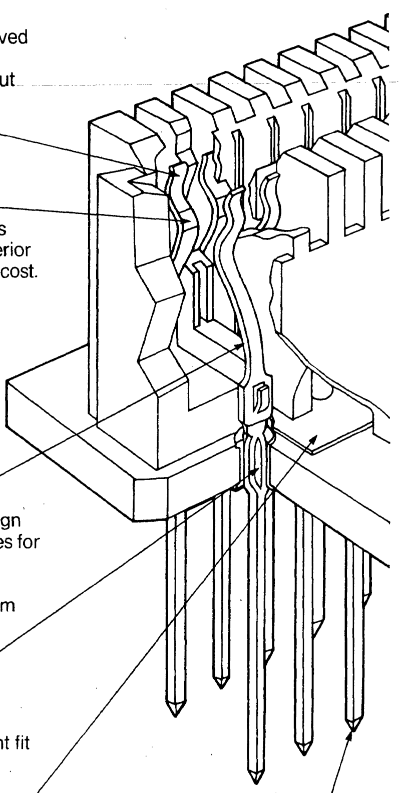
At the heart of the AMP PACE Connector is AMP's proven and reliable ACTION PIN Contact. This unique contact has superior electrical and physical characteristics that are unmatched in the industry.

AMP PACE Connectors are available with post centerline spacings of:
.100 x .100 [2.54 x 2.54]
.100 x .200 [2.54 x 5.08]
.125 x .125 [3.18 x 3.18]
.125 x .250 [3.18 x 6.35]
.156 x .200 [3.96 x 5.08]

Regardless of your application, the AMP team of sales, field and staff engineers is available to help with your design requirements.

Request Catalog No. 79-549 for complete listing

Features



Repairability :
Individual contacts can be removed without removing the housing; housings can be removed without removing posts.

Precision Plated Contacts:
Accu-plate precision plating puts gold where it is needed for superior electrical contact at a reasonable cost.

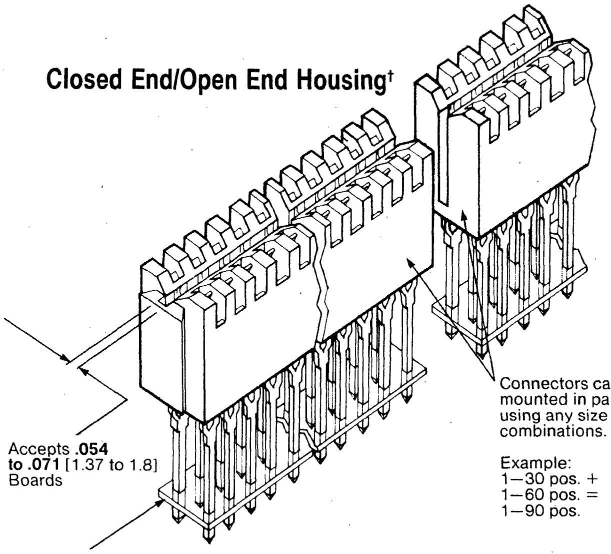
Beam Contact Design:
The contact's unique beam design accommodates and compensates for daughter board warp and stress assuring long-term, reliable performance (100 gram minimum normal force).

Gas-Tight Connection:
Spring sections of ACTION PIN Contacts compress in opposite directions, maintaining a gastight fit with the pc board.

Contact Tip Alignment Strip:
Polyester strip assures straight and stable pin alignment for damage-free entry into the board

Precision Plated Post:
Accu-plate gold plating can be applied to the entire post, or just the post tip for improved pluggability.

Closed End/Open End Housing†



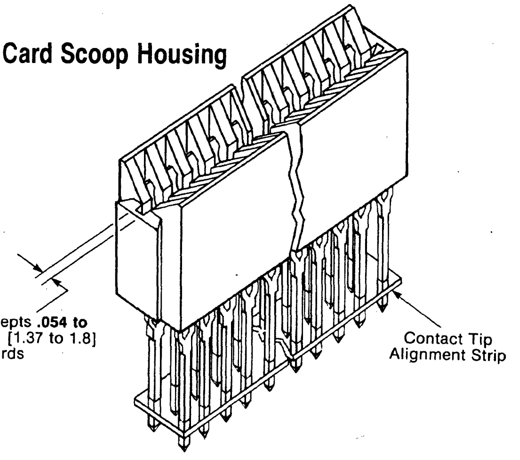
Accepts **.054 to .071** [1.37 to 1.8] Boards

Contact Tip Alignment Strip

Connectors can be mounted in pairs using any size combinations.

Example:
1—30 pos. +
1—60 pos. =
1—90 pos.

High Card Scoop Housing



Accepts **.054 to .071** [1.37 to 1.8] Boards

Contact Tip Alignment Strip

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP, AMP PACE — Trademarks of AMP Incorporated.

AMP
INCORPORATED

AMP DIP Sockets

Features: ■ Designed to meet EIA RS-415, MIL-S-83734 and stringent computer specifications ■ Meets the material requirements of Table 23.1 of UL 1410 Standard for Television Receivers and Video Products ■ Recognized under the Component Program of Underwriters Laboratories Inc. file E28476 ®

Performance Characteristics

Physical

Engaging force: 340 grams [3.33 N] max. (.013 [0.33] pin)

Separating force: Dual Leaf—25 grams [.24 N] min. (.008 [0.2] pin);
Single Leaf—15 grams [.15 N] min. (.008 [0.2] pin)

Electrical

Rating: 250 VAC

Contact resistance: 20 milliohms max. initial, 30 milliohms max. after test

Dielectric withstanding voltage: 1000 VRMS min.

Insulation resistance: 5000 megohms min.

Capacitance: 0.5 picofarad max.

Environmental

Operating temperature: –55°C to +105°C (tin);
–55°C to +125°C (gold)

Vibration: 10-2000-10 Hz in 20 minutes at .06 [1.52] or
15 G's for 3 sweeps in each of 3 axes

Shock: 100 G's sawtooth; 6 shocks

Material and Finish

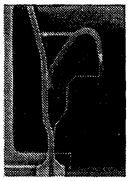
Housings: Glass-filled thermoplastic 94V-0 rated (black)

Contacts: Phosphor bronze; finish—see charts

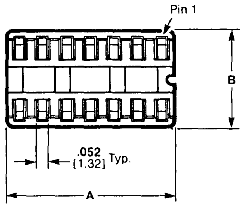
Alternate materials and platings available, **request Catalog No. 79-552.**

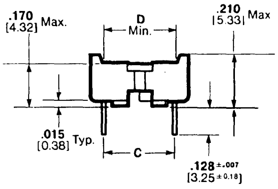
DIPLOMATE Ladder Dual Leaf (DL) Low Profile DIP Sockets

Sockets accept .008-.014 [0.2-0.36] thick IC leads



Dual Wipe
Closed Bottom

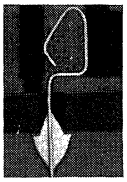




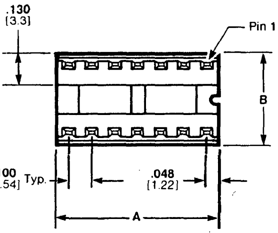
No. of Pos.	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Part Numbers* Tin-Lead	Part Numbers* .000015 [0.00038]** Gold Plating
14	**.695** 17.65	**.394** 10.01	**.300** 7.62	**.320** 8.13	641599-3	641599-4
					2-641599-3	2-641599-4
16	**.795** 20.19	**.394** 10.01	**.300** 7.62	**.320** 8.13	641600-3	641600-4
					2-641600-3	2-641600-4
18	**.895** 22.73	**.394** 10.01	**.300** 7.62	**.320** 8.13	641601-3	641601-4
					2-641601-3	2-641601-4
20	**.995** 25.27	**.394** 10.01	**.300** 7.62	**.320** 8.13	641602-3	641602-4
					2-641602-3	2-641602-4
22	**1.095** 27.81	**.494** 12.55	**.400** 10.16	**.420** 10.67	641603-3	641603-4
					2-641603-3	2-641603-4
24	**1.195** 30.35	**.394** 10.01	**.300** 7.62	**.320** 8.13	641932-3	641932-4
					2-641932-3	2-641932-4
24	**1.195** 30.35	**.694** 17.63	**.600** 15.24	**.620** 15.75	641604-3	641604-4
					2-641604-3	2-641604-4
28	**1.395** 35.43	**.694** 17.63	**.600** 15.24	**.620** 15.75	641605-3	641605-4
					2-641605-3	2-641605-4
40	**1.995** 50.67	**.694** 17.63	**.600** 15.24	**.620** 15.75	641606-3	641606-4
					2-641606-3	2-641606-4
48	**2.395** 60.83	**.694** 17.63	**.600** 15.24	**.620** 15.75	643574-3	643574-4
					2-643574-3	2-643574-4
64	**3.215** 81.66	**1.024** 26.01	**.900** 22.86	**.920** 23.37	643575-3	643575-4

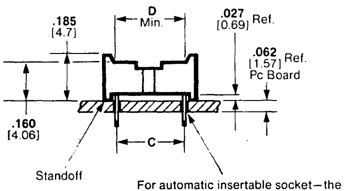
DIPLOMATE Single Leaf (SL) Low Profile DIP Sockets

Accepts .008-.015 [0.2-0.38] thick x .030 [0.76] max. wide rectangular leads



Single Wipe
Open Bottom





For automatic insertable socket—the detent feature has been removed (for part numbers, see chart.)

No. of Pos.	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Detents	Part Numbers* Tin Plate	Part Numbers* .000015 [0.00038] Gold Plating
8	**.397** 10.08	**.390** 9.91	**.300** 7.62	**.320** 8.13	with	641866-3	641866-4
						2-641866-3	2-641866-4
					without	2-643290-3	2-643290-4
14	**.697** 17.70	**.390** 9.91	**.300** 7.62	**.320** 8.13	with	641867-3	641867-4
						2-641867-3	2-641867-4
					without	2-643291-3	2-643291-4
16	**.797** 20.24	**.390** 9.91	**.300** 7.62	**.320** 8.13	with	641868-3	641868-4
						2-641868-3	2-641868-4
					without	2-643292-3	2-643292-4
18	**.897** 22.78	**.390** 9.91	**.300** 7.62	**.320** 8.13	with	641869-3	641869-4
						2-641869-3	2-641869-4
					without	2-643293-3	2-643293-4
20	**.997** 25.32	**.390** 9.91	**.300** 7.62	**.320** 8.13	with	641870-3	641870-4
						2-641870-3	2-641870-4
					without	2-643294-3	2-643294-4
22	**1.097** 27.86	**.490** 12.45	**.400** 10.16	**.420** 10.67	with	641871-3	641871-4
						2-641871-3	2-641871-4
					without	2-643295-3	2-643295-4
24	**1.197** 30.4	**.690** 17.53	**.600** 15.24	**.620** 15.75	with	641872-3	641872-4
						2-641872-3	2-641872-4
					without	2-643296-3	2-643296-4
28	**1.397** 35.48	**.690** 17.53	**.600** 15.24	**.620** 15.75	with	641873-3	641873-4
						2-641873-3	2-641873-4
					without	2-643297-3	2-643297-4
40	**1.997** 50.72	**.690** 17.53	**.600** 15.24	**.620** 15.75	with	641874-3	641874-4
						2-641874-3	2-641874-4
					without	2-643298-3	2-643298-4

*Part numbers with 2-prefix are packaged in plastic tubes. ONLY sockets with straight solder tails are recommended for automatic insertion. Sockets with retention feature are packaged in plastic tubes for handling and storage convenience ONLY.

**Gold thickness in contact area; tin-lead plate on solder tails.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, DIPLOMATE — Trademarks of AMP Incorporated.

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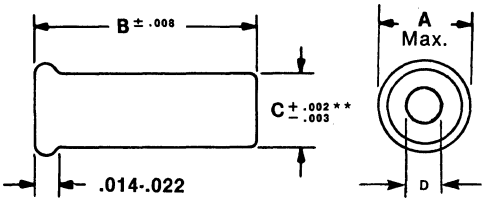
AMP Miniature Spring Socket

Features: ■ Bellmouth design allows easy pluggability ■ Helical spring design accepts round, square or rectangular leads without concern for socket orientation ■ Wide range of socket sizes covers a pin range of .010 to .065 diameter and board thickness of .031 to .125 ■ Low profile head of .022 allows greater board-to-board clearance ■ Small head diameter allows centerline spacing of .100 ■ Meets gold plating specifications of MIL-G-45204, Type II and tin plating specifications of MIL-T-10727, Type I

Request Catalog No. 73-213 for complete listings.



Series	Hole Size for Hand Insertion	Hole Size for Automatic Insertion
1	$.040^{+.004}_{-.000}$	$.040^{+.002}_{-.003}$
2	$.052^{+.004}_{-.000}$	.052 ± .003
3	$.062^{+.004}_{-.000}$	$.062^{+.004}_{-.003}$
4	$.071^{+.004}_{-.000}$	$.072^{+.004}_{-.003}$
5	$.103^{+.004}_{-.000}$	.101 ± .003

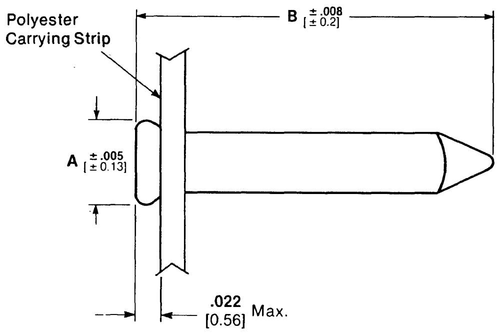
Material: Spring—Beryllium Copper; Eyelet—Copper.

Pin Dia. Range	Dimensions A	B	C	D	Finish Spring	Eyelet	Part Numbers Closed Bottom	Open Bottom	Knockout Bottom
SERIES 1									
.010-.013	.059	.142	.038	.023	Gold	Tin	5-330808-0	5-330808-4	5-330808-1
					Tin	Tin	2-330808-1	4-330808-1	3-330808-1
.014-.017	.059	.142	.038	.023	Gold	Tin	3-330808-9	5-330808-5	5-330808-2
					Tin	Tin	2-330808-4	4-330808-4	3-330808-4
.014-.017	.059	.168	.038	.023	Gold	Tin	50850-3	1-50850-5	50850-9
					Tin	Tin	50850-1	1-50850-3	50850-7
.013-.020	.059	.168	.038	.023	Gold	Tin	50935-1	50935-7	50935-4
					Tin	Tin	50935-2	50935-8	50935-5
.013-.020	.059	.142	.038	.023	Gold	Tin	4-330808-9	5-330808-6	3-330808-3
					Tin	Tin	2-330808-7	4-330808-7	3-330808-7
.018-.020	.059	.142	.038	.023	Gold	Tin	7-330808-4	6-330808-9	7-330808-1
					Tin	Tin	7-330808-5	6-330808-8	7-330808-2
SERIES 2									
.018-.021	.070	.138	.050	.030	Gold	Tin	2-331272-3	3-331272-9	3-331272-1
					Tin	Tin	2-331272-1	3-331272-7	2-331272-9
.018-.025	.070	.260	.050	.030	Gold	Tin	50863-5	50863-1	50863-3
					Tin	Tin	50863-8	50863-6	50863-7
.022-.025	.070	.138	.050	.030	Gold	Tin	2-331272-7	4-331272-3	3-331272-5
					Tin	Tin	2-331272-5	4-331272-1	3-331272-3
.013-.026	.070	.178	.050	.030	Gold	Tin	50462-8	50462-2	50462-5
					Tin	Tin	50462-7	50462-1	50462-4
SERIES 3									
.022-.025	.077	.138	.060	.037	Gold	Tin	3-331677-7	2-331677-0	3-331677-6
					Tin	Tin	1-331677-6	1-331677-9	3-331677-5
.026-.029	.077	.138	.060	.037	Gold	Tin	3-331677-8	2-331677-4	3-331677-2
					Tin	Tin	1-331677-0	2-331677-3	3-331677-1
.026-.033	.077	.257	.060	.037	Gold	Tin	50864-1	50864-5	50864-3
					Tin	Tin	50864-6	50864-8	50864-7
.030-.033	.077	.138	.060	.037	Gold	Tin	1-331677-8	2-331677-2	3-331677-4
					Tin	Tin	1-331677-3	2-331677-1	3-331677-3
SERIES 4									
.030-.033	.089	.143	.069	.046	Gold	Tin	1-332070-9	2-332070-5	3-332070-1
					Tin	Tin	1-332070-8	2-332070-4	3-332070-0
.034-.037	.089	.143	.069	.046	Gold	Tin	2-332070-1	2-332070-7	3-332070-3
					Tin	Tin	2-332070-0	2-332070-6	3-332070-2
.034-.040	.089	.260	.069	.046	Gold	Tin	50865-5	50865-3	50865-1
					Tin	Tin	50865-8	50865-6	50865-7
.037-.040	.089	.143	.069	.046	Gold	Tin	2-332070-3	2-332070-9	3-332070-5
					Tin	Tin	2-332070-2	2-332070-8	3-332070-4
SERIES 5									
.042-.049	.118	.290	.100	.068	Gold	Tin	50871-5	50871-1	50871-3
					Tin	Tin	50871-8	50871-6	50871-7
.050-.057	.118	.290	.100	.068	Gold	Tin	1-50871-4	1-50871-0	1-50871-2
					Tin	Tin	1-50871-7	1-50871-5	1-50871-6
.056-.065	.118	.290	.100	.068	Gold	Tin	2-50871-3	1-50871-9	2-50871-1
					Tin	Tin	2-50871-6	2-50871-4	2-50871-5

Miniature Spring Socket on Polyester Strip

Features: ■ Bullet nose design for high volume application ■ Available with silicone seal ■ Two series cover a pin range of .012 to .026 diameter and board thickness of .031 to .125 ■ Sockets are ovalized for board retention in high speed soldering operations ■ Sockets accept round, flat or rectangular leads ■ Bellmouth design allows easy pluggability ■ Low clearance ■ Small head diameter allows centerline spacing of .100 ■ Meets gold plating specifications of MIL-G-45204, Type II and tin plating specifications of MIL-T-10727, Type I ■ Strip sockets may be applied using pneumatic hand tools, automatic bench machines or numerically controlled application equipment ■ Application rates of 2000 to 9000 per hour are obtainable

Request Catalog No. 81-645



Series 1 (Hole Size .042 ± .003 [1.07 ± 0.08]) †

Pin Dia. Range	Dimensions A	B	Finish Spring	Eyelet	Polyester Strip Part Numbers w/ Sealant	w/o Sealant
.012-.018 0.30-0.46	**.061** 1.55	**.161** 4.09 (Short)	Gold	Tin	645947-5* 1-645947-5**	645948-5* 1-645948-5**
			Tin	Tin	645947-4* 1-645947-4**	645948-4* 1-645948-4**
.012-.021 0.30-0.53	**.061** 1.55	**.186** 4.72 (Long)	Gold	Tin	645949-2* 1-645949-2**	645950-2* 1-645950-2**
			Tin	Tin	645949-1* 1-645949-1**	645950-1* 1-645950-1**
.015-.021 0.38-0.53	**.061** 1.55	**.161** 4.09 (Short)	Gold	Tin	645947-1* 1-645947-2**	645948-1* 1-645948-2**
			Tin	Tin	645947-1* 1-645947-1**	645948-1* 1-645948-1**

*50,000 per reel.
**10,000 per reel.
†.043 ± .002 [1.09 ± 0.05] for loose piece hand insertion.

Series 2 (Hole Size .052 ± .003 [1.32 ± 0.08]) †

Pin Dia. Range	Dimensions A	B	Finish Spring	Eyelet	Polyester Strip Part Numbers w/ Sealant	w/o Sealant
.020-.026 0.50-0.66	**.070** 1.78	**.161** 4.09 (Short)	Gold	Tin	645953-2* 1-645953-2**	645954-2* 1-645954-2**
			Tin	Tin	645953-1* 1-645953-1**	645954-1* 1-645954-1**
.014-.026 0.30-0.66	**.070** 1.78	**.186** 4.72 (Long)	Gold	Tin	645955-2* 1-645955-2**	645956-2* 1-645956-2**
			Tin	Tin	645955-1* 1-645955-1**	645956-1* 1-645956-1**
.014-.022 0.36-0.56	**.070** 1.78	**.161** 4.09 (Short)	Gold	Tin	645953-5* 1-645953-5**	645954-5* 1-645954-5**
			Tin	Tin	645953-4* 1-645953-4**	645954-4* 1-645954-4**

*50,000 per reel.
**10,000 per reel.
†.053 ± .003 [1.35 ± 0.05] for loose piece hand insertion.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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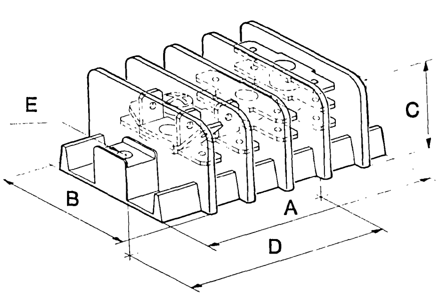
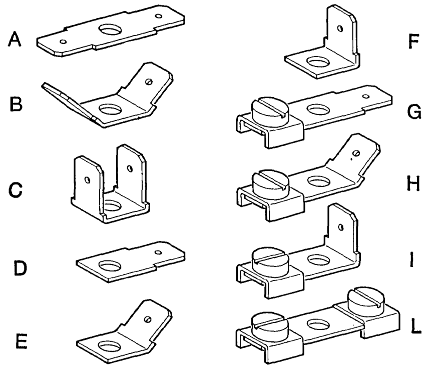
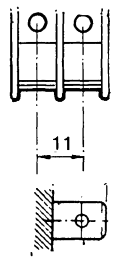
TERMINAL BLOCKS

Dimension in mm





PA32



6.3 Tab

Wire size for screw terminals up to 14 AWG

Approval

USA

UP TO 16 POLES

Barrier type terminal consisting of a base in white polyamide 6,6 self-extinguishing to UL V_2 with a selection of 10 different terminal arrangements. Each pole may have up to 3 tabs, differently angled (6,3 x 8,0) on both sides or M4 screw on selected side or sides. Single or double rivetting is used to assemble terminals to base.

The double rivetting required to meet EEC standards, where terminals must not move in relation to each other.

Poles: Up to 16 as required.

Rating: 20 amp 300 VAC.

Housing: White polyamide 6,6.

Temp. Range: Up to 125°C. Distortion at 220°C.

Metal Parts: Screws zinc passivated steel tabs nickel plated brass.

Alternatives: Select tabs/screws required.

	A	B	C	D	E
Dimensions: (16 pole)	196	37	24	187	4,5

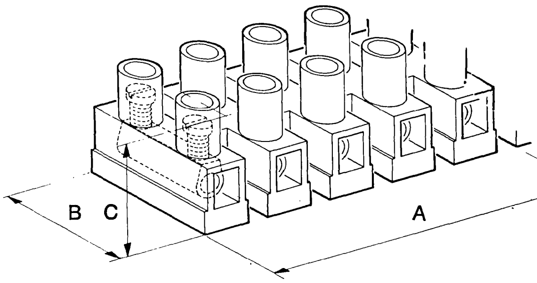
ORDERING FORMULA

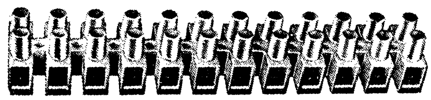
Model No.	**Number of Poles**	**Style of Terminals**
PA32	2	A

Standard Models

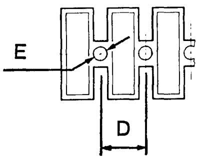
PA322A	PA328A
PA324A	PA3210A
PA326A	PA3212A

FLEXIBLE BLOCKS





SUPPLIED 12 POLE ONLY



Self extinguishing white polyamide 6,6 to ASTM D635 −40°C to +125°C. Distortion at +220°C brass 58 inserts with captive zinc-passivated steel screws.

Contact factory for European electrical ratings.

Approvals	Type	mm²	Amps	Volts	Screws	Dimensions A	B	C	D	E
C.S. **IMQ** VDE +S ÖVE 480 CEBEC 77 KEMA EUR S N SA UL	**PA35** Wire Size 18-20 AWG	1	6	150	M2,6x5	93,5	15	15,2	8	2,6
	PA27 Wire Size 14-18 AWG	2,5	15	150	M3x6	117	20	17,5	10	3,2
C.S. **IMQ** VDE +S 480 CEBEC 77 KEMA EUR SA S N UL	**PA44** Wire Size 10-14 AWG	4	25	150	M3,5x7	139	23	20,7	12	3,2

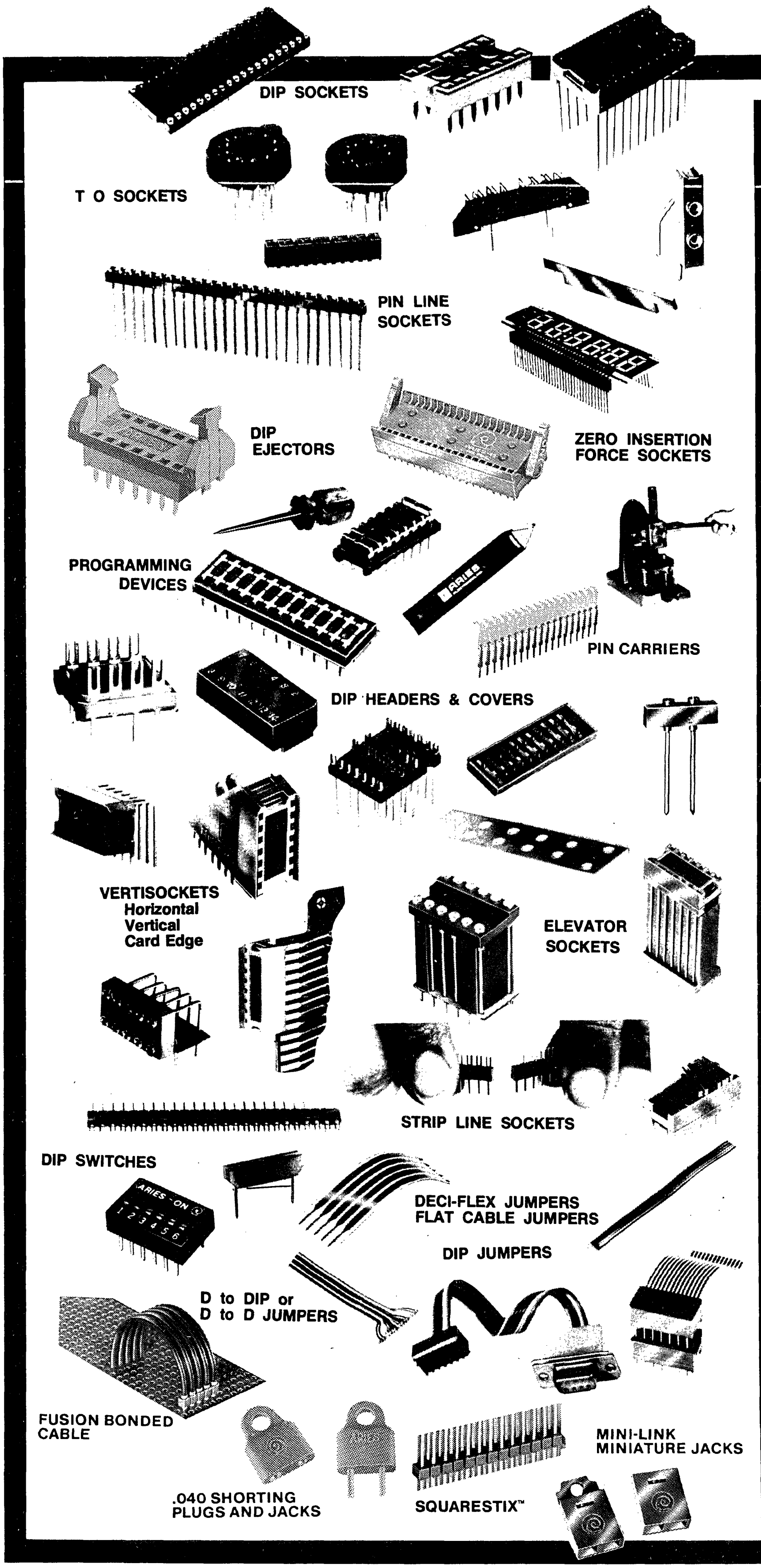
SEE OTHER "EEM" PAGES B•1018-1020 FOR INDICATOR LIGHTS. SEE OTHER "EEM" PAGES B•1496-1501 FOR SWITCH PRODUCTS.

9001 CANOGA AVENUE / CANOGA PARK, CALIFORNIA 91304 / TEL. (818) 700-1933 / TELEX 19-4645

MAXIMUM CURRENT CAPACITY— CONDUCTORS

Size, AWG	MIL-W-5088				National Electrical Code	Underwriters Laboratory		American Insurance Association	500 c mils/A
	Copper		Aluminum						
	Single-wire	Wire-bundled	Single-wire	Wire-bundled		60°C	80°C		
30	. . .	. . .	. . .	. . .	. . .	0.2	0.4	. . .	0.20
28	. . .	. . .	. . .	. . .	. . .	0.4	0.6	. . .	0.32
26	. . .	. . .	. . .	. . .	. . .	0.6	1.0	. . .	0.51
24	. . .	. . .	. . .	. . .	. . .	1.0	1.6	. . .	0.81
22	9	5	. . .	. . .	. . .	1.6	2.5	. . .	1.28
20	11	7.5	. . .	. . .	. . .	2.5	4.0	3	2.04
18	16	10	. . .	. . .	6	4.0	6.0	5	3.24
16	22	13	. . .	. . .	10	6.0	10.0	7	5.16
14	32	17	. . .	. . .	20	10.0	16.0	15	8.22
12	41	23	. . .	. . .	30	16.0	26.0	20	13.05
10	55	33	. . .	. . .	35	. . .	. . .	25	20.8
8	73	46	58	36	50	. . .	. . .	35	33.0
6	101	60	86	51	70	. . .	. . .	50	52.6
4	135	80	108	64	90	. . .	. . .	70	83.4
2	181	100	149	82	125	. . .	. . .	90	132.8
1	211	125	177	105	150	. . .	. . .	100	167.5
0	245	150	204	125	200	. . .	. . .	125	212.0
00	283	175	237	146	225	. . .	. . .	150	266.0
000	328	200	. . .	. . .	275	. . .	. . .	175	336.0
0000	380	225	. . .	. . .	325	. . .	. . .	225	424.0

NEW '85


DIP SOCKETS
T O SOCKETS
PIN LINE SOCKETS
DIP EJECTORS
ZERO INSERTION FORCE SOCKETS
PROGRAMMING DEVICES
ARIES
PIN CARRIERS
DIP HEADERS & COVERS
VERTISOCKETS
Horizontal
Vertical
Card Edge
ELEVATOR SOCKETS
STRIP LINE SOCKETS
DIP SWITCHES
ARIES ON
1 2 3 4 5 6
DECI-FLEX JUMPERS
FLAT CABLE JUMPERS
DIP JUMPERS
D to DIP or
D to D JUMPERS
FUSION BONDED CABLE
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Frenchtown, NJ 08825
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Electronics (Europe) Ltd.

Alfred House
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Weybridge Surrey KT 13 9LB
England

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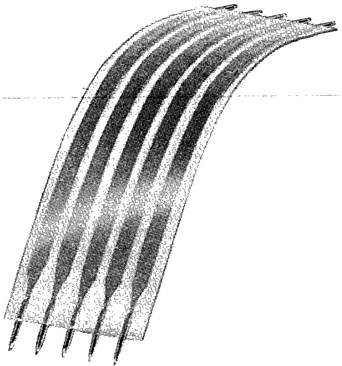
The Industry's most complete line of DIP products

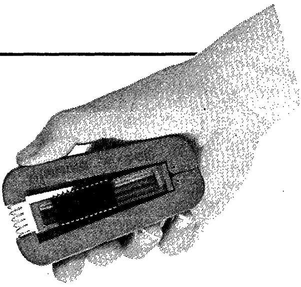
Refer to "Manufacturers and Sales Offices Directory" (yellow pages Vol. 1) for complete list of Sales Representatives and Local Distributors.

See complete data in Aries Catalog S-85

The Industry's most complete line of DIP products

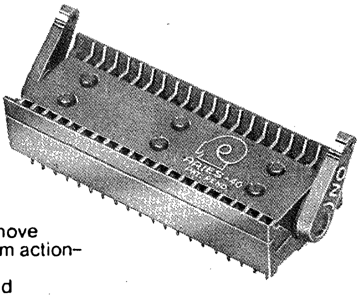


DECI-FLEX®
(SERIES 160)
Low cost, flexible multi-conductor interconnection. Available any number of conductors on .100 centers. Lengths 1", 2", 3", with polyester insulation.



NEW! ANTI-STATIC T516AS DIP-R-SIZER HAND TOOL

Molded of anti-static material...ideal for MOS devices susceptible to static damage.



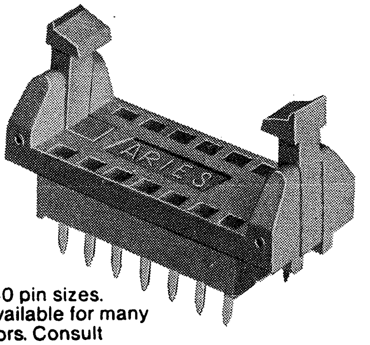
ZERO INSERTION FORCE SOCKET (SERIES 516)

Normally Open—No force to insert component.

Closed—Holds component firmly.

Open—No force to remove component. Smooth cam action–no tools required. Available 24, 28, 40 and 64 contacts.

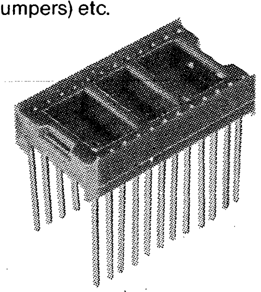
Collet EJECT-A-DIP Sockets



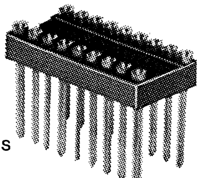
Rugged, solderable DIP socket with unique latch to lock-in jumpers, ICs, etc. Latch also ejects DIP packages without damage to pins. Ideal for high vibration environments or applications in which device leads get bent during removal. High reliability collet contacts accept round or rectangular pins. Available solder tail or wire wrap in 14, 16, 24, and 40 pin sizes. Locking latch heights available for many manufacturers' connectors. Consult factory for specials.

DIP SOCKETS—6 STYLES

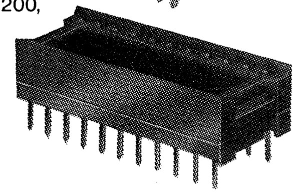
DIP SOCKETS
For mounting IC's, logic jumpers (see DIP-R-LOGIC Jumpers) etc.



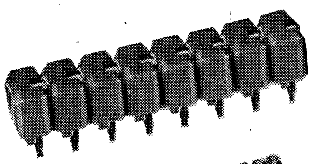
SERIES 501
Wire Wrap* Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-34-36-38-40-48 Pins on .200, .300, .400 and .600 centers.



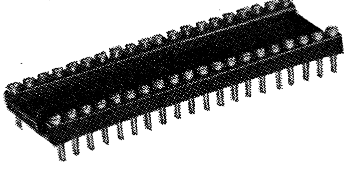
SERIES 503
LO-PRO®file Sockets—Wire wrap pins with collet style contacts. Available 2 to 64 pins in increments of 2 on .200, .300, .400, .600 or .900 centers.



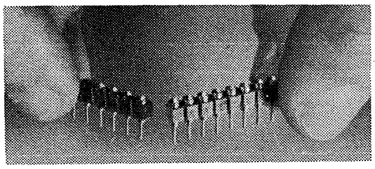
SERIES 511
Solder Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-36-40 Pins on .200, .300, .400 and .600 centers.



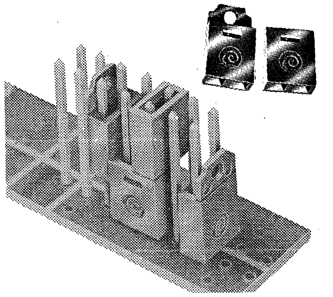
SERIES 0520 and 0525
Single row in-line sockets with "Breakable" feature. Uses stamped single beam face-grip contacts. 40 solder tail pins to a strip. Body breaks off cleanly to any desired number of contacts. Series 0525 mates with .025 square pins.



SERIES 513 and 518
Lo-PRO™ file Collet Style Sockets. Available 6 to 64 pins on .200, .300, .400, .600 and .900 centers. Series 518 is open frame.



STRIP LINE SOCKETS SERIES 0513, 0503
with "break" feature for any desired number of positions (1 to 25 pins). Available solder tail, 2 and 3 wrap pins.



MINI-LINK™ and SQUARESTIX™
Miniature jacks and a complete line of single and dual row .025 square pin products. Squarestix available up to 40 pins single row and 80 pins dual rows, both straight and right angle.

*TM—Gardner-Denver

Complete information in Catalog S-85

P.O. Box 130
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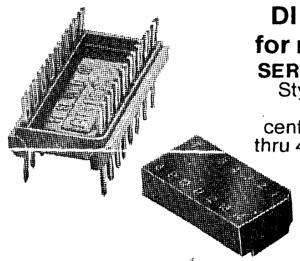
TWX 510-235-3391

ARIES® ELECTRONICS, INC.

The Industry's most complete line of DIP products

DIP HEADERS and COVERS - 5 STYLES and SPECIALS

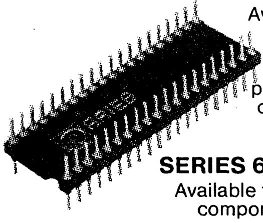


DIP HEADERS & COVERS for mounting components.

SERIES 600 with coined contacts. 2 Styles of Terminals: Post and Fork. Available 2 thru 20 pins on .300 centers; 22 pins on .400 centers; 24 thru 40 pins on .600 centers. Contact styles shown below.

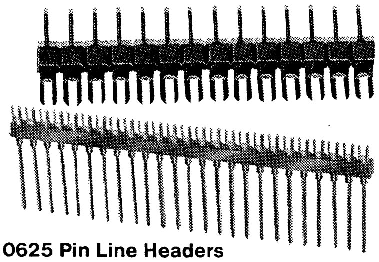
SERIES 625 with screw machine terminals. 5 Styles of Terminals. Available 2 to 40 pins—.200, .300, .400 and .600 centers.

SERIES 8625 with screw machine terminals. Available in 14-16-18-32 pins in single and double rows on .800 centers. Terminal styles shown below.



SERIES 650 COVERS: FOR HEADERS

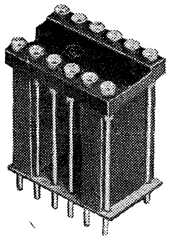
Available for 8-14-16-24-40 pin sizes to accept components of 1/8", 3/8", 1/2", or 3/4" high.



"BREAK" to length desired.

SERIES 0600 and 0625 Pin Line Headers

A single header strip both end and side stackable on .100 centers. (0600 with coined contacts). (0625 with screw machine terminals). Available: 1 to 25 pins on .100 centers.

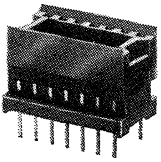


ELEVATOR SOCKETS

Useful to bring device to level required. Available from 1/4" to 1-1/4" high. Standard heights in stock; specials 3 weeks.

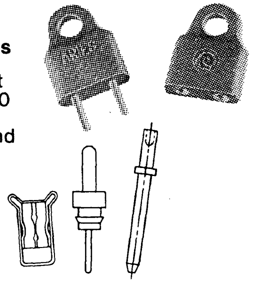
SERIES 8XXX (XXX=height)

Available 14 or 16 pin. Aries bifurcated pins on .300 centers.



COLLET STYLE CONTACTS

2 to 64 pin. Any height 1/4" to 1-1/4"



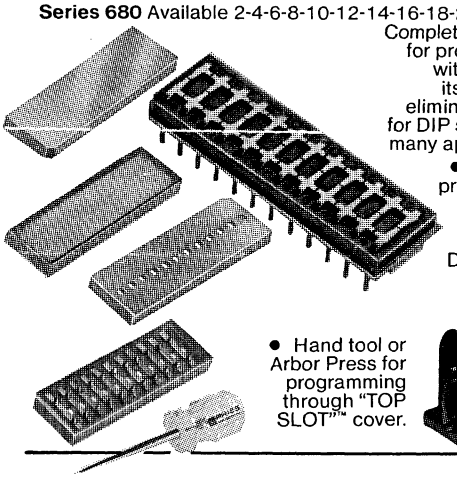
.040 Shorting Plugs and Jacks and .040 DIP Strips and Loose Pins

Plugs and jacks used to interconnect .040 sockets and/or .040 pins on .200 centers. Convenient ring handle for insertion or removal. Male straight and right angle and female socket DIP strips in convenient 10 position size ("break-off" feature for any smaller size). Also available are loose .040 female sockets, .040 male pins for staking and .040 pins for press fit.

DIP PROGRAM HEADERS and COVERS

TOP-SLOT Programmable Headers and Covers

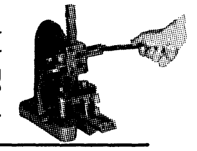
Series 680 Available 2-4-6-8-10-12-14-16-18-20-24 pins.



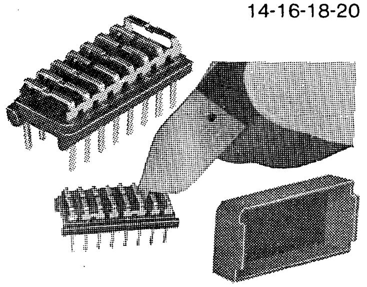
Complete versatility for programming within header itself . . . thus eliminating need for DIP switches in many applications.

- Available pre-programmed from Aries Stocking Distributors.

- Hand tool or Arbor Press for programming through "TOP SLOT"™ cover.

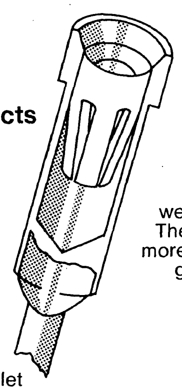


Series 675 Available 2-4-6-8-10-12-14-16-18-20 Pins on .300 centers

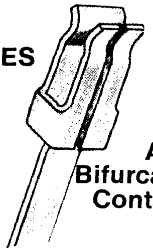


Program the header! Available pre-programmed or can be programmed by customer with needle-nose pliers or Aries Program Header Tool.

ARIES OFFERS TWO PROVEN CONTACT STYLES



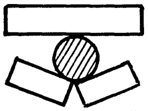
Aries Collet Contacts



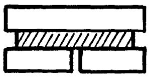
Aries Bifurcated Contacts

A superior electrical contact as well as firm, physical spring grip. The Aries bifurcated contact has more metal than any other . . . one good reason for its superiority and secure mating.

Aries collet contacts are widely used for highly reliable electrical contact at low cost. Collet accepts .015 to .020 dia. round leads. Contacts 30μ gold plated berylium copper. Body available gold or tin plated.



For round leads up to .020 dia. Redundant 3 point contact.



For flat leads up to .025 wide. Grips thickness for maximum electrical contact.

Complete information in Catalog S-85

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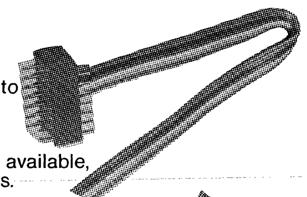
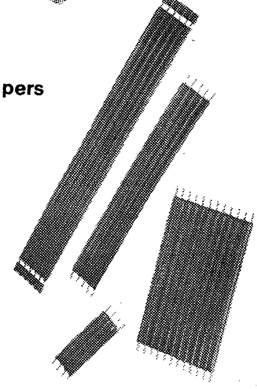
The Industry's most complete line of DIP products

DIP JUMPERS – 10 STANDARD STYLES and SPECIALS



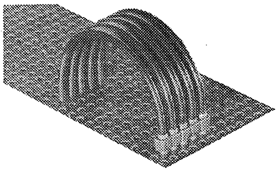
DIP JUMPERS

SERIES 100—DIP board to DIP board.
Available 4 thru 40 pins.
Any length cable.
Any connector orientation available, 12 standard configurations.

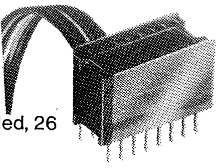


SERIES 152FB
Fusion Bonded Cable Jumpers

Available in 1" to 12" lengths in ¼" increments.
Conductors: 4 thru 12 on .100" centers.
Flexible, extruded PVC insulation on 26 gauge stranded wire conductors which are fusion bonded with an over-coat of tin for easy solderability and/or pluggability.
Fusion Bonded Cable Jumpers can be soldered directly to p.c. board or pluggable into Aries pin line sockets (Series 0513) or low cost (Series 0520).

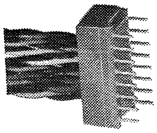


DIP-ER LOGIC SOCKET/JUMPER
SERIES 206-207-208



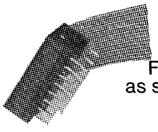
Dip-er Logic Socket Jumpers saves the space on the board for a plug in position and can be used to impose two devices into one position.
Plugs into standard 8-14-16-24 and 40 position logic panels.
Any length cable. Cable—EIA color coded, 26 AWG (7 strands 34 AWG).
Type B—600 V 105° C.

TWISTED PAIR JUMPERS



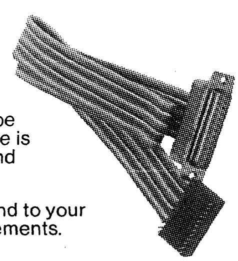
Twisted pair jumpers are available with one less number of pairs than the connector number. Example: 14 pin jumper is available with either 13 twisted pairs, all grounds connected to 14 pin, or 7 twisted pairs, all grounds connected to the opposite signal pins 8-14.

FLAT CABLE JUMPERS



Flat cable jumpers provided as 14 and 16 pin as standards, also available in 8 and 24 pin with flat wire bonded together. Excellent for high flex applications or where space is a major consideration. Most connector orientations available.

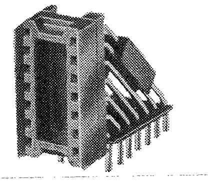
D TO DIP JUMPERS
SERIES 225



Cable assemblies using "D" Series subminiature connectors (9, 15, 25, 37 and 50 pin) on one end and Aries DIP Headers on other ends. Other end can be furnished stripped and tinned also. Cable is EIA color coded 26 AWG. Other sizes and types of cable can be accommodated.

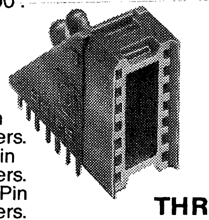
SPECIALS Aries will promptly respond to your special jumper requirements.

VERTISOCKETS 22 STYLES and SPECIALS



VERTISOCKETS®

For mounting LED Displays, Switches, Test Points. A complete line—from 2 pin for decimal to 40 pins for multiple displays.
Available for vertical, horizontal or edge card displays with optional mounting angles of 30°, 45°, 60° or 90°.
Device mounting centers .200, .300 and .600.



VERTICAL MOUNTING

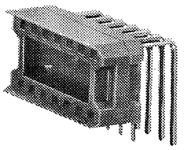
SERIES 2810— Available: 8-10 Pin (Aries bifurcated pins) on .200 centers.
SERIES 810—Available: 8-14-16 Pin (Aries bifurcated pins) on .300 centers.
SERIES 6810—Available: 8-10-14 Pin (Aries bifurcated pins) on .600 centers.

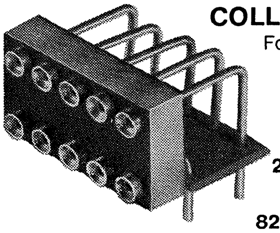
THRIFTY MODEL VERTISOCKET

High volume—low cost—bifurcated contacts 14 Pin—.300 centers
Cat. No. 14-810-90R

HORIZONTAL MOUNTING

SERIES 2820, 2822 and 2823—Available: 8-10 Pins (Aries bifurcated pins) on .200 centers.
SERIES 820, 822, 823—Available: 8-14-16-18 Pins (Aries bifurcated pins) on .300 centers.
SERIES 6823—Available: 8 to 40 Pins (Aries bifurcated pins) on .600 centers.
SERIES 822E (Economy Model)—Available: 8-14-16-18 Pins. (Aries bifurcated pins) on .300 centers. Note: One row of pins .025 x .006 with other row .025 sq.



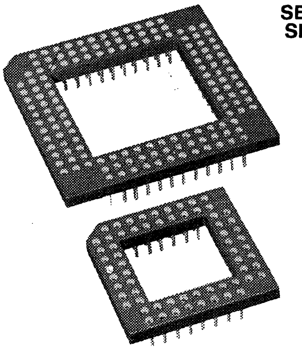


COLLET STYLE VERTISOCKET

For displays using round pins (Solder or Wire Wrap). Excellent for military applications. Can be provided with FR4 base material.

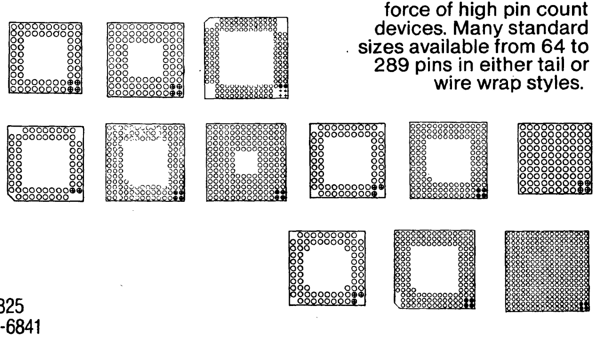
Horizontal
SERIES 2820C, 2822C, 2823C—Available: 8 and 10 pins on .200 centers.
SERIES 820C, 822C and 823C—Available: 8 to 20 pins on .300 centers in increments of two (2).

Vertical
SERIES 2810C—Available 8-10 pins.
SERIES 0810C—Available: 2 pin (for decimal) on .150 center.



PIN GRID ARRAY SOCKETS

Collet contacts on .100 centers in a square matrix for acceptance of components not on conventional DIP matrix. Available to meet any configuration of pin positions. Special low insertion force collet contacts are used to reduce insertion force of high pin count devices. Many standard sizes available from 64 to 289 pins in either tail or wire wrap styles.



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Telephone (201) 996-6841
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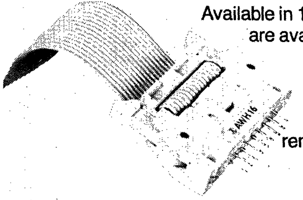
EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

For 100 years ASMANN has combined German ingenuity and Swiss precision to produce quality products. Now, literally thousands of high-quality popular-sized sockets and connectors are available in stock for immediate shipment. ASMANN sockets and connectors feature Swiss-machined-quality contacts and plastic bodies that meet UL 94-VO specifications.

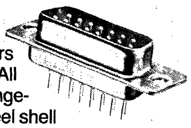
You don't have to pay a premium for quality anymore.

IDC Connectors



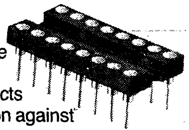
Available in 10-60 pins, these quality connectors are available in all popular sizes. Compatible with .050″ flat cable, AWG 28, they provide fast, easy assembly of mass terminations. Locking clips assure positive retention, instant removal. Four-sided shrouded header provides added pin protection.

D-Subminiature Connectors



Offered with 9-50 pins and four terminal versions, these highly reliable connectors feature permanent machined contacts. All contact points are gold plated. Interchangeable with MIL-C-24308 types. Plated steel shell minimizes EMI.

DIP Sockets



Available in 6-64 pins, these low profile sockets offer consistently high quality. Precision machined gold-plated contacts insure continuity and provide protection against capillary action. Shock and vibration specs meet MIL-STD-202.

Additional ASMANN Components

Terminal Strips:	socket & wire wrap terminals; 5-20 pins; tin or gold-plated contacts.
Pin Headers:	dual in-line configuration; IDC compatible.
Carrier Assemblies:	6-40 pins; precision machined gold-plated contacts facilitate pc board assembly.
Test Sockets:	zero insertion force; 7 milliohms resistance after 1,000 insertions.
Transistor Sockets:	TO-5 and TO-3 styles; Teflon® or nylon insulators.

®Registered DuPont trademark

New ASMANN Connectors and Sockets

Now you don't have to pay a premium for premium components.

®AWH34
®AWH14

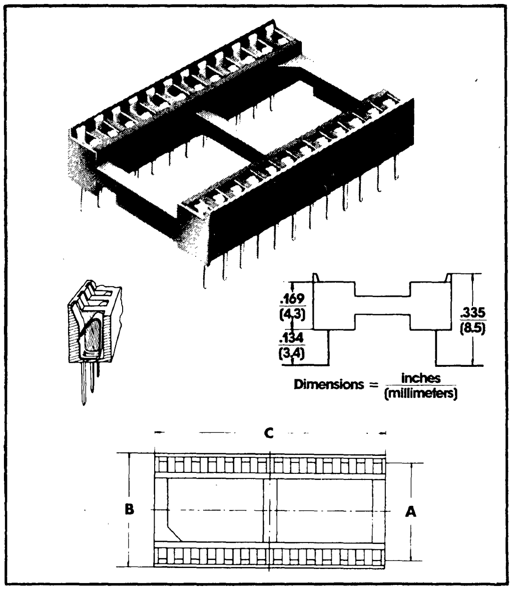
For more information, contact:

ASMANN Components
c/o ebm Industries, Inc.
525 New Britain Ave., Unionville, CT 06085
(203) 674-0118

ASMANN

DUAL-IN-LINE PIN (DIP) SOCKETS

- Low profile.
- Dual wiping contacts.
- Large target for IC insertion.
- Excellent for DIP assemblies.
- Pins protected against capillary action and solder wicking.

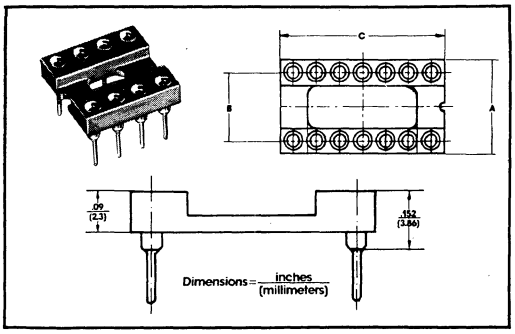


LOW COST IC-SOCKETS

PC MOUNT

PART NO.	NO. OF CONTACTS	CONTACT PLATING	A	B	C
A 06-LC A 06-LCG	6	Tin Gold	.300 (7.62)	.394 (10.0)	.301 (7.65)
A 08-LC A 08-LCG	8	Tin Gold	.300 (7.62)	.394 (10.0)	.394 (10.0)
A 14-LC A 14-LCG	14	Tin Gold	.300 (7.62)	.394 (10.0)	.700 (17.7)
A 16-LC A 16-LCG	16	Tin Gold	.300 (7.62)	.394 (10.0)	.800 (20.25)
A 18-LC A 18-LCG	18	Tin Gold	.300 (7.62)	.394 (10.0)	.900 (22.8)
A 20-LC A 20-LCG	20	Tin Gold	.300 (7.62)	.394 (10.0)	1.000 (25.4)
A 22-LC A 22-LCG	22	Tin Gold	.400 (10.16)	.500 (12.7)	1.100 (27.9)
A 24-LC A 24-LCG	24	Tin Gold	.600 (15.24)	.700 (17.7)	1.200 (30.45)
A 28-LC A 28-LCG	28	Tin Gold	.600 (15.24)	.700 (17.7)	1.400 (35.50)
A 40-LC A 40-LCG	40	Tin Gold	.600 (15.24)	.700 (17.7)	2.000 (50.75)
A 42-LC A 42-LCG	42	Tin Gold	.768 (19.5)	1.222 (28.5)	1.122 (28.5)

- Funnel shaped four-fingered contacts provide easy IC insertion, high reliability.
- Precision Swiss machined sockets are field-proven for minimum of 1,000 cycles.
- Fit standard DIP with .100″ × .100″ (2.54 × 2.54mm) pin spacing.
- Low profile for max. packaging density.
- Closed bottom sleeve protects against solder wicking.
- Short contact legs assure contact with short-legged IC's.



PRECISION MACHINED SOCKETS

OPEN FRAME SOCKETS
SOLDER PIN TERMINALS

PART NO.	NO. OF CONTACTS	CONTACT PLATING	TERMINAL PLATING	DIMENSIONS A	B	C
AR 6-H/GL AR 6-H/ZL	6 6	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	.300 (7.65) .300 (7.65)
AR 8-H/GL AR 8-H/ZL	8 8	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	.400 (10.1) .400 (10.1)
AR 14-H/GL AR 14-H/ZL	14 14	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	.700 (17.7) .700 (17.7)
AR 16-H/GL AR 16-H/ZL	16 16	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	.800 (20.3) .800 (20.3)
AR 18-H/GL AR 18-H/ZL	18 18	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	.900 (22.8) .900 (22.8)
AR 20-H/GL AR 20-H/ZL	20 20	Gold Gold	Gold Tin	.400 (10.1) .400 (10.1)	.300 (7.62) .300 (7.62)	1.00 (25.4) 1.00 (25.4)
AR 22-H/GL AR 22-H/ZL	22 22	Gold Gold	Gold Tin	.500 (12.7) .500 (12.7)	.400 (10.16) .400 (10.16)	1.10 (27.9) 1.10 (27.9)
AR 24-H/GL AR 24-H/ZL	24 24	Gold Gold	Gold Tin	.700 (17.7) .700 (17.7)	.600 (15.24) .600 (15.24)	1.20 (30.4) 1.20 (30.4)
AR 28-H/GL AR 28-H/ZL	28 28	Gold Gold	Gold Tin	.700 (17.7) .700 (17.7)	.600 (15.24) .600 (15.24)	1.40 (35.4) 1.40 (35.4)
AR 40-H/GL AR 40-H/ZL	40 40	Gold Gold	Gold Tin	.700 (17.7) .700 (17.7)	.600 (15.24) .600 (15.24)	2.00 (50.5) 2.00 (50.5)
AR 48-H/GL AR 48-H/ZL	48 48	Gold Gold	Gold Tin	.700 (17.7) .700 (17.7)	.600 (15.24) .600 (15.24)	2.40 (60.7) 2.40 (60.7)
AR 64-H/GL AR 64-H/ZL	64 64	Gold Gold	Gold Tin	1.00 (25.4) 1.00 (25.4)	.900 (22.86) .900 (22.86)	3.20 (81.1) 3.20 (81.1)

ASMANN COMPONENTS 525 New Britain Ave., Unionville, CT 06085 (203) 674-0118

Bead Electronic Connectors

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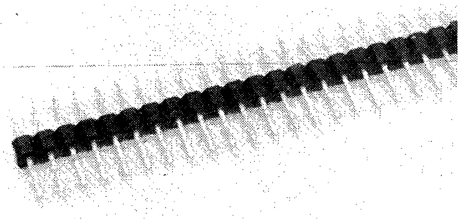
STRIP HEADERS

.100" CENTERS .025" x .025" POSTS



SINGLE ROW

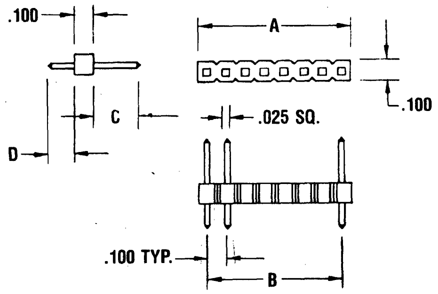
STRAIGHT POST HEADERS

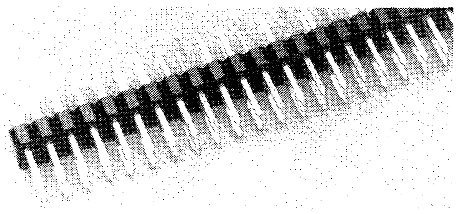
10000 Series — 02 Through 36 Positions

Part Numbers:		Dimensions (inches):			
TIN[1]	GOLD[2]	A	B	C	D
10000-xx	10003-xx	*	**	.235	.093
10001-xx	10004-xx	*	**	.235	.165
10002-xx	10005-xx	*	**	.235	.510
10009-xx	10012-xx	*	**	.318	.093
10010-xx	10013-xx	*	**	.318	.165
10011-xx	10014-xx	*	**	.318	.510

-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = # of positions X .100"
**"B" Dimensions = "A" Dimensions — .100"





DOUBLE ROW

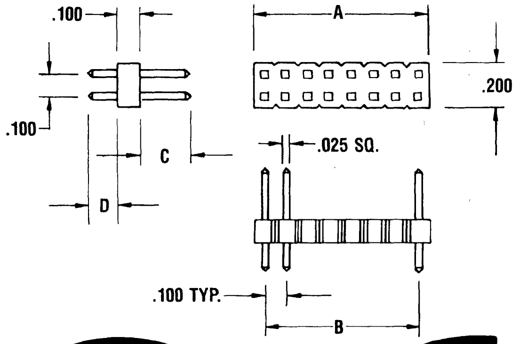
STRAIGHT POST HEADERS

12000 Series — 04 Through 72 Positions

Part Numbers:		Dimensions (inches):			
TIN[1]	GOLD[2]	A	B	C	D
12000-xx	12003-xx	*	**	.235	.093
12001-xx	12004-xx	*	**	.235	.165
12002-xx	12005-xx	*	**	.235	.510
12009-xx	12012-xx	*	**	.318	.093
12010-xx	12013-xx	*	**	.318	.165
12011-xx	12014-xx	*	**	.318	.510

-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = $\frac{\#\text{ of positions}}{2}$ X .100"
**"B" Dimensions = "A" Dimensions — .100"



Bead Electronic Connectors

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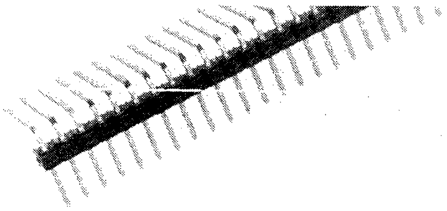
STRIP HEADERS

.100" CENTERS .025" × .025" POSTS

SINGLE ROW

RIGHT ANGLE POST HEADERS

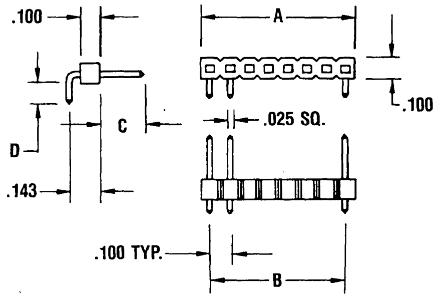


11000 Series — 02 Through 36 Positions

Part Numbers: TIN[1]	GOLD[2]	Dimensions (inches): A	B	C	D
11000-xx	11003-xx	*	**	.235	.093
11001-xx	11004-xx	*	**	.235	.165
11002-xx	11005-xx	*	**	.235	.510
11009-xx	11012-xx	*	**	.318	.093
11010-xx	11013-xx	*	**	.318	.165
11011-xx	11014-xx	*	**	.318	.510

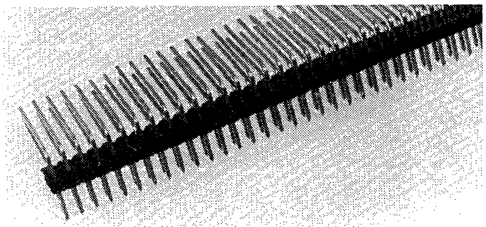
-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = # of positions X .100"
**"B" Dimensions = "A" Dimensions — .100"



DOUBLE ROW

RIGHT ANGLE POST HEADERS

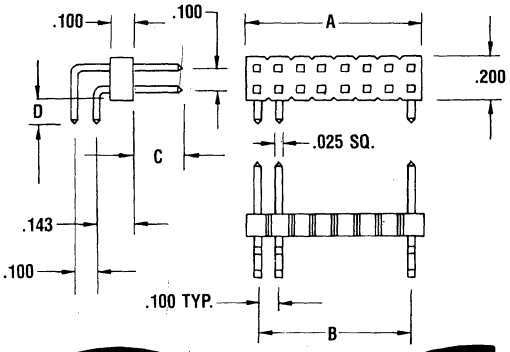


13000 Series — 04 Through 72 Positions

Part Numbers: TIN[1]	GOLD[2]	Dimensions (inches): A	B	C	D
13000-xx	13003-xx	*	**	.235	.093
13001-xx	13004-xx	*	**	.235	.165
13002-xx	13005-xx	*	**	.235	.510
13009-xx	13012-xx	*	**	.318	.093
13010-xx	13013-xx	*	**	.318	.165
13011-xx	13014-xx	*	**	.318	.510

-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = $\frac{\text{\# of positions}}{2}$ X .100"
**"B" Dimensions = "A" Dimensions — .100"



Bead Electronic Connectors

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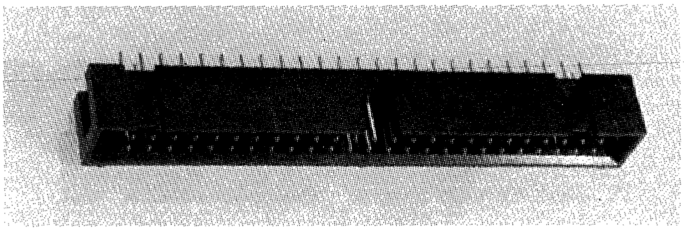
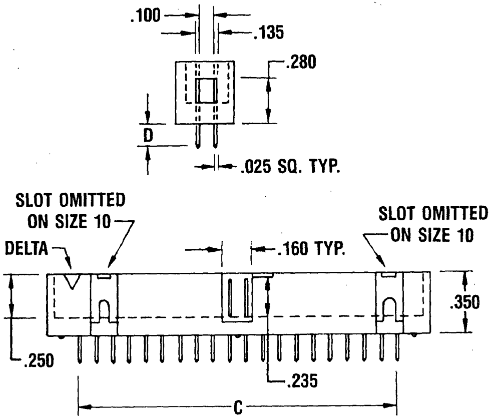
SHROUDED HEADERS
.100″ CENTERS .025″ × .025″ POSTS



SOLDER TAIL
STRAIGHT POST HEADERS

14000 Series — 10, 16, 20, 26, 34, 40, 50, 60, 64 Positions

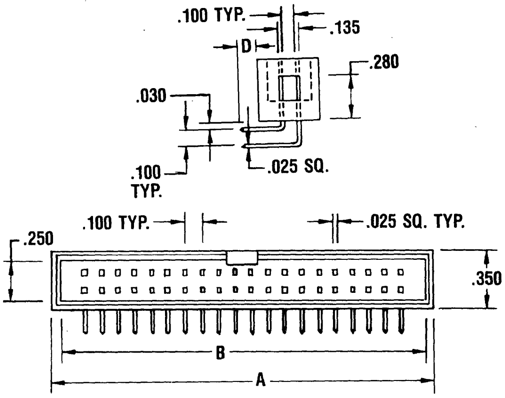
Part Numbers: TIN[1]	GOLD[2]	# POS	Dimensions (inches): A	B	C	D
14000-10	14003-10	10	.800	.705	.400	.093
14000-16	14003-16	16	1.100	1.005	.700	.093
14000-20	14003-20	20	1.300	1.205	.900	.093
14000-26	14003-26	26	1.600	1.505	1.200	.093
14000-34	14003-34	34	2.000	1.905	1.600	.093
14000-40	14003-40	40	2.300	2.205	1.900	.093
14000-50	14003-50	50	2.800	2.705	2.400	.093
14000-60	14003-60	60	3.300	3.205	2.900	.093
14000-64	14003-64	64	3.500	3.405	3.100	.093
14001-10	14004-10	10	.800	.705	.400	.155
14001-16	14004-16	16	1.100	1.005	.700	.155
14001-20	14004-20	20	1.300	1.205	.900	.155
14001-26	14004-26	26	1.600	1.505	1.200	.155
14001-34	14004-34	34	2.000	1.905	1.600	.155
14001-40	14004-40	40	2.300	2.205	1.900	.155
14001-50	14004-50	50	2.800	2.705	2.400	.155
14001-60	14004-60	60	3.300	3.205	2.900	.155
14001-64	14004-64	64	3.500	3.405	3.100	.155



SOLDER TAIL
RIGHT ANGLE POST HEADERS

15000 Series

Part Numbers: TIN[1]	GOLD[2]	# POS	Dimensions (inches): A	B	C	D
15000-10	15003-10	10	.800	.705	.400	.093
15000-16	15003-16	16	1.100	1.005	.700	.093
15000-20	15003-20	20	1.300	1.205	.900	.093
15000-26	15003-26	26	1.600	1.505	1.200	.093
15000-34	15003-34	34	2.000	1.905	1.600	.093
15000-40	15003-40	40	2.300	2.205	1.900	.093
15000-50	15003-50	50	2.800	2.705	2.400	.093
15000-60	15003-60	60	3.300	3.205	2.900	.093
15000-64	15003-64	64	3.500	3.405	3.100	.093
15001-10	15004-10	10	.800	.705	.400	.155
15001-16	15004-16	16	1.100	1.005	.700	.155
15001-20	15004-20	20	1.300	1.205	.900	.155
15001-26	15004-26	26	1.600	1.505	1.200	.155
15001-34	15004-34	34	2.000	1.905	1.600	.155
15001-40	15004-40	40	2.300	2.205	1.900	.155
15001-50	15004-50	50	2.800	2.705	2.400	.155
15001-60	15004-60	60	3.300	3.205	2.900	.155
15001-64	15004-64	64	3.500	2.403	3.100	.155



Bead Electronic Connectors

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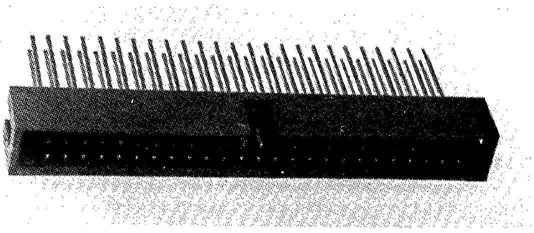
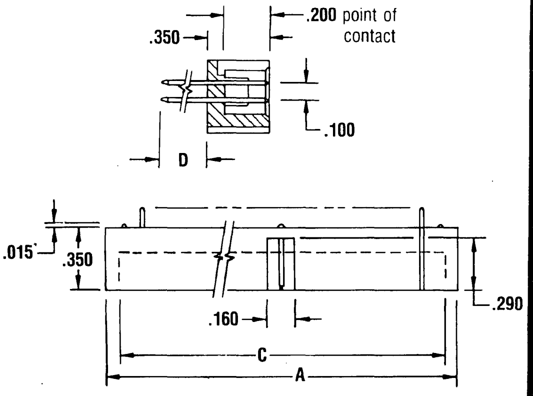
SHROUDED HEADERS

.100″ CENTERS .025″ × .025″ POSTS



WIRE WRAP TAIL

STRAIGHT POST HEADERS

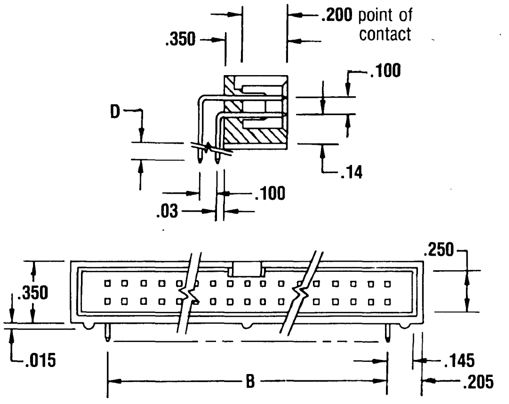


16000 Series — 10, 16, 20, 26, 34, 40, 50, 60, 64 Positions

Part Numbers:			Dimensions (inches):			
TIN[1]	GOLD[2]	# POS	A	B	C	D
16000-10	16001-10	10	.800	.705	.400	.510
16000-16	16001-16	16	1.100	1.005	.700	.510
16000-20	16001-20	20	1.300	1.205	.900	.510
16000-26	16001-26	26	1.600	1.505	1.200	.510
16000-34	16001-34	34	2.000	1.905	1.600	.510
16000-40	16001-40	40	2.300	2.205	1.900	.510
16000-50	16001-50	50	2.800	2.705	2.400	.510
16000-60	16001-60	60	3.300	3.205	2.900	.510
16000-64	16001-64	64	3.500	3.405	3.100	.510

WIRE WRAP TAIL

RIGHT ANGLE POST HEADERS



17000 Series — 10, 16, 20, 26, 34, 40, 50, 60, 64 Positions

Part Numbers:			Dimensions (inches):			
TIN[1]	GOLD[2]	# POS	A	B	C	D
17000-10	17001-10	10	.800	.705	.400	.510
17000-16	17001-16	16	1.100	1.005	.700	.510
17000-20	17001-20	20	1.300	1.205	.900	.510
17000-26	17001-26	26	1.600	1.505	1.200	.510
17000-34	17001-34	34	2.000	1.905	1.600	.510
17000-40	17001-40	40	2.300	2.205	1.900	.510
17000-50	17001-50	50	2.800	2.705	2.400	.510
17000-60	17001-60	60	3.300	3.205	2.900	.510
17000-64	17001-64	64	3.500	3.405	3.100	.510

Bead Electronic Connectors

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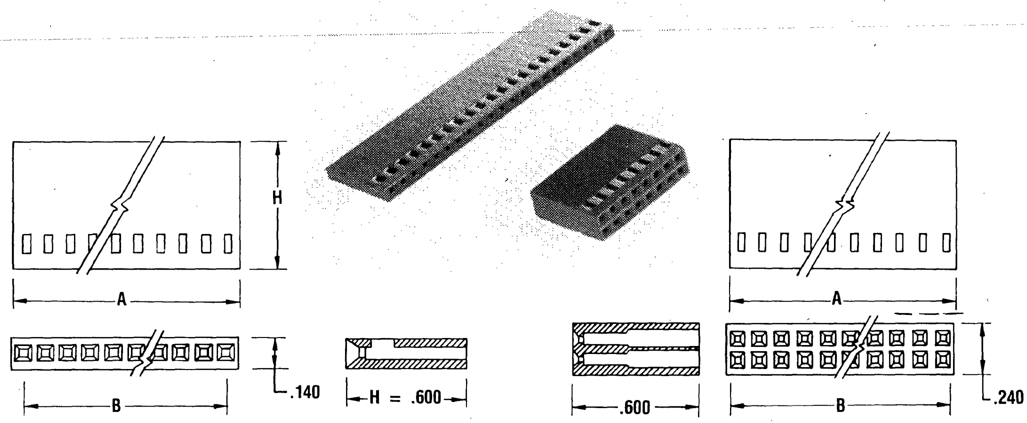
RECEPTACLE CONTACT HOUSINGS

CRIMP/SNAP-IN .100″ CENTERS



SINGLE ROW HOUSINGS

20000 Series — 02 Through 36 Positions

Part Numbers:	Dimensions (inches): A	B
20000-xx	*	**

-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = # of positions X .100″
**"B" Dimensions = "A" Dimensions — .100″

DOUBLE ROW HOUSINGS

21000 Series — 04 Through 72 Positions

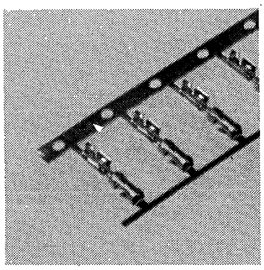
Part Numbers:	Dimensions (inches): A	B
21000-xx	*	**

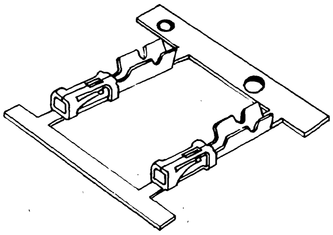
-xx indicates the number of contact positions.

NOTE: *"A" Dimensions = $\frac{\text{\# of positions}}{2}$ X .100″
**"B" Dimensions = "A" Dimensions — .100″

BOX RECEPTACLE CONTACTS

CRIMP/SNAP-IN MATE WITH .025″ × .025″ POST





MATERIALS

Contact: Phosphor Bronze

Plating Codes:
- -1 .000030″ selective gold in contact area, gold flash remainder of contact.
- -2 .000015″ selective gold in contact area, gold flash remainder of contact.
- -3. .000050″ selective gold in contact area, gold flash remainder of contact.
- -4. .000100″ bright tin over entire contact.
- -5. .000010″ gold over entire contact.

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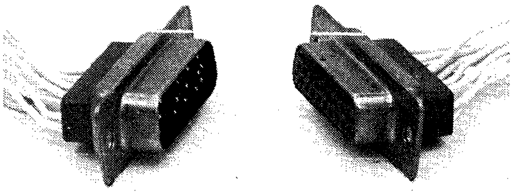
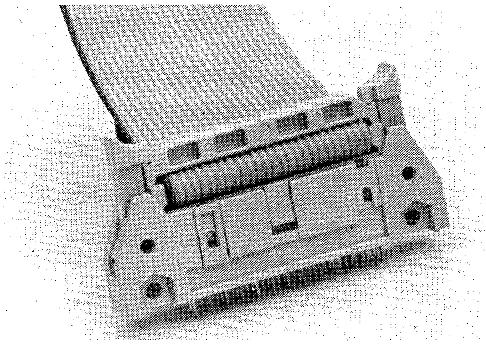
BEAD-D Subminiature Connectors



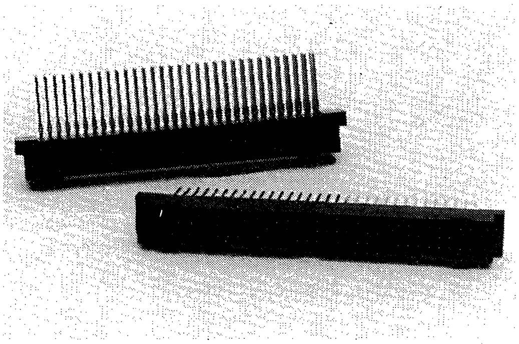
Bead has the 9, 15, 25, and 37 position right angle board mount connectors available in the all-plastic version only. These parts feature selectively plated contacts. They are designed to mount on the industry standard PCB footprint. The board mount SUB "D" connectors can be made available with tin plated contacts.

BEAD-IDC Connectors



BEAD-IDC is a complete system which terminates ribbon cable from 10 to 60 positions. The displacement contacts are used in socket connectors which mate with eject headers or BEADPOST INTERCONNECTION SYSTEM shrouded or unshrouded headers. BEAD-IDC also includes PCB transition connectors in 10 to 60 positions and DIP Connectors in 8 to 40 positions. Termination is accomplished with a handpress. The BEAD-IDC line is completely compatible with the leaders in this type of interconnect system.

BEAD-DINCONN Connectors



Bead currently has the reverse DIN post connector available which is mounted on the motherboard using the eye of the needle compliant section. Use of this pressfit contact gives the user solderless termination and repairability. Currently available in 32, 64, or 96 positions, BEAD-DINCONN will be expanding in the near future.

Beau® Barrier Terminal Strips

CONSIDER THE ADVANTAGES OF BEAU THERMOPLASTIC STRIPS

Beau thermoplastic strips offer many significant advantages. The strong, resilient barriers. The quality and uniformity of the product. Our determined commitment to engineering excellence. And, with our large selection of thermoplastic strips, the odds are you'll find what you want at Vernitron. Design in or cross over to Beau thermoplastic strips—the advantage is yours.

BEND BARRIERS WITHOUT BREAKING

Highly resilient thermoplastic reduces breakage dramatically. Production line and in-field damage are virtually eliminated.

TERMINAL TAILS ENCLOSED

Cavities are eliminated around solder terminal tails. Allows mounting on PCB without affecting circuit isolation. Eliminates entrapment of foreign matter. Reduces solder wicking.

CLOSED-SIDE STRIPS OFFER EXTRA PROTECTION

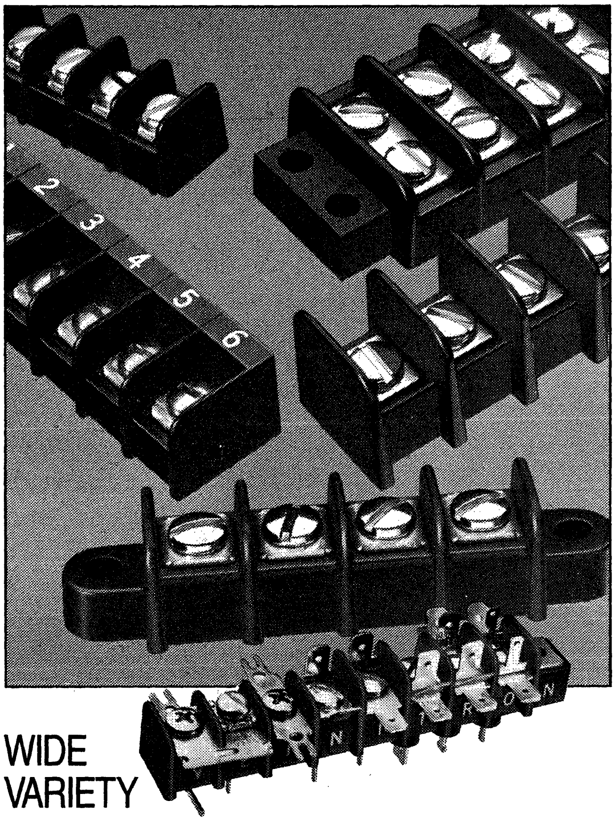
Closed side serves as a wire stop. Permits mounting components close to strip without shorting. Wires or screwdrivers can't pass through closed side to contact other wires, leads or PCB components.

HIGHEST U.L. FLAME RETARDANT RATING

Our thermoplastic materials all carry the UL 94V-0 (self extinguishing) rating.

NEAT, ACCURATE MOUNTING ENDS

All our thermoplastic strips are molded to length. None are cut down from longer strips. They're neater, without ugly saw cuts. And they are precisely the same length every time.



WIDE VARIETY OF TERMINALS

There is a broad selection of top-side and bottom terminals—including quick-connect terminals which speed assembly time, cut costs and improve connections.

RAP-ATTACH MOUNTS SAVE 40%

—details on page after next.

U.L. RECOGNIZED. CSA CERTIFIED.

Also available in Canada, England, Europe and Japan.

	SINGLE-ROW						SINGLE-ROW, CLOSED SIDE			DOUBLE-ROW		
Series No.	NEW 61000	70000	71000	72000	73000	NEW 74000	NEW 60000	NEW 69000	75000	76000	77000	78000
Terminal ctrs	¼"	.325"	⅜"	⅜"	7/16"	7/16"	¼"	.325"	⅜"	⅜"	⅜"	7/16"
Current (UL)	10A	20A	20A	20A	20A	20A	10A	20A	20A	20A	20A	20A
Volts rms (UL)												
Gen Indl	150	150	150	150	300	300	150	150	150	150	150	300
Comml	250	250	250	250	250	250	250	250	250	250	250	250
Width	.55"	.50"	.63"	.63"	.75"	.63"	.55"	.60"	.68"	.88"	.88"	1.13"
Height	.50"	.50"	.56"	.66"	.75"	.58"	.50"	.50"	.56"	.63"	.44"	.55"
No. circuits	1-32	1-30	1-26	1-26	1-30	1-30	1-32	1-30	1-26	2-30	2-30	1-30
Back types	Feed thru; closed						Feed thru; closed			Feed thru; closed		

VERNITRON
CORPORATION

BEAU PRODUCTS DIVISION
Dept. A5-5, Box 10, Laconia, New Hampshire 03247
In NH, phone: (603) 524-5101 TWX: 710-364-1843

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Beau® Barrier Terminal Strips

VERSATILE PHENOLIC STRIPS CROSS WITH THE POPULAR SIZES.

Vernitron offers one of the widest lines of phenolic barrier terminal strips available anywhere—and we have a wide variety of options to go with them. We have all the most popular sizes and styles. Compare our quality, price and lead times—we think you'll cross over to Beau.

SINGLE-ROW STRIPS IN MANY STYLES

Series 12000 and 13000 have high-impact glass-filled phenolic bases for excellent breakage resistance; color, green. The other single-row series are made of general-purpose phenolic; color, black. All styles are available with a wide choice of terminals, marker/insulation strips, imprinting, with or without mounting ends, and many other options.

DOUBLE-ROW STRIPS RANGE FROM 10 TO 50 AMPS

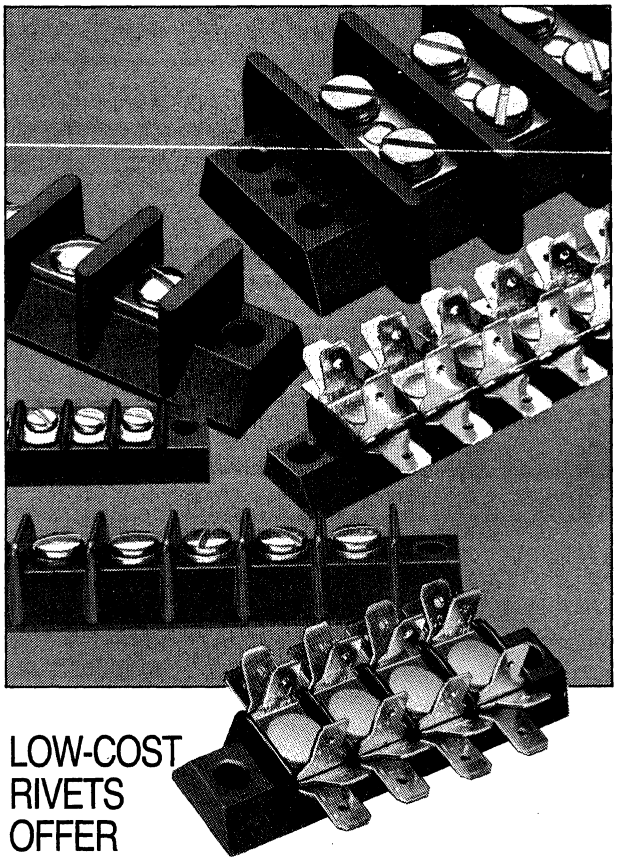
Available in general-purpose phenolic; color, black. Wide choice of terminal styles, marker/insulation strips, imprinting, with or without mounting ends, and many other options.

WIDE VARIETY OF TERMINALS

There is a broad selection of top-side and bottom terminals—including quick-connect terminals which speed assembly time, cut costs and improve connections.

OUR HIGHEST CURRENT STRIP

Series 28000 is rated at 50 A. It's our highest current strip. Series 28000 is a direct cross with series 603.



LOW-COST RIVETS OFFER GREATER SECURITY

Four series of single-row strips come with either screw or rivet (option) construction. Low-cost rivets are vibration resistant and offer greater in-field security. These strips are exact replacements for the styles shown in the table below.

Beau Series	23000	24000	25000	26000
Replaces	411,511	599, 799	699, 899	812, 912

U.L. RECOGNIZED. CSA CERTIFIED.

	SINGLE-ROW		SINGLE-ROW, SCREWS OR RIVETS				DOUBLE-ROW						
Series No.	12000	13000	NEW 23000	NEW 24000	NEW 25000	NEW 26000	10000	14000	18000	19000	21000	22000	NEW 28000
Terminal ctrs	3/8″	7/16″	1/4″	3/8″	7/16″	9/16″	1/4″	3/8″	7/16″	7/16″	9/16″	9/16″	11/16″
Current (UL)	15A	20A	10A	15A	20A	30A	10A	15A	20A	20A	30A	30A	50A
Volts rms (UL)													
Gen Indl	150	150	150	150	150	150	150	150	300	300	600	600	150
Comml	250	250	250	250	250	250	250	250	250	250	600	600	250
Width	.57″	.73″	.41″	.56″	.69″	.75″	.63″	.88″	1.13″	1.13″	1.31″	1.31″	1.81″
Height	.44″	.55″	.31″	.41″	.50″	.72″	.31″	.41″	.50″	.55″	.63″	.66″	.75″
No. circuits	1-31	1-26	1-22	1-30	1-30	1-18	1-20	1-30	1-30	1-30	1-25	1-26	1-12
Back types	Feed thru; closed		Open				Open			Closed	Open	Closed	Open

VERNITRON CORPORATION

BEAU PRODUCTS DIVISION
Dept. A5-5, Box 10, Laconia, New Hampshire 03247
In NH, phone: (603) 524-5101 TWX: 710-364-1843

For immediate action
Call: **1-800-FOR-BEAU**

Beau® Interconnection Components

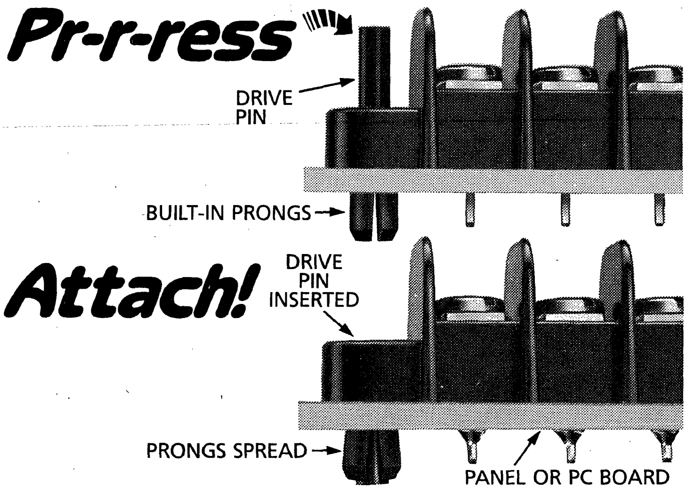
RAP-ATTACH™ MOUNTS SAVE 40% OF INSTALLED COST

Rap-Attach mounts (option) are the rapid new way to attach barrier terminal strips to PC boards or panels. When you press in the drive pins, the built-in prongs (on the bottom) spread like a blind rivet. No more time-consuming fumbling with screws and nuts. It's so easy, you can cut installed cost dramatically.

Non-conductive mounting. Thermoplastic drive pins provide greater safety.

Strain-free joints. No more counting on solder joints alone to secure strips to PCB's.

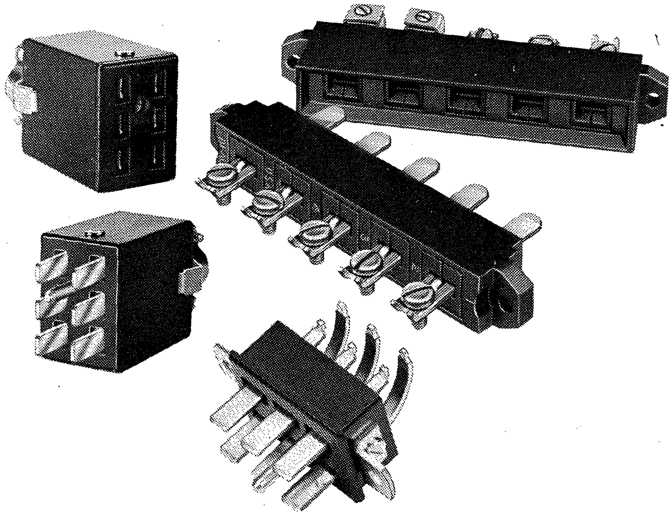
Wave solderable. To save you even more.



PLUG & SOCKET CONNECTORS

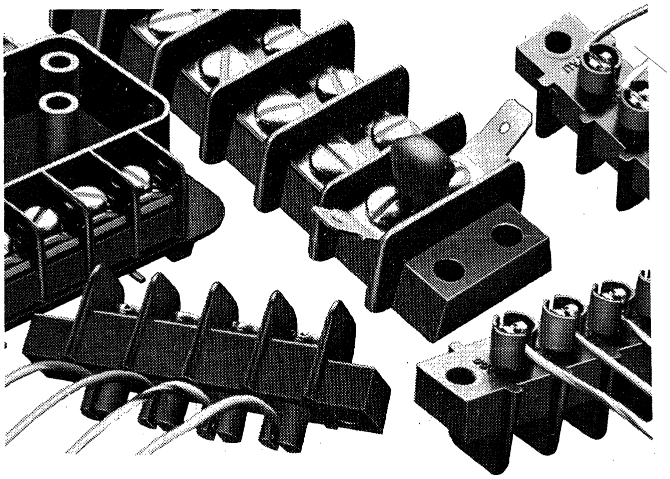
Beau connectors offer a number of significant advantages. Differences like standard pre-grounding connectors. Rugged, durable blades. Uniform-float contacts that make mating and unmating smooth and sure. Double-wipe contacts. Made in panel and cable mounting styles.

SERIES	AMPS	CONTACTS
3300	10	2-33
5400	15	4-16
5500	40,45,60	2-16
5600	40,45,60	1-5



LOW-COST SOLUTIONS TO SPECIAL INTERCONNECTION PROBLEMS

There's almost no limit to the ways we can design cost-saving interconnection devices. By integrating barrier terminal strips with other parts we can reduce your installed cost. Similarly, blade-type connectors have a wide range of possibilities. We can design for greater electro/mechanical performance, faster assembly, and more. We not only welcome your design problems, we thrive on them.



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In NH, phone: (603) 524-5101 TWX: 710-364-1843

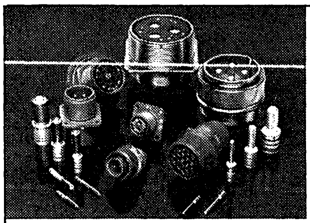
For immediate action
Call: **1-800-FOR-BEAU**

T.J.Electronics

CONNECTOR PRODUCTS

We design and manufacture our connector products for Quality, Service, and Value to specific customer requirements.

- **CYLINDRICAL CONNECTORS**
- **TERMINAL JUNCTION SYSTEMS**
- **LIGHTED PANEL CONNECTORS**
- **BONDING JUMPERS**
- **SEALING PLUGS**
- **SPECIALLY ENGINEERED PRODUCTS**



MIL-C-5015 Circular Connectors

Rear release

MS3450 - Receptacle, wall mounting
MS3451 - Receptacle, cable mounting
MS3452 - Receptacle, box mounting
MS3454 - Receptacle, jam nut mounting
MS3456 - Plug, cable connecting

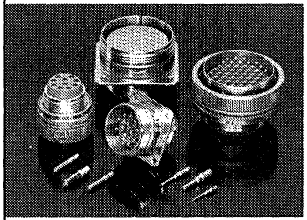
Class KS - Firewall, stainless steel
Class KT - Firewall
Class L - High temperature, fluid resistant
Class LS - High temperature, Stainless steel
Class W - General purpose

FEATURES

The Mil-C-5015 (Navy) connector specification is one of the most widely used specifications for circular connectors. The latest series, (MS345X) is suggested for new design in both Mil-Std-1353B and Aerospace Recommended Practice 1308B. Its use is increasingly popular in both military and commercial environments where high reliability and low installed cost are important.

The MS345X series incorporates a threaded coupling and removable rear release crimp contacts and is fully intermatable with existing Mil-C-5015 and threaded Mil-C 83723 Series II (USAF) connectors.

T.J. Mil-C-5015 Connectors are protected against degradation caused by caustic substances and are rated for temperature ranges from −55C to +200C. Electroless nickel or cadmium plating may be specified for applications requiring special finishes.



Mil-C-83723 Circular Connectors

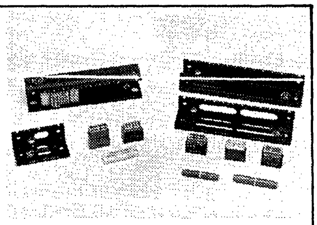
Mil-C-83723/82 Receptacle, Flange mount, threaded coupling crimp socket contact.
Mil-C-83723/83 Receptacle, flange mount, threaded coupling crimp pin contact.
Mil-C-83723/86 Plug, threaded coupling, crimp socket contact.
Mil-C-83723/87 Plug, threaded coupling, crimp pin contact.
Mil-C-83723/95 Plug, threaded coupling, self locking crimp socket contact.
Mil-C-83723/96 Plug threaded coupling self locking crimp pin socket.

FEATURES

The Mil-C-83723 series III high reliability connectors are suited for a variety of applications—from commercial/industrial to the most stringent high performance, high reliability military and space requirements. This connector features the removable rear release crimp contact concept now recognized as the standard design by the military, Aerospace and commercial industries.

Fast and easy wire termination and common termination tool features provide the maximum time savings and minimize field repair. A new patented self locking feature eliminates the need for safety wire and provides visual and tactile proof of the locked condition.

Mil-T-81714 Terminal Junction Systems



TRACKS BLOCKS SPLICES

Mil-T-81714/2-XXX Module, feedback, size 20.
Mil-T-81714/3-XXX Module, feedback, size 16.
Mil-T-81714/5-XX Track, feedback, std wt
Mil-T-81714/11-16X Splice, size 16
Mil-T-81714/11-20X Splice, size 20
Mil-T-81714/12-16X Dual Splice, size 16
Mil-T-81714/12-20X Dual Splice, size 20
Mil-T-81714/16-XX Track, feedback, lt wt

CLASSES

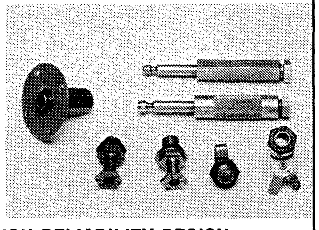
A: 150°C, environmental type
B: 175°C, environmental type
C: 200°C, environmental type
D: Combines A, B, C

Contacts:
Mil-C-39029/1-16-20
Mil-C-39029/1-14-16

FEATURES

Terminal Junction Systems Mil-T-81714B (QPL approved) are available in feedback sizes of 16 and 20 with a full selection of bussing arrangements, including mount track variations.

GROUNDING CONNECTORS



STANDARD DESIGN	HIGH RELIABILITY DESIGN	
	AIR FORCE	NATIONAL STOCK NO.
MS90298-1	8240704-1	NSN 5935-01-139-5430
MS90298-2	8240704-2	NSN 5935-01-140-0665
	8240704-3	NSN 5935-01-141-1414

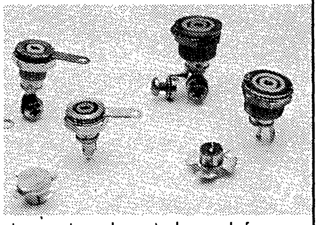
FEATURES

T.J. Electronics supplies the standard Mil Spec grounding connectors as well as the new high reliability grounding receptacle illustrated in the photo above. This new receptacle, designed and patented by T.J. Electronics is becoming today's standard for grounding connectors.

MS90335-1

THROUGH -9

Lighted Panel Connectors



Because internally illuminated instrument and control panel face plates require periodic removal for maintenance or modification MS90335 lighted panel connectors were developed to facilitate connecting and disconnecting the lighting circuits.

T.J.Electronics manufactures the entire line of MS90335 connectors plus several modifications of the standard numbers.

T.J.E. is a division of
BREEZE ILLINOIS INC

T.J. Electronics
1900 Holt Rd., PO Box 5427, Arlington, TX 76005-5427 (817) 469-1521

A TransTechnology CORPORATION company

Caton Connector
Corona-Free Connectors & Assemblies For Over 36 Years, recognized for quality Design and Engineering

MODIFIED MS CONNECTORS

CCM Series

Positive contact screw-on connectors features self-centering tapered contours of molded resilient silicone inserts. They afford high dependability with their positive peripheral seal. The dielectric inserts are unaffected by temperatures in the range of −70°F to +400°F. They are ozone and corona resistant.

In addition to the single contact version, the CCM series come in 2, 3, 4, 5, 7 and 8 contact versions and have shell sizes ranging from 12 to 24. They carry voltage rates from 20 to 50 KVDC.

A line of accessories including protective caps and cable clamps are available throughout the ranges offered.

THE PM 105 FROM CATON NEW

PM Series quality at lower cost

Designed for universal application in electronic and electrical engineering programs, these fully molded silicone connectors are ideal for marine and medical installations, automotive and business machine assemblies, aircraft and space technology.

The PM 105 series is vibration proof, watertight and waterproof, tested for underwater engineering projects, with high wear resistance capability. Connectors are manufactured with UL approved material, can be panel mounted, field assembled. 1000 to 5KV operating voltage. Available sheathed or unsheathed.

SILICONE IN-LINE CONNECTORS

PM200-PM300 Series

These all silicone positive end pieces snap together forming a watertight connection that can easily be disassembled or changed. The units are fully molded and offer high reliability and long life. The units are corona free and leak proof.

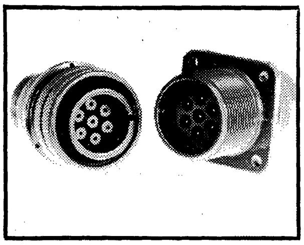
The PM 200 series is for 30 KVDC and the PM series is for 50 KVDC. Both series are available with grommet type ends for panel mounting or with optional finger grip.

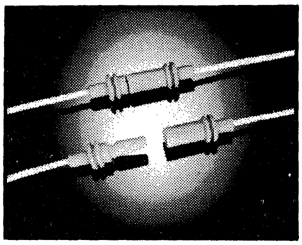
PRINTED CIRCUIT BOARD EDGE CONNECTORS

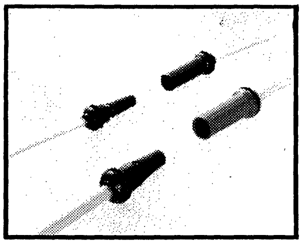
EC Series

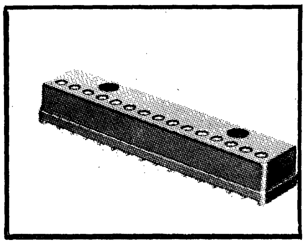
Caton manufactures literally hundreds of printed circuit board connectors including the entire line of H.H. Buggie products under a license agreement. The socket contacts are phosphor bronze with gold plating and are available in mineral filled diallyl phthalate or phenolic to meet the various MIL-M-14F type requirements. Each series comes with plugs and female receptacles.

Operating voltage is 250 volts AC RMS with a current rating of 5 amperes. Operating temperatures are −55°C to +125°C.



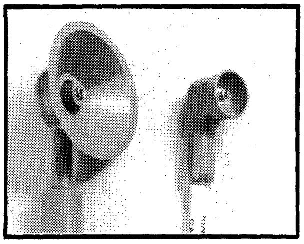


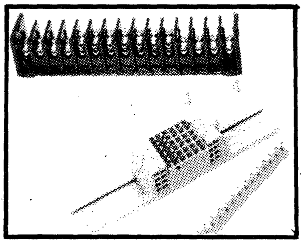


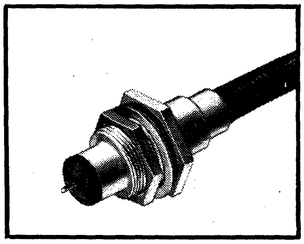


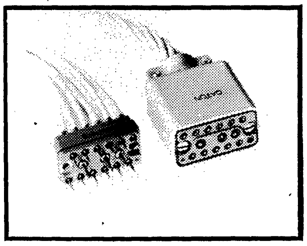
CATON

"We know what will work. . . and we have learned how many ideas will not work."









CRT ANODE LEADS

CCR Series

Caton CRT anode leads are leak proof and corona free. The lead assemblies are molded silicone with heat treated contacts. They offer excellent fire and heat resistance with ambient temperatures over 150°C.

The connectors adapt perfectly to JI-22 or JI-25 anode ball contacts. Capabilities range from 5 KV to 30 KV.

Manufactures under license from the Burndy Corporation

TERMINAL BLOCKS

MMC Series®

A high density series of terminal blocks are offered with a simple crimp-type snap in contacts. They come in standard and miniature designs and are modular in construction.

RADAR-PULSE-HI VOLTAGE CABLE ASSEMBLIES

CA 123 Series

Our high voltage cable assemblies feature factory molded ends that assure the highest possible corona free construction. Corona extinction is measured in accordance with MIL-C-17.

These cable assemblies are the industry standard and are used in virtually all radar installations world-wide. Their corona free capabilities range from 10-30 KVAC and the Hi-Pot tests from 25-75 KVAC.

The CA series comes in numerous configurations to interface with most any high-voltage/pulsed voltage requirements.

RACK & PANEL CONNECTORS

PD 15 Series®

This series is used to connect power sources to receivers, modulators and transmitters. They come in removable crimp-type and solder contacts.

CATON

Caton Connector Corporation
Jones River Industrial Park
Kingston, Massachusetts 02364
617-585-4315 TWX 710-391-7546

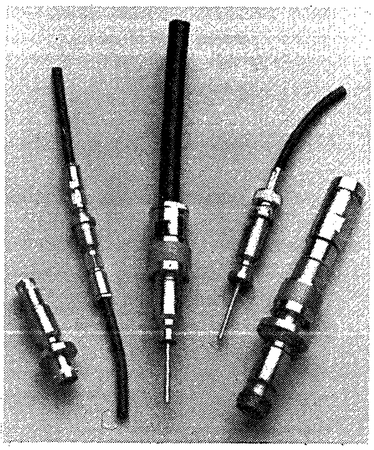
Ceramaseal

HERMETIC 50-OHM CONNECTORS

CERAMIC-METAL HIGH TEMPERATURE ULTRA HIGH VACUUM

- N, BNC, SMA, HN
- VSWR typically less than 1.3 up to 8 GHz (SMA)
- −50°C to +400°C*
- Pressure ratings 10^{-3} up to 10^{-10} torr or 1 atm. to 750 psig at 20°C BNC
- Operating voltages to 1500 volts peak (HN)

* with plug disconnected above 200°C

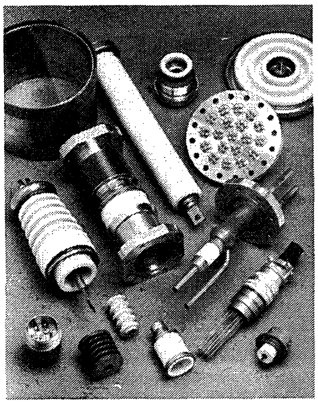


400°C VACUUM-TIGHT CONNECTORS

- **STANDARD OR 400°C PLUGS**
- **INSTRUMENTATION**
- **1 TO 37 PINS**
- ceramic-metal bonded
- single- and double-ended
- operating pressures $<10^{-10}$ torr to 100 psig
- some models have temperature range from −196°C to +400°C
- bakeable vacuum flange and weld type mountings

REQUEST CATALOG

for your CUSTOM-ENGINEERED CERAMIC-METAL DEVICES:

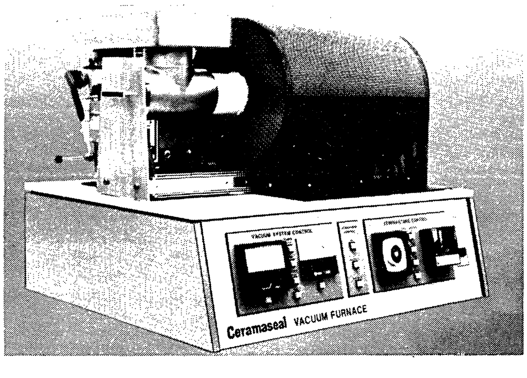


COME TO EXPERIENCE: When a standard product won't solve your problem, turn to Ceramaseal for a special unit. We've engineered and manufactured custom devices since 1951 for a wide range of markets.

VERSATILITY: Using both the refractory- and active-metal processes, we can offer many metal-ceramic combinations.

PERFORMANCE: Designs withstand temperatures from −268°C to +1000°, operating pressures from $< 1 \times 10^{-10}$ torr to $> 30{,}000$ psig, voltages to 180 KV.

STANDARD UNITS, TOO: We have hundreds of designs available from stock stock for immediate shipment.



VACUUM FURNACES

for Research & Industry

- Table top & floor models
- Vacuum to < 10^{-6} torr & temp. range to 1100°C
- Ceramic retort with all metal seal to vacuum flange
- High-speed baffled S.S. diffusion pump & manifold
- Digital display of furnace charge temp.
- Applications: brazing, heat treating, sintering, crystal annealing, degassing

Ceramaseal

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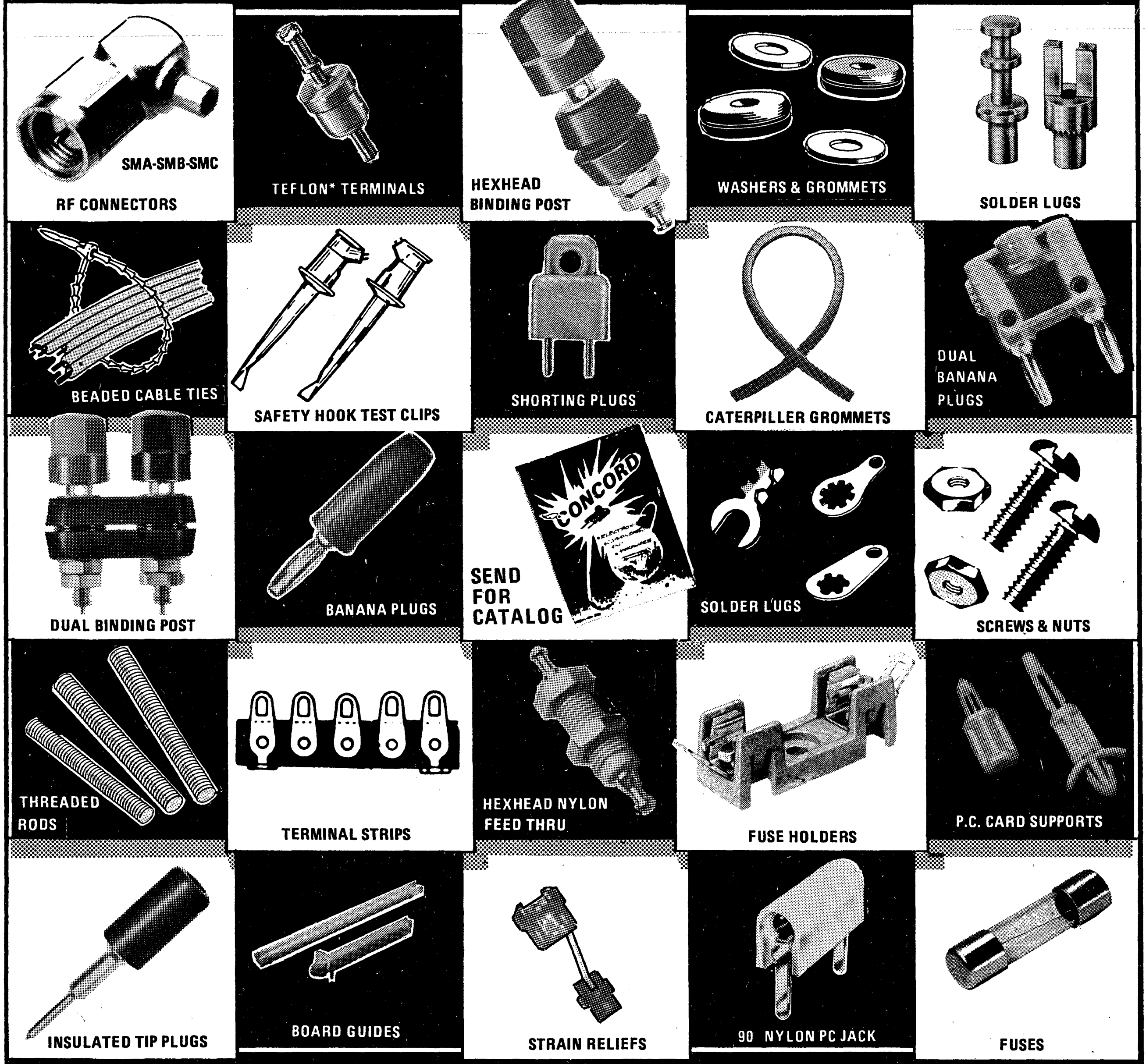
Presenting . . .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TEFLON* TERMINALS
HEXHEAD BINDING POST
WASHERS & GROMMETS
SOLDER LUGS
BEADED CABLE TIES
SAFETY HOOK TEST CLIPS
SHORTING PLUGS
CATERPILLER GROMMETS
DUAL BANANA PLUGS
DUAL BINDING POST
BANANA PLUGS
SEND FOR CATALOG
CONCORD
SOLDER LUGS
SCREWS & NUTS
THREADED RODS
TERMINAL STRIPS
HEXHEAD NYLON FEED THRU
FUSE HOLDERS
P.C. CARD SUPPORTS
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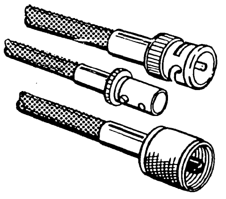
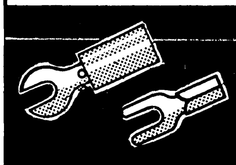
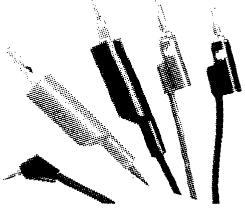
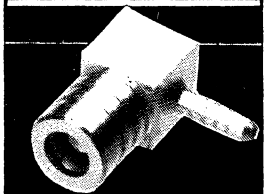
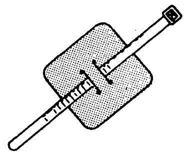
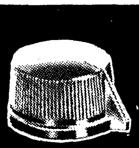

RF CABLE ASSEMBLIES

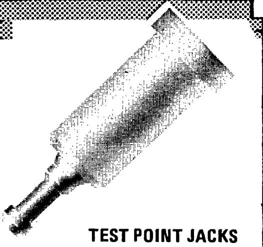

SOLDERLESS LUGS & TERMINALS

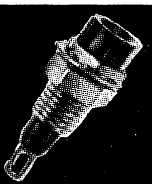

JUMPERS & PATCH CORDS

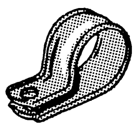

RF CONNECTORS

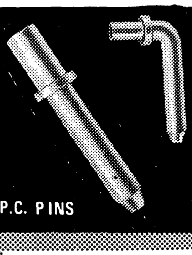

CABLE TIES

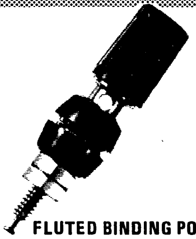

KNOBS

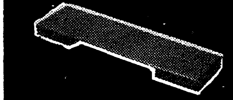

TEST POINT JACKS


PANEL JACKS

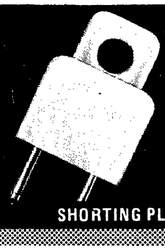

CLAMPS

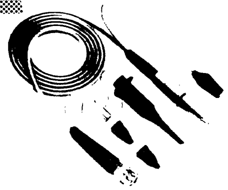

P.C. PINS

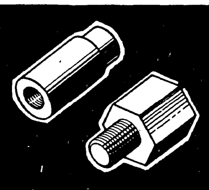

FLUTED BINDING POSTS

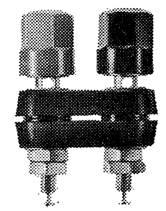

FLAT WIRE CABLE CLAMPS

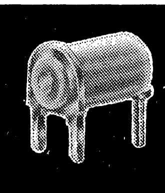
SEND FOR CATALOG


SHORTING PLUGS

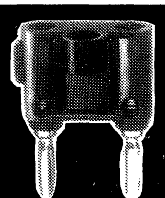

OSCILLOSCOPE PROBES

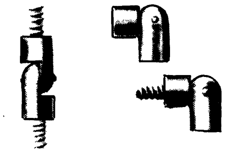

SPACERS & STANDOFFS

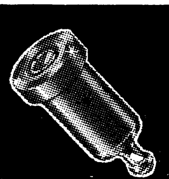

DUAL BINDING POSTS

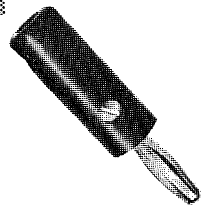

90° NYLON P.C. JACK

MIL-C-39024 JACKS


DUAL TEST ADAPTERS


HINGED STANDOFFS


TEFLON* PANEL JACKS


BANANA PLUGS

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TEST LEAD KITS

HANDLES

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YOU PROBABLY WON'T SEE WHAT YOU NEED ON THIS PAGE

We're just showing some of Connector Corp.'s capabilities

Our 2nd Quarter Century: Providing design solutions to help packaging engineers achieve max. unit performance.
5 Plants: Complete in-house mfg./QC from basic raw materials to finished product.
Highly Efficient Cost-Saving Mfg. Techniques: Already tooled on many thousands of items, one of which can be adapted for you or a new one made to your individual requirement.
Production: High volume high speed production to close tolerances.
Market Reputation: A typical long time customer rates C/C: 1) Tops in quality. 2) Excellent in service and performance. 3) Equitable in price. 4) Overall rating 98.5%. Other customers give C/C similar ratings.
Innovative designs . . . engineering service . . . production quality have built C/C's reputation.
Talk to our engineers or our closest representative. They'll work with your engineers to design, develop and/or make the product or innovation you need to meet your changing packaging assembly requirements.

CONNECTOR CORPORATION

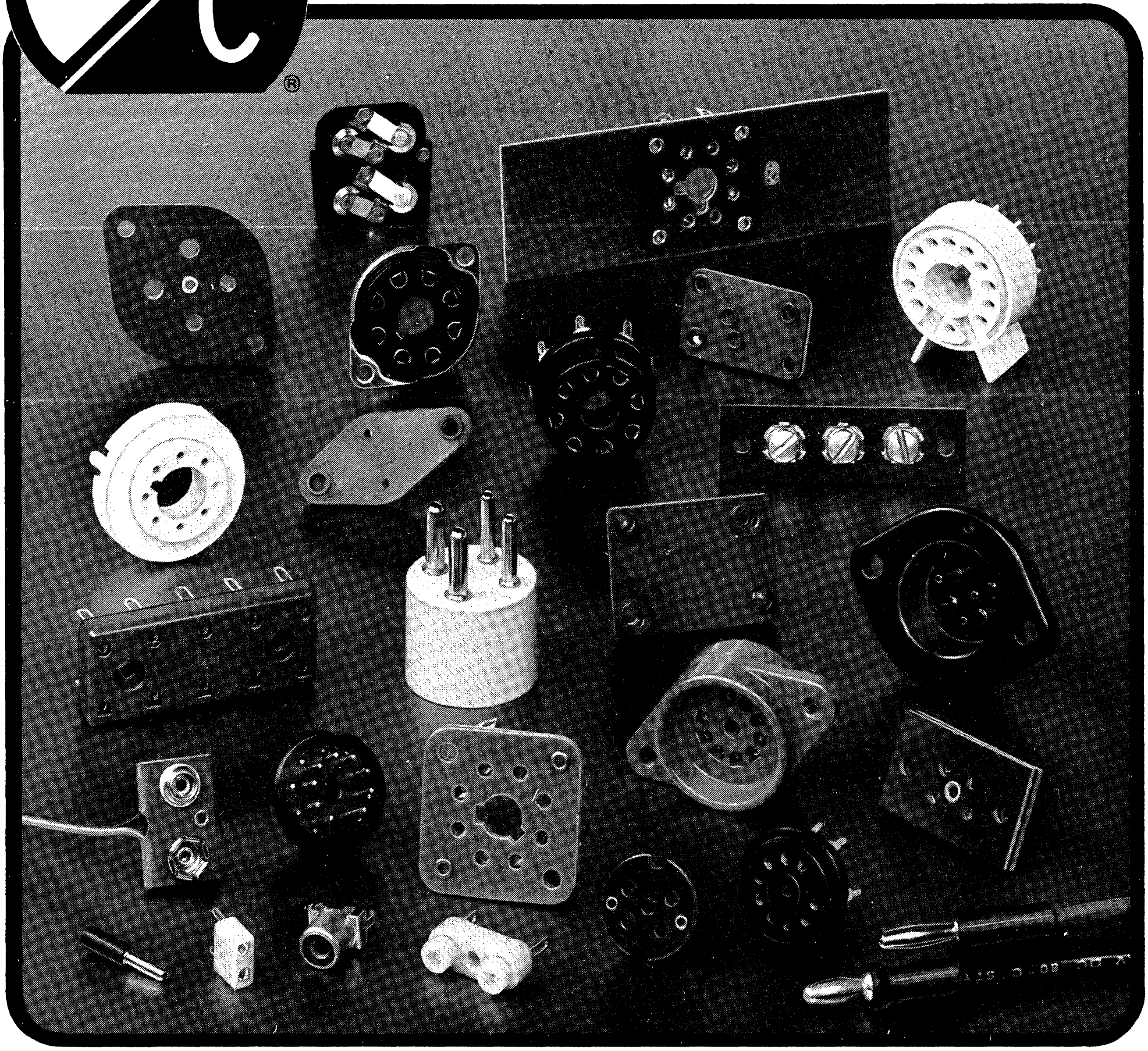
6025 N. Keystone Avenue, Chicago, Ill. 60646 (312) 539-3108
SPECIALISTS IN INNOVATIVE AMERICAN MADE CONNECTIONS

SAVE TOOLING COSTS

We have product tooling no one else may have, including tools for many hard-to-find items. By never obsoleting tooling, we've accumulated a huge product tool library, increasing as new products are added. It's a great cost-saving combination of always-new applications for our basic lines plus new products too.

PRODUCTS: Too many to list. Includes numerous types of Multi-Purpose Phono Connectors (male & female, molded & laminated) • Audio Types of Connectors • Tube Sockets including transmitter & high voltage • CRT Socket Assemblies with & without integral spark gaps • Nuvistor Sockets • IC Sockets • Fuse Holders • Battery Hardware: sockets, plugs, snaps, pads, connectors & wire assemblies • Precision Metal Stampings • Transistor Sockets for T03, T05, T06, T066, etc. • Spark Gap Assemblies • Automotive Radio Antenna Connectors • Customized Tube Bases • Laminated Plugs • Receptacles • Molded Plugs • Crystal Sockets • UHF TV Antennae, etc., etc. for many, many military, industrial & commercial market applications. A representative sampling is shown.

COMPLETE-IN-HOUSE MFG/QC in 5 plants from basic raw materials to finished product.
OUR 2nd QUARTER CENTURY helping packaging engineers achieve max. unit performance.
Put our COST-SAVING MFG. TECHNIQUES to work for you. Contact our Engineering Dept. for help in solving your current connections problems.



CONNECTOR CORPORATION

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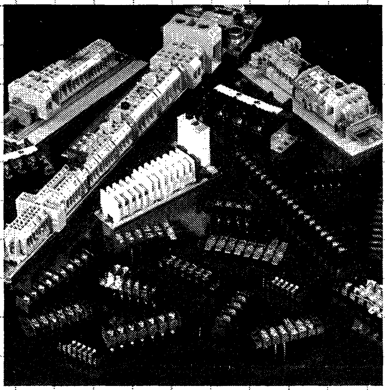
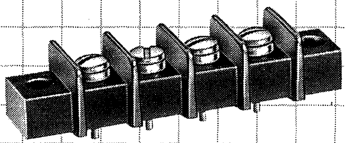
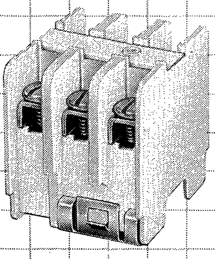
CURTIS Electronic/Electrical Components and Assemblies





ELECTRONIC BLOCKS

SERIES/TYPE	CFT	CB	GFT	GB	1500/2000	E	SEI	SE	FT/FTS
TERMINAL SPACINGS									
Center-to-Center (Dim. in parentheses equal mm.)	3/8" (9.52)	3/8" (9.52)	7/16" (11.11)	7/16" (11.11)	3/8" & 7/16" (9.52 & 11.11)	3/8" (9.52)	1/4" (6.35)	1/4" (6.35)	5/8" (15.87)
Wire Range (AWG)	22 to 12	22 to 12	22 to 12	22 to 12	22 to 10	22 to 16	22 to 16	22 to 16	22 to 12
No. of Terminals	1 thru 26	1 thru 26	1 thru 26	1 thru 26	1 thru 22	1 thru 22	1 thru 26	1 thru 26	1 thru 16
TERMINAL TYPES									
Feed-Thru (fully insulated)	●		●				●		●
Feed Thru		●		●	●	●		●	
Printed Circuit	●	●	●	●	●	●	●	●	
Surface (fully insulated)				●	●	●		●	
RATING									
Voltage	300V	300V	300V	300V	300V	300V	300V	300V	300V
Current (Amps)	20	20	20	20	30	15	5	5	30
HOUSING									
Material (Black) Phenolic 150° C (302° F)			●	●		●	●	●	
Polyphenylene Oxide 110° C (230° F)			●	●	●	●	●	●	
Thermoplastic-Polyester 140° C (284° F)	●	●							●
Flammability Rating	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0	94V-0
RECOGNITION									
Underwriter's Laboratories Components Recognition	●	●	●	●	●	●	●	●	
CSA Certified	●	●	●	●	●				



ELECTRICAL BLOCKS

SERIES/TYPE	SW	W	ETA Circuit Breaker	CDM/CT	M	H/BT	T/U	L	O	S
TERMINAL SPACINGS										
Center-to-Center (Dim. in parentheses equal mm.)	3/8" (9.52)	7/16" (11.11)	7/8" (22.22)	35/64" (13.86)	1/2" (12.7)	.652" (16.56)	N/A →			
Wire Range (AWG)	22 to 8	22 to 8		CDM – 22 to 10 CT – 22 to 12	22 to 12	H – 16 to 4 BT– 22 to 10	T– 6 to 1/0 U– 6 to 250 MCM	Up to 1	Up to 1/0	Up to 4/0
No. of Terminals	2 thru 192	2 thru 164	1	1 thru 50	1 thru 24	1 thru 30	1 thru 6	1 thru 12	1 thru 4	1 thru 4
MOUNTING METHOD										
Surface				●	●	●	●	●	●	●
Snap-in Track Modular Assembly	●	●	●							
RATING										
Voltage	600V	600V	250V	600V	300V	600V	600V	600V	600V	600V
Current (Amps)	25-50	25-50	Up to 30	20-30	15-25	30-75	125-250	100	125	225
HOUSING										
Material (Black) Phenolic 150° C (302° F)		●	●		●		●	●	●	●
Thermoplastic-Polyester 130° C (266° F)				●		●				
Polyamide (Nylon) 125° C (257° F)	●									
Flammability Rating	94V-2	94V-1	94V-1	94V-0	94V-1	94V-0	94V-1	94V-1	94V-1	94V-1
RECOGNITION										
Underwriter's Laboratories Components Recognition	●	●		●	●	●	●	●	●	●
CSA Certified	●	●		●	●	●	●	●	●	●

CURTIS INDUSTRIES, INC.

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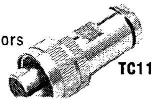
T.M.W TAJIMI CONNECTORS by DSA

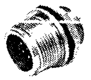
RF COAXIAL CONNECTORS

WATER PROOF CIRCULAR CONNECTORS

TC1108 SERIES

TC 1108 series are miniature water-proof connectors which can be used up to 30m depth.


TC1108-21A10-7M

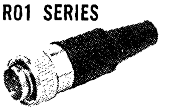

TC1108-23A10-7M

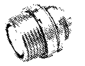
Specifications
- Water-proof pressure: Resistance water pressure: 3 atu.
- Temperature range: −25°C to +85°C
- Insulation resistance: DC500V 1000MΩ Min
- Contact resistance: DC1A Max 5mΩ Max

Contact	Shell Size	Diameter	Length	Cable O.D.
MALE				
2 to 7	10	21	52	5 thru 10.0
8 to 37	16 to 26	27 to 40	55 to 74.5	11.0 to 16.3
FEMALE				
2 to 7	10	M18P-1	52	—
8 to 37	16 to 26	M24P-1	56 to 65.5	—

PW SERIES are compact and perfectly waterproof connectors for use with coaxial cables. They are used in radio control buoy for fishing in the ocean. They can be used with full confidence in the most hostile climates.

R01 SERIES


R01-01P9-8M


R01-02R9-8F

Circular multipin connector, outer diameter of 16mm. Number of contacts 6 and 8.

R-14 SERIES

External shells made of stainless steel waterproof in depths of 100m.

R04 SERIES

Super-miniature waterproof in depths of 20m

R04-P5M

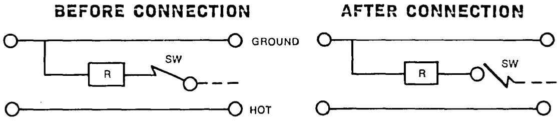
R04-R5F

No. of Contacts	Diameter	Length	Cable O.D.
MALE			
2 to 12	12 to 20	38 to 42	4.80 to 8.50
FEMALE			
2 to 12	M10.5P=0.75	9.0	M9.0P=0.5

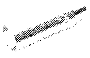
BNC SERIES/MIL-C-39012

Termination Receptacle

Built in resistor eliminates need for external terminator. Internal resistor can be used in or out of circuit.



BNC312-TBR	Bulkhead Receptacle
BNC313-TBR	Isolated Panel mounting
BNC314-TR	Panel Receptacle
BNC315-TR	PCB mounting


BNC223-R

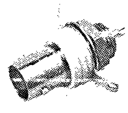
Isolated Panel Mounting Receptacle

Isolated receptacle is insured complete isolation between outer and center conductor.

This receptacle can be used in applications with ground line; must be isolated chassis ground. Metal thread insures a firm connection.

SPECIFICATIONS

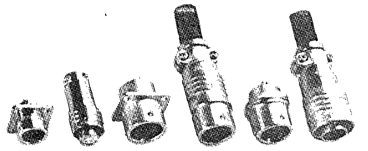
- **Insulation resistance:** DC500V 5000MΩ min
- **Withstand voltage:** AC1500V
- **Contact resistance:** 3mΩ max
- **Max panel thickness:** 3mm


BNC284-BR

CIRCULAR CONNECTORS

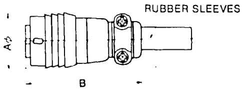
PRC03, 04 AND 05 SERIES

are our original push-pull action connection. Miniature quick connect-disconnect high quality multi conductor connector.

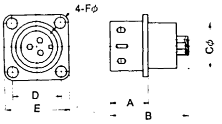


SPECIFICATIONS

- **Number of contacts:** 2 to 37
- **Voltage rating:** AC150V to AC600V(rms)
- **Current rating:** 2A to 10A
- **Insulation resistance:** DC500V 1000MΩ min
- **Contact resistance:** 5mΩ max at DC1A



Series	No. of Contacts	A	B	Max. Cable O.D.
PRC03	2∼7	21.0	46.0	10.5
	8, 14	28.0	55.5	12.5
PRC04	12, 19	34.0	63.5	14.5
	21, 37	41.0	71.0	18.0
	2, 3, 5	13.5	32.0	5.2
PRC05	6, 8	16.7	34.0	6.2
	12	21.0	39.0	10.5



Series	No. of Contacts	A	B	C	D	E	F
PRC03	2∼7	12.5	26.5	15.0	16.0	21.0	2.9
	8, 14	13.5	25.5	21.0	21.5	28.0	3.4
PRC04	12, 19	14.0	26.0	26.0	26.0	33.0	3.9
	21, 37	14.0	26.0	32.0	31.0	38.0	3.9
	2, 3, 5	9.5	18.0	9.0	11.5	16.0	2.2
PRC05	6, 8	9.5	18.0	12.0	13.5	18.0	2.2
	12	9.5	18.0	16.0	17.0	22.5	2.8

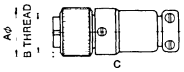
R03 AND R05 SERIES

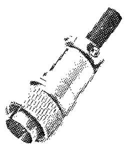
connectors are designed for subminiature application. High quality small size multi conductor connector and two types are available, thread and bayonet.

SPECIFICATIONS

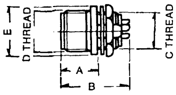
- **Number of contacts:** 2 to 12
- **Insulation resistance:** DC500V 1000MΩ min
- **Contact resistance:** 5MΩ max at DC1A
- **Voltage rating:** AC15CV to AC300V(rms)
- **Current rating:** 2A

R03




R03-PB6M

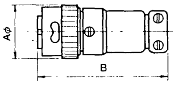
No. of Contacts	A	B	C	Max. Cable O.D.
2, 3, 5	12.0	M10.5P=0.75	32.0	5.2
6, 8	15.5	M14P=1	34.0	6.2
12	20.0	M18P=1	39.0	10.5

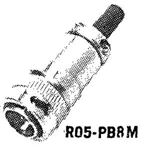


R03-R6F

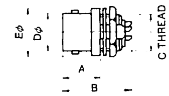
No. of Contacts	A	B	C	D	E
2, 3, 5	9.5	17.8	M 9P=0.5	M10.5P=0.75	12.0
6, 8	9.5	17.8	M12P=0.8	M14P=1	15.5
12	9.0	17.8	M16P=0.75	M18P=1	20.0

R05




R05-PB8M

No. of Contacts	A	B	Max. Cable O.D.
2, 3, 5	13.0	32.5	5.2
6, 8	16.0	34.5	6.2
12	20.0	39.5	10.5



R05-R8F

No. of Contacts	A	B	C	D	E
2, 3, 5	9.5	18.0	M 9P=0.5	9.5	12.0
6, 8	9.5	18.0	M12P=0.8	12.3	15.5
12	9.5	18.0	M16P=1	15.5	20.0

DSA offers various connectors. For complete information on our wide range of products please contact:

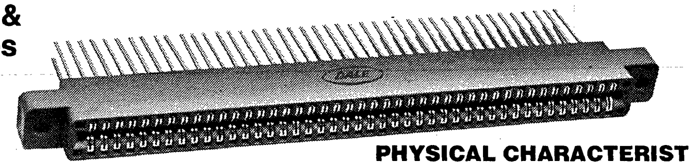
DSA-DAI-ICHI SHOJI OF AMERICA, INC. 150 Fifth Avenue, Suite 516, New York, NY 10011, (212) 691-9050.

DALE® EDGEBOARD CONNECTORS

[Numbers in brackets indicate millimeters]

SERIES EB4, DUAL READOUT—.100 C-C x .200 GRID [2.54 x 5.08]
SERIES EB6, DUAL READOUT—.125 C-C x .250 GRID [3.17 x 6.35]

Military, Industrial & Commercial Grades



FEATURES

- Designed to meet the requirements of MIL-C-21097/23 (EB4) and MIL-C-21097/24 (EB6).
- Great design latitude...
  4 body materials: *Diallyl phthalate, phenolic, glass-filled polyester, High-Temperature, glass-filled phenolic.*
  3 contact termination styles.
  19 body sizes.
  5 mounting styles.
- Selective gold plating.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions permits polarizing without loss of contact position.
- Bifurcated Cantilever Beam.
- Right angle styles available—see below.

PHYSICAL CHARACTERISTICS

Number of Contacts (EB4): 10, 12, 15, 18, 20, 22, 25, 28, 30, 31, 35, 36, 40, 43, 44, 48, 49, 50 and 60 per side.

Number of Contacts (EB6): 6, 10, 14, 15, 18, 22, 24, 25, 28, 30, 31, 32, 35, 36, 40, 43, 44, 49 and 50 per side.

Contact Terminal Variation:
Type "C"—Dip Solder, .025 [0.63] square terminals, .175 [4.44] nominal terminal length below standoffs.
Type "D"—Dip Solder, .025 [0.63] square terminals, .115 [2.92] nominal terminal length below standoffs.
Type "K"—Wire Wrap®, .025 (0.63) square terminals, .570 (14.47) nominal terminal length below standoffs.

Contact Spacing: EB4 = .100 [2.54] center to center.
EB6 = .125 [3.17] center to center.

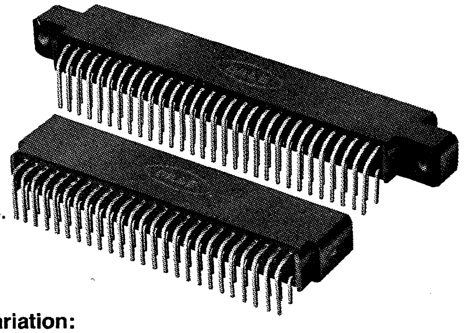
Contact Terminal Row Spacing: EB4 = .200 [5.08] nominal.
EB6 = .250 [6.35] nominal.

Card Slot Depth: .300 [7.62].

Connector Polarization: Between contact polarization key(s) are located to the right of the contact position(s) designated.

DALE® RIGHT ANGLE EDGEBOARD CONNECTORS

SERIES EB4, DUAL READOUT, RIGHT ANGLE—.100 C-C x .150 GRID [2.54 x 3.81] or .100 C-C x .200 GRID [2.54 x 5.08]
SERIES EB6 DUAL READOUT, RIGHT ANGLE—.125 C-C x .150 GRID [3.18 x 3.81] or .125 C-C x .200 GRID [3.18 x 5.08]



FEATURES

- Identical to Series EB4 and EB6 (shown above) but utilize right angle contacts for special mounting situations and are available in 4 mounting styles.
- Military, industrial and commercial grades in a wide choice of body sizes and materials. Termination and mounting styles.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated Cantilever Beam.

Number of Contacts (EB4): 10, 12, 15, 18, 20, 22, 25, 28, 30, 31, 35, 36, 40, 43, 44, 48, 49, 50 and 60 per side.

Number of Contacts (EB6): 6, 10, 14, 15, 18, 22, 24, 25, 28, 30, 31, 32, 35, 36, 40, 43, 44, 49 and 50 per side.

Contact Spacing: EB4 = .100 [2.54] center to center
EB6 = .125 [3.17] center to center.

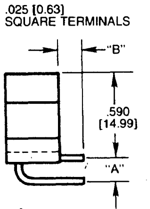
Contact Terminal Row Spacing: .200 [5.08] nominal and .150 [3.81] nominal.

Card Thickness: .054 [1.37] to .071 [1.80].

Card Slot Depth: .300 [7.62].

Connector Polarization: Between contact polarization key(s) are located to the right of the contact position(s) designated.

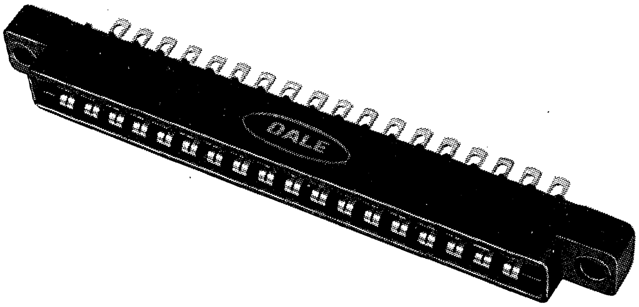
Contact Terminal Variation:
Type "1R"—Dip Solder, .025 [0.63] square terminals, .120 [3.05] nominal terminal length x .150 [3.81] nominal terminal row spacing.
Type "2R"—Dip Solder, .025 [0.63] square terminals, .120 [3.05] nominal terminal length x .200 [5.08] nominal terminal row spacing.
Type "3R"—Dip Solder, .025 [0.63] square terminals, .180 [4.57] nominal terminal length x .150 [3.81] nominal terminal row spacing.
Type "4R"—Dip Solder, .025 [0.63] square terminals, .180 [4.57] nominal terminal length x .200 [5.08] nominal terminal row spacing.



TYPE	"A"	"B"
1R	.150 [3.81]	.120 [3.05]
2R	.200 [5.08]	.120 [3.05]
3R	.150 [3.81]	.180 [4.57]
4R	.200 [5.08]	.180 [4.57]

For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

SERIES EB 7S, SINGLE READOUT—.156 [3.96] C-C SPACING
SERIES EB 7D, DUAL READOUT—.156 C-C x .140 GRID [3.96 x 3.56]



FEATURES

- Bifurcated bellows contacts assure positive contact under adverse conditions such as vibration or P.C. board irregularities.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions permits polarizing without loss of contact position.
- Selective gold plating.
- Polarizing key is reinforced nylon, may be inserted by hand, requires no adhesive.
- Protected entry, provided by recessed leading edge of contact, permits the card slot to straighten and align the board before electrical contact is made. Prevents damage to contacts.
- Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated bellows.
Number of Contacts: **EB 7S** = 6, 10, 12, 15, 18 and 22 per side.
EB 7D = 6, 10, 12, 15, 18, 22, 36 and 43 per side.
Card Thickness: .054 [1.37] to .071 [1.80].
Card Slot Depth: Single Readout = .300″ [7.62].
Dual Readout = .260″ [6.60].
Contact Spacing: .156 [3.96] center to center.

ELECTRICAL CHARACTERISTICS

	EB4*	EB6*	EB7S	EB7D
Current Ratings (Amps)	3	3	5	5
Test Voltage Between Contacts (VRMS)				
At Sea Level	650	1500	1800	1800
At 70,000 feet [21,336 meters]	275	325	450	450
Operating Temperature (°C)	−65 to +150		−55 to +150	
Insulation Resistance	5000 megohms minimum at 500 VDC potential.			
Contact Resistance	30 millivolts maximum at rated current with gold plating			
Humidity	96 hours at 90% relative humidity at 40°C dried at room temperature for 3 hours minimum, insulation resistance was greater than 5000 megohms.			
Durability	After 500 cycles of insertion and withdrawal of a .070 [1.78] thick steel test board, contact resistance less than .030V at 3 amps for EB4, EB6, and 5 amps on EB7S and EB7D. Contacts were gold plated and individual contact pair separation force when measured with a .054 [1.37] thick steel test blade was greater than 1/2 oz.			
Shock	Three 50G shocks in each of 3 mutually perpendicular planes with no loss of continuity.			
Vibration	2 hours in each of 3 mutually perpendicular planes, frequency sweep 10 to 55 cps at .06 double amplitude with no loss of continuity.			

*Includes right angle styles

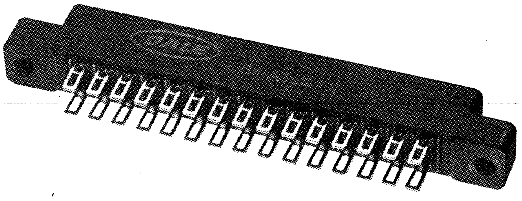
For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

DALE® EDGEBOARD CONNECTORS

[Numbers in brackets indicate millimeters]

SERIES EB8, DUAL READOUT—.156 C-C x .200 GRID [3.96 x 5.08]

Military, Industrial & Commercial Grades



FEATURES

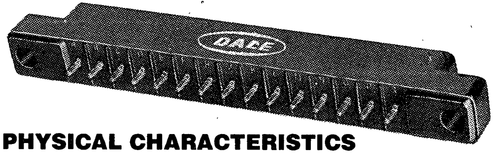
- Designed to meet MIL-C-21097C.
- Great design latitude…
  4 body materials: *Diallyl phthalate, phenolic, glass-filled polyester, High-Temperature, glass-filled phenolic.*
  6 contact termination styles.
  8 body sizes.
  7 mounting styles.
- Selective gold plating.
- Bifurcated bellows contacts provide 2 flexing contact surfaces.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions in all sizes.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated bellows.
Number of Contacts: 6, 10, 12, 15, 18, 22, 24 and 25 per side.
Contact Spacing: .156 [3.96] center to center.
Card Thickness: .054 [1.37] to .071 [1.80].
Card Slot Depth: .330 [8.38].

SERIES EBT 156, SINGLE READOUT—.156[3.96] C-C SPACING

Dip Solder, Eyelet and Wire Wrap™ Termination



FEATURES

- Modified tuning fork contacts reduce wear on printed circuit board contacts without sacrificing contact pressure and wiping action.
- Will accept printed circuit board thickness from .054 [1.37] to .070 [1.78].
- Polarization on or between contacts position permits polarizing without loss of contact position.
- Polarizing key is reinforced nylon, may be inserted by hand, requires no adhesive.
- Protected entry permits the card slot to straighten and align the board before electrical contact is made. Prevents damage to contacts.
- Optional terminal configurations, including eyelet (Type A), dip-solder (Type B, C, D and R) wire wrap (Type E and F).
- Meets or exceeds MIL-C-21097/6.
- Connectors with Type A, B, C, D or R contacts are recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.

PHYSICAL CHARACTERISTICS

Number of Contacts: 6, 10, 12, 15, 18 and 22.
Contact Spacing: .156 [3.96]
Card Thickness: .054 [1.37] to .070 [1.78].
Card Slot Depth: .330 [8.38].

COMPONENT MATERIAL

Body: Glass-filled phenolic per MIL-M-14, Type MFH, black, flame retardant (UL 94V-0).
Contacts: Style(s) A, B, C, D, E and F = Alloy 688. Style "R" (Right Angle) = CA725.
Finish: -1 = Electro Tin Plate
-2 = Gold Flash
Polarizing Key: Glass-filled nylon.
Optional Threaded Mounting Insert: Nickel plated brass. (Type Y)
Optional Floating Mounting Bushing: Cadmium plated brass. (Type Z)

ELECTRICAL CHARACTERISTICS

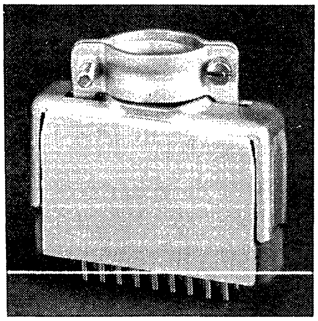
	EB8	EBT 156
Current Ratings (Amps)	5	5
Test Voltage Between Contacts (VRMS) At Sea Level At 70,000 feet [21,336 meters]	 1800 450	 1800 450
Operating Temperature (°C)	−55 to +150	—
Insulation Resistance	5000 megohms minimum at 500 VDC potential.	
Contact Resistance	30 millivolts maximum at rated current with gold plating (gold flash, EBT 156)	
Humidity	96 hours at 90% relative humidity at 40°C dried at room temperature for 3 hours minimum, insulation resistance was greater than 5000 megohms.	
Durability	After 500 cycles of insertion and withdrawal of a .070 [1.78] thick steel test board, contact resistance less than .030V at 3 amps for EB8. Contacts were gold plated, and individual contact pair separation force when measured with a .054 [1.37] thick steel test blade was greater than 1/2 oz.	
Shock	Three 50G shocks in each of 3 mutually perpendicular planes with no loss of continuity.	
Vibration	2 hours in each of 3 mutually perpendicular planes, frequency sweep 10 to 55 cps at .06 double amplitude with no loss of continuity.	

For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

DALE® RACK AND PANEL CONNECTOR

MICROMINIATURE RECTANGULAR DALE SERIES MM22 and MM24

with Optional Hoods



FEATURES

- Qualified to MIL-C-28748/7 and /8
- Solder cup contacts
- Dip solder contacts
- Fixed and turnable screwlocks
- Optional closed entry socket contacts

PHYSICAL CHARACTERISTICS

No. of Contacts: 5, 7, 9, 11, 14, 18, 20, 26, 29, 34, 44 or 50*

Contact Gauge:
MM22 Series = 22 AWG
MM24 Series = 24 AWG

Minimum Creepage Path between Contacts: .08 [2.03]

Minimum Air Space between Contacts: .05 [1.27]

ELECTRICAL CHARACTERISTICS

Current Rating: MM22 Series = 5 amps
MM24 Series = 3 amps

Breakdown Voltage: At Sea Level: 2000 VRMS
At 70,000 feet: 500 VRMS

COMPONENT MATERIAL

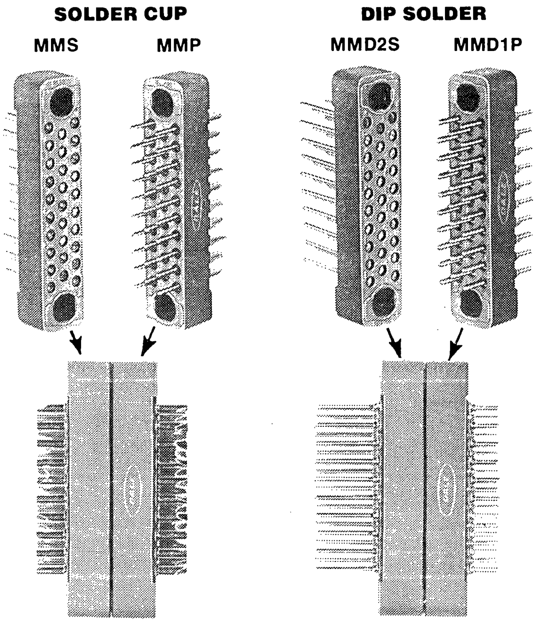
Contact Pin: Phosphor Bronze

Contact Socket: Phosphor Bronze (Beryllium copper available on request.)

Contact Plating: Gold

Screwlocks: Stainless steel, passivated

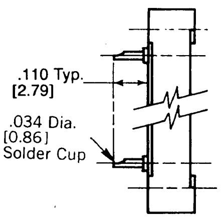
*Includes special 5-row contact arrangement.



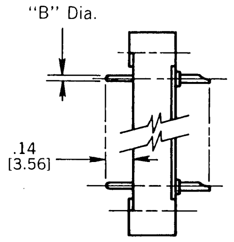
Guides: Brass, gold plated or stainless steel, passivated

Standard Body: Glass-filled diallyl phthalate per MIL-M-14, Type GDI-30F, green.

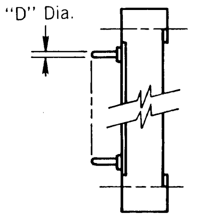
[Numbers in brackets indicate millimeters]



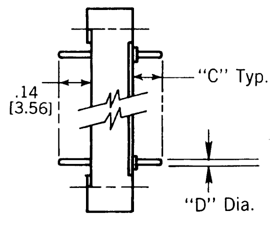
MMS WITH SOLDER CUP CONTACTS



MMP WITH SOLDER CUP CONTACTS



MMDS WITH DIP SOLDER CONTACTS



MMDP WITH DIP SOLDER CONTACTS

CONTACT GAUGE	"B" DIA.
22 AWG	.030 ± .001 [0.762 ± 0.025]
24 AWG	.025 ± .001 [0.635 ± 0.025]

CONTACT GAUGE	"C" DIP TAIL LENGTH	"D" DIA.
22 AWG	.16 or .35 Nom. [4.06 or 8.89]	.025 ± .002 [0.635] ± 0.05]
24 AWG	.16 or .35 Nom. [4.06 or 8.89]	.025 ± .002 [0.635 ± 0.051]

HARDWARE OPTIONS: Available with fixed guides, short turnable screwlocks, turnable screwlocks and fixed screwlocks. Consult factory for details.

HOOD VARIATIONS: Consult factory.

For complete information write or phone
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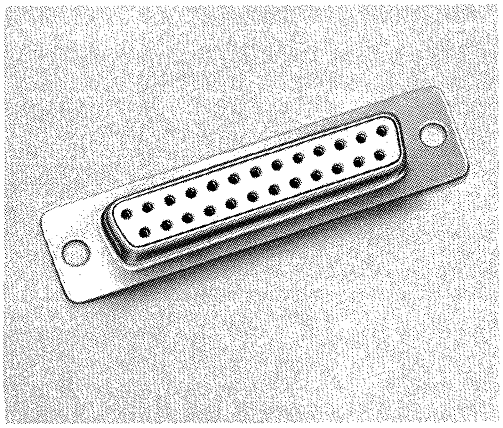
EBY Delivers on selection, quality, delivery, price and performance.

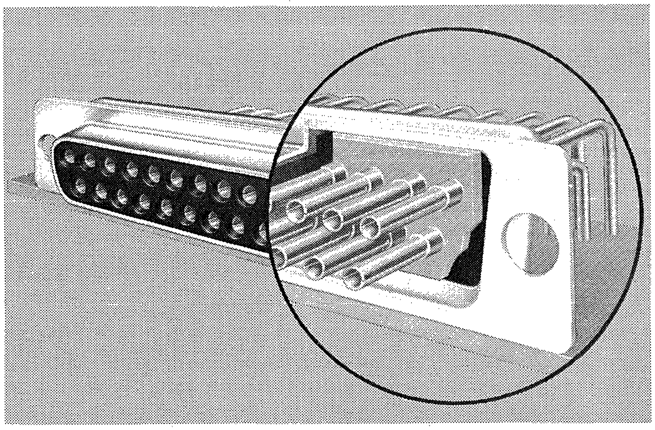
Now that's a "full-line" connector company.



Miser D Connectors

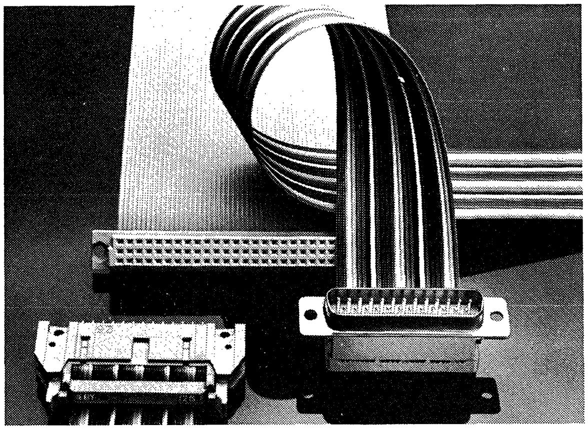
New Product! Low cost D-Sub connectors

Available in Solder-cup contacts. Full range of contact configuration including 9, 15, 25, 37, and 50. Stamped and formed contacts.



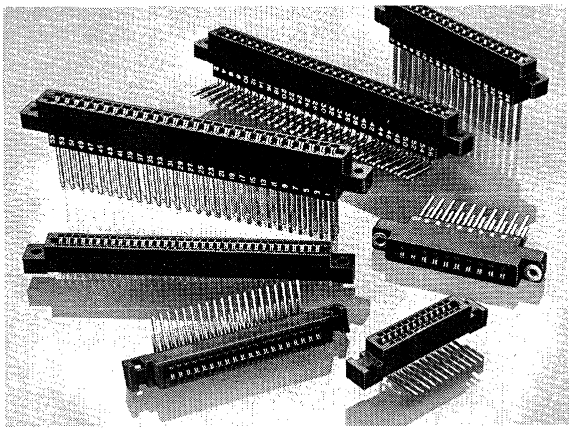
Filtered D Connectors

EBY Filtered D-Subminiature Connectors enhance a systems electromagnetic compatibility (EMC), with the Federal Communications Commissions (FCC) emissions levels.



IDC Flat Cable Connectors

Shrouded and Unshrouded Headers, Sockets, PCB Transition Sockets, D-Subminiatures, DIN's and DIP's. Full-gold and selective platings. Conform to MIL-C-83503.



Card Edge Printed Circuit Connectors

Available in .100, .125, .150 and .156 centers. Straight and right angle tails. Choice of full-gold or selective plating. Various insulating materials available.

EBY is more than a manufacturer of connectors. EBY is a full service company geared to filling your connector needs—with quality, performance, delivery and selection. *Plus* a competitive price.

Make EBY deliver for you. Call the EBY HOTLINE. 215/969-4200 or write EBY Company, a Pullman Company, 2751 Southampton Road, Philadelphia, Pa. 19154

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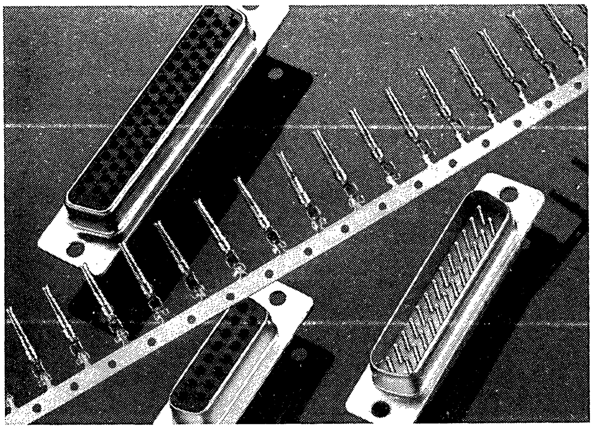
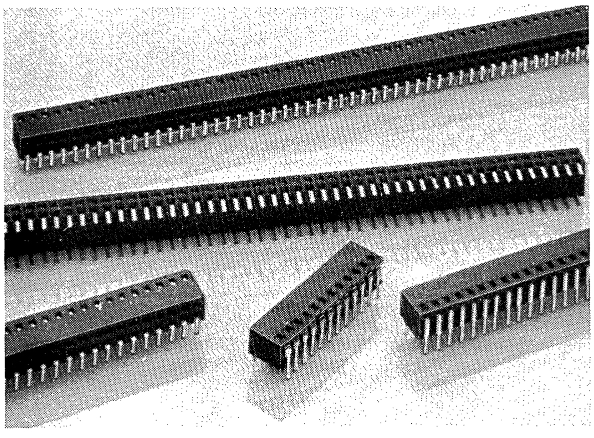
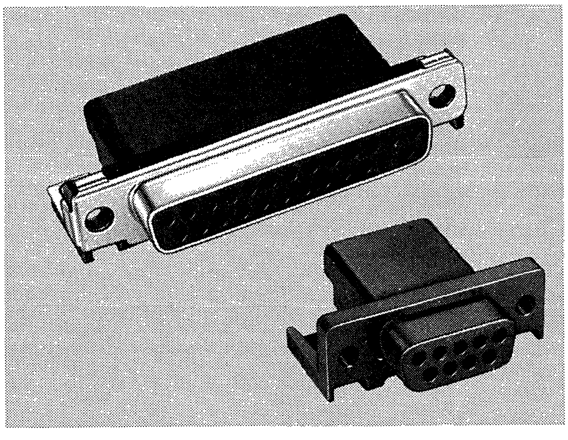


D-Subminiature Connectors
Crimp insertable and original "D" with 9, 15, 25, 37 and 50 pins. Available in crimp, solder cup, printed circuit (straight and right angles) and solderless wrap tails.

Transistor Sockets And Binding Posts
Transistor sockets for TO-3 and TO-66 outlines up to, and including, 50 amps. Binding posts for commercial and military applications that meet MIL-P-55149; waterproof and panel-mounted.



Box Connectors
Full range in 2 thru 65 dual positions with .100 or .150 centers. Single row version with vertical and horizontal mounting on .100 centers in 2 thru 36 positions. Connectors can be plated with full gold, selective gold or tin.



New Plastic D-Subminiature Connectors
Directly interchangeable with all plastic D's. Pin-and-socket, right-angle configuration. Available with metal front. Substantially lower in cost versus standard D-Subminiature connectors.

LOW PROFILE DIP SOCKETS

ORDERING INFORMATION

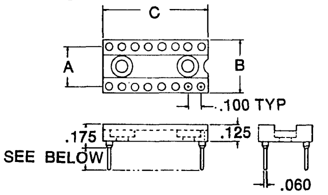
10 3 06 — 01 — 445

- 10: SERIES NUMBER
- 3: DIP SPACING
- 06: # OF PINS
- 01: TERM STYLE
- 445: PLATING

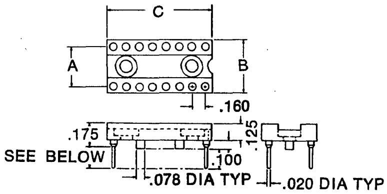
# OF PINS	DIP SPACING A DIM."	WIDTH B DIM."	LENGTH C ODM."
06	.300	.400	.300
08	.300	.400	.400
10	.300	.400	.500
14	.300	.400	.700
16	.300	.400	.800
16	.400	.500	.800
18	.300	.400	.900
20	.300	.400	1.000
22	.400	.500	1.100
*24	.300	.400	1.200
24	.400	.500	1.200
24	.600	.700	1.200
28	.600	.700	1.400
32	.600	.700	1.600
36	.600	.700	1.800
*48	.600	.700	2.400
*50	.900	1.000	2.500
*52	.900	1.000	2.600
*64	.900	1.000	3.200

* Available only in open frame.

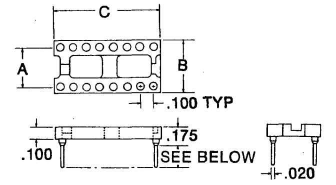
10000 SERIES —
CLOSED FRAME SOCKET

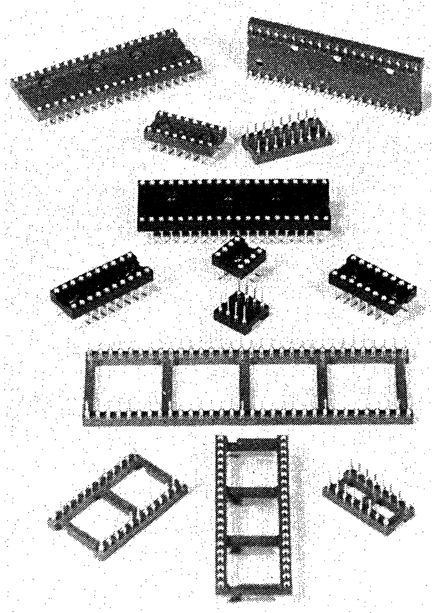


11000 SERIES — CLOSED
FRAME WITH STANDOFFS



17000 SERIES —
OPEN FRAME SOCKETS





TERMINAL STYLES (Brass)

-01	C Mount	.115" Tail	.020" Dia. Pin
-02	2 Level W/W	.375" Tail	.025" Sq. Pin
-03	3 Level W/W	.500" Tail	.025" Sq. Pin
-08	PC Mount	.170" Tail	.020" Dia. Pin
-09	PC Mount	.280" Tail	.020" Dia. Pin
-10	PC Mount	.018" Dia. Pin (Phosphor Bronze)	
-11	PC Mount	.135" Tail	.020" Dia. Pin

PLATING

-445 Gold Contact, Tin Sleeve
-446 Gold Contact, Gold Sleeve

MATERIAL

Glass-Filled Polyester to 94-VO
Operating Temp.: −65°C-+175°C

ADVANTAGES

- Short 4 Finger Clip for High Reliability
- Will Accept Leads .012/.022" in Dia.
- End to End and Side to Side Stackable
- Closed-End Terminal Eliminates Solder Flowing into Contact Area

EMC **ELECTRONIC MOLDING CORPORATION**

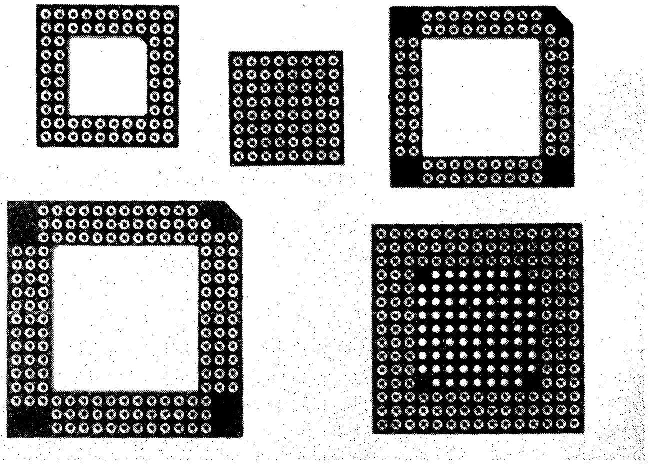
96 MILL ST., WOONSOCKET, RI 02895 • (401) 769-3800 • TWX 710-387-1350

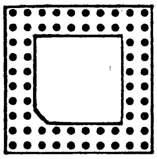
PIN GRID-ARRAY SOCKETS

LOW INSERTION-FORCE CONTACTS

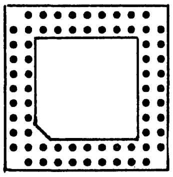
P	18	068	A	— 1A —	445	D
INSULATOR MATERIAL	SERIES	# OF PINS	FOOTPRINT	TERM STYLE	PLATING	INSULATOR THICKNESS

- Low Insertion Force Contact (<3oz AVG) Allows Easy Loading of Device
- Super-Low Profile Machine Pins
- Available in Standard and Custom Patterns on Grids from 7 x 7 to 20 x 20
- Short Stamped and Formed BeCu Contact for High Reliability

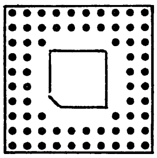




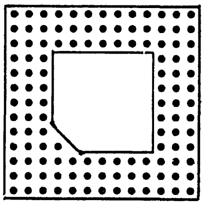
P18064A-



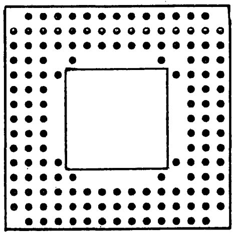
P18068A-



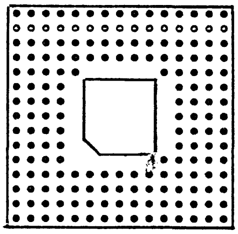
P18068B-



P18121A-

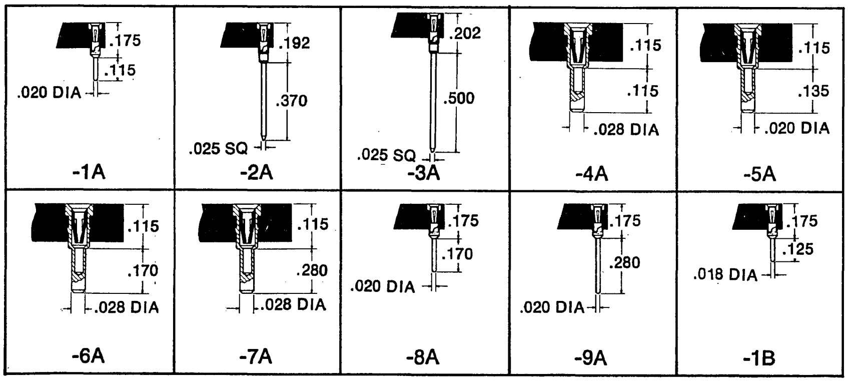


P18149A-



P18179A-

TERMINAL STYLES (Brass)


.175
.115
.020 DIA
-1A
.192
.370
.025 SQ
-2A
.202
.500
.025 SQ
-3A
.115
.115
.028 DIA
-4A
.115
.135
.020 DIA
-5A
.115
.170
.028 DIA
-6A
.115
.280
.028 DIA
-7A
.175
.170
.020 DIA
-8A
.175
.280
.020 DIA
-9A
.175
.125
.018 DIA
-1B

PLATING

-445; Gold Contact, Tin Sleeve
-446; Gold Contact, Gold Sleeve

INSULATOR MATERIAL

P; Glass Filled Polyester to 94-VO
S; Glass Epoxy Laminate

INSULATOR THICKNESS

A. .062″ B. .093″ C. .125″ D. .110″
Standard Plastic

ELECTRONIC MOLDING CORPORATION

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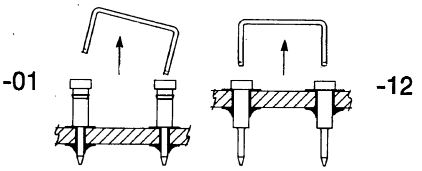
CARRIER – SOCKETS 12000 SERIES

12 3 14 – 01 – 445

SERIES # DIP SPACING # OF PINS TERM. STYLE PLATING

TERMINAL STYLES

- Aluminum Carrier Lifts-Out Easily Freeing Socket
- Available in Popular DIP Configurations (6-40 Pins)
- Short, Stamped Contact for Easy Insertions and High Reliability
- May be Either Tail Mounted (-01) or Barrel Mounted (-12) for Extremely Low Profile



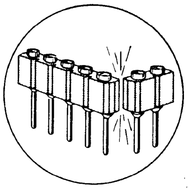
PLATING: -445 Gold Contact, Tin Sleeve
-446 Gold Contact, Gold Sleeve

MATERIAL: Brass Sleeve, BeCu Contact, AL Carrier

BREAK-AWAY STRIP SOCKETS – 14000 SERIES

14 1 20 – 01 – 445

SERIES # # OF PINS TERM. STYLE PLATING



TERMINAL STYLES

-01	PC Mount	.115″ Tail	.020 Dia. Pin
-02	2 Level W/W	.375″ Tail	.025″ Sq. Pin
-03	3 Level W/W	.500″ Tail	.025″ Sq. Pin
-04	DBL Male	.025″ Round Upper – .020″ Lower Round	
-05	Solder Cup		
-06	Bifurcated Pin		
-07	Hollow Pin		
-08	PC Mount	.170″ Tail	.020″ Dia. Pin

-01, -02, -03, -08 Brass –
-04 thru -07 Phosphor Bronze

ADVANTAGES

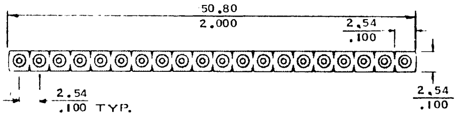
- Snaps-Apart for Shorter Lengths
- End-to-End, Side-to-Side Stackable
- Many Terminal Styles Allow for Easy Custom Applications
- Short, Stamped Four Finger Contact for High Reliability
- Solid SIPS Also Available (2-20 Pos.)

PLATING

-445 Gold Contact, Tin Sleeve
-446 Gold Contact, Gold Sleeve

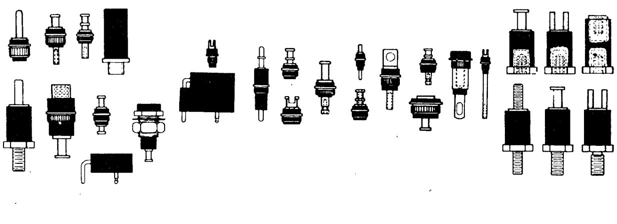
MATERIAL

Glass Filled Polyester to 94-VO



MOLDED TERMINAL & TEST JACKS

- Wide Variety of Standoffs, Feed-Thrus, Test-Jacks, and Non-Insulated Terminals, for Commercial and Military Applications; Meeting M39024-C/1-10 and MIL-T-55155 Criteria



EMC

ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, RI 02895 • (401) 769-3800 • TWX 710-387-1350

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C
CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J
JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K
kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L
LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P
PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

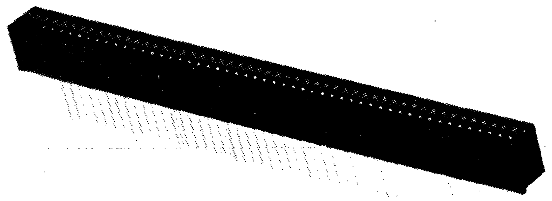
V
VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

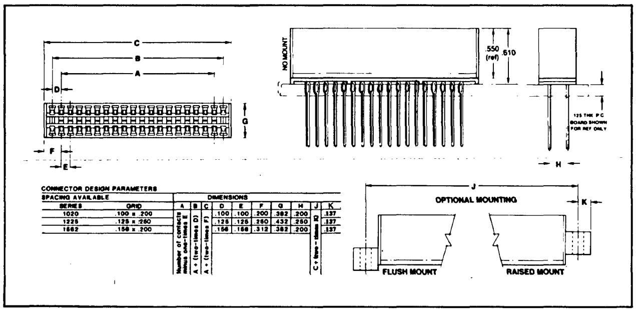
W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

NEW INTERCONNECT SYSTEMS FROM ELFAB





C
B
A
D
G
F
E
NO MOUNT
.550 (ref)
.610
.125 THK P.C. BOARD SHOWN FOR REF ONLY
H
J
OPTIONAL MOUNTING
K
FLUSH MOUNT
RAISED MOUNT

CONNECTOR DESIGN PARAMETERS

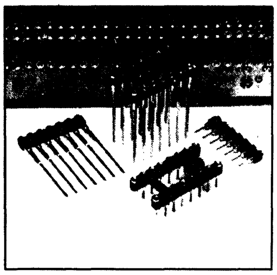
SPACING AVAILABLE		DIMENSIONS									
SERIES	GRID	A	B	C	D	E	F	G	H	J	K
1020	.100 x .200	Number of contacts minus one-times E	A + (two-times D)	A + (two-times F)	.100	.100	.200	.382	.200	C + (two-times K)	.137
1225	.125 x .250				.125	.125	.250	.432	.250		.137
1562	.156 x .200				.156	.156	.312	.382	.200		.137

Press-Pac™ card-edge connector

Press-Pac is designed to let you assemble your own backpanels with no special tooling required. Insert one or 100 Press-Pacs using a simple flat plate press. Our compliant-pin connector system is completely compatible and interchangeable with whatever connectors you're using now, regardless of size, spacing or configuration, from prototype through production. ELFAB offers both select-loading and select-plating of Press-Pac contacts, to even further reduce the overall connector cost. Additionally, Press-Pac contacts are individually replaceable in the field, using repair kits supplied by ELFAB.

Specifications

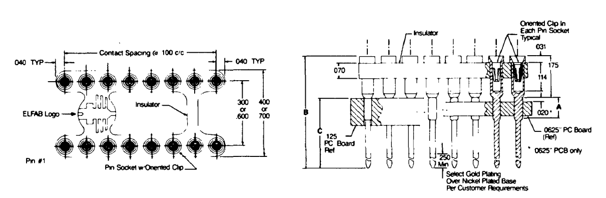
Insulator Housing: ZYTEL FR-50 nylon resins
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms @ 5 AMPS
Insertion Force: 8 oz. maximum per contact pair
Withdrawal Force: 1.0 oz. minimum per contact pair
Push-out Force: 8 lbs. minimum to remove contact from board
Insulator Retention: 1.0 lb. per contact pair
Normal Force: 3 oz. minimum per contact
Durability: 250 cycles minimum



Soc-Pac™
press-fit IC sockets

Soc-Pac SIP and DIP IC sockets permit significant increases in circuit density, improve ventilation of ICs, and allow reduction or elimination of external wiring. Plus lower contact resistance due to greater area contact.

- Etched circuitry passes between pins, eliminating one or more Wire-Wraps, reducing overall height of the board.
- Separate contacts, socket assemblies, and socket boards built to your specifications are available in solderable and press-fit configurations.
- Press-fit sockets and contacts available with up to three-wrap tails, for .062", .125" and .155" boards—including multilayer, Multi-Pac® and Pwr-Pac®.
- Oriented contact springs are beryllium-copper alloy 25, with 30 μin gold over nickel. Standard pin is nickel-plated overall, with optional selective-area platings of gold and tin available.

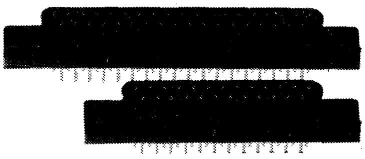


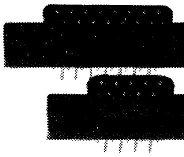
040 TYP
Contact Spacing @ 100 c/c
040 TYP
ELFAB Logo
Insulator
300 or 600
400 or 700
Pin #1
Pin Socket w/Oriented Clip
Insulator
Oriented Clip in Each Pin Socket Typical
031
070
175
114
B
A
020
C
125 PC Board Ref
0625" PC Board (Ref)
0625" PCB only
250 Min
Select Gold Plating Over Nickel Plated Base Per Customer Requirements

Contact Tail Type	Interface Length: A	B	C
No wrap (0W)	.075	.345	.170
No wrap (0W)	.100	.345	.170
No wrap (0W)	.155	.420	.245
Two wrap (2W)	.075	.675	.500
Two wrap (2W)	.100	.675	.500
Two wrap (2W)	155	.738	.563
Three wrap (3W)	.075	.815	.640
Three wrap (3W)	.100	.815	.640
Three wrap (3W)	.155	.878	.703

Specifications

Insulator body: Black, glass-filled polyester, UL94VO. 125°C operating temperature.
Contact: Half-hard brass with 50-150 μin nickel plate. Selective gold or tin plating
Contact spring: Beryllium-copper with 30 μin gold over nickel.
Electrical: Current rating 3 amperes. Contact resistance 10 mΩ maximum.



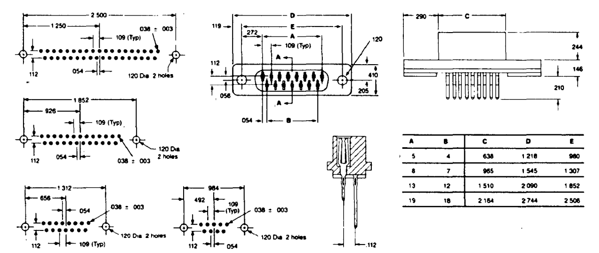


Press-Fit D-sub connectors

Now ELFAB offers all-plastic D-subminiature connectors—which are completely interchangeable with standard metal D-Subs—as a vital cost alternative to metal.

Our select-plating techniques, as well as our automated assembly procedures, make Elfab Plastic D-Subs—available in 9-, 15-, 25- and 37-pin configurations—your smartest cost decision.

(Also available with metal shells.)



2 500
1 250
038 ± 003
109 (Typ)
112
054
120 Dia 2 holes
1 852
926
109 (Typ)
120 Dia 2 holes
1 312
656
054
038 ± 003
984
492
109 (Typ)
120 Dia 2 holes
D
E
A
119
272
109 (Typ)
120
112
056
410
205
054
B
290
C
244
146
210
112

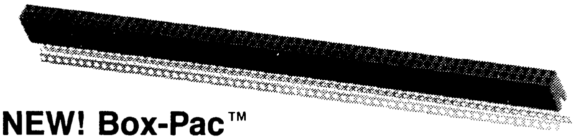
A	B	C	D	E
5	4	638	1 218	980
8	7	965	1 545	1 307
13	12	1 510	2 090	1 852
19	18	2 164	2 744	2 506

Specifications

Insulator Housing: Celanex® thermoplastic polyester
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms @ 5 AMPS
Insertion Force: 12 oz. maximum per contact
Withdrawal Force: 4 oz. minimum per contact
Push-out Force: 8 lbs. minimum to remove contact from board
Normal Force: 15 oz. typical per contact
Durability: 250 cycles minimum

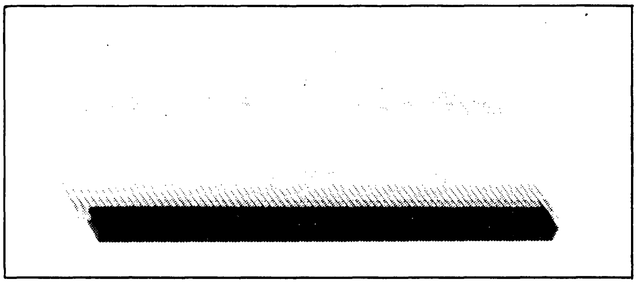
For detailed data sheets on these and other interconnect systems, contact ELFAB today!

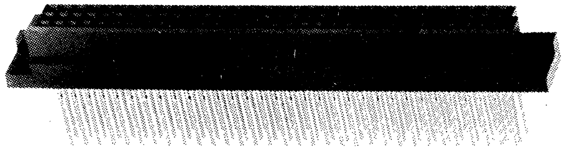
NEW INTERCONNECT SYSTEMS FROM ELFAB



NEW! Box-Pac™ Surface Mount box connector

Now ELFAB brings you true surface mount interconnection with two-row and four-row Box-Pac box connectors. Box-Pac reflow solders onto your PC boards without through-holes. Box-Pac is mounted co-planar to the board. Contact ELFAB for complete details regarding application, specifications and pricing.



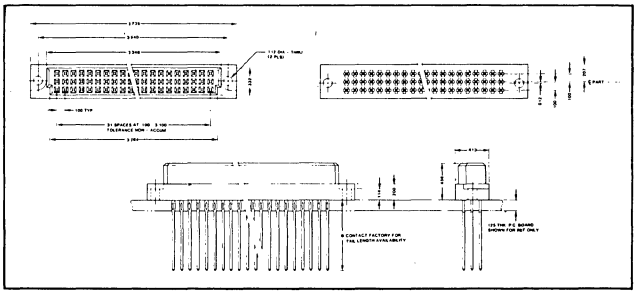


Press-Pac™ Standard Din (Female)

ELFAB's Press-Pac™ DIN connector is designed specifically for the customer needing a fast, cost-effective means of assembling backpanels utilizing DIN connectors. It is completely compatible and interchangeable with any DIN currently in use.

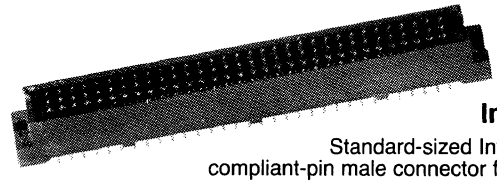
Press-Pac DIN can be inserted using a flat-plate press on the top of the connector housing in one simple motion, with no special tooling required. Thus, great numbers of Press-Pac DINs may be inserted into boards simultaneously, using larger-capacity presses.

Additionally, individual Press-Pac DIN contacts may be replaced in the field, utilizing repair kits available from ELFAB.



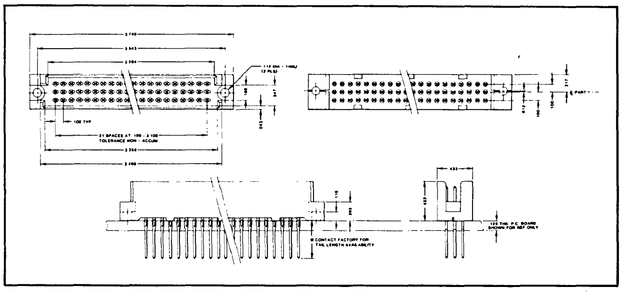
Specifications

Insulator Housing: Glass-filled ZYTEL FR-50 Nylon
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Insertion Force: 2 oz. maximum
Withdrawal Force: 1 oz. minimum
Push-out Force: 8 lbs. minimum
Insulator Retention: .5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum



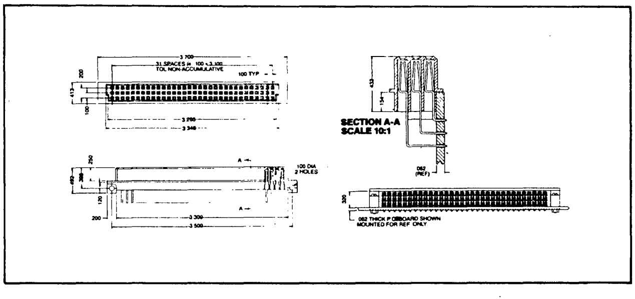
Inverse DIN System

Standard-sized Inverse DIN system offers ELFAB's press-fit compliant-pin male connector for backplace mounting, and right- angle female connector for reflow soldering to the daughter card. Contact ELFAB for detailed standard selective-plating options.



Specifications

Insulator Housing: Glass-filled Celanex® thermoplastic polyester
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, Full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Push-out Force: 8 lb. minimum
Insulator Retention: .5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum



Specifications

Insulator Housing: Glass-filled Celanex® thermoplastic polyester
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, Full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Insertion Force: 2 oz. maximum
Withdrawal Force: 1 oz. minimum
Push-out Force: N/A
Insulator Retention: 5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum

ELFAB interconnection innovators

Elfab Corporation • P.O. Box 810555 • Dallas, Texas 75381-0555 214-233-3033 • 800-527-0753 • TWX 910-860-5460

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms .... **A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code .... **D**•1087
Batteries, Product Selection Guide .... **D**•1413
Batteries & Fuel Cells, Characteristics .... **D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **C**•1003
Capacitors, Basic Formulas .... **A**•1093
Capacitors, Miniglossary .... **A**•1066
Capacitors, Product Selection Guide .... **A**•1003
Circuit Boards (Printed) Product Selection Guide .... **C**•1099
Coils, Chokes, Inductors, Product Selection Guide .... **A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum .... **C**•1863
Connectors, Miniglossary .... **C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide .... **C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude .... **A**•1309
Delay Lines, Product Selection Guide .... **A**•1459
Discrete Semiconductors, Product Selection Guide .... **A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **B**•1015
EBCDIC Code .... **D**•1092
Encapsulation, Miniglossary .... **C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **C**•1623
Filters, Product Selection Guide .... **A**•1583
Instruments, Graphic Recording Product Selection Guide .... **D**•1401
Instruments, Panel Meters, Product Selection Guide .... **D**•1329
Instruments, Test & Measuring Product Selection Guide .... **D**•1175
Interconnection Systems, Product Selection Guide .... **C**•1699
Keyboards & Keypads, Product Selection Guide .... **B**•1705
Logofinder & Trademark Directories .... **B**•901
Microwave Components, Product Selection Guide .... **A**•1701
Military Qualified Products Lists .... **B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **B**•1129
Opto Semiconductors, Miniglossary .... **B**•1214
Oscilloscopes, Product Selection Guide .... **D**•1385
Panel Hardware, Product Selection Guide .... **C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **A**•1991
Power Supplies, Miniglossary .... **D**•1462
Power Supplies, AC, Product Selection Guide .... **D**•1877
Power Supplies, DC, Product Selection Guide .... **D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **B**•1225
Relay Contact Forms .... **B**•1317
Relays, Electromechanical, Miniglossary .... **B**•1308
Relays, Product Selection Guide .... **B**•1261
Resistor Color Codes .... **A**•1828
Resistors, Product Selection Guide .... **A**•1785
Servo Components, Miniglossary .... **D**•1985
Solenoids, Product Selection Guide .... **B**•1463
Switches, Product Selection Guide .... **B**•1477
Thermal Components, Product Selection Guide .... **B**•1741
Thermal Conductivity of Dielectrics at Room Temperature .... **B**•1744
Thyristors/High Power Diodes, Miniglossary .... **A**•2076
Transducers & Encoders, Product Selection Guide .... **B**•1777
Transformers, Product Selection Guide .... **A**•2099
Wire & Cable, Product Selection Guide .... **C**•1743
Wire Gauges—Diameter, Area, Copper Weight .... **C**•1844

FISCHER
AMERICA, INC.

Precision, Swiss Made, Circular Connectors

Why Fischer?
Design, reliability and consistent quality make Fischer superior to similar type connectors.

These precision connectors are in use by Tektronix, Hewlett Packard, Texas Instruments, Phillips, Bosch and many more quality conscious companies around the world.

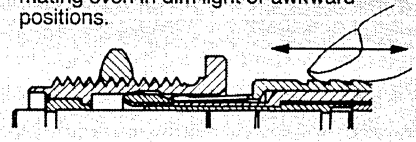
Prices are extremely competitive with manufacturers of similar types of connectors.

Delivery times are outstanding. Scheduled delivery on production orders can be arranged.

Applications
Audio, Video, Medical, R.F., Military, Aerospace, Industrial, Broadcast and Scientific.

Types
50 & 75 ohm coax, triax, waterproof, gas tight, vacuum, high radiation, thermocouple, P.C. mount, low resistance, light weight plastic, compound connectors, high temperature, high voltage, and hermetically sealed.

Automatic Locking
Superior locking/unlocking arrangement with metal half shells means easy mating even in dim light or awkward positions.



Materials
Brass, stainless steel, plastics, etc.

Insulation
PTFE (Teflon ©Dupont), ceramic, PBTP, High temperature plastics, etc.

Contacts
Machined, not stamped. Brass per QQ-B-626 or QQ-B-750 or Beryllium Bronze.

Plating
1 micron gold to MIL-G-45204C, type II over 5 microns nickel to QQ-N-290, class II.

Finish
Extremely rugged yet attractive connectors available with bright gold, satin or polished chrome finish. Other finishes may be specified. Protective rubber boots and plugs are also available.

Contact resistance
Less than 3 milliohms.

Radiation resistance
To 10^8 Rads, higher with ceramic insulators.

High temperatures
To 400°C with ceramic insulators.

Compatibility
Certain series intermate with Lemo and Kings connectors.

Other features
Space-saving design for dense panels. Simple one piece cable collet clamp for unshielded cables. Easily assembled 2 piece collet for shielded cable.

Custom & specials
When quantities warrant, connectors can be made to customer specifications. Often, existing parts can be modified at low cost for special applications.

Delivery
Small quantities are usually in factory stock. Production quantities: 4-8 weeks on standard items.

Other products
Delay lines from 0.5 nS to 64 nS.

FISCHER
AMERICA, INC.

13756 GLENOAKS BOULEVARD SYLMAR, CALIFORNIA 91342 (818)362-9396 TLX: 4994182 COCOM

WANTED!

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BNC & coaxial connectors

ARK-LES
wire terminals and
interconnect devices

FCI
carbon and metal
film resistors

FREDERICK COMPONENTS INTERNATIONAL, INC.
tube axial fans
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quiet sockets
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microprocessor boards

GOULD INC.
axial cooling fans

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electronic hardware

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rectifiers
transistors

SIEMENS
capacitors
transistors
surge voltage protectors
metal oxide varistors

SIEMENS CCD
power SCRS
power rectifiers
power transistors

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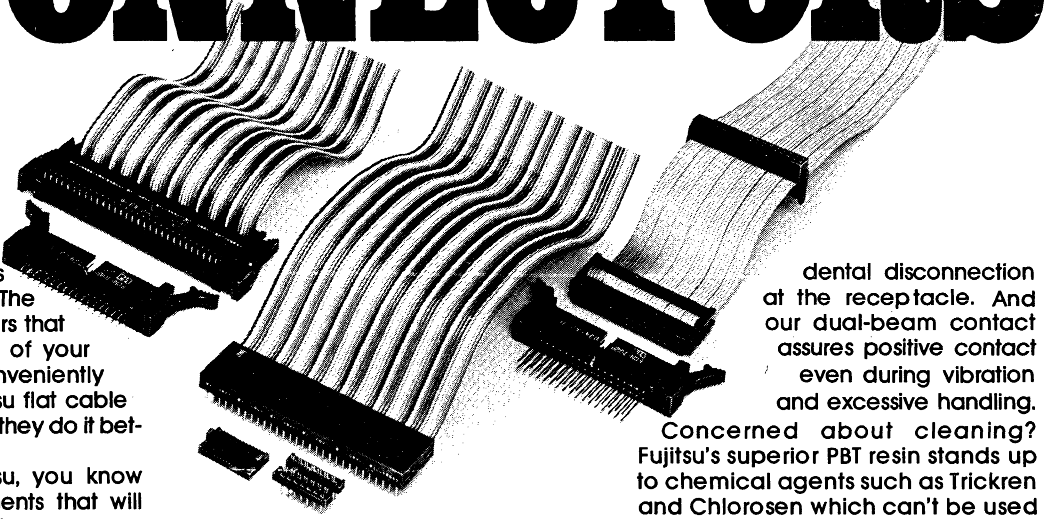
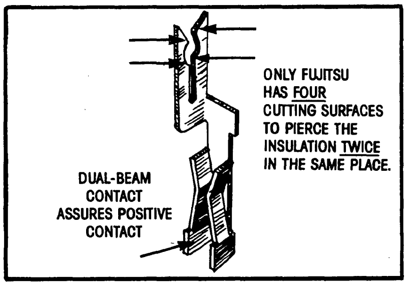
FUJITSU: FLAT CABLE CONNECTORS

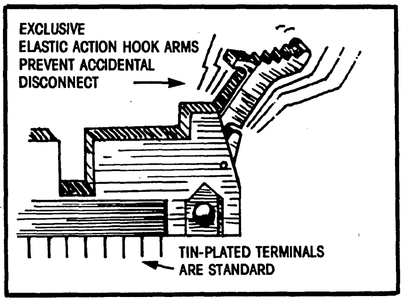


Flat cable connectors are easy enough to find. The trick is finding connectors that can handle every one of your needs consistently, conveniently and economically. Fujitsu flat cable connectors do it all. And they do it better than most.

When you buy Fujitsu, you know you're getting components that will always fit your usage because our connectors are compatible with 3M and other major brands. You won't be getting hit-or-miss construction, either. Thanks to Fujitsu's standardized automated manufacturing. Each piece must meet our rigid quality control standards before it is shipped.


ONLY FUJITSU HAS FOUR CUTTING SURFACES TO PIERCE THE INSULATION TWICE IN THE SAME PLACE.
DUAL-BEAM CONTACT ASSURES POSITIVE CONTACT

Assembling Fujitsu connectors is a snap, too, because of their simplified design. Like u-contacts that pierce the insulation twice at the same place to provide a gas-tight metal surface that is electrically reliable. And can withstand excessive pulling forces. And when you order Fujitsu flat cable connectors, you know you will always get tin-plated terminals that improve solderability and prevent gold contamination of the solder bath. Can your source say that?


EXCLUSIVE ELASTIC ACTION HOOK ARMS PREVENT ACCIDENTAL DISCONNECT
TIN-PLATED TERMINALS ARE STANDARD

A Fujitsu exclusive is the ingenious elastic hook arm that prevents accidental disconnection at the receptacle. And our dual-beam contact assures positive contact even during vibration and excessive handling.

Concerned about cleaning? Fujitsu's superior PBT resin stands up to chemical agents such as Trickren and Chlorosen which can't be used on cheaper, conventional thermoplastics.

Fujitsu considers it a point of pride, as well as good business, to cater to your company's needs before, during and after the sale is made. Our warehouse is stocked to supply your company with samples of our fine products. And Fujitsu can match *any* source's lead time for processing and shipping ... at a competitive price.

The FCN-700 series offers vertical, right angle and wire wrap plugs *and* open or closed covers for both end-cable and through-cable applications.

Considering all these points, you'd be smart to come to the source with the best connections. Where quality, reliability and service are part of our product. Fujitsu.

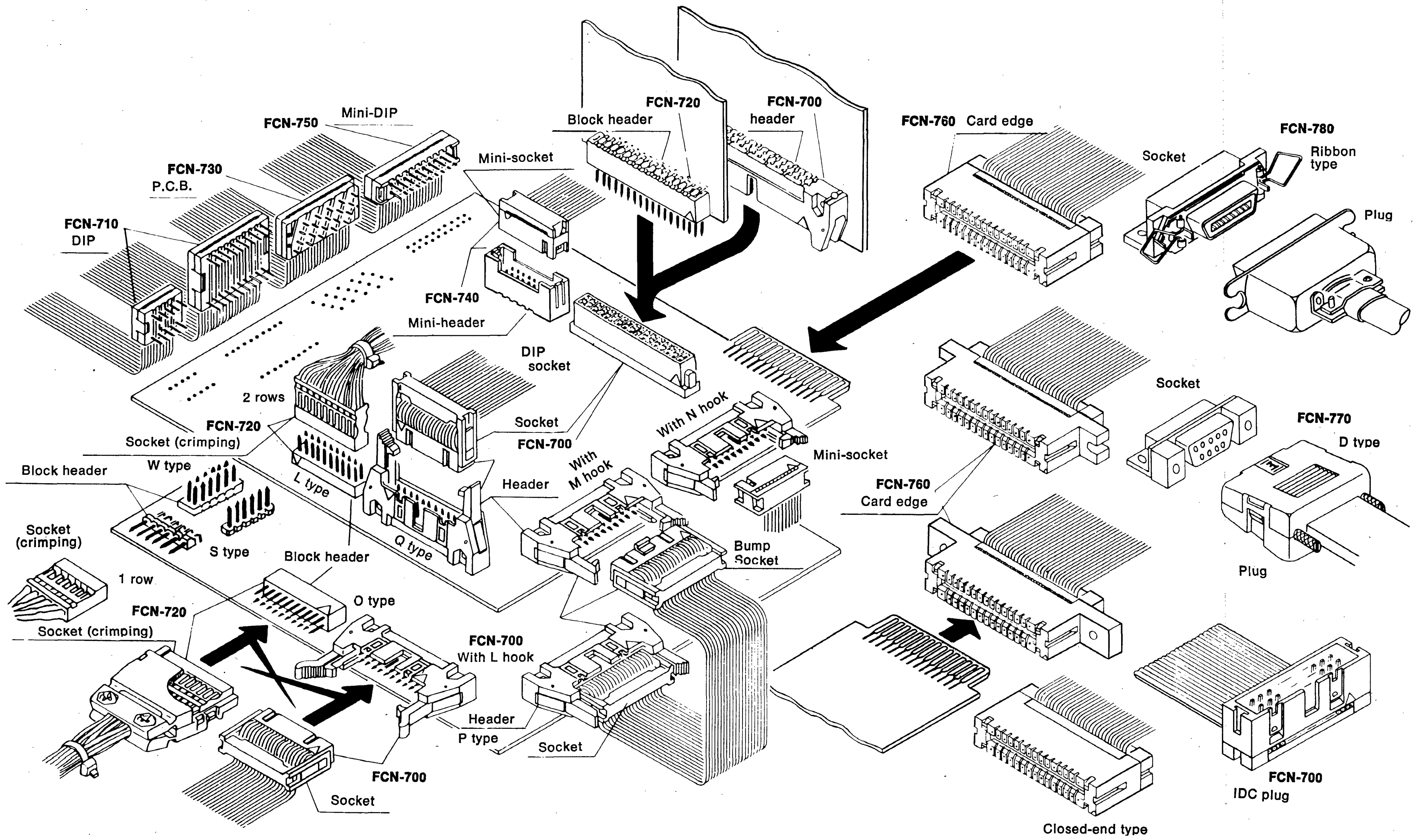
For more information on our superior components, call or write us today.

FUJITSU

Fujitsu America Inc. Component Sales Division
918 Sherwood Drive, Lake Bluff, IL 60044 / (312) 295-2610, Telex: 206196, TWX 910-651-2259

Fujitsu FCN-700 Series Flat-Cable Connectors

FUJITSU


FCN-750
Mini-DIP
FCN-730
P.C.B.
FCN-710
DIP
Mini-socket
FCN-740
Mini-header
FCN-720
Block header
FCN-700
header
FCN-760
Card edge
FCN-780
Socket
Ribbon type
Plug
DIP socket
2 rows
FCN-720
Socket (crimping)
W type
Block header
L type
Socket
FCN-700
Header
Q type
With N hook
Mini-socket
With M hook
Socket
FCN-770
D type
FCN-760
Card edge
Plug
Socket (crimping)
S type
Block header
1 row
FCN-720
Socket (crimping)
O type
FCN-700
With L hook
Bump Socket
Header
P type
Socket
FCN-700
Socket
Closed-end type
FCN-700
IDC plug

FUJITSU

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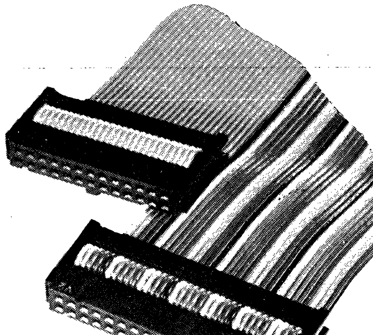
SOCKET CONNECTORS

FCN-707J, 707B



- Mass-termination with flat cable
- 2.54mm grid contact spacing
- High-reliability original U-contact (double-action of IDC)
- Double-cantilever contact
- Bottom entry contact
- Many variations (10 to 60 pins, clip polarized socket/bump polarized socket, closed-end/through-end)
- UL recognized (E-71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance (when mated with HEADER): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Insertion Force (with HEADER): 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force (with HEADER): 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

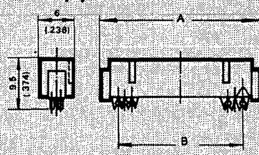
Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Materials — Contacts: Phosphor-bronze (gold palladium over nickel)
Insulators: PBT and Polycarbonate (UL 94V-0)

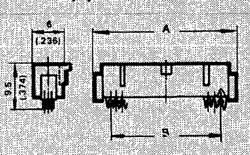
DIMENSIONS

MAIN BODY

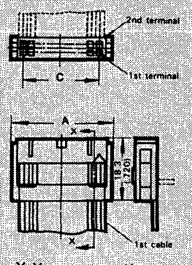
Clip polarized socket



Bump polarized socket

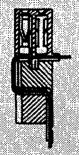


WITH CABLE

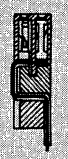


X-X cross section

(through end)

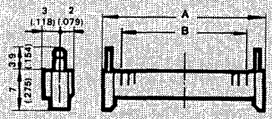


(closed end)

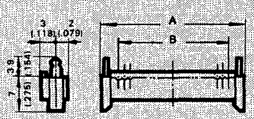


COVER

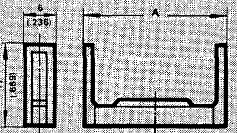
Through end



Closed end

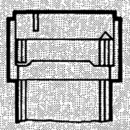


STRAIN RELIEF

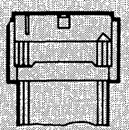


CONFIGURATIONS

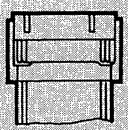
10 — 14 pin clip polarized sockets



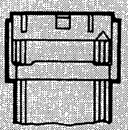
10 — 14 pin bump polarized sockets



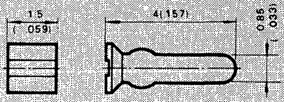
16 — 60 pin clip polarized sockets



16 — 60 pin bump polarized sockets



POLARIZING KEY FCN-700A1



Unit: mm (inch)

No. of Contacts	Clip Polarized Socket		Bump Polarized Socket		Dimensions		
	Through End	Closed End	Through End	Closed End	A	B	C
10	FCN-707J010-AU/0	FCN-707J010-AU/B	FCN-707B010-AU/0	FCN-707B010-AU/B	17.3 (.691)	11.43 (.450)	10.16 (.400)
14	FCN-707J014-AU/0	FCN-707J014-AU/B	FCN-707B014-AU/0	FCN-707B014-AU/B	22.4 (.882)	16.51 (.650)	15.24 (.600)
16	FCN-707J016-AU/0	FCN-707J016-AU/B	FCN-707B016-AU/0	FCN-707B016-AU/B	24.9 (.981)	19.05 (.750)	17.78 (.700)
20	FCN-707J020-AU/0	FCN-707J020-AU/B	FCN-707B020-AU/0	FCN-707B020-AU/B	30 (1.181)	24.13 (.950)	22.86 (.900)
26	FCN-707J026-AU/0	FCN-707J026-AU/B	FCN-707B026-AU/0	FCN-707B026-AU/B	37.6 (1.480)	31.75 (1.250)	30.48 (1.200)
30	FCN-707J030-AU/0	FCN-707J030-AU/B	FCN-707B030-AU/0	FCN-707B030-AU/B	42.7 (1.681)	36.83 (1.450)	35.56 (1.400)
34	FCN-707J034-AU/0	FCN-707J034-AU/B	FCN-707B034-AU/0	FCN-707B034-AU/B	47.8 (1.882)	41.91 (1.650)	40.64 (1.600)
40	FCN-707J040-AU/0	FCN-707J040-AU/B	FCN-707B040-AU/0	FCN-707B040-AU/B	55.4 (2.181)	49.53 (1.950)	48.26 (1.900)
50	FCN-707J050-AU/0	FCN-707J050-AU/B	FCN-707B050-AU/0	FCN-707B050-AU/B	68.1 (2.681)	62.23 (2.450)	60.96 (2.400)
60	FCN-707J060-AU/0	FCN-707J060-AU/B	FCN-707B060-AU/0	FCN-707B060-AU/B	80.8 (3.181)	74.93 (2.950)	73.66 (2.900)

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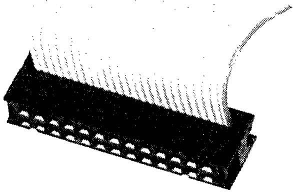
MINI SOCKET CONNECTORS

FCN-747J, 747B



- Low-profile
- Mass-termination with flat cable
- 2.54mm contact spacing
- High-reliability original U-contact (double-action of IDC)
- Double-cantilever contact
- Bottom-entry contact
- Mating with S hook headers and mini headers (10-34)
- UL recognized (E-71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance (when mated with MINI HEADER): 20mΩ min. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

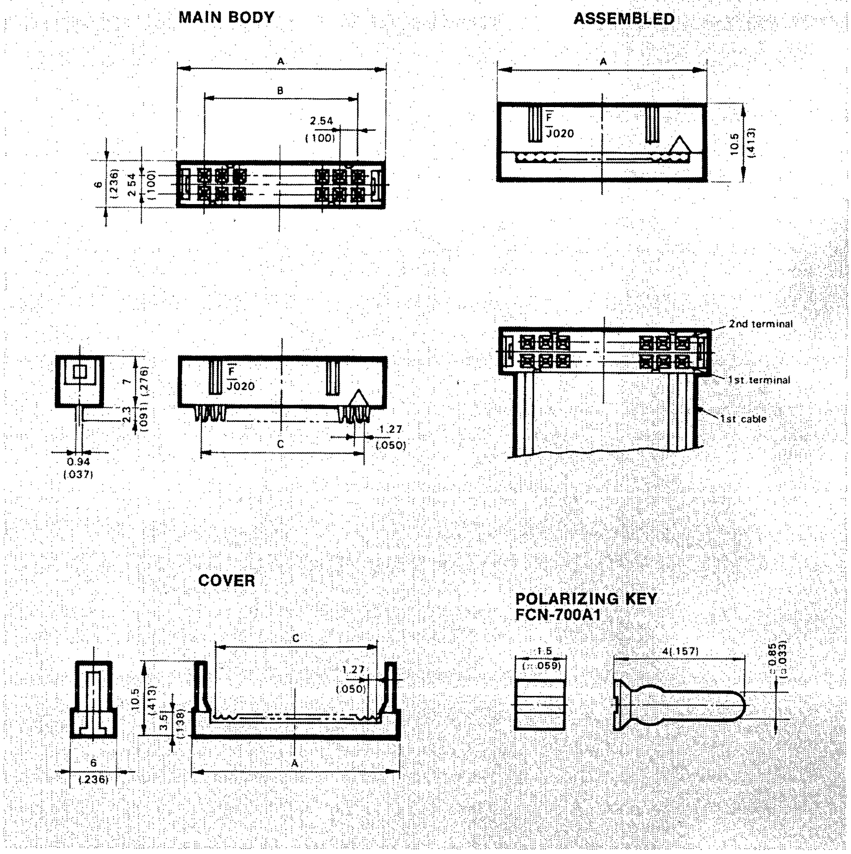
Insertion Force (with MINI HEADER): 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force (with MINI HEADER): 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Materials — Contacts: Phosphor-bronze (gold palladium over nickel)
Insulators: PBT (UL 94V-0)

DIMENSIONS



Unit: mm (inch)

Unit: mm (inch)

No. of Contacts	Clip Polarized Socket		Bump Polarized Socket				
	Through End	Closed End	Through End	Closed End	A	B	C
10	FCN-747J010-AU/0	FCN-747J010-AU/B	FCN-747B010-AU/0	FCN-747B010-AU/B	17.27 (.680)	10.16 (.400)	11.43 (.450)
14	FCN-747J014-AU/0	FCN-747J014-AU/B	FCN-747B014-AU/0	FCN-747B014-AU/B	22.35 (.880)	15.24 (.600)	16.51 (.650)
16	FCN-747J016-AU/0	FCN-747J016-AU/B	FCN-747B016-AU/0	FCN-747B016-AU/B	24.89 (.980)	17.78 (.700)	19.05 (.750)
20	FCN-747J020-AU/0	FCN-747J020-AU/B	FCN-747B020-AU/0	FCN-747B020-AU/B	29.97 (1.180)	22.86 (.900)	24.13 (.950)
26	FCN-747J026-AU/0	FCN-747J026-AU/B	FCN-747B026-AU/0	FCN-747B026-AU/B	37.59 (1.480)	30.48 (1.200)	31.75 (1.250)
30	FCN-747J030-AU/0	FCN-747J030-AU/B	FCN-747B030-AU/0	FCN-747B030-AU/B	42.67 (1.680)	35.56 (1.400)	36.83 (1.450)
34	FCN-747J034-AU/0	FCN-747J034-AU/B	FCN-747B034-AU/0	FCN-747B034-AU/B	47.75 (1.880)	40.64 (1.600)	41.91 (1.650)
40	FCN-747J040-AU/0	FCN-747J040-AU/B	FCN-747B040-AU/0	FCN-747B040-AU/B	55.37 (2.180)	48.26 (1.900)	49.53 (1.950)
50	FCN-747J050-AU/0	FCN-747J050-AU/B	FCN-747B050-AU/0	FCN-747B050-AU/B	68.07 (2.680)	60.96 (2.400)	62.23 (2.450)
60	FCN-747J060-AU/0	FCN-747J060-AU/B	FCN-747B060-AU/0	FCN-747B060-AU/B	80.77 (3.180)	73.66 (2.900)	74.93 (2.950)

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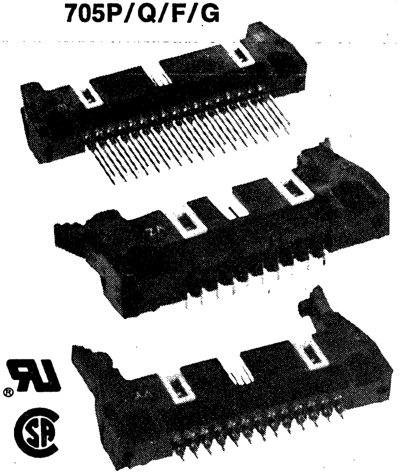
HEADERS

FCN-702P/Q/F/G, 704P/Q/F/G, 705P/Q/F/G



- 2.54mm grid contact/terminal spacing
- ☐ 0.64mm contact and ☐ 0.5mm terminal
- Selective plating (gold-palladium-plated contact and solder-plated terminal)
- Elastic lock/eject hook
- Many variations (partially shrouded headers/fully shrouded headers, 10 to 60 pins, long terminal/standard terminal, wire-wrap/straight/right-angle)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with SOCKET): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

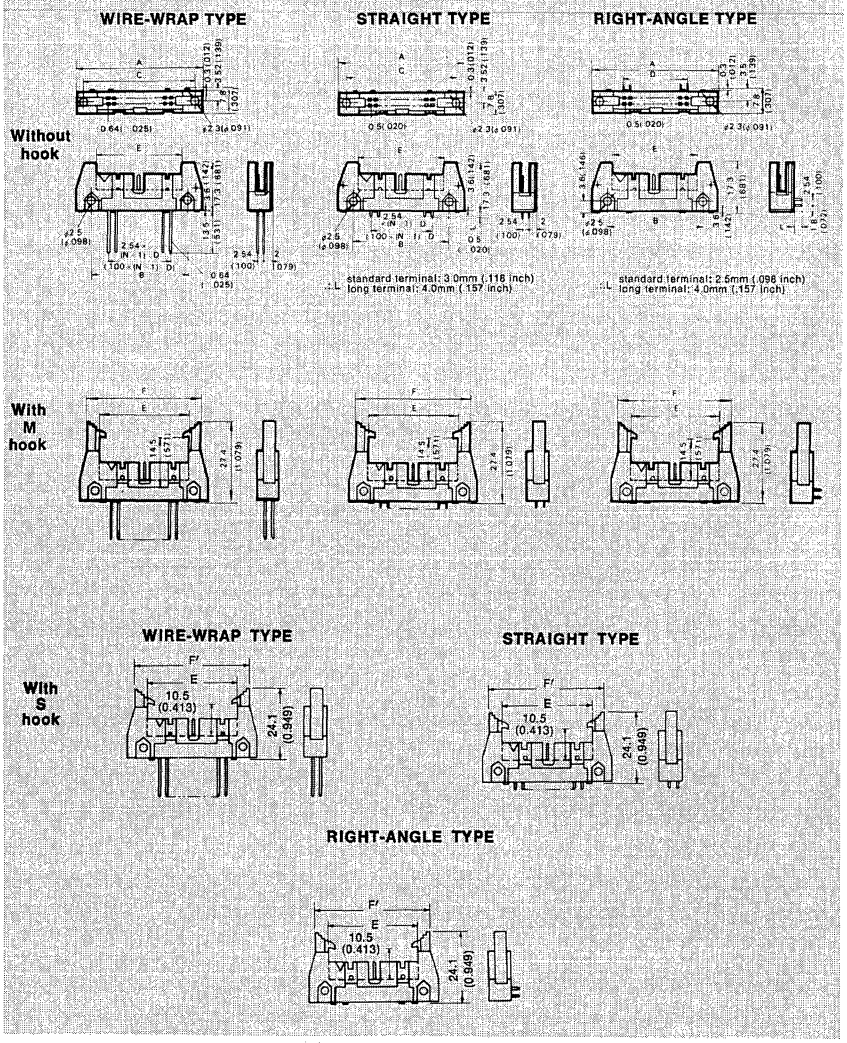
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Discrete Wire For Wire-Wrap: AWG #26 (ϕ0.41mm) to #30 (ϕ0.26mm)

Thickness of PC Board (Standard): 1.6mm (1/16 inch) for straight type, 3.2mm (1/8 inch) for right angle type

Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)

DIMENSIONS Unit: mm (inch)
(Partially Shrouded Headers)


WIRE-WRAP TYPE
STRAIGHT TYPE
RIGHT-ANGLE TYPE
Without hook
A
C
D
E
B
F
F′
0.3(.012)
3.52(.139)
3.5(.139)
7.8(.307)
0.64(.025)
0.5(.020)
ϕ2.3(ϕ.091)
3.6(.142)
3.6(.146)
17.3(.681)
13.5(.531)
ϕ2.5(ϕ.098)
2.54×(N−1) D
(.100×(N−1) D)
2.54 (.100)
2 (.079)
1.8 (.072)
L
standard terminal: 3.0mm (.118 inch)
long terminal: 4.0mm (.157 inch)
standard terminal: 2.5mm (.098 inch)
long terminal: 4.0mm (.157 inch)
With M hook
14.5 (.571)
27.4 (1.079)
WIRE-WRAP TYPE
STRAIGHT TYPE
With S hook
10.5 (0.413)
24.1 (0.949)
RIGHT-ANGLE TYPE

DIMENSIONS

Unit: mm (inch)

	A	B	C	D	E	F	F′
10	32.0 (1.260)	21.8 (.858)	27.9 (1.098)	10.16 (.400)	18.3 (.720)	32.3 (1.272)	26.3 (1.035)
14	37.1 (1.461)	26.9 (1.059)	33.0 (1.299)	15.24 (.600)	23.4 (.921)	37.4 (1.472)	31.4 (1.236)
16	39.6 (1.559)	29.4 (1.157)	35.5 (1.398)	17.78 (.700)	25.9 (1.020)	39.9 (1.571)	33.9 (1.335)
20	44.7 (1.760)	34.5 (1.358)	40.6 (1.598)	22.86 (.900)	31.0 (1.220)	45.0 (1.772)	39.0 (1.535)
26	52.3 (2.059)	42.2 (1.661)	48.3 (1.902)	30.48 (1.200)	38.6 (1.520)	52.6 (2.071)	46.6 (1.835)
30	57.4 (2.260)	47.2 (1.858)	53.3 (2.098)	35.56 (1.400)	43.7 (1.720)	57.7 (2.272)	51.7 (2.035)
34	62.5 (2.461)	52.3 (2.059)	58.4 (2.299)	40.64 (1.600)	48.8 (1.921)	62.8 (2.472)	56.8 (2.236)
40	70.1 (2.760)	59.9 (2.358)	66 (2.598)	48.26 (1.900)	56.4 (2.220)	70.4 (2.772)	64.4 (2.535)
50	82.8 (3.260)	72.6 (2.858)	78.7 (3.098)	60.96 (2.400)	69.0 (2.716)	83.0 (3.268)	77.0 (3.031)
60	95.5 (3.760)	85.3 (3.358)	91.4 (3.598)	73.66 (2.900)	81.8 (3.220)	95.8 (3.772)	89.8 (3.535)

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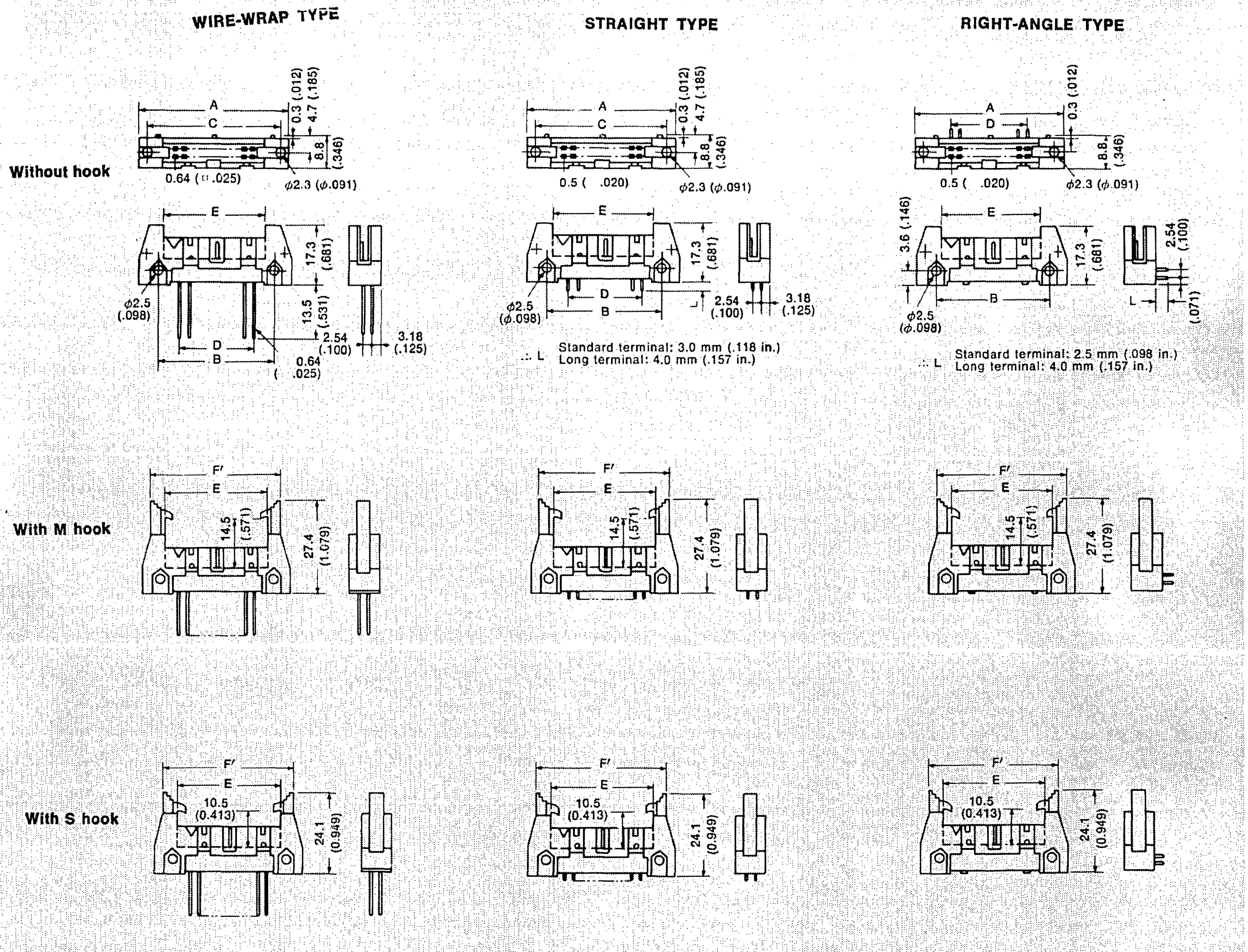
HEADERS

FCN-702Q/G, 704Q/G, 705Q/G

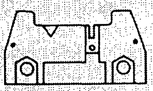
DIMENSIONS (FULLY SHROUDED HEADERS)

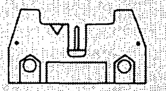

WIRE-WRAP TYPE
STRAIGHT TYPE
RIGHT-ANGLE TYPE
Without hook
With M hook
With S hook
A
C
D
B
E
F'
0.3 (.012)
4.7 (.185)
8.8 (.346)
0.64 (□.025)
0.5 (□.020)
φ2.3 (φ.091)
φ2.5 (φ.098)
17.3 (.681)
13.5 (.531)
2.54 (.100)
3.18 (.125)
3.6 (.146)
(.071)
L
14.5 (.571)
27.4 (1.079)
10.5 (0.413)
24.1 (0.949)

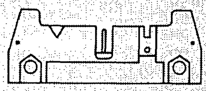
∴ L Standard terminal: 3.0 mm (.118 in.)
Long terminal: 4.0 mm (.157 in.)

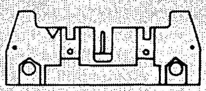
∴ L Standard terminal: 2.5 mm (.098 in.)
Long terminal: 4.0 mm (.157 in.)

MAIN BODY CONFIGURATION


10-pin header for clip-polarized socket


10-pin header for bump-polarized socket


14 pin header


15—60-pin headers

Unit: mm (in.)

No. of Contacts	A	B	C	D	E	F	F'
10	32.0 (1.260)	21.8 (.858)	27.9 (1.098)	10.16 (.400)	18.3 (.720)	32.3 (1.272)	26.3 (1.035)
14	37.1 (1.461)	26.9 (1.059)	33.0 (1.299)	15.24 (.600)	23.4 (.921)	37.4 (1.472)	31.4 (1.236)
16	39.6 (1.559)	29.4 (1.157)	35.5 (1.398)	17.78 (.700)	25.9 (1.020)	39.9 (1.571)	33.9 (1.335)
20	44.7 (1.760)	34.5 (1.358)	40.6 (1.598)	22.86 (.900)	31.0 (1.220)	45.0 (1.772)	39.0 (1.535)
26	52.3 (2.059)	42.2 (1.661)	48.3 (1.902)	30.48 (1.200)	38.6 (1.520)	52.6 (2.071)	46.6 (1.835)
30	57.4 (2.260)	47.2 (1.858)	53.3 (2.098)	35.56 (1.400)	43.7 (1.72)	57.7 (2.272)	51.7 (2.035)
34	62.5 (2.461)	52.3 (2.059)	58.4 (2.299)	40.64 (1.600)	48.8 (1.921)	62.8 (2.472)	56.8 (2.236)
40	70.1 (2.760)	59.9 (2.358)	66.0 (2.598)	48.26 (1.900)	56.4 (2.220)	70.4 (2.772)	64.4 (2.535)
50	82.8 (3.260)	72.6 (2.858)	78.7 (3.098)	60.96 (2.400)	69.0 (2.716)	83.0 (3.268)	77.0 (3.031)
60	95.5 (3.760)	85.3 (3.358)	91.4 (3.598)	73.66 (2.900)	81.8 (3.220)	95.8 (3.772)	89.8 (3.535)

FUJITSU

HEADERS

DESIGNATION (702, 704, 705, P/F)

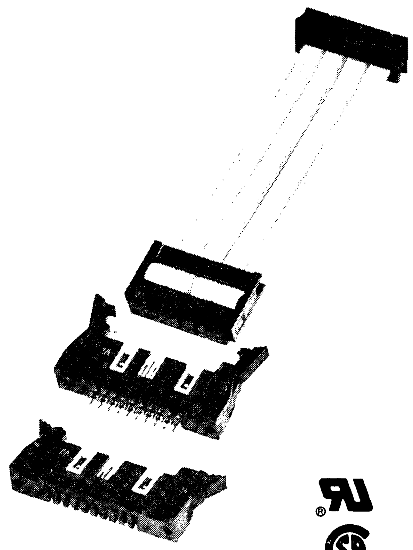
Terminal Type Terminal Configuration		Standard Terminal Straight 3.0 mm Right-angle 2.5 mm			Long Terminal (4 mm)	
No. of Contacts	Hook	Wire-wrap Type	Straight Type	Right-angle Type	Straight Type	Right-angle Type
10	without	FCN-702P010-AU/0	FCN-704P010-AU/0	FCN-705P010-AU/0	FCN-704P010-AU/A	FCN-750P010-AU/A
	M hook	FCN-702P010-AU/M	FCN-704P010-AU/M	FCN-705P010-AU/M	FCN-704P010-AU/C	FCN-705P010-AU/C
	S hook	FCN-702P010-AU/S	FCN-704P010-AU/S	FCN-705P010-AU/S	FCN-704P010-AU/E	FCN-705P010-AU/E
10	without	FCN-702F010-AU/0	FCN-704F010-AU/0	FCN-705F010-AU/0	FCN-704F010-AU/A	FCN-705F010-AU/A
	M hook	FCN-702F010-AU/M	FCN-704F010-AU/M	FCN-705F010-AU/M	FCN-704F010-AU/C	FCN-705F010-AU/C
	S hook	FCN-702F010-AU/S	FCN-704F010-AU/S	FCN-705F010-AU/S	FCN-704F010-AU/E	FCN-705F010-AU/E
14	without	FCN-702P014-AU/0	FCN-704P014-AU/0	FCN-705P014-AU/0	FCN-704P014-AU/A	FCN-705P014-AU/A
	M hook	FCN-702P014-AU/M	FCN-704P014-AU/M	FCN-705P014-AU/M	FCN-704P014-AU/C	FCN-705P014-AU/C
	S hook	FCN-702P014-AU/S	FCN-704P014-AU/S	FCN-705P014-AU/S	FCN-704P014-AU/E	FCN-705P014-AU/E
16	without	FCN-702P016-AU/0	FCN-704P016-AU/0	FCN-705P016-AU/0	FCN-704P016-AU/A	FCN-705P016-AU/A
	M hook	FCN-702P016-AU/M	FCN-704P016-AU/M	FCN-705P016-AU/M	FCN-704P016-AU/C	FCN-705P016-AU/C
	S hook	FCN-702P016-AU/S	FCN-704P016-AU/S	FCN-705P016-AU/S	FCN-704P016-AU/E	FCN-705P016-AU/E
20	without	FCN-702P020-AU/0	FCN-704P020-AU/0	FCN-705P020-AU/0	FCN-704P020-AU/A	FCN-705P020-AU/A
	M hook	FCN-702P020-AU/M	FCN-704P020-AU/M	FCN-705P020-AU/M	FCN-704P020-AU/C	FCN-705P020-AU/C
	S hook	FCN-702P020-AU/S	FCN-704P020-AU/S	FCN-705P020-AU/S	FCN-704P020-AU/E	FCN-705P020-AU/E
26	without	FCN-702P026-AU/0	FCN-704P026-AU/0	FCN-705P026-AU/0	FCN-704P026-AU/A	FCN-705P026-AU/A
	M hook	FCN-702P026-AU/M	FCN-704P026-AU/M	FCN-705P026-AU/M	FCN-704P026-AU/C	FCN-705P026-AU/C
	S hook	FCN-702P026-AU/S	FCN-704P026-AU/S	FCN-705P026-AU/S	FCN-704P026-AU/E	FCN-705P026-AU/E
30	without	FCN-702P030-AU/0	FCN-704P030-AU/0	FCN-705P030-AU/0	FCN-704P030-AU/A	FCN-705P030-AU/A
	M hook	FCN-702P030-AU/M	FCN-704P030-AU/M	FCN-705P030-AU/M	FCN-704P030-AU/C	FCN-705P030-AU/C
	S hook	FCN-702P030-AU/S	FCN-704P030-AU/S	FCN-705P030-AU/S	FCN-704P030-AU/E	FCN-705P030-AU/E
34	without	FCN-702P034-AU/0	FCN-704P034-AU/0	FCN-705P034-AU/0	FCN-704P034-AU/A	FCN-705P034-AU/A
	M hook	FCN-702P034-AU/M	FCN-704P034-AU/M	FCN-705P034-AU/M	FCN-704P034-AU/C	FCN-705P034-AU/C
	S hook	FCN-702P034-AU/S	FCN-704P034-AU/S	FCN-705P034-AU/S	FCN-704P034-AU/E	FCN-705P034-AU/E
40	without	FCN-702P040-AU/0	FCN-704P040-AU/0	FCN-705P040-AU/0	FCN-704P040-AU/A	FCN-705P040-AU/A
	M hook	FCN-702P040-AU/M	FCN-704P040-AU/M	FCN-705P040-AU/M	FCN-704P040-AU/C	FCN-705P040-AU/C
	S hook	FCN-702P040-AU/S	FCN-704P040-AU/S	FCN-705P040-AU/S	FCN-704P040-AU/E	FCN-705P040-AU/E
50	without	FCN-702P050-AU/0	FCN-704P050-AU/0	FCN-705P050-AU/0	FCN-704P050-AU/A	FCN-705P050-AU/A
	M hook	FCN-702P050-AU/M	FCN-704P050-AU/M	FCN-705P050-AU/M	FCN-704P050-AU/C	FCN-705P050-AU/C
	S hook	FCN-702P050-AU/S	FCN-704P050-AU/S	FCN-705P050-AU/S	FCN-704P050-AU/E	FCN-705P050-AU/E
60	without	FCN-702P060-AU/0	FCN-704P060-AU/0	FCN-705P060-AU/0	FCN-704P060-AU/A	FCN-705P060-AU/A
	M hook	FCN-702P060-AU/M	FCN-704P060-AU/M	FCN-705P060-AU/M	FCN-704P060-AU/C	FCN-705P060-AU/C
	S hook	FCN-702P060-AU/S	FCN-704P060-AU/S	FCN-705P060-AU/S	FCN-704P060-AU/E	FCN-705P060-AU/E

DESIGNATION (702, 704, 705, Q/G)

Terminal Type Terminal Configuration		Standard Terminal Straight 3.0 mm Right-angle 2.5 mm			Long Terminal (4 mm)
No. of Contacts	Hook	Wire-wrap Type	Straight Type	Right-angle Type	Straight Type
10	without	FCN-702Q010-AU/0	FCN-704Q010-AU/0	FCN-705Q010-AU/0	FCN-704Q010-AU/A
	M hook	FCN-702Q010-AU/M	FCN-704Q010-AU/M	FCN-705Q010-AU/M	FCN-704Q010-AU/C
	S hook	FCN-702Q010-AU/S	FCN-704Q010-AU/S	FCN-705Q010-AU/S	FCN-704Q010-AU/E
10	without	FCN-702G010-AU/0	FCN-704G010-AU/0	FCN-705G010-AU/0	FCN-704G010-AU/A
	M hook	FCN-702G010-AU/M	FCN-704G010-AU/M	FCN-705G010-AU/M	FCN-704G010-AU/C
	S hook	FCN-702G010-AU/S	FCN-704G010-AU/S	FCN-705G010-AU/S	FCN-704G010-AU/E
14	without	FCN-702Q014-AU/0	FCN-704Q014-AU/0	FCN-705Q014-AU/0	FCN-704Q014-AU/A
	M hook	FCN-702Q014-AU/M	FCN-704Q014-AU/M	FCN-705Q014-AU/M	FCN-704Q014-AU/C
	S hook	FCN-702Q014-AU/S	FCN-704Q014-AU/S	FCN-705Q014-AU/S	FCN-704Q014-AU/E
16	without	FCN-702Q016-AU/0	FCN-704Q016-AU/0	FCN-705Q016-AU/0	FCN-704Q016-AU/A
	M hook	FCN-702Q016-AU/M	FCN-704Q016-AU/M	FCN-705Q016-AU/M	FCN-704Q016-AU/C
	S hook	FCN-702Q016-AU/S	FCN-704Q016-AU/S	FCN-705Q016-AU/S	FCN-704Q016-AU/E
20	without	FCN-702Q020-AU/0	FCN-704Q020-AU/0	FCN-705Q020-AU/0	FCN-704Q020-AU/A
	M hook	FCN-702Q020-AU/M	FCN-704Q020-AU/M	FCN-705Q020-AU/M	FCN-704Q020-AU/C
	S hook	FCN-702Q020-AU/S	FCN-704Q020-AU/S	FCN-705Q020-AU/S	FCN-704Q020-AU/E
26	without	FCN-702Q026-AU/0	FCN-704Q026-AU/0	FCN-705Q026-AU/0	FCN-704Q026-AU/A
	M hook	FCN-702Q026-AU/M	FCN-704Q026-AU/M	FCN-705Q026-AU/M	FCN-704Q026-AU/C
	S hook	FCN-702Q026-AU/S	FCN-704Q026-AU/S	FCN-705Q026-AU/S	FCN-704Q026-AU/E
30	without	FCN-702Q030-AU/0	FCN-704Q030-AU/0	FCN-705Q030-AU/0	FCN-704Q030-AU/A
	M hook	FCN-702Q030-AU/M	FCN-704Q030-AU/M	FCN-705Q030-AU/M	FCN-704Q030-AU/C
	S hook	FCN-702Q030-AU/S	FCN-704Q030-AU/S	FCN-705Q030-AU/S	FCN-704Q030-AU/E
34	without	FCN-702Q034-AU/0	FCN-704Q034-AU/0	FCN-705Q034-AU/0	FCN-704Q034-AU/A
	M hook	FCN-702Q034-AU/M	FCN-704Q034-AU/M	FCN-705Q034-AU/M	FCN-704Q034-AU/C
	S hook	FCN-702Q034-AU/S	FCN-704Q034-AU/S	FCN-705Q034-AU/S	FCN-704Q034-AU/E
40	without	FCN-702Q040-AU/0	FCN-704Q040-AU/0	FCN-705Q040-AU/0	FCN-704Q040-AU/A
	M hook	FCN-702Q040-AU/M	FCN-704Q040-AU/M	FCN-705Q040-AU/M	FCN-704Q040-AU/C
	S hook	FCN-702Q040-AU/S	FCN-704Q040-AU/S	FCN-705Q040-AU/S	FCN-704Q040-AU/E
50	without	FCN-702Q050-AU/0	FCN-704Q050-AU/0	FCN-705Q050-AU/0	FCN-704Q050-AU/A
	M hook	FCN-702Q050-AU/M	FCN-704Q050-AU/M	FCN-705Q050-AU/M	FCN-704Q050-AU/C
	S hook	FCN-702Q050-AU/S	FCN-704Q050-AU/S	FCN-705Q050-AU/S	FCN-704Q050-AU/E
60	without	FCN-702Q060-AU/0	FCN-704Q060-AU/0	FCN-705Q060-AU/0	FCN-704Q060-AU/A
	M hook	FCN-702Q060-AU/M	FCN-704Q060-AU/M	FCN-705Q060-AU/M	FCN-704Q060-AU/C
	S hook	FCN-702Q060-AU/S	FCN-704Q060-AU/S	FCN-705Q060-AU/S	FCN-704Q060-AU/E

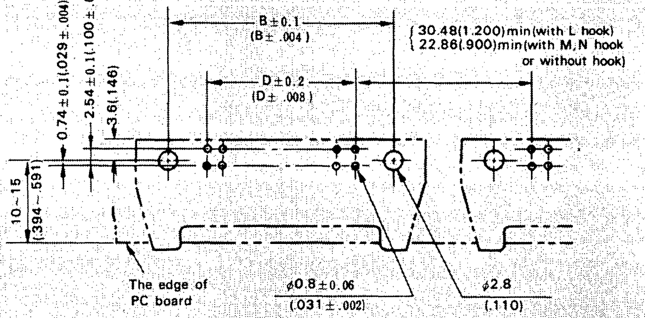
FUJITSU

HEADERS

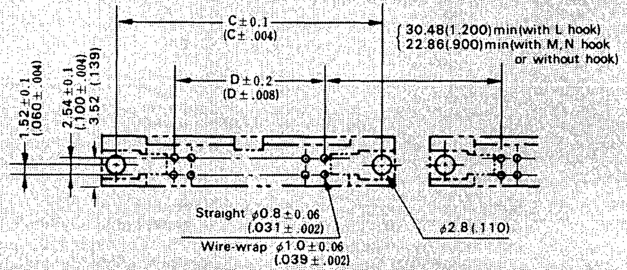


MOUNTING HOLE LAYOUT

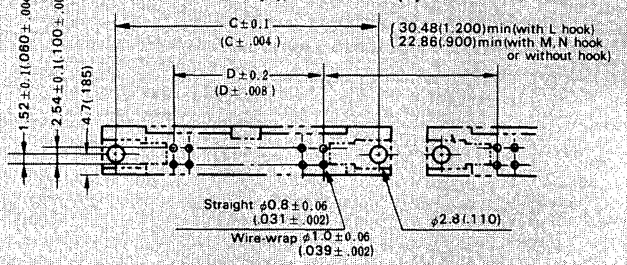
RIGHT-ANGLE TYPE


B±0.1
(B± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
0.74±0.1(.029±.004)
2.54±0.1(.100±.004)
3.6(.146)
10~15
(.394~.591)
The edge of PC board
φ0.8±0.06
(.031±.002)
φ2.8
(.110)

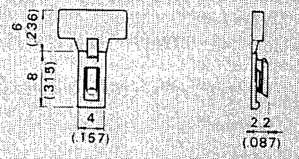
STRAIGHT (PARTIALLY SHROUDED HEADERS):


C±0.1
(C± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
1.52±0.1
(.060±.004)
2.54±0.1
(.100±.004)
3.52 (.139)
Straight φ0.8±0.06
(.031±.002)
Wire-wrap φ1.0±0.06
(.039±.002)
φ2.8(.110)

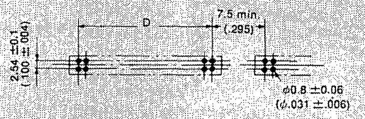
STRAIGHT (Q), WIRE-WRAP (Q) TYPE


C±0.1
(C± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
1.52±0.1(.060±.004)
2.54±0.1(.100±.004)
4.7(.185)
Straight φ0.8±0.06
(.031±.002)
Wire-wrap φ1.0±0.06
(.039±.002)
φ2.8(.110)

POLARIZING KEY FCN-700A2


6
(.236)
8
(.315)
4
(.157)
2.2
(.087)

DIP SOCKET


D
7.5 min.
(.295)
2.54±0.1
(.100±.004)
φ0.8±0.06
(φ.031±.006)

Unit: mm (inch)

No. of Contacts	B	C	D
10	21.8 (.858)	27.9 (1.098)	10.16 (.400)
14	26.9 (1.059)	33.0 (1.299)	15.24 (.600)
16	29.4 (1.157)	35.5 (1.398)	17.78 (.700)
20	34.5 (1.358)	40.6 (1.598)	22.86 (.900)
26	42.2 (1.661)	48.3 (1.902)	30.48 (1.200)
30	47.2 (1.858)	53.3 (2.098)	35.56 (1.400)
34	52.3 (2.059)	58.4 (2.299)	40.64 (1.600)
40	59.9 (2.358)	66.0 (2.598)	48.26 (1.900)
50	72.6 (2.858)	78.7 (3.098)	60.96 (2.400)
60	85.3 (3.358)	91.4 (3.598)	73.66 (2.900)

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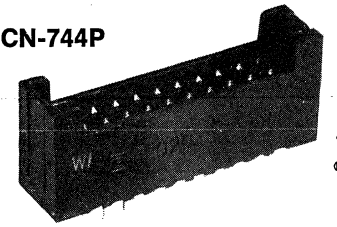
MINI HEADERS

FCN-744P



- Low-profile installation on PC board
- 2.54mm grid contact/terminal spacing
- □ 0.64mm contact
- □ 0.5mm terminals
- UL recognized (E71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with MINI SOCKET): 20mΩ max. at 6V DC, 0.3A

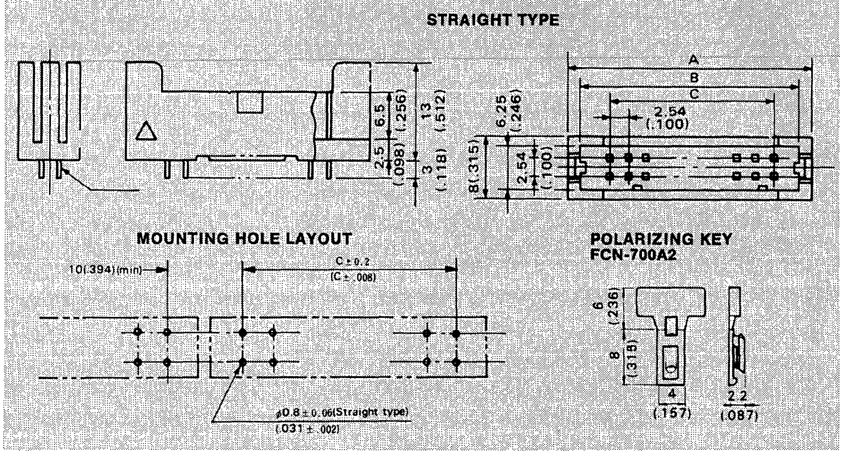
Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)
Insulators: PBT (UL 94V-0)

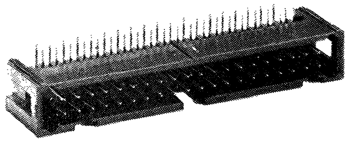
DIMENSIONS


STRAIGHT TYPE
A
B
C
2.54
(.100)
6.5
(.256)
13
(.512)
2.5
(.098)
3
(.118)
6.25
(.246)
8(.315)
2.54
(.100)
MOUNTING HOLE LAYOUT
10(.394)(min)
C ± 0.2
(C ± .008)
ϕ0.8 ± 0.06(Straight type)
(.031 ± .002)
POLARIZING KEY
FCN-700A2
6
(.236)
8
(.315)
4
(.157)
2.2
(.087)

Unit: mm (inch)

No. of Contacts	Designation	A	B	C
10	FCN-744P010-AU/R	20.12 (.792)	17.72 (.698)	10.16 (.400)
14	FCN-744P014-AU/R	25.20 (.992)	22.30 (.878)	15.24 (.600)
16	FCN-744P016-AU/R	27.74 (1.092)	25.34 (.998)	17.78 (.700)
20	FCN-744P020-AU/R	32.82 (1.292)	30.42 (1.198)	22.86 (.900)
26	FCN-744P026-AU/R	40.44 (1.592)	38.04 (1.498)	30.48 (1.200)
30	FCN-744P030-AU/R	45.52 (1.792)	43.12 (1.698)	35.56 (1.400)
34	FCN-744P034-AU/R	50.60 (1.992)	48.20 (1.898)	40.64 (1.600)

FCN-745Q



- Low-profile Right angle header
- Mating and keying compatibility with FCN-700, 740 Socket connectors
- Fully shrouded
- Selective plating (Gold palladium plating contact and palladium plating terminal)
- UL recognized materials (94V-0)
- Solvent resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance: 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000mΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

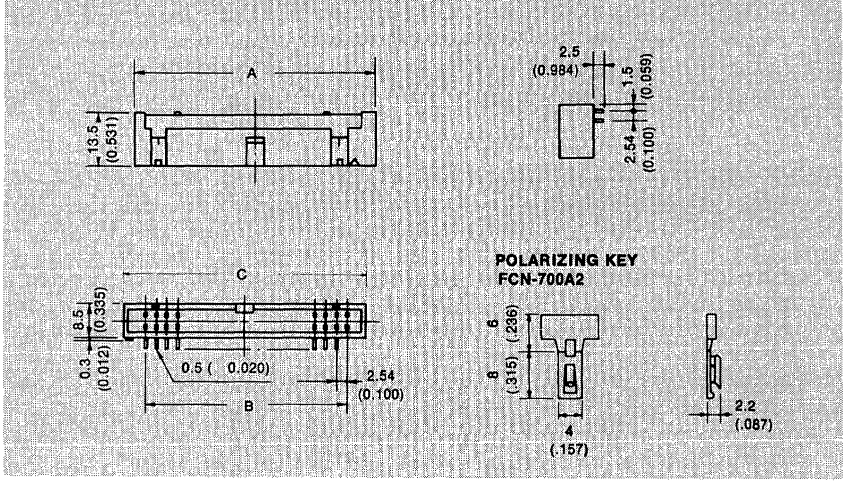
Contact Material: PBS

Insulation Material: PBT (UL 94V-0)

Plating — Contact: Gold palladium over nickel
Terminal: Palladium

Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)

DIMENSIONS


A
13.5
(0.531)
2.5
(0.984)
1.5
(0.059)
2.54
(0.100)
C
8.5
(0.335)
0.3
(0.012)
0.5 (0.020)
2.54
(0.100)
B
POLARIZING KEY
FCN-700A2
6
(.236)
8
(.315)
4
(.157)
2.2
(.087)

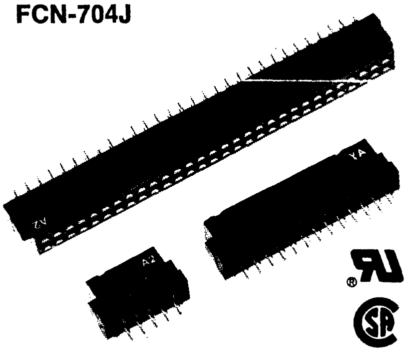
Unit: mm (in.)

No. of Contacts	Designations	Dimensions		
		A	B	C
10	FCN-745Q010-AU/0	20.3 (.800)	10.16 (.400)	17.72 (.700)
14	FCN-745Q014-AU/0	25.4 (1.0)	15.24 (.600)	22.80 (.900)
16	FCN-745Q016-AU/0	27.9 (1.100)	17.78 (.900)	25.34 (1.000)
20	FCN-745Q020-AU/0	33.0 (1.300)	22.86 (.900)	30.42 (1.200)
24	FCN-745Q024-AU/0	38.1 (1.500)	27.94 (1.100)	35.50 (1.400)
26	FCN-745Q026-AU/0	40.6 (1.600)	30.48 (1.200)	38.04 (1.500)
30	FCN-745Q030-AU/0	45.7 (1.800)	35.56 (1.400)	43.12 (1.700)
34	FCN-745Q034-AU/0	50.8 (2.0)	40.64 (1.600)	48.20 (1.900)
40	FCN-745Q040-AU/0	58.4 (2.300)	48.26 (1.900)	55.82 (2.200)
50	FCN-745Q050-AU/0	71.1 (2.800)	60.96 (2.400)	68.52 (2.700)
60	FCN-745Q060-AU/0	83.8 (3.300)	73.66 (2.900)	81.22 (3.200)

FUJITSU

D.I.P. SOCKET CONNECTORS

FCN-704J



- 2.54mm grid contact/terminal spacing
- Mating with headers and block headers
- Used with W type block header, PC board spacing is only about 13mm
- Many variations (10 to 60 pins)
- Selective plating (gold palladium plated contact and solder-plated terminal)
- UL recognized (E71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Voltage Rating: 250V AC

Contact Resistance: 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

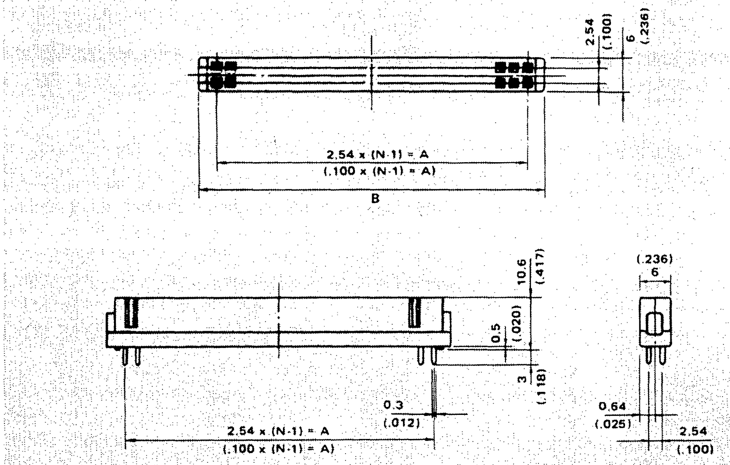
Insertion Force: 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force: 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

Thickness of PC Board (Standard): 1.6mm

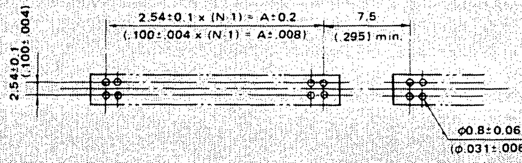
Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)
Insulators: PBT (UL 94V-0)

DIMENSIONS

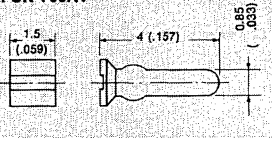

2.54
(.100)
6
(.236)
2.54 x (N-1) = A
(.100 x (N-1) = A)
B
10.6
(.417)
0.5
(.020)
3
(.118)
0.3
(.012)
2.54 x (N-1) = A
(.100 x (N-1) = A)
(.236)
6
0.64
(.025)
2.54
(.100)

Unit: mm(inch)

MOUNTING HOLE LAYOUT


2.54±0.1 x (N-1) = A±0.2
(.100±.004 x (N-1) = A±.008)
7.5
(.295) min.
2.54±0.1
(.100±.004)
φ0.8±0.06
(φ0.031±.006)

POLARIZING KEY
FCN-700A1


1.5
(.059)
4 (.157)
0.85
(.033)

DESIGNATIONS

Unit: mm (in.)

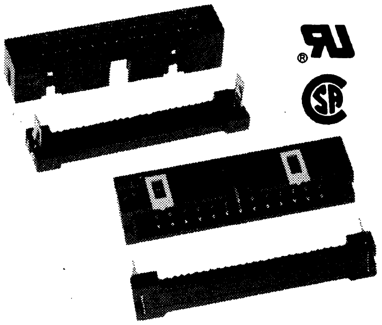
No. of Contacts	Designation	N	A	B
10	FCN-704J010-AU/0	5	10.16 (.400)	17.3 (.681)
14	FCN-704J014-AU/0	7	15.24 (.600)	22.4 (.882)
16	FCN-704J016-AU/0	8	17.78 (.700)	24.9 (.980)
20	FCN-704J020-AU/0	10	22.86 (.900)	30.0 (1.181)
26	FCN-704J026-AU/0	13	30.48 (1.200)	37.6 (1.480)
30	FCN-704J030-AU/0	15	35.56 (1.400)	42.7 (1.681)
34	FCN-704J034-AU/0	17	40.64 (1.600)	47.8 (1.882)
40	FCN-704J040-AU/0	20	48.26 (1.900)	55.4 (2.181)
50	FCN-704J050-AU/0	25	60.96 (2.400)	68.1 (2.681)
60	FCN-704J060-AU/0	30	73.66 (2.900)	80.8 (3.181)

FUJITSU

I.D.C. PLUG CONNECTORS

FCN-707P

Fujitsu I.D.C. plug connectors are added in Fujitsu flat-cable connectors and can be used as T-tap from a cable buss or splice connectors.



- Mating with socket
- Mass-termination with flat cable
- 2.54mm grid contact spacing
- □ 0.64mm contact
- Extensive applications. (T-tap, splice connector, I/O interface)
- Many variations (10 - 60 pins, with and without mounting ears)
- Strain relief tab to facilitate unmating
- UL recognized (E71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

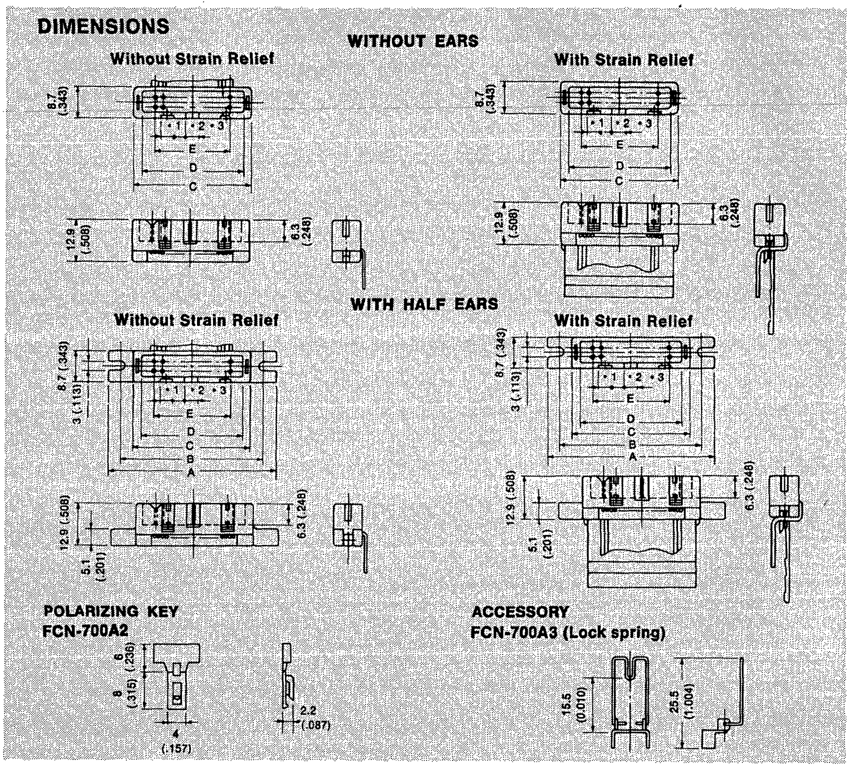
Current Rating: 1A DC

Contact Resistance (with SOCKET): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Wire Size (Flat cable for I.D.C.): 1.27mm (0.050 inch) spacing, AWG #28 (stranded) or #30 (solid)

Materials — Contact: Phosphor-bronze (gold palladium over nickel plating)
Insulators: PBT (UL 94V-0)



Unit: mm(inch)

SELECTION TABLE

No. of Contacts	Mounting Parts	Designation Without Strain Relief	 With Strain Relief
10	Without ears	FCN-707P010-AU/1	FCN-707P010-AU/6
	With half ears	FNC-707P010-AU/2	FCN-707P010-AU/7
14	Without ears	FCN-707P014-AU/1	FCN-707P014-AU/6
	With half ears	FCN-707P014-AU/2	FCN-707P014-AU/7
16	Without ears	FCN-707P016-AU/1	FCN-707P016-AU/6
	With half ears	FCN-707P016-AU/2	FCN-707P016-AU/7
20	Without ears	FCN-707P020-AU/1	FCN-707P020-AU/6
	With half ears	FCN-707P020-AU/2	FCN-707P020-AU/7
26	Without ears	FCN-707P026-AU/1	FCN-707P026-AU/6
	With half ears	FCN-707P026-AU/2	FCN-707P026-AU/7
30	Without ears	FCN-707P030-AU/1	FCN-707P030-AU/6
	With half ears	FCN-707P030-AU/2	FCN-707P030-AU/7
34	Without ears	FCN-707P034-AU/1	FCN-707P034-AU/6
	With half ears	FCN-707P034-AU/2	FCN-707P034-AU/7
40	Without ears	FCN-707P040-AU/1	FCN-707P040-AU/6
	With half ears	FCN-707P040-AU/2	FCN-707P040-AU/7
50	Without ears	FCN-707P050-AU/1	FCN-707P050-AU/6
	With half ears	FCN-707P050-AU/2	FCN-707P050-AU/7
60	Without ears	FCN-707P060-AU/1	FCN-707P060-AU/6
	With half ears	FCN-707P060-AU/2	FCN-707P060-AU/7

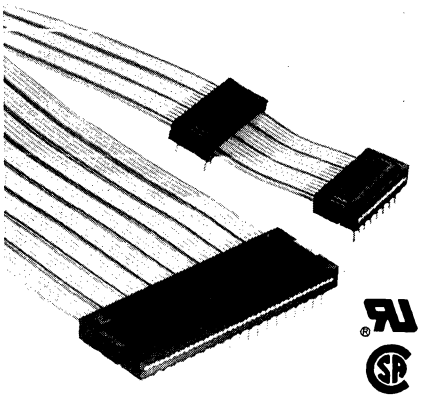
Unit: mm(inch)

No. of Contacts	A	B	C	D	E
10	38.10 (1.500)	30.48 (1.200)	22.86 (.900)	18.03 (.710)	10.16 (.400)
14	43.18 (1.700)	35.56 (1.400)	27.92 (1.100)	23.11 (.910)	15.24 (.600)
16	45.72 (1.800)	38.10 (1.500)	30.48 (1.200)	25.65 (1.010)	17.78 (.700)
20	50.80 (2.000)	43.18 (1.700)	35.56 (1.400)	30.73 (1.210)	22.86 (.900)
26	58.42 (2.300)	50.80 (2.000)	43.18 (1.700)	38.35 (1.510)	30.48 (1.200)
30	63.50 (2.500)	55.88 (2.200)	48.26 (1.900)	43.43 (1.710)	35.56 (1.400)
34	68.58 (2.700)	60.96 (2.400)	53.34 (2.100)	48.51 (1.910)	40.64 (1.600)
40	76.20 (3.000)	68.58 (2.700)	60.96 (2.400)	56.13 (2.210)	48.26 (1.900)
50	88.90 (3.500)	81.28 (3.200)	73.66 (2.900)	68.83 (2.710)	60.96 (2.400)
60	101.60 (4.000)	93.98 (3.700)	86.36 (3.400)	81.53 (3.210)	73.66 (2.900)

FUJITSU

D.I.P. CONNECTORS

FCN-714P



- Pluggable to IC sockets
- Low-profile installation on PC board
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Many variations (10 to 60 pins)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

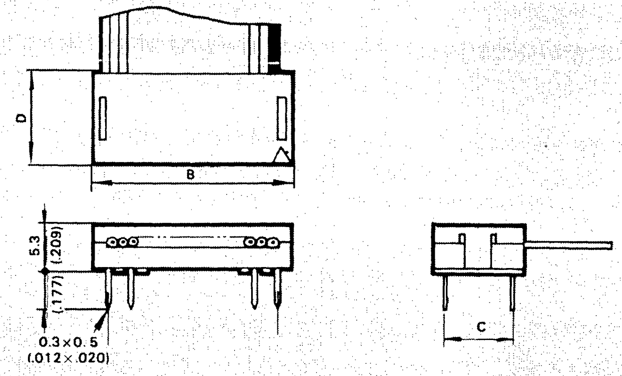
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

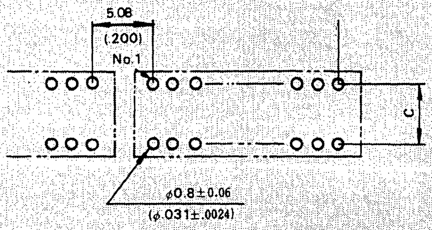
Materials — Contacts: Phosphor-bronze (gold plating, solder-over-nickel plating)

DIMENSIONS



Unit: mm (inch)

MOUNTING HOLE LAYOUT



DESIGNATION

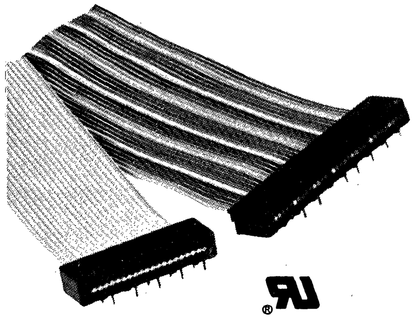
Unit: mm (inch)

No. of Contacts	Designation		Dimensions			
	Gold Plating	Solder Plating	A	B	C	D
10	FCN-714P010-AU/0	FCN-714P010-SN/0	10.16 (.400)	14.74 (.580)	7.62 (.300)	10.67 (.420)
14	FCN-714P014-AU/0	FCN-714P014-SN/0	15.24 (.600)	19.82 (.780)	7.62 (.300)	10.67 (.420)
16	FCN-714P016-AU/0	FCN-714P016-SN/0	17.78 (.700)	22.36 (.880)	7.62 (.300)	10.67 (.420)
20	FCN-714P020-AU/0	FCN-714P020-SN/0	22.86 (.900)	27.44 (1.080)	15.24 (.600)	18.29 (.720)
24	FCN-714P024-AU/0	FCN-714P024-SN/0	27.94 (1.100)	32.52 (1.280)	15.24 (.600)	18.29 (.720)
26	FCN-714P026-AU/0	FCN-714P026-SN/0	30.48 (1.200)	35.06 (1.380)	15.24 (.600)	18.29 (.720)
34	FCN-714P034-AU/0	FCN-714P034-SN/0	40.64 (1.600)	45.22 (1.780)	15.24 (.600)	18.29 (.720)
40	FCN-714P040-AU/0	FCN-714P040-SN/0	48.26 (1.900)	52.84 (2.080)	15.24 (.600)	18.29 (.720)
50	FCN-714P050-AU/0	FCN-714P050-SN/0	60.96 (2.400)	65.54 (2.580)	15.24 (.600)	18.29 (.720)
60	FCN-714P060-AU/0	FCN-714P060-SN/0	73.66 (2.900)	78.24 (3.080)	15.24 (.600)	18.29 (.720)

FUJITSU

PCB TRANSITION CONNECTORS

FCN-734P



- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

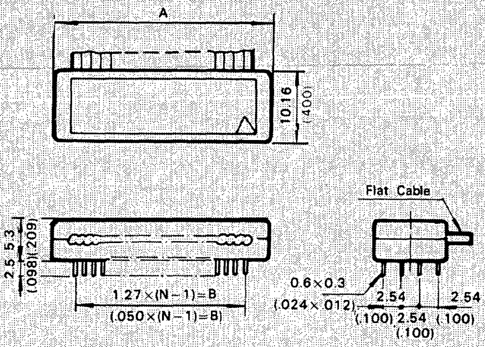
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

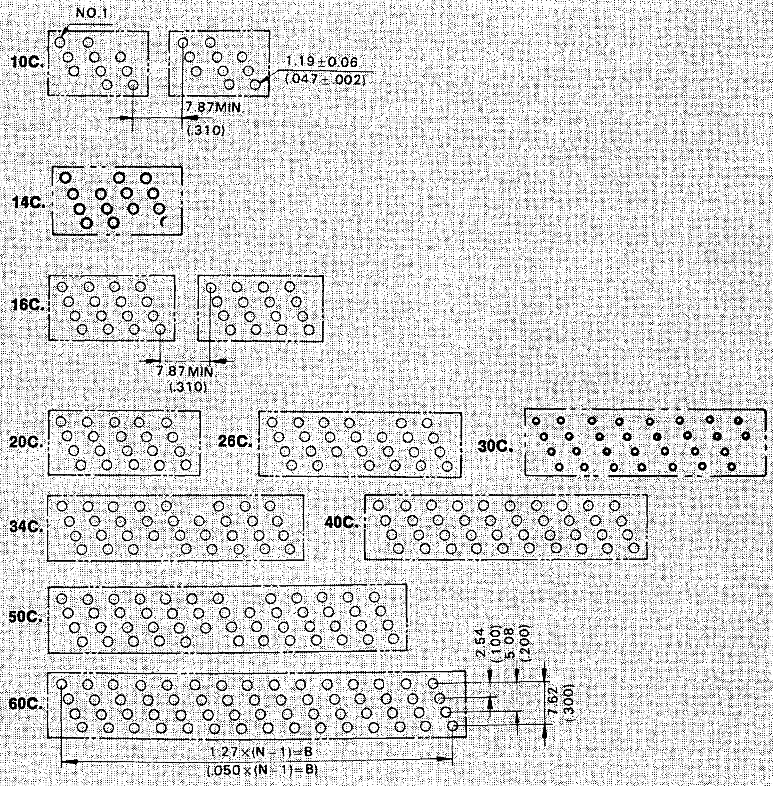
Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze (gold plating, solder-over-nickel plating)

DIMENSIONS


A
10.16
(.400)
Flat Cable
2.5
5.3
(.098)
(.209)
1.27×(N−1)=B
(.050×(N−1)=B)
0.6×0.3
(.024×.012)
2.54
(.100)
2.54
(.100)
2.54
(.100)

MOUNTING HOLE LAYOUT


NO.1
10C.
1.19±0.06
(.047±.002)
7.87MIN.
(.310)
14C.
16C.
7.87MIN.
(.310)
20C.
26C.
30C.
34C.
40C.
50C.
60C.
2.54
(.100)
5.08
(.200)
7.62
(.300)
1.27×(N−1)=B
(.050×(N−1)=B)

DESIGNATION (734P)

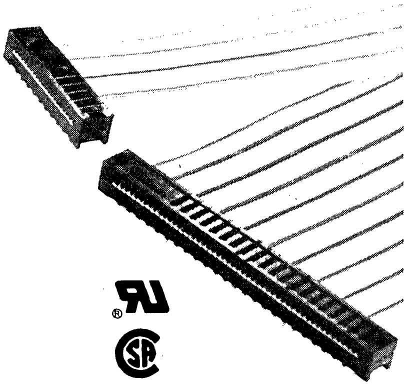
Unit: mm (in.)

No. of Contacts	Designation		Dimensions	
	Gold Plating	Solder Plating	A	B
10	FCN-734P010-AU/0	FCN-734P010-SN/0	17.78 (.700)	11.43 (.450)
14	FCN-734P014-AU/0	FCN-734P014-SN/0	22.86 (0.900)	16.51 (0.650)
16	FCN-734P016-AU/0	FCN-734P016-SN/0	25.40 (1.000)	19.05 (.750)
20	FCN-734P020-AU/0	FCN-734P020-SN/0	30.48 (1.200)	24.13 (.950)
26	FCN-734P026-AU/0	FCN-734P026-SN/0	38.10 (1.500)	31.75 (1.250)
30	FCN-734P030-AU/0	FCN-734P030-SN/0	43.18 (1.826)	36.83 (1.450)
34	FCN-734P034-AU/0	FCN-734P034-SN/0	48.26 (1.900)	41.91 (1.650)
40	FCN-734P040-AU/0	FCN-734P040-SN/0	55.88 (2.200)	49.53 (1.950)
50	FCN-734P050-AU/0	FCN-734P050-SN/0	68.58 (2.700)	62.23 (2.450)
60	FCN-734P060-AU/0	FCN-734P060-SN/0	81.28 (3.200)	74.93 (2.950)

FUJITSU

MINI D.I.P. CONNECTORS

FCN-754P



- High-density installation on PC board (2.54mm grid terminal spacing)
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Many variations (10 to 60 pins)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)
- Fitting of header hole layout

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

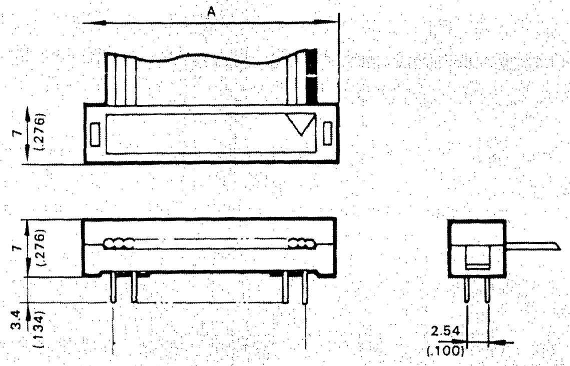
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

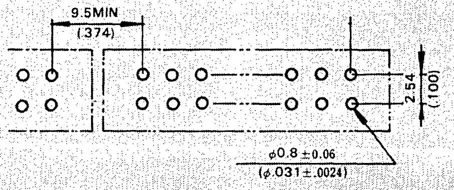
Materials — Contacts: Phosphor-bronze (gold plating, solder-over-nickel plating)

DIMENSIONS



Unit: mm (inch)

MOUNTING HOLE LAYOUT



Note: This hole layout will fit the header mounting hole layout.

DESIGNATION

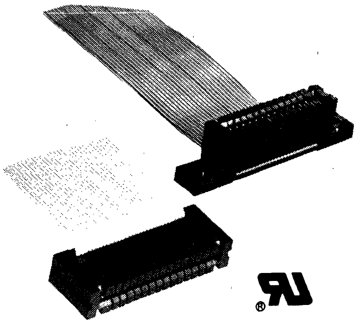
Unit: mm (inch)

No. of Contacts	Designation		Dimensions	
	Gold Plating	Solder Plating	A	B
10	FCN-754P010-AU/0	FCN-754P010-SN/0	19.2 (.756)	10.16 (.400)
14	FCN-754P014-AU/0	FCN-754P014-SN/0	24.3 (.957)	15.24 (.600)
16	FCN-754P016-AU/0	FCN-754P016-SN/0	26.8 (1.055)	17.78 (.700)
20	FCN-754P020-AU/0	FCN-754P020-SN/0	31.9 (1.256)	22.86 (.900)
24	FCN-754P024-AU/0	FCN-754P024-SN/0	37.0 (1.457)	27.94 (1.100)
26	FCN-754P026-AU/0	FCN-754P026-SN/0	39.5 (1.555)	30.48 (1.200)
30	FCN-754P030-AU/0	FCN-754P030-SN/0		
34	FCN-754P034-AU/0	FCN-754P034-SN/0	49.7 (1.957)	40.64 (1.600)
40	FCN-754P040-AU/0	FCN-754P040-SN/0	57.3 (2.256)	48.26 (1.900)
50	FCN-754P050-AU/0	FCN-754P050-SN/0	70.0 (2.756)	60.96 (2.400)
60	FCN-754P060-AU/0	FCN-754P060-SN/0	82.7 (3.256)	73.66 (2.900)

FUJITSU

CARD EDGE CONNECTORS

FCN-767J



- 2.54mm contact spacing
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Bifurcated contact
- Many variations (10 to 60 pins, without ears/with half-ears/with full ears, without strain relief/with strain relief)
- UL recognized (E-71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

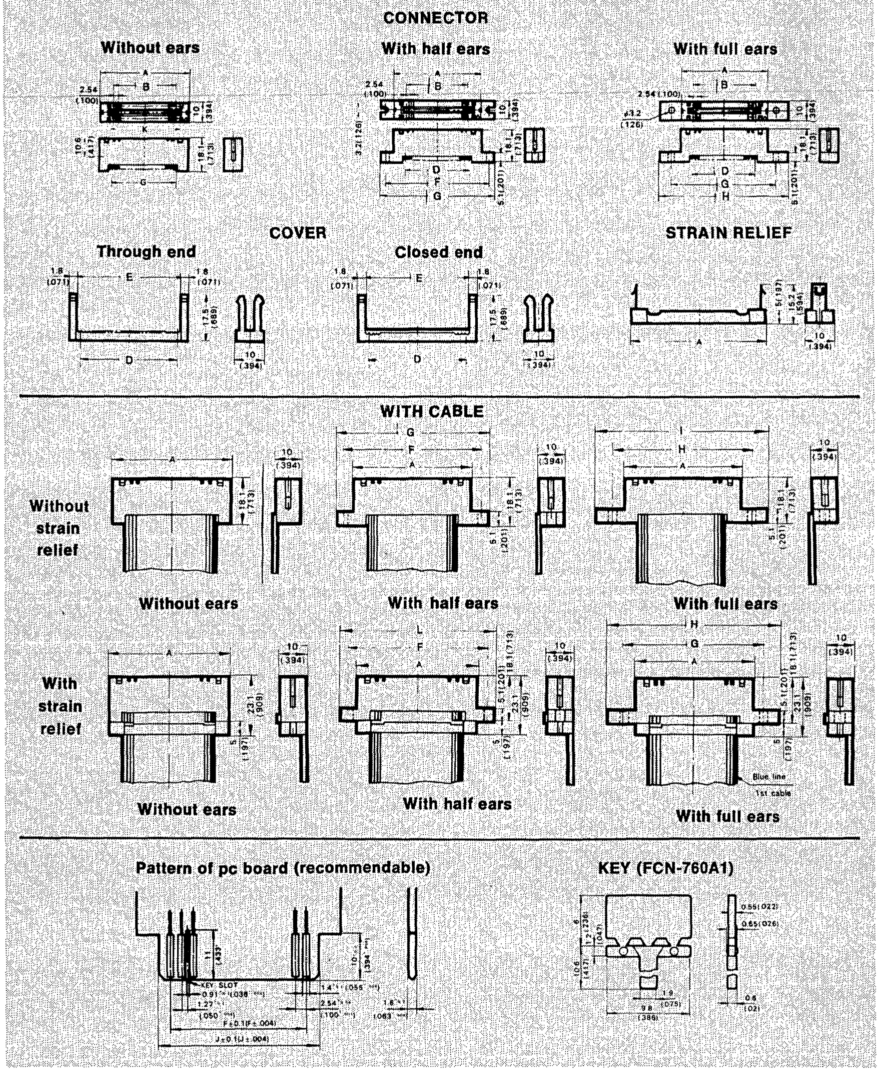
Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)

Insulators: PBT (UL 94V-0)

DIMENSIONS


CONNECTOR
Without ears
With half ears
With full ears
COVER
Through end
Closed end
STRAIN RELIEF
WITH CABLE
Without strain relief
Without ears
With half ears
With full ears
With strain relief
Without ears
With half ears
With full ears
Blue line
1st cable
Pattern of pc board (recommendable)
KEY SLOT
KEY (FCN-760A1)

Unit: mm (inch)

No. of Contacts	Designation	Dimensions								
		A	B	C	D	E	F	G	H	I
10	FCN-767J010-AU/☐	24.36 (.959)	10.16 (.400)	15.34 (.604)	11.43 (.450)	13.95 (.549)	33.02 (1.300)	38.10 (1.500)	35.56 (1.400)	43.69 (1.720)
16	FCN-767J016-AU/☐	31.98 (1.259)	17.78 (.700)	22.96 (.940)	19.05 ((.750)	21.57 (.849)	40.64 (1.600)	45.72 (1.800)	43.18 (1.700)	51.31 (2.020)
20	FCN-767J020-AU/☐	37.06 (1.459)	22.86 (.900)	28.04 (1.104)	24.13 (.950)	26.65 (1.049)	45.72 (1.800)	50.80 (2.000)	48.26 (1.900)	56.39 (2.220)
26	FCN-767J026-AU/☐	44.68 (1.759)	30.48 (1.200)	35.65 (1.404)	31.75 (1.250)	34.27 (1.349)	53.34 (2.100)	58.42 (2.300)	55.88 (2.200)	64.01 (2.520)
30	FCN-767J030-AU/☐	49.76 (1.959)	35.56 (1.400)	40.74 (1.604)	36.83 (1.450)	39.35 (1.549)	58.42 (2.300)	63.50 (2.500)	60.96 (2.400)	69.09 (2.720)
34	FCN-767J034-AU/☐	54.84 (2.159)	40.64 (1.600)	45.82 (1.804)	41.91 (1.650)	44.43 (1.749)	63.50 (2.500)	68.58 (2.700)	66.04 (2.600)	74.17 (2.920)
40	FCN-767J040-AU/☐	62.46 (2.459)	48.26 (1.900)	53.44 (2.104)	49.53 (1.950)	52.05 (2.049)	71.12 (2.800)	76.20 (3.000)	73.66 (2.900)	81.79 (3.220)
50	FCN-767J050-AU/☐	75.16 (2.959)	60.76 (2.400)	65.14 (2.604)	62.23 (2.450)	64.75 (2.549)	83.82 (3.300)	88.90 (3.500)	86.36 (3.400)	94.49 (3.720)
60	FCN-767J060-AU/☐	87.88 (3.460)	73.66 (2.900)	78.84 (3.104)	74.93 (2.950)	77.45 (3.049)	96.52 (3.800)	101.60 (4.000)	99.06 (3.900)	107.19 (4.220)

Contents in blank ☐ are:

Through End Cover	Closed End Cover	Mounting Parts	Strain Relief
1	A	Without Ears	Without
2	B	With Half Ears	Without
3	C	With Full Ears	Without

Through End Cover	Closed End Cover	Mounting Parts	Strain Relief
6	D	Without Ears	With
7	E	With Half Ears	With
8	F	With Full Ears	With

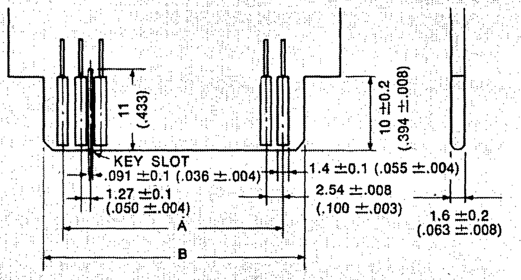
FUJITSU

CARD EDGE CONNECTORS

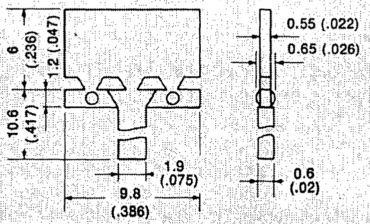
DIMENSIONS

No. of Contacts	Dimensions	
	A	B
10	10.16 (.400)	15.11 (.595)
16	17.78 (.700)	22.73 (.894)
20	22.86 (.900)	27.81 (1.095)
26	30.48 (1.200)	35.43 (1.395)
30	35.56 (1.400)	40.51 (1.595)
34	40.64 (1.600)	45.59 (1.795)
40	48.26 (1.900)	53.21 (2.095)
50	60.76 (2.400)	65.91 (2.595)
60	73.66 (2.900)	78.61 (3.095)

PATTERN OF PC BOARD (RECOMMENDED)


11
(.433)
10 ±0.2
(.394 ±.008)
KEY SLOT
.091 ±0.1 (.036 ±.004)
1.4 ±0.1 (.055 ±.004)
1.27 ±0.1
(.050 ±.004)
2.54 ±.008
(.100 ±.003)
1.6 ±0.2
(.063 ±.008)
A
B

KEY (FCN-760A1)

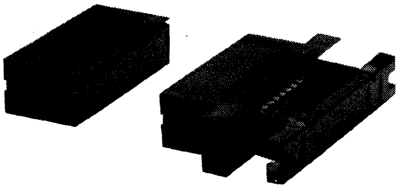

6
(.236)
1.2 (.047)
10.6
(.417)
1.9
(.075)
9.8
(.386)
0.55 (.022)
0.65 (.026)
0.6
(.02)

Unit: mm (in.)

FUJITSU

FLAT CABLE CONNECTORS

FCN-767E CARD-EDGE TYPE



Fujitsu Components has added a series of new card-edge connectors to its line of flat-cable connectors.

This new series (FCN-767E) is packaged and designed for easy use with automatic assembly equipment.

- Solvent-resistant resin
- UL recognized materials (94V-0)
- 2.54mm contact spacing
- Mass termination of flat cable
- Highly reliable, original U-contact (double-action IDC)

ENGINEERING DATA

Temperature range: −55°C ~ +105°C

Current rating: 1A DC

Contact resistance: 20 mΩ max. at 6V DC 0.3A

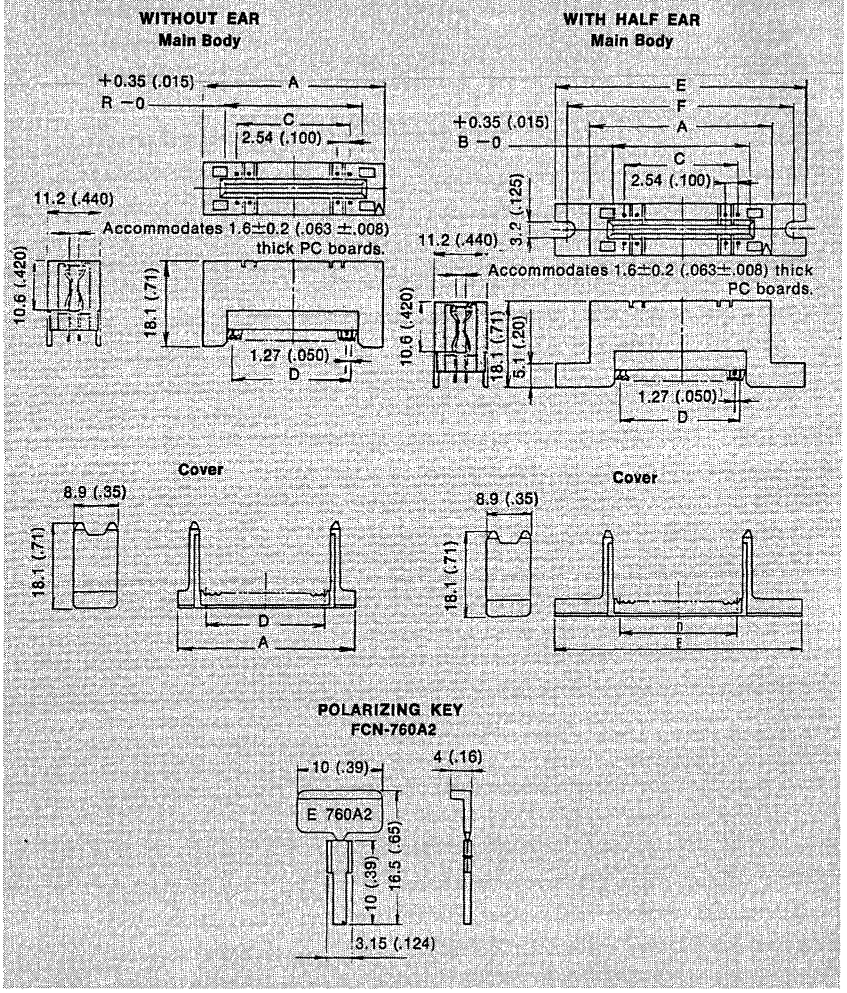
Insulation resistance: 1000 MΩ min. at 500V DC

Dielectric withstanding voltage: 500 V AC for 1 minute

Wire size—Flat cable for IDC: 1.27mm spacing AWG #28 (stranded) or #30 (solid)

Materials — Contact: Phosphor bronze (gold-palladium over nickel plating)
Insulator: PBT

DIMENSIONS


WITHOUT EAR
Main Body
+0.35 (.015)
R −0
A
C
2.54 (.100)
11.2 (.440)
Accommodates 1.6±0.2 (.063 ±.008) thick PC boards.
10.6 (.420)
18.1 (.71)
1.27 (.050)
D
WITH HALF EAR
Main Body
E
F
A
+0.35 (.015)
B −0
C
2.54 (.100)
3.2 (.125)
11.2 (.440)
Accommodates 1.6±0.2 (.063±.008) thick PC boards.
10.6 (.420)
18.1 (.71)
5.1 (.20)
1.27 (.050)
D
Cover
8.9 (.35)
18.1 (.71)
D
A
Cover
8.9 (.35)
18.1 (.71)
D
E
POLARIZING KEY
FCN-760A2
10 (.39)
4 (.16)
E 760A2
16.5 (.65)
10 (.39)
3.15 (.124)

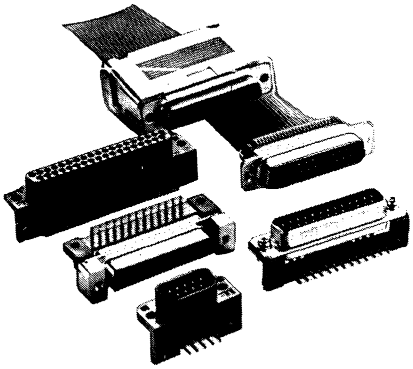
Unit: mm (inch)

No. of Contacts	Mounting	Designation	Dimensions A	B	C	D	E	F
20	Without ear	FCN-767E020-AU/1	37.06 (1.460)	27.94 (1.100)	22.86 (.900)	24.13 (.950)	50.80 (2.000)	45.72 (1.800)
	With half-ears	FCN-767E020-AU/2						
26	Without ear	FCN-767E026-AU/1	44.68 (1.760)	35.56 (1.400)	30.48 (1.200)	31.75 (1.250)	58.42 (2.300)	53.34 (2.100)
	With half-ears	FCN-767E026-AU/2						
34	Without ear	FCN-767E034-AU/1	54.84 (2.160)	45.72 (1.800)	40.64 (1.600)	41.91 (1.650)	68.58 (2.700)	63.50 (2.500)
	With half-ears	FCN-767E034-AU/2						
50	Without ear	FCN-767E050-AU/1	75.16 2.960	66.04 (2.600)	60.96 (2.400)	62.23 (2.450)	88.90 (3.500)	83.82 (3.300)
	With half-ears	FCN-767E050-AU/2						

FUJITSU

D TYPE CONNECTORS

FCN-775P/J



- Intermatable with other "D" type connectors
- High-reliability original U contact (double-action IDC)
- Mass-termination with 1.27mm flat cable
- Molded and shielded metal shell
- Selective plating (gold palladium contact and solder-plated terminal)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC (IDC type 1A DC)

Contact Resistance: 3mΩ max. at 6V DC 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Insertion Force: 10kg max. (25 pins)

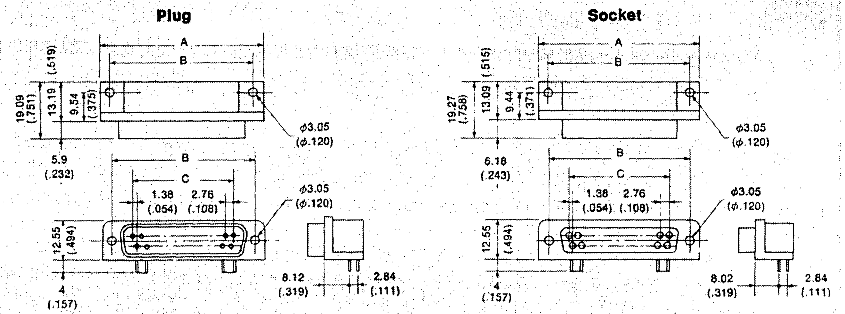
Wire Size — Flat Cable for IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

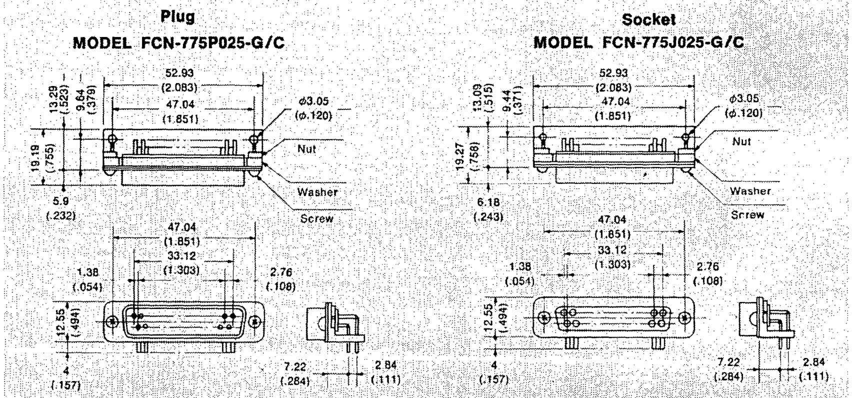
Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)
Insulators: PBT (94V-0)

DIMENSIONS

MOLD-TYPE RIGHT-ANGLE

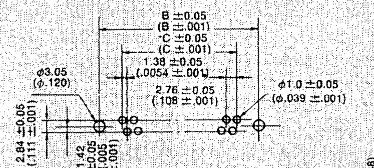

Plug
Socket
A
B
C
19.09 (.751)
13.19 (.519)
9.54 (.375)
19.27 (.758)
13.09 (.515)
9.44 (.371)
φ3.05 (φ.120)
5.9 (.232)
6.18 (.243)
1.38 (.054)
2.76 (.108)
12.55 (.494)
8.12 (.319)
8.02 (.319)
2.84 (.111)
4 (.157)

METAL-TYPE RIGHT-ANGLE


Plug
MODEL FCN-775P025-G/C
Socket
MODEL FCN-775J025-G/C
52.93 (2.083)
47.04 (1.851)
33.12 (1.303)
13.29 (.523)
9.64 (.379)
19.19 (.755)
13.09 (.515)
9.44 (.371)
19.27 (.758)
φ3.05 (φ.120)
Nut
Washer
Screw
5.9 (.232)
6.18 (.243)
1.38 (.054)
2.76 (.108)
12.55 (.494)
4 (.157)
7.22 (.284)
2.84 (.111)

MOUNTING HOLE LAYOUT

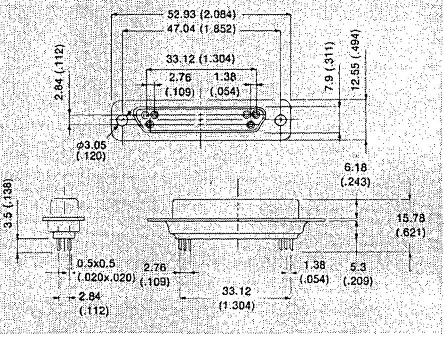
Same for both molded and metal-type connectors
Figure of PC-board mounting holes (for both plug and socket)


B ±0.05 (B ±.001)
C ±0.05 (C ±.001)
1.38 ±0.05 (.0054 ±.001)
2.76 ±0.05 (.108 ±.001)
φ3.05 (φ.120)
φ1.0 ±0.05 (φ.039 ±.001)
2.84 ±0.05 (.111 ±.001)
1.42 ±0.05 (.005 ±.001)

METAL-TYPE STRAIGHT

Socket

MODEL FCN-774J025-G/C


52.93 (2.084)
47.04 (1.852)
33.12 (1.304)
2.76 (.109)
1.38 (.054)
2.84 (.112)
7.9 (.311)
12.55 (.494)
φ3.05 (.120)
6.18 (.243)
3.5 (.138)
15.78 (.621)
0.5x0.5 (.020x.020)
2.76 (.109)
33.12 (1.304)
1.38 (.054)
5.3 (.209)
2.84 (.112)

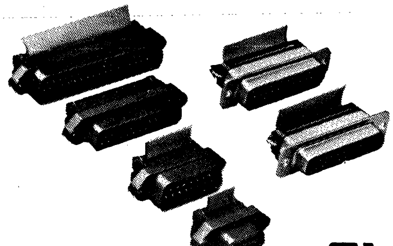
Unit: mm (in.)

No. of Contacts	Designation		Dimensions A	Dimensions B	Dimensions C
9	Plug	FCN-775P009-G/A	30.89 (1.216)	24.99 (0.984)	11.04 (0.435)
	Socket	FCN-775J009-G/A			
15	Plug	FCN-775P015-G/A	39.22 (1.544)	33.32 (1.312)	19.32 (0.761)
	Socket	FCN-775J015-G/A			
25	Plug	FCN-775P025-G/A	52.93 (2.084)	47.04 (1.852)	33.12 (1.304)
	Socket	FCN-775J025-G/A			
37	Plug	FCN-775P037-G/A	69.39 (2.732)	63.50 (2.500)	49.68 (1.956)
	Socket	FCN-775J037-G/A			

FUJITSU

D TYPE CONNECTORS

FCN-777P/J



- Mass termination is easy and efficient to 1.27mm pitch flat cables.
- Mates with military standard D-type connectors
- Features Fujitsu's newly designed U-contacts for high reliability
- Heavy-duty molded shell structure
- UL recognized (94 V-O) insulation materials

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Voltage Rating: 250V AC

Contact Resistance: 20mΩ max.

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

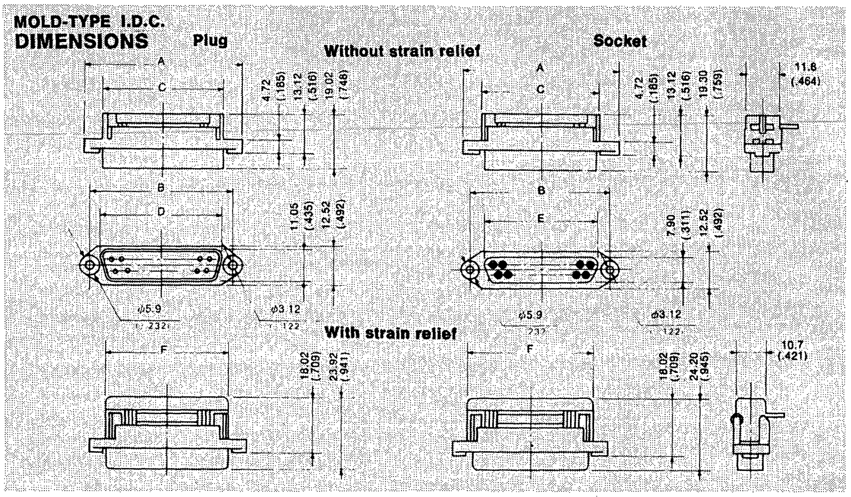
Insertion Force: 10kg max.

Withdrawal Force: 0.75kg min.

Flat Cable: 1.27mm (.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Materials
Contacts: Phosphor-bronze Pagos plating (gold over palladium over nickel)

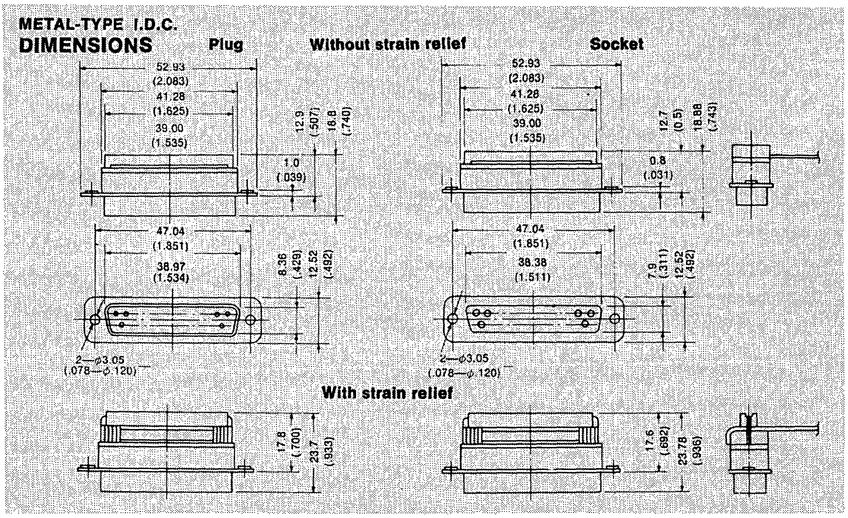
MOLD-TYPE I.D.C. DIMENSIONS


Plug
Without strain relief
Socket
A
C
4.72 (.185)
13.12 (.516)
19.02 (.749)
19.30 (.759)
11.6 (.464)
B
D
E
11.05 (.435)
12.52 (.492)
7.90 (.311)
φ5.9 (.232)
φ3.12 (.122)
With strain relief
F
18.02 (.709)
23.92 (.941)
24.20 (.945)
10.7 (.421)

Unit: mm (in.)

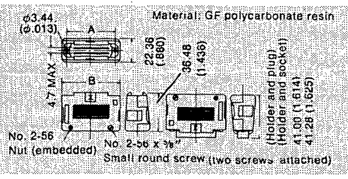
No. of Contacts	Shape	Designation		Dimensions					
		With Strain Relief	Without Strain Relief	A	B	C	D	E	F
9	Plug	FCN-777P009-G/A	FCN-777P009-G/B	30.89 (1.216)	24.99 (0.984)	16.23 (0.639)	18.69 (0.736)	16.33 (0.643)	18.73 (0.737)
	Socket	FCN-777J009-G/A	FCN-777J009-G/B						
15	Plug	FCN-777P015-G/A	FCN-777P015-G/B	39.22 (1.544)	33.32 (1.312)	24.54 (0.966)	27.00 (1.063)	24.66 (0.971)	27.04 (1.065)
	Socket	FCN-777J015-G/A	FCN-777J015-G/B						
25	Plug	FCN-777P025-G/A	FCN-777P025-G/B	52.93 (2.084)	47.04 (1.852)	38.38 (1.511)	40.84 (1.607)	38.38 (1.511)	40.88 (1.609)
	Socket	FCN-777J025-G/A	FCN-777J025-G/B						
37	Plug	FCN-777P037-G/A	FCN-777P037-G/B	69.39 (2.732)	63.50 (2.500)	54.99 (2.165)	57.33 (2.257)	54.84 (2.159)	57.49 (2.263)
	Socket	FCN-777J037-G/A	FCN-777J037-G/B						

METAL-TYPE I.D.C. DIMENSIONS

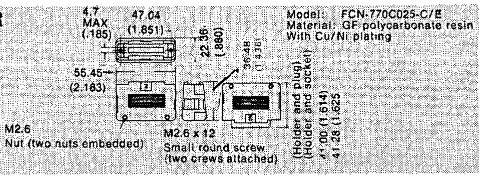

Plug
Without strain relief
Socket
52.93 (2.083)
41.28 (1.625)
39.00 (1.535)
12.9 (.507)
18.8 (.740)
1.0 (.039)
12.7 (0.5)
18.88 (.743)
0.8 (.031)
47.04 (1.851)
38.97 (1.534)
38.38 (1.511)
8.36 (.429)
12.52 (.492)
7.9 (.311)
2—φ3.05 (.078—φ.120)
With strain relief
17.8 (.700)
23.7 (.933)
17.6 (.692)
23.78 (.936)

No. of Contacts	Type	With Strain Relief	Without Strain Relief
25	Plug	FCN-777P025-G/C	FCN-777P025-G/D
	Socket	FCN-777J025-G/C	FCN-777J025-G/D

HOLDER
Molded type


φ3.44 (φ.013)
A
Material: GF polycarbonate resin
22.36 (.880)
36.48 (1.436)
4.7 MAX
B
(Holder and plug) 41.00 (1.614)
(Holder and socket) 41.28 (1.625)
No. 2-56 Nut (embedded)
No. 2-56 x 3/8" Small round screw (two screws attached)

METAL HOLDER


4.7 MAX (.185)
47.04 (1.851)
22.36 (.880)
36.48 (1.436)
55.45 (2.183)
Model: FCN-770C025-C/E
Material: GF polycarbonate resin With Cu/Ni plating
M2.6 Nut (two nuts embedded)
M2.6 x 12 Small round screw (two crews attached)
(Holder and plug) 41.00 (1.614)
(Holder and socket) 41.28 (1.625)

Unit: mm (in.)

No. of Contacts	Model	Dimensions	
		A	B
9	FCN-770C09-F	24.99 (.98)	33.40 (1.31)
15	FCN-770C015-F	33.32 (1.31)	41.73 (1.64)
25	FCN-770C025-A	47.04 (1.85)	55.45 (2.18)
37	FCN-770C037-F	63.50 (2.50)	71.91 (2.83)

FUJITSU

D TYPE CONNECTORS

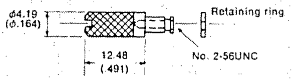
FCN-770C

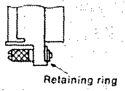
ACCESSORIES FOR MOUNTING DIMENSIONS

Meaning of □□□

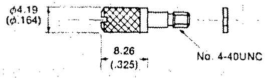
Specification method: FCN-770□□□

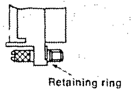
A01


φ4.19
(φ.164)
Retaining ring
12.48
(.491)
No. 2-56UNC

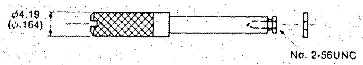

Retaining ring

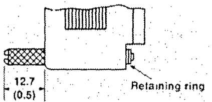
A02


φ4.19
(φ.164)
8.26
(.325)
No. 4-40UNC

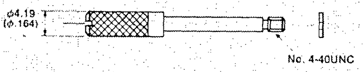

Retaining ring

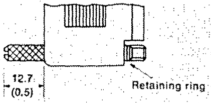
A03


φ4.19
(φ.164)
No. 2-56UNC

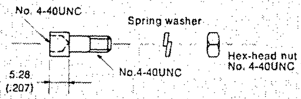

12.7
(0.5)
Retaining ring

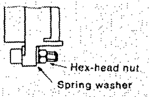
A04


φ4.19
(φ.164)
No. 4-40UNC

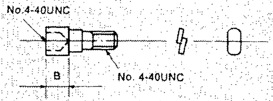

12.7
(0.5)
Retaining ring

A05

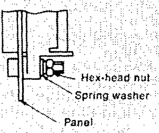

No. 4-40UNC
Spring washer
Hex-head nut
No. 4-40UNC
No.4-40UNC
5.28
(.207)


Hex-head nut
Spring washer

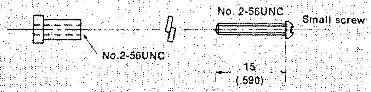
A06 A07

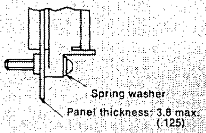

No.4-40UNC
B
No. 4-40UNC

Model	Panel Thickness	Dimension B
A06	2.29 (.090)	2.59 (.101)
A07	3.18 (.125)	1.70 (.066)

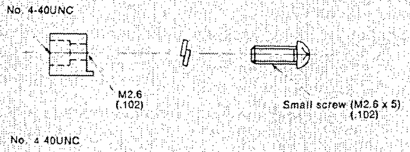

Hex-head nut
Spring washer
Panel

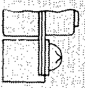
A08


No. 2-56UNC
Small screw
No.2-56UNC
15
(.590)

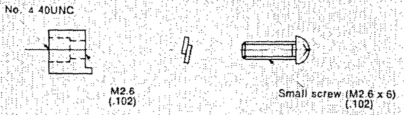

Spring washer
Panel thickness: 3.8 max.
(.125)

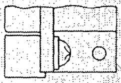
A09


No. 4-40UNC
M2.6
(.102)
Small screw (M2.6 x 5)
(.102)

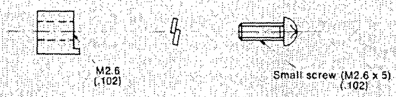


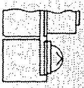
A10


No. 4 40UNC
M2.6
(.102)
Small screw (M2.6 x 6)
(.102)

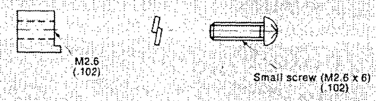


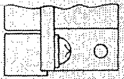
A51


M2.6
(.102)
Small screw (M2.6 x 5)
(.102)

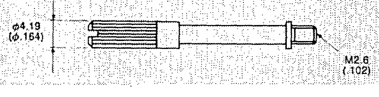


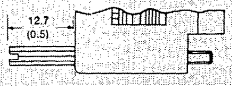
A52


M2.6
(.102)
Small screw (M2.6 x 6)
(.102)



A53


φ4.19
(φ.164)
M2.6
(.102)



ACCESSORY COMBINATION

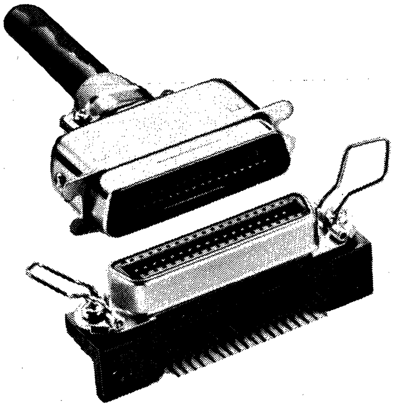
Plug (Socket)	Socket (Plug)
A01	A08
A02	A05, A06, A07
A03	A08
A04	A05, A06, A07

Metal Holder Side	Socket or Plug (Metal-shell)		Remarks
	IDC Type	Right-angle Type	
A04	A05, A06, A07, A09	A05, A06, A07, A10	Unified screw thread
A53	A51	A52	Metric thread

FUJITSU

RIBBON TYPE CONNECTORS

FCN-781P, 785J



- Intermatable with other "RIBBON" type connectors
- Shielded metal shell
- Selective plating (gold palladium plated contact and solder-plated terminal)
- UL recognized material (94V-0)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance: 30mΩ max. at 6V DC 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Insertion Force: 13.6kg max. (36 pin)

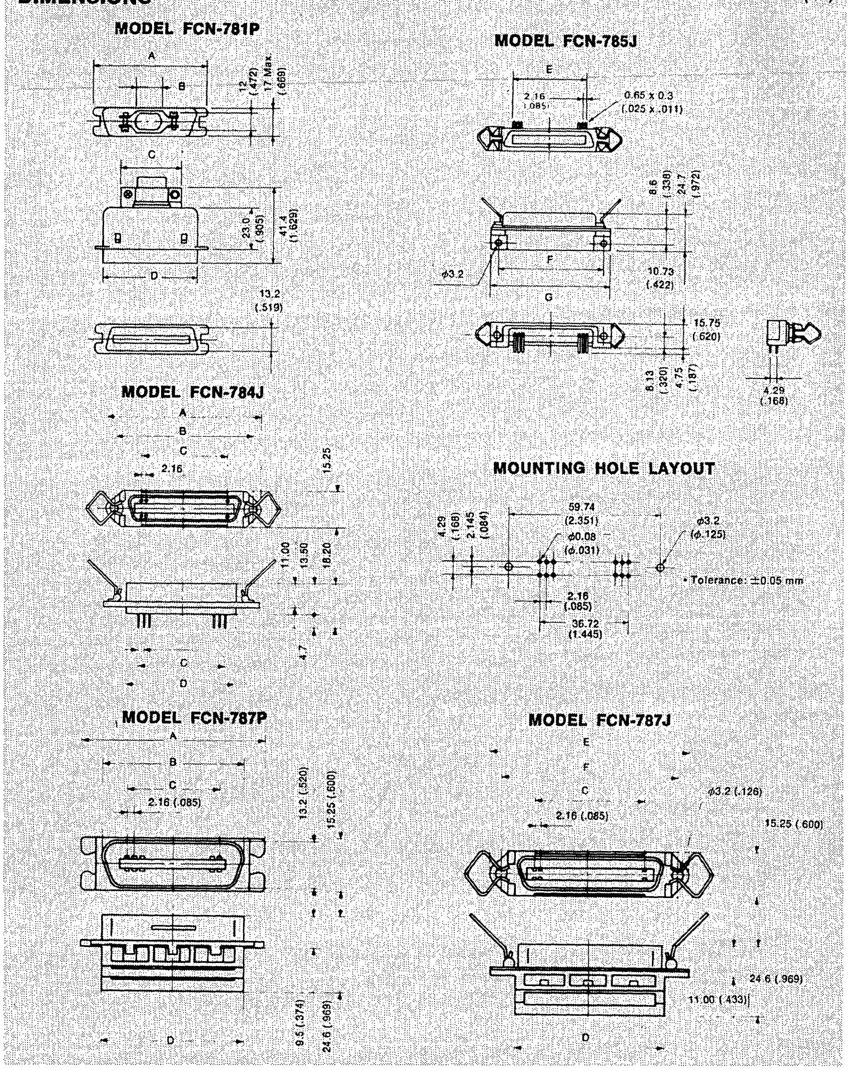
Withdrawal Force: 0.725kg min. (36 pin)

Thickness of PC board (standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze (gold palladium over nickel plating)

Insulation: Plug PPS
Socket PBT

DIMENSIONS Unit: mm (in.)


MODEL FCN-781P
A
B
12 (.472)
17 Max. (.669)
C
23.0 (.905)
41.4 (1.629)
D
13.2 (.519)
MODEL FCN-785J
E
2.16 (.085)
0.65 x 0.3 (.025 x .011)
8.6 (.338)
24.7 (.972)
φ3.2
F
10.73 (.422)
G
15.75 (.620)
8.13 (.320)
4.75 (.187)
4.29 (.168)
MODEL FCN-784J
A
B
C
2.16
15.25
11.00
13.50
18.20
4.7
C
D
MOUNTING HOLE LAYOUT
4.29 (.168)
2.145 (.084)
59.74 (2.351)
φ0.08 (φ.031)
φ3.2 (φ.125)
2.16 (.085)
36.72 (1.445)
Tolerance: ±0.05 mm
MODEL FCN-787P
A
B
C
2.16 (.085)
13.2 (.520)
15.25 (.600)
9.5 (.374)
24.6 (.969)
D
MODEL FCN-787J
E
F
C
φ3.2 (.126)
2.16 (.085)
15.25 (.600)
24.6 (.969)
11.00 (.433)
D

Designation		No. of Contacts	Dimensions A	B	C	D	E	F	G
Plug	FCN-781P024-G/P	24	48.62 (1.914)	12.08 (.476)	27.80 (1.094)	37.64 (1.482)			
	FCN-781P036-G/P	36	61.58 (2.424)	16.18 (.637)	31.90 (1.256)	50.60 (1.992)			
Socket	FCN-785J024-G/☐	24					23.76 (.935)	46.78 (1.842)	54.72 (2.154)
	FCN-785J036-G/☐	36					36.72 (1.446)	59.74 (2.352)	67.68 (2.665)

No. of Contacts	Model	A	B	C	D	E	F
24	FCN-784J024-G/Q	54.72 (2.154)	46.78 (1.842)	23.76 (.935)	33.80 (1.331)		
	FCN-787-P024-G/R	48.62 (1.914)	37.64 (1.482)	23.76 (.935)	36.30 (1.429)		
	FCN-787-J024-G/Q					54.72 (2.154)	46.78 (1.842)
36	FCN-784J036-G/Q	67.68 (2.665)	59.74 (2.352)	36.72 (1.446)	46.76 (1.841)		
	FCN-787-P036-G/R	61.58 (2.424)	50.60 (1.992)	36.72 (1.446)	51.50 (2.028)		
	FCN-787-P036-G/Q					67.68 (2.665)	59.74 (2.352)

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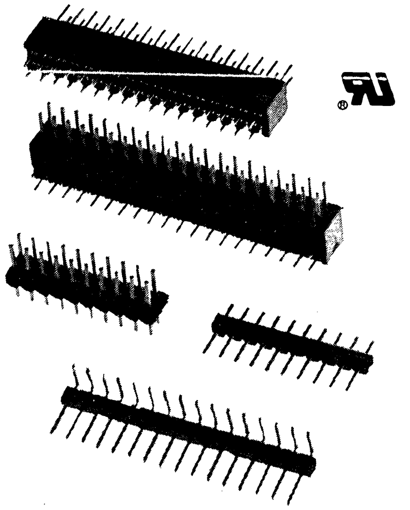
BLOCK HEADERS

FCN-722P, 724P, 725P



- High-density installation on PC board
- 2.54mm grid contact/terminal spacing
- □ 0.64mm contact
- Many variations (10 to 60 pins, O/L/S/W type wire-wrap/straight/right-angle)
- UL recognized (E71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with RECEPTACLE): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

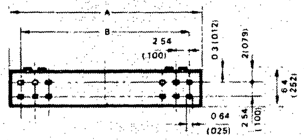
Wire Size — Discrete Wire For Wire-Wrap: AWG #26 (ϕ0.41mm) to #30 (ϕ0.26mm)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

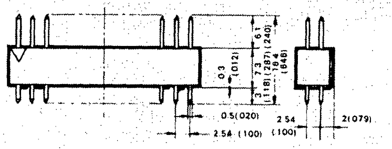
Materials — Contacts: Phosphor-bronze (gold palladium over nickel)
Terminal: U/L type — solder-over-nickel
Insulation: PBT (UL 94V-0)

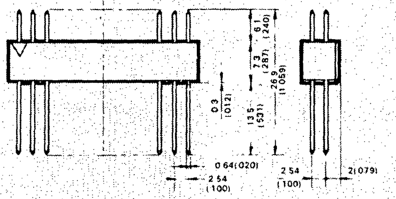
DIMENSIONS Unit: mm (inch)
O TYPE

WIRE-WRAP TYPE

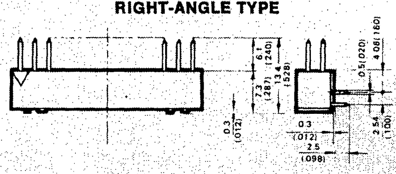


STRAIGHT TYPE

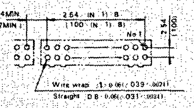


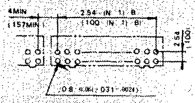


RIGHT-ANGLE TYPE



MOUNTING HOLE LAYOUT





O, L TYPE

Unit: mm (in.)

No. of Contacts	Wire-Wrap Type	Straight Type	Right-Angle Type	Dimensions A	Dimensions B	Dimensions C
8	FCN-722P008-AU/0	FCN-724P008-AU/0	FCN-725P008-AU/0	11.16 (.439)	7.62 (.300)	10.16 (.400)
10*	FCN-722P010-AU/0	FCN-724P010-AU/0	FCN-725P010-AU/0	13.70 (.539)	10.16 (.400)	12.70 (.500)
12	FCN-722P012-AU/0	FCN-724P012-AU/0	FCN-725P012-AU/0	16.24 (.639)	12.70 (.500)	15.24 (.600)
14*	FCN-722P014-AU/0	FCN-724P014-AU/0	FCN-725P014-AU/0	18.78 (.739)	15.24 (.600)	17.78 (.700)
16*	FCN-722P016-AU/0	FCN-724P016-AU/0	FCN-725P016-AU/0	21.32 (.839)	17.78 (.700)	20.32 (.800)
18	FCN-722P018-AU/0	FCN-724P018-AU/0	FCN-725P018-AU/0	23.86 (.939)	20.32 (.800)	22.86 (.900)
20*	FCN-722P020-AU/0	FCN-724P020-AU/0	FCN-725P020-AU/0	26.40 (1.039)	22.86 (.900)	25.40 (1.000)
22	FCN-722P022-AU/0	FCN-724P022-AU/0	FCN-725P022-AU/0	28.94 (1.139)	25.40 (1.000)	27.94 (1.100)
24	FCN-722P024-AU/0	FCN-724P024-AU/0	FCN-725P024-AU/0	31.48 (1.239)	27.94 (1.100)	30.48 (1.200)
26*	FCN-722P026-AU/0	FCN-724P026-AU/0	FCN-725P026-AU/0	34.02 (1.339)	30.48 (1.200)	33.02 (1.300)
28	FCN-722P028-AU/0	FCN-724P028-AU/0	FCN-725P028-AU/0	36.56 (1.439)	33.02 (1.300)	35.56 (1.400)
30*	FCN-722P030-AU/0	FCN-724P030-AU/0	FCN-725P030-AU/0	39.10 (1.539)	35.56 (1.400)	38.10 (1.500)
32	FCN-722P032-AU/0	FCN-724P032-AU/0	FCN-725P032-AU/0	41.64 (1.639)	38.10 (1.500)	40.64 (1.600)
34*	FCN-722P034-AU/0	FCN-724P034-AU/0	FCN-725P034-AU/0	44.18 (1.739)	40.64 (1.600)	43.18 (1.700)
36	FCN-722P036-AU/0	FCN-724P036-AU/0	FCN-725P036-AU/0	46.72 (1.839)	43.18 (1.700)	45.72 (1.800)
38	FCN-722P038-AU/0	FCN-724P038-AU/0	FCN-725P038-AU/0	49.26 (1.939)	45.72 (1.800)	48.26 (1.900)
40*	FCN-722P040-AU/0	FCN-724P040-AU/0	FCN-725P040-AU/0	51.80 (2.039)	48.26 (1.900)	50.80 (2.000)
42	FCN-722P042-AU/0	FCN-724P042-AU/0	FCN-725P042-AU/0	54.34 (2.139)	50.80 (2.000)	53.34 (2.100)
44	FCN-722P044-AU/0	FCN-724P044-AU/0	FCN-725P044-AU/0	56.88 (2.239)	53.34 (2.100)	55.88 (2.200)
46	FCN-722P046-AU/0	FCN-724P046-AU/0	FCN-725P046-AU/0	59.42 (2.339)	55.88 (2.200)	58.42 (2.300)
48	FCN-722P048-AU/0	FCN-724P048-AU/0	FCN-725P048-AU/0	61.96 (2.439)	58.42 (2.300)	60.96 (2.400)
50*	FCN-722P050-AU/0	FCN-724P050-AU/0	FCN-725P050-AU/0	64.50 (2.539)	60.96 (2.400)	63.50 (2.500)
52	FCN-722P052-AU/0	FCN-724P052-AU/0	FCN-725P052-AU/0	67.04 (2.639)	63.50 (2.500)	66.04 (2.600)
54	FCN-722P054-AU/0	FCN-724P054-AU/0	FCN-725P054-AU/0	69.58 (2.739)	66.04 (2.600)	68.58 (2.700)
56	FCN-722P056-AU/0	FCN-724P056-AU/0	FCN-725P056-AU/0	72.12 (2.839)	68.58 (2.700)	71.12 (2.800)
58	FCN-722P058-AU/0	FCN-724P058-AU/0	FCN-725P058-AU/0	74.66 (2.939)	71.12 (2.800)	73.66 (2.900)
60*	FCN-722P060-AU/0	FCN-724P060-AU/0	FCN-725P060-AU/0	77.20 (3.039)	73.66 (2.900)	76.20 (3.000)

* Standard

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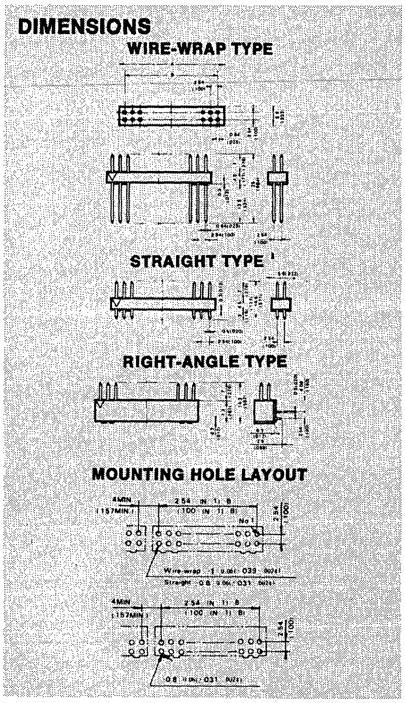
BLOCK HEADERS

FCN-722P, 724P, 725P

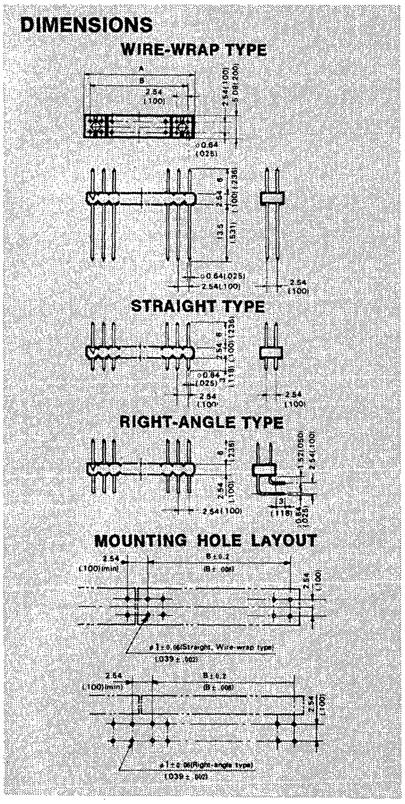


L TYPE

Unit: mm (in.)

No. of Contacts	Wire-Wrap Type	Straight Type	Right-Angle Type	Dimensions A	Dimensions B
10*	FCN-722P010-AU/L	FCN-724P010-AU/L	FCN-725P010-AU/L	13.70 (.539)	10.16 (.400)
12	FCN-722P012-AU/L	FCN-724P012-AU/L	FCN-725P012-AU/L	16.24 (.639)	12.70 (.500)
14*	FCN-722P014-AU/L	FCN-724P014-AU/L	FCN-725P014-AU/L	18.78 (.739)	15.24 (.600)
16*	FCN-722P016-AU/L	FCN-724P016-AU/L	FCN-725P016-AU/L	21.32 (.939)	20.32 (.800)
18	FCN-722P018-AU/L	FCN-724P018-AU/L	FCN-725P018-AU/L	23.86 (.939)	22.86 (.900)
20*	FCN-722P020-AU/L	FCN-724P020-AU/L	FCN-725P020-AU/L	26.40 (1.039)	22.86 (.900)
22*	FCN-722P022-AU/L	FCN-724P022-AU/L	FCN-725P022-AU/L	28.94 (1.139)	25.40 (1.000)
24	FCN-722P024-AU/L	FCN-724P024-AU/L	FCN-725P024-AU/L	31.48 (1.239)	27.94 (1.100)
26*	FCN-722P026-AU/L	FCN-724P026-AU/L	FCN-725P026-AU/L	34.02 (1.339)	30.48 (1.200)
28	FCN-722P028-AU/L	FCN-724P028-AU/L	FCN-725P028-AU/L	36.56 (1.439)	33.02 (1.300)
30*	FCN-722P030-AU/L	FCN-724P030-AU/L	FCN-725P030-AU/L	39.10 (1.539)	35.56 (1.400)
32	FCN-722P032-AU/L	FCN-724P032-AU/L	FCN-725P032-AU/L	41.64 (1.639)	38.10 (1.500)
34*	FCN-722P034-AU/L	FCN-724P034-AU/L	FCN-725P034-AU/L	44.18 (1.739)	40.64 (1.600)
36	FCN-722P036-AU/L	FCN-724P036-AU/L	FCN-725P036-AU/L	46.72 (1.839)	43.18 (1.700)
38	FCN-722P038-AU/L	FCN-724P038-AU/L	FCN-725P038-AU/L	49.26 (1.939)	45.72 (1.800)
40*	FCN-722P040-AU/L	FCN-724P040-AU/L	FCN-725P040-AU/L	51.80 (2.039)	48.26 (1.900)
42	FCN-722P042-AU/L	FCN-724P042-AU/L	FCN-725P042-AU/L	54.34 (2.139)	50.80 (2.000)
44	FCN-722P044-AU/L	FCN-724P044-AU/L	FCN-725P044-AU/L	56.88 (2.239)	53.34 (2.100)
46	FCN-722P046-AU/L	FCN-724P046-AU/L	FCN-725P046-AU/L	59.42 (2.339)	55.88 (2.200)
48	FCN-722P048-AU/L	FCN-724P048-AU/L	FCN-725P048-AU/L	61.96 (2.439)	58.42 (2.300)
50*	FCN-722P050-AU/L	FCN-724P050-AU/L	FCN-725P050-AU/L	64.50 (2.539)	60.96 (2.400)
52	FCN-722P052-AU/L	FCN-724P052-AU/L	FCN-725P052-AU/L	67.04 (2.639)	63.50 (2.500)
54	FCN-722P054-AU/L	FCN-724P054-AU/L	FCN-725P054-AU/L	69.58 (2.739)	66.04 (2.600)
56	FCN-722P056-AU/L	FCN-724P056-AU/L	FCN-725P056-AU/L	72.12 (2.839)	68.58 (2.700)
58	FCN-722P058-AU/L	FCN-724P058-AU/L	FCN-725P058-AU/L	74.66 (2.939)	71.12 (2.800)
60*	FCN-722P060-AU/L	FCN-724P060-AU/L	FCN-725P060-AU/L	77.20 (3.039)	73.66 (2.900)

* Standard



W TYPE

Unit: mm (in.)

No. of Contacts	Wire-Wrap Type	Straight Type	Right-Angle Type	Dimensions Table A	Dimensions Table B
6	FCN-722P006-AU/W	FCN-724P006-AU/W	FCN-725P006-AU/W	7.62 (.300)	5.08 (.200)
8	FCN-722P008-AU/W	FCN-724P008-AU/W	FCN-725P008-AU/W	10.16 (.400)	7.62 (.300)
10*	FCN-722P010-AU/W	FCN-724P010-AU/W	FCN-725P010-AU/W	12.70 (.500)	10.16 (.400)
12	FCN-722P012-AU/W	FCN-724P012-AU/W	FCN-725P012-AU/W	15.24 (.600)	12.70 (.500)
14*	FCN-722P014-AU/W	FCN-724P014-AU/W	FCN-725P014-AU/W	17.78 (.700)	15.24 (.600)
16*	FCN-722P016-AU/W	FCN-724P016-AU/W	FCN-725P016-AU/W	20.32 (.800)	17.78 (.700)
18	FCN-722P018-AU/W	FCN-724P018-AU/W	FCN-725P018-AU/W	22.86 (.900)	20.32 (.800)
20*	FCN-722P020-AU/W	FCN-724P020-AU/W	FCN-725P020-AU/W	25.40 (1.000)	22.86 (.900)
22	FCN-722P022-AU/W	FCN-724P022-AU/W	FCN-725P022-AU/W	27.94 (1.100)	25.40 (1.000)
24	FCN-722P024-AU/W	FCN-724P024-AU/W	FCN-725P024-AU/W	30.48 (1.200)	27.94 (1.100)
26*	FCN-722P026-AU/W	FCN-724P026-AU/W	FCN-725P026-AU/W	33.02 (1.300)	30.48 (1.200)
28	FCN-722P028-AU/W	FCN-724P028-AU/W	FCN-725P028-AU/W	35.56 (1.400)	33.02 (1.300)
30*	FCN-722P030-AU/W	FCN-724P030-AU/W	FCN-725P030-AU/W	38.10 (1.500)	35.56 (1.400)
32	FCN-722P032-AU/W	FCN-724P032-AU/W	FCN-725P032-AU/W	40.64 (1.600)	38.10 (1.500)
34*	FCN-722P034-AU/W	FCN-724P034-AU/W	FCN-725P034-AU/W	43.18 (1.700)	40.64 (1.600)
36	FCN-722P036-AU/W	FCN-724P036-AU/W	FCN-725P036-AU/W	45.72 (1.800)	43.18 (1.700)
38	FCN-722P038-AU/W	FCN-724P038-AU/W	FCN-725P038-AU/W	48.26 (1.900)	45.72 (1.800)
40*	FCN-722P040-AU/W	FCN-724P040-AU/W	FCN-725P040-AU/W	50.80 (2.000)	48.26 (1.900)
42	FCN-722P042-AU/W	FCN-724P042-AU/W	FCN-725P042-AU/W	53.34 (2.100)	50.80 (2.000)
44	FCN-722P044-AU/W	FCN-724P044-AU/W	FCN-725P044-AU/W	55.88 (2.200)	53.34 (2.100)
46	FCN-722P046-AU/W	FCN-724P046-AU/W	FCN-725P046-AU/W	58.42 (2.300)	55.88 (2.200)
48	FCN-722P048-AU/W	FCN-724P048-AU/W	FCN-725P048-AU/W	60.96 (2.400)	58.42 (2.300)
50*	FCN-722P050-AU/W	FCN-724P050-AU/W	FCN-725P050-AU/W	63.50 (2.500)	60.96 (2.400)
52	FCN-722P052-AU/W	FCN-724P052-AU/W	FCN-725P052-AU/W	66.04 (2.600)	63.50 (2.500)
54	FCN-722P054-AU/W	FCN-724P054-AU/W	FCN-725P054-AU/W	68.58 (2.700)	66.04 (2.600)
56	FCN-722P056-AU/W	FCN-724P056-AU/W	FCN-725P056-AU/W	71.12 (2.800)	68.58 (2.700)
58	FCN-722P058-AU/W	FCN-724P058-AU/W	FCN-725P058-AU/W	73.66 (2.900)	71.12 (2.800)
60*	FCN-722P060-AU/W	FCN-724P060-AU/W	FCN-725P060-AU/W	76.20 (3.000)	73.66 (2.900)
62	FCN-722P062-AU/W	FCN-724P062-AU/W	FCN-725P062-AU/W	78.74 (3.100)	76.20 (3.000)
64	FCN-722P064-AU/W	FCN-724P064-AU/W	FCN-725P064-AU/W	81.28 (3.200)	78.74 (3.100)
66	FCN-722P066-AU/W	FCN-724P066-AU/W	FCN-725P066-AU/W	83.82 (3.300)	81.28 (3.200)
68	FCN-722P068-AU/W	FCN-724P068-AU/W	FCN-725P068-AU/W	86.36 (3.400)	83.82 (3.300)
70	FCN-722P070-AU/W	FCN-724P070-AU/W	FCN-725P070-AU/W	88.90 (3.500)	86.36 (3.400)
72	FCN-722P072-AU/W	FCN-724P072-AU/W	FCN-725P072-AU/W	91.44 (3.600)	88.90 (3.500)

* Standard

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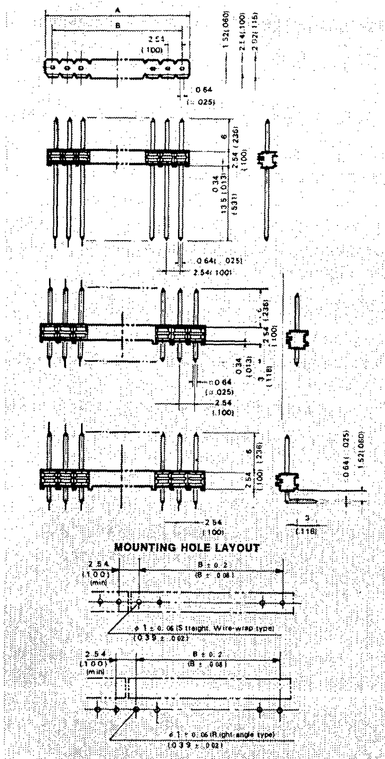
BLOCK HEADERS

FCN-722P, 724P, 725P

DIMENSIONS



S TYPE

Unit: mm (in.)

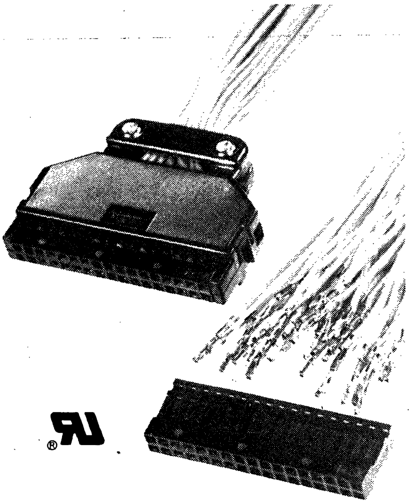
No. of Contacts	Wire-Wrap Type	Straight Type	Right Angle Type	Dimensions	
				A	B
3	FCN-722P003-AU/S	FCN-724P003-AU/S	FCN-725P003-AU/S	7.62 (.300)	5.08 (.200)
4	FCN-722P004-AU/S	FCN-724P004-AU/S	FCN-725P004-AU/S	10.16 (.400)	7.62 (.300)
5*	FCN-722P005-AU/S	FCN-724P005-AU/S	FCN-725P005-AU/S	12.70 (.500)	10.16 (.400)
6	FCN-722P006-AU/S	FCN-724P006-AU/S	FCN-725P006-AU/S	15.24 (.600)	12.70 (.500)
7	FCN-722P007-AU/S	FCN-724P007-AU/S	FCN-725P007-AU/S	17.78 (.700)	15.24 (.600)
8	FCN-722P008-AU/S	FCN-724P008-AU/S	FCN-725P008-AU/S	20.32 (.800)	17.78 (.700)
9	FCN-722P009-AU/S	FCN-724P009-AU/S	FCN-725P009-AU/S	22.86 (.900)	20.32 (.800)
10*	FCN-722P010-AU/S	FCN-724P010-AU/S	FCN-725P010-AU/S	25.40 (1.000)	22.86 (.900)
11	FCN-722P011-AU/S	FCN-724P011-AU/S	FCN-725P011-AU/S	27.94 (1.100)	25.40 (1.000)
12	FCN-722P012-AU/S	FCN-724P012-AU/S	FCN-725P012-AU/S	30.48 (1.200)	27.94 (1.100)
13	FCN-722P013-AU/S	FCN-724P013-AU/S	FCN-725P013-AU/S	33.02 (1.300)	30.48 (1.200)
14	FCN-722P014-AU/S	FCN-724P014-AU/S	FCN-725P014-AU/S	35.56 (1.400)	33.20 (1.300)
15*	FCN-722P015-AU/S	FCN-724P015-AU/S	FCN-725P015-AU/S	38.10 (1.500)	35.56 (1.400)
16	FCN-722P016-AU/S	FCN-724P016-AU/S	FCN-725P016-AU/S	40.64 (1.600)	38.10 (1.500)
17	FCN-722P017-AU/S	FCN-724P017-AU/S	FCN-725P017-AU/S	43.18 (1.700)	40.64 (1.600)
18	FCN-722P018-AU/S	FCN-724P018-AU/S	FCN-725P018-AU/S	45.72 (1.800)	43.18 (1.700)
19	FCN-722P019-AU/S	FCN-724P019-AU/S	FCN-725P019-AU/S	48.26 (1.900)	45.72 (1.800)
20*	FCN-722P020-AU/S	FCN-724P020-AU/S	FCN-725P020-AU/S	50.80 (2.000)	48.26 (1.900)
21	FCN-722P021-AU/S	FCN-724P021-AU/S	FCN-725P021-AU/S	53.34 (2.100)	50.80 (2.000)
22	FCN-722P022-AU/S	FCN-724P022-AU/S	FCN-725P022-AU/S	55.88 (2.200)	53.34 (2.100)
23	FCN-722P023-AU/S	FCN-724P023-AU/S	FCN-725P023-AU/S	58.42 (2.300)	55.88 (2.200)
24	FCN-722P024-AU/S	FCN-724P024-AU/S	FCN-725P024-AU/S	60.96 (2.400)	58.42 (2.300)
25*	FCN-722P025-AU/S	FCN-724P025-AU/S	FCN-725P025-AU/S	63.50 (2.500)	60.96 (2.400)
26	FCN-722P026-AU/S	FCN-724P026-AU/S	FCN-725P026-AU/S	66.04 (2.600)	63.50 (2.500)
27	FCN-722P027-AU/S	FCN-724P027-AU/S	FCN-725P027-AU/S	68.58 (2.700)	66.04 (2.600)
28	FCN-722P028-AU/S	FCN-724P028-AU/S	FCN-725P028-AU/S	71.12 (2.800)	68.58 (2.700)
29	FCN-722P029-AU/S	FCN-724P029-AU/S	FCN-725P029-AU/S	73.66 (2.900)	71.12 (2.800)
30*	FCN-722P030-AU/S	FCN-724P030-AU/S	FCN-725P030-AU/S	76.20 (3.000)	73.66 (2.900)
31	FCN-722P031-AU/S	FCN-724P031-AU/S	FCN-725P031-AU/S	78.74 (3.100)	76.20 (3.000)
32	FCN-722P032-AU/S	FCN-724P032-AU/S	FCN-725P032-AU/S	81.28 (3.200)	78.74 (3.100)
33	FCN-722P033-AU/S	FCN-724P033-AU/S	FCN-725P033-AU/S	83.82 (3.300)	81.28 (3.200)
34	FCN-722P034-AU/S	FCN-724P034-AU/S	FCN-725P034-AU/S	86.36 (3.400)	83.82 (3.300)
35	FCN-722P035-AU/S	FCN-724P035-AU/S	FCN-725P035-AU/S	88.90 (3.500)	86.36 (3.400)
36*	FCN-722P036-AU/S	FCN-724P036-AU/S	FCN-725P036-AU/S	91.44 (3.600)	88.90 (3.500)

* Standard

FUJITSU

RECEPTACLE CONNECTORS

FCN-723J



- Crimp and removable contact for solid and twisted-pair cable
- 2.54mm grid contact spacing
- High-reliability box-protect (anti-deformation) contact
- Housing-lock mechanism (contact requires no locking-lance)
- Double-cantilever contact
- Bottom-entry contact
- Cover lockable with M hook HEADERS
- UL recognized (E71597)
- Many variations (3 to 72 pins, W/S type)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with BLOCK HEADER): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

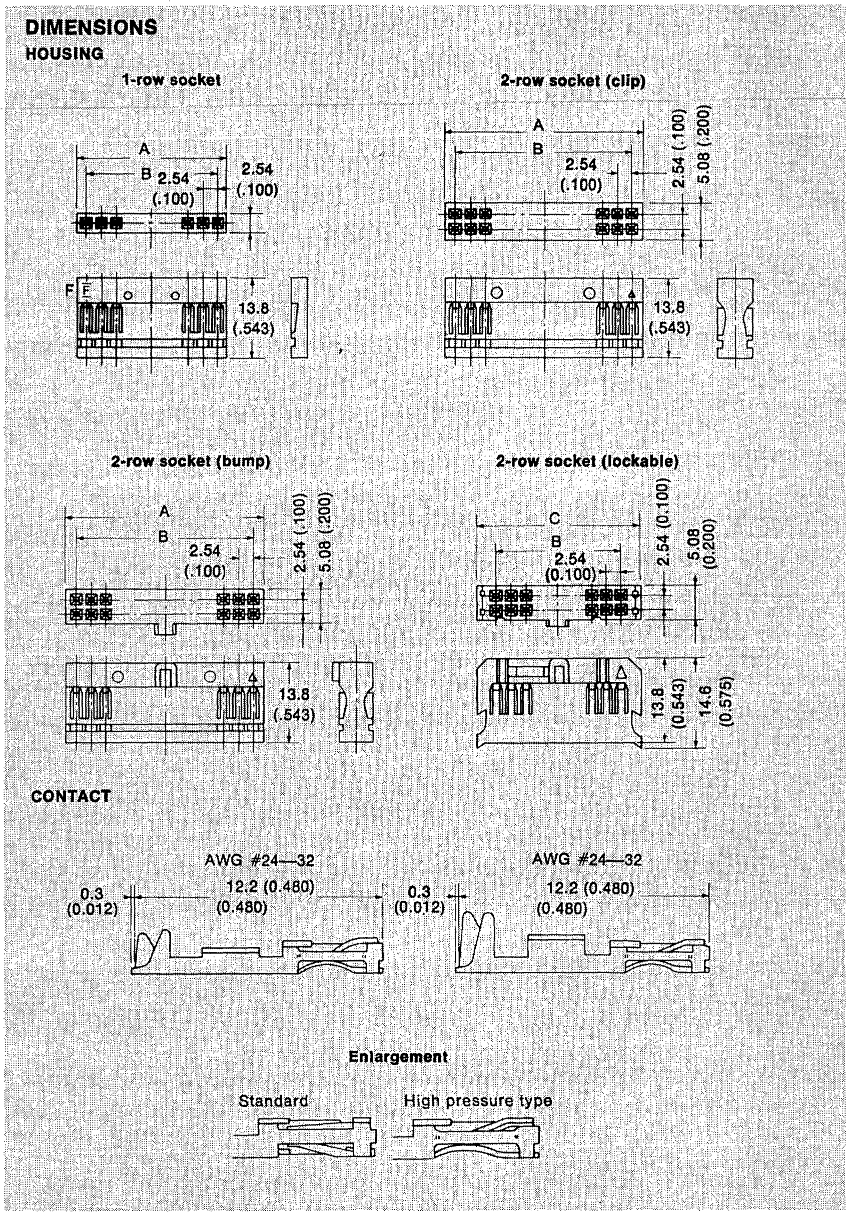
Dielectric Withstanding Voltage: 500V AC for 1 minute

Insertion Force (with BLOCK HEADER): 2.5kg max. (10 pins) to 15kg max (60 pins)

Withdrawal Force (with BLOCK HEADER): 0.3kg min. (10 pins to 1.8kg min (60 pins)

Wire Size — Solid wire for crimp: AWG #24 (0.24mm² [.000372 in²]) to #32 (0.032mm² [.0000495 in²])

Materials — Contacts: Phosphor-bronze (gold over nickel plating)
Insulators: PPS Nylon (UL 94V-2)


DIMENSIONS
HOUSING
1-row socket
A
B
2.54 (.100)
2.54 (.100)
F
13.8 (.543)
2-row socket (clip)
A
B
2.54 (.100)
2.54 (.100)
5.08 (.200)
13.8 (.543)
2-row socket (bump)
A
B
2.54 (.100)
2.54 (.100)
5.08 (.200)
13.8 (.543)
2-row socket (lockable)
C
B
2.54 (0.100)
2.54 (0.100)
5.08 (0.200)
13.8 (0.543)
14.6 (0.575)
CONTACT
AWG #24—32
0.3 (0.012)
12.2 (0.480) (0.480)
AWG #24—32
0.3 (0.012)
12.2 (0.480) (0.480)
Enlargement
Standard
High pressure type

Unit: mm (in.)

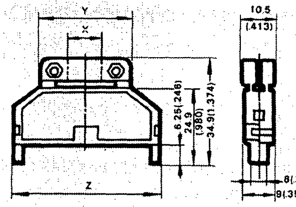
FUJITSU

RECEPTACLE CONNECTORS

FCN-723J/B/D

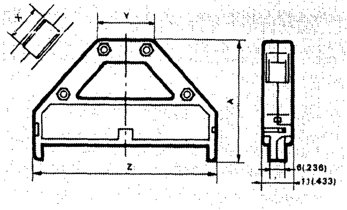
COVER

S type



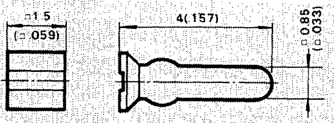
No. of Contacts	Designation	X	Y	Z
20	FCN-720C020/2S	10 (.394)	24 (.945)	30.00 (1.181)
26	FCN-720C026/2S	11 (.433)	27 (1.063)	37.62 (1.481)
34	FCN-720C034/2S	12 (.472)	30 (1.181)	47.78 (1.881)

P type



No. of Contacts	Designation	X	Y	Z	A
40	FCN-720C040/2P	13.5 (.531)	10.0 (.393)	55.4 (2.181)	46.3 (1.822)
50	FCN-720C050/2P	15.0 (.590)	20.0 (.787)	68.1 (2.681)	46.3 (1.822)
60	FCN-720C060/2P	17.5 (.688)	32.2 (1.267)	80.8 (3.181)	48.3 (1.901)

POLARIZING KEY FCN-700A1



Unit: mm (in.)

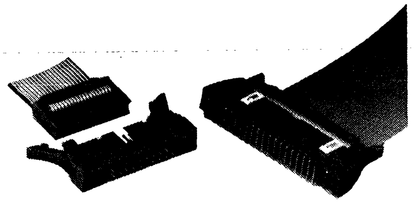
Socket Housing						Dimensions			
No. of Contacts	1-row Socket	No. of Contacts	2-row Socket	Bump 2-row Socket	Lockable 2-row Socket	A	B	C	Contact
3	FCN-723J003/1	6	FCN-723J006/2			7.62 (.300)	5.08 (.200)		Wire size AWG #24–32 • Standard type Loose piece FCN-723J-AU/Q Strip form FCN-723J-AU/R • High pressure type Loose piece FCN-723J-AU/S Strip form FCN-723J-AU/T Wire size AWG #20–22 • Standard type Loose piece FCN-723J-AU/U Strip form FCN-723J-AU/V • High pressure type Loose piece FCN-723J-AU/W Strip form FCN-723J-AU/X
4	FCN-723J004/1	8	FCN-723J008/2			10.16 (.400)	7.62 (.300)		
5*	FCN-723J005/1	10*	FCN-723J010/2	FCN-723B010/2	FCN-723D010/2	12.70 (.500)	10.16 (.400)	17.30 (0.68)	
6	FCN-723J006/1	12	FCN-723J012/2			15.24 (.600)	12.70 (.500)		
7	FCN-723J007/1	14*	FCN-723J014/2	FCN-723B014/2	FCN-723D014/2	17.78 (.700)	15.24 (.600)	22.40 (0.88)	
8	FCN-723J008/1	16*	FCN-723J016/2	FCN-723B016/2	FCN-723D016/2	20.32 (.800)	17.78 (.700)	24.50 (0.96)	
9	FCN-723J009/1	18	FCN-723J018/2			22.86 (.900)	20.32 (.800)		
10*	FCN-723J010/1	20*	FCN-723J020/2	FCN-723B020/2	FCN-723D020/2	25.40 (1.000)	22.86 (.900)	30.00 (1.18)	
11	FCN-723J011/1	22	FCN-723J022/2			27.94 (1.200)	25.40 (1.000)		
12	FCN-723J012/1	24	FCN-723J024/2			30.48 (1.200)	27.94 (1.100)		
13	FCN-723J013/1	26*	FCN-723J026/2	FCN-723B026/2	FCN-723D026/2	33.02 (1.300)	30.48 (1.200)	37.60 (1.48)	
14	FCN-723J014/1	28	FCN-723J028/2			35.56 (1.400)	33.02 (1.300)		
15*	FCN-723J015/1	30*	FCN-723J030/2	FCN-723B030/2	FCN-723D030/2	38.10 (1.500)	35.56 (1.400)	42.70 (1.61)	
16	FCN-723J016/1	32	FCN-723J032/2			40.64 (1.600)	38.10 (1.500)		
17	FCN-723J017/1	34*	FCN-723J034/2	FCN-723B034/2	FCN-723D034/2	43.18 (1.700)	40.64 (1.600)	47.82 (1.88)	
18	FCN-723J018/1	36	FCN-723J036/2			45.72 (1.800)	43.18 (1.700)		
19	FCN-723J019/1	38	FCN-723J038/2			48.26 (1.900)	45.72 (1.800)		
20*	FCN-723J020/1	40*	FCN-723J040/2	FCN-723B040/2		50.80 (2.000)	48.26 (1.900)		
21	FCN-723J021/1	42	FCN-723J042/2			53.34 (2.100)	50.80 (2.000)		
22	FCN-723J022/1	44	FCN-723J044/2			55.88 (2.200)	53.34 (2.100)		
23	FCN-723J023/1	46	FCN-723J046/2			58.42 (2.300)	55.88 (2.200)		
24	FCN-723J024/1	48	FCN-723J048/2			60.96 (2.400)	58.42 (2.300)		
25*	FCN-723J025/1	50*	FCN-723J050/2	FCN-723B050/2		63.50 (2.500)	60.96 (2.400)		
26	FCN-723J026/1	52	FCN-723J052/2			66.04 (2.600)	63.50 (2.500)		
27	FCN-723J027/1	54	FCN-723J054/2			68.58 (2.700)	66.04 (2.600)		
28	FCN-723J028/1	56	FCN-723J056/2			71.12 (2.800)	68.58 (2.700)		
29	FCN-723J029/1	58	FCN-723J058/2			73.66 (2.900)	71.12 (2.800)		
30*	FCN-723J030/1	60*	FCN-723J060/2	FCN-723B060/2		76.20 (3.000)	73.66 (2.900)		
31	FCN-723J031/1	62	FCN-723J062/2			78.74 (3.100)	76.20 (3.000)		
32	FCN-723J032/1	64	FCN-723J064/2			81.28 (3.200)	78.74 (3.100)		
33	FCN-723J033/1	66	FCN-723J066/2			83.82 (3.300)	81.28 (3.200)		
34	FCN-723J034/1	68	FCN-723J068/2			86.36 (3.400)	83.82 (3.300)		
35	FCN-723J035/1	70	FCN-723J070/2			88.90 (3.500)	86.36 (3.400)		
36*	FCN-723J036/1	72	FCN-723J072/2			91.44 (3.600)	88.90 (3.500)		

* Standard

FUJITSU

FLAT CABLE CONNECTORS

FCN-600



FCN-600 Series Connectors are added in FUJITSU Flat-Cable Connectors and provide mating compatibility with MIL-C-83503 Connectors.

- Mating and keying compatibility with MIL-C-83503, DIN 41651 and BT-224 Connectors.
- Fully shrouded header and Bump polarization socket.
- Selective plating (Gold, palladium over nickel plating in triple layers on contact and palladium plating on terminal).
- Many diversifications (10~64 pins, with/without strain relief, long/short hook).
- UL recognized materials (94V-0).
- Solvent-resistant resin (PBT).

ENGINEERING DATA

Temperature range: −55 to +105°C

Current rating: 1A DC

Contact resistance: 20 mΩ max at 6V DC 0.3A

Insulation resistance: 1000 MΩ min. 500V DC

Dielectric withstanding voltage: 500V AC for 1 minute

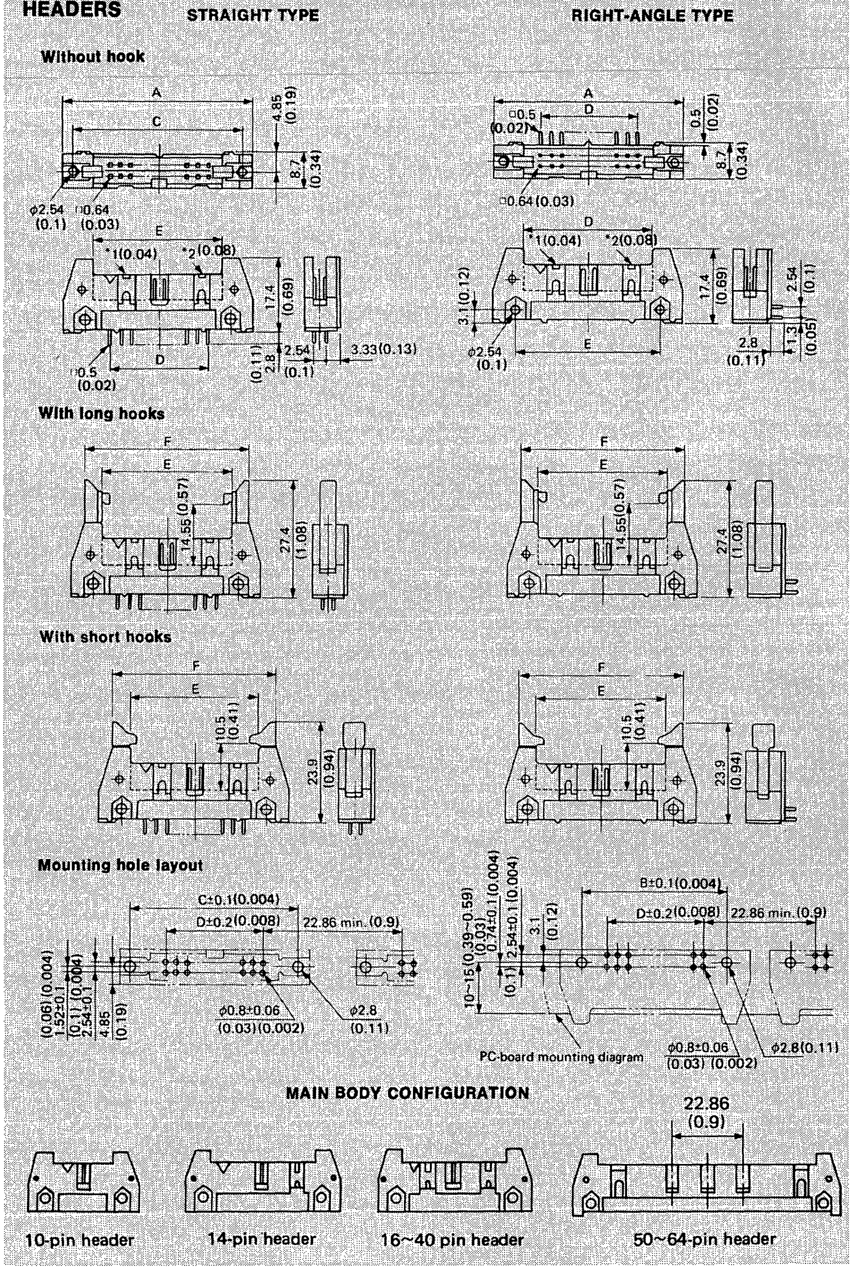
Contact material: PBS

Insulator material: PBT (UL 94V-0)

Plating: Contact: Gold, palladium over nickel (Triple layers). Terminal: Palladium.

Wire size—for flat cable IDC: 1.27 mm (.050 inch) spacing. AWG #28 (Stranded) or #30 (solid)

DIMENSIONS
HEADERS


STRAIGHT TYPE
RIGHT-ANGLE TYPE
Without hook
A
C
4.85 (0.19)
8.7 (0.34)
ϕ2.54 (0.1)
□0.64 (0.03)
E
*1(0.04)
*2(0.08)
17.4 (0.69)
2.54 (0.1)
2.8 (0.11)
3.33(0.13)
□0.5 (0.02)
D
0.5 (0.02)
3.1(0.12)
1.3 (0.05)
2.8 (0.11)
With long hooks
F
14.55(0.57)
27.4 (1.08)
With short hooks
10.5 (0.41)
23.9 (0.94)
Mounting hole layout
C±0.1(0.004)
D±0.2(0.008)
22.86 min.(0.9)
1.52±0.1 (0.06)(0.004)
2.54±0.1 (0.1)(0.004)
ϕ0.8±0.06 (0.03)(0.002)
ϕ2.8 (0.11)
B±0.1(0.004)
10~15(0.39~0.59)
0.74±0.1(0.03)(0.004)
PC-board mounting diagram
MAIN BODY CONFIGURATION
22.86 (0.9)
10-pin header
14-pin header
16~40 pin header
50~64-pin header

Unit: mm (inch)

No. of contacts	Designations		Dimensions					
	Straight	Right Angle	A	B	C	D	E	F
10	FCN-604G010-G/☐	FCN-605G010-G/☐	32.0 (1.26)	21.84 (0.86)	27.94 (1.1)	10.16 (0.4)	17.91 (0.71)	25.91 (1.02)
14	FCN-604Q014-G/☐	FCN-605Q014-G/☐	37.1 (1.46)	26.92 (1.06)	33.02 (1.3)	15.25 (0.6)	22.99 (0.91)	30.99 (1.22)
16	FCN-604Q016-G/☐	FCN-605Q016-G/☐	39.6 (1.56)	29.46 (1.16)	35.56 (1.4)	17.78 (0.7)	25.53 (1.01)	33.53 (1.32)
20	FCN-604Q020-G/☐	FCN-605Q020-G/☐	44.7 (1.76)	34.54 (1.36)	40.64 (1.6)	22.86 (0.9)	30.61 (1.21)	38.61 (1.52)
26	FCN-604Q026-G/☐	FCN-605Q026-G/☐	52.3 (2.06)	42.16 (1.66)	48.26 (1.9)	30.48 (1.2)	38.23 (1.51)	46.23 (1.82)
30	FCN-604Q030-G/☐	FCN-605Q030-G/☐	57.4 (2.26)	47.24 (1.86)	53.34 (2.1)	35.56 (1.4)	43.31 (1.71)	51.31 (2.02)
34	FCN-604Q034-G/☐	FCN-605Q034-G/☐	62.5 (2.46)	52.34 (2.06)	58.42 (2.3)	40.64 (1.6)	48.39 (1.91)	56.39 (2.22)
40	FCN-604Q040-G/☐	FCN-605Q040-G/☐	70.1 (2.76)	59.94 (2.36)	66.04 (2.6)	48.26 (1.9)	56.01 (2.21)	64.01 (2.52)
50	FCN-604Q050-G/☐	FCN-605Q050-G/☐	82.8 (3.26)	72.64 (2.86)	78.74 (3.1)	60.96 (2.4)	68.71 (2.71)	76.71 (3.02)
60	FCN-604Q060-G/☐	FCN-605Q060-G/☐	95.5 (3.76)	85.34 (3.36)	91.44 (3.6)	73.66 (2.9)	81.41 (3.21)	89.41 (3.52)
64	FCN-604Q064-G/☐	FCN-605Q064-G/☐	100.5 (3.96)	90.42 (3.56)	96.52 (3.8)	78.74 (3.1)	86.49 (3.41)	94.49 (3.72)

Blank ☐ indicates 0: without hook M: with long hooks S: with short hooks

FUJITSU

FLAT CABLE CONNECTORS

STRAIN-RELIEF

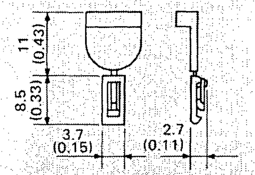
No. of contacts	Designations of Strain-relief
10	FCN-607S010-01
14	FCN-607S014-01
16	FCN-607S016-01
20	FCN-607S020-01
26	FCN-607S026-01
30	FCN-607S030-01
34	FCN-607S034-01
40	FCN-607S040-01
50	FCN-607S050-01
60	FCN-607S060-01
64	FCN-607S064-01

HOOK

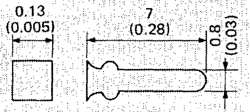
Long hook (M hook)	FCN-600H-M
Short hook (S hook)	FCN-600H-S

POLARIZING KEY Unit: mm (inch)

FCN-600A2

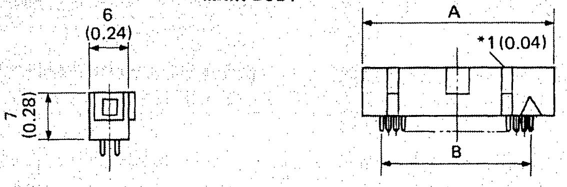

11 (0.43)
8.5 (0.33)
3.7 (0.15)
2.7 (0.11)

FCN-600A1

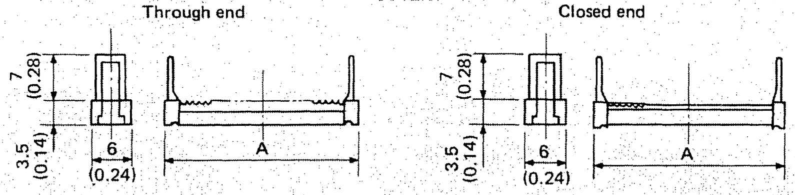

0.13 (0.005)
7 (0.28)
0.8 (0.03)

DIMENSIONS SOCKET

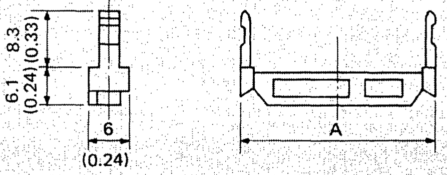
MAIN BODY


6 (0.24)
7 (0.28)
A
*1 (0.04)
B

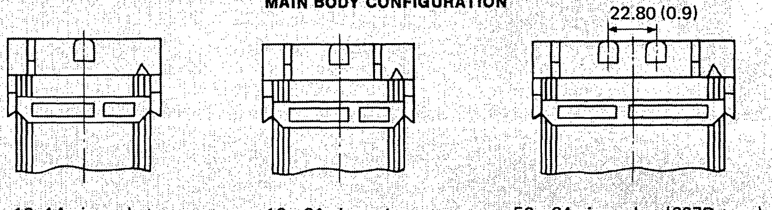
COVER


Through end
Closed end
7 (0.28)
3.5 (0.14)
6 (0.24)
A
7 (0.28)
3.5 (0.14)
6 (0.24)
A

STRAIN RELIEF

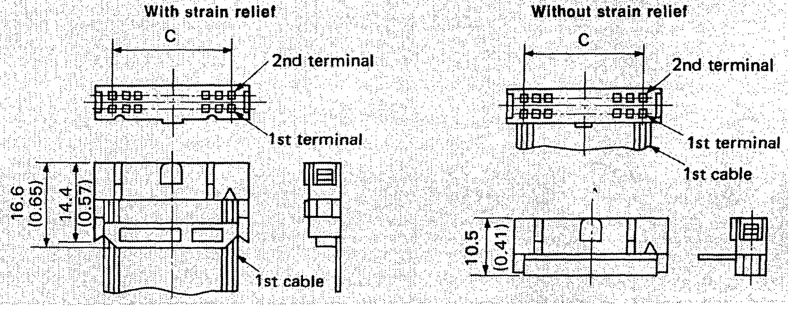

8.3 (0.33)
6.1 (0.24)
6 (0.24)
A

MAIN BODY CONFIGURATION



10, 14 pin socket 16~64 pin socket 50~64 pin socket (607D type)

ASSEMBLY


With strain relief
C
2nd terminal
1st terminal
16.6 (0.65)
14.4 (0.57)
1st cable
Without strain relief
C
2nd terminal
1st terminal
1st cable
10.5 (0.41)

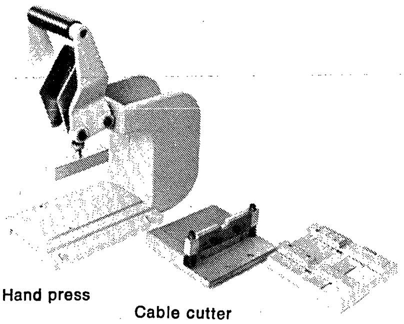
Unit: mm (inch)

No. of contacts	No. of bump	Designations	Dimensions		
			A	B	C
10	1	FCN-607B010-G/☐	17.27 (0.68)	11.43 (0.45)	10.16 (0.40)
14	1	FCN-607B014-G/☐	22.35 (0.88)	16.51 (0.65)	15.24 (0.60)
16	1	FCN-607B016-G/☐	24.89 (0.99)	19.05 (0.75)	17.78 (0.70)
20	1	FCN-607B020-G/☐	29.97 (1.18)	24.13 (0.95)	22.86 (0.90)
26	1	FCN-607B026-G/☐	37.59 (1.48)	31.75 (1.25)	30.48 (1.20)
30	1	FCN-607B030-G/☐	42.67 (1.68)	36.83 (1.45)	35.56 (1.40)
34	1	FCN-607B034-G/☐	47.75 (1.88)	41.91 (1.65)	40.64 (1.60)
40	1	FCN-607B040-G/☐	55.37 (2.18)	49.53 (1.95)	48.26 (1.90)
50	1	FCN-607B050-G/☐	68.07 (2.68)	62.23 (2.45)	60.96 (2.40)
	2	FCN-607D050-G/☐			
60	1	FCN-607B060-G/☐	80.77 (3.15)	74.93 (2.95)	73.66 (2.90)
	2	FCN-607D060-G/☐			
64	1	FCN-607B064-G/☐	85.85 (3.38)	80.81 (3.18)	78.74 (3.10)
	2	FCN-607D064-G/☐			

Blank ☐ indicates 0: Through end, with strain relief B: Closed end, with strain relief
C: Through end, without strain relief D: Closed end, without strain relief

I.D.C. TOOLS

FCN-700, 710, 730, 740, 750, 760, 770



Special tools are needed for IDC 700-Series connectors: a cable cutter, a locator plate for positioning connectors and cables, and a hand press to apply welding pressure. (See the figure on the left.)

- All tools are easy to use, so even a beginner can install Fujitsu connectors.
- The number of pins can be changed easily only by setting the connector guide to a specified pin hole.
- The cable cutter remains sharp, providing fast, easy cuts for a long time.
- Instruction manuals for tools are available from Fujitsu agents. Just ask.
- If you have any questions, please contact the nearest Fujitsu sales office or agent.

ORDERING INFORMATION

Tool Name	Designation
Cable cutter (common)	FCN-707T-T001/H
Hand press (common)	FCN-707T-T101/H
Locator plate model 700	FCN-707T-T022/H
Locator plate model 707P	FCN-707T-T025/H
Locator plate model 710	FCN-717T-T014/H
Locator plate model 730	FCN-737T-T017/H
Locator plate model 750	FCN-757T-T015/H
Locator plate model 760E	FCN-767T-T030/H
Locator plate model 760J	FCN-767T-T016/H
Locator plate model 770	FCN-777T-T026/H
Locator plate model 780	FCN-787T-T028/H

CRIMPING TOOLS — FCN-720

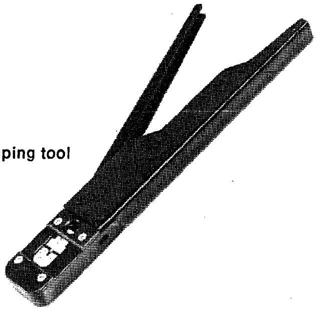
Discrete wires are connected to FCN-720 connectors without solder. Such wires can be selected from several types. Although crimping tools are sold by several companies, they are not compatible with each other. An automatic crimping machine is also available, contact Fujitsu for details. (See the figure on the left.)

Fujitsu's crimping tool can be used easily, even by a beginner. When using the tool, be sure to adjust the size (crimp height) shown in the figure at the right after solderless connection. If this is not done properly, wires may loosen or break off.

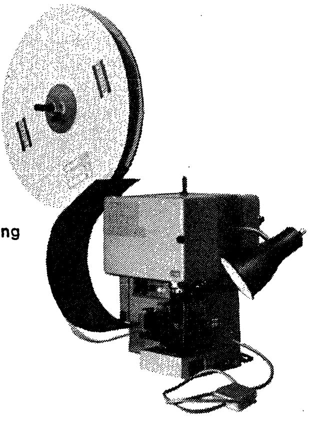
ORDERING INFORMATION

Wire Size AWG #	Contact Type		Semiautomatic Crimping Tool		Hand Crimping Tool	Cross-section of Wire (mm²)	Crimp Height	Insulation Diameter	Length Strip
	Standard Type	High Pressure Type	Press	Applicator					
20	FCN-273J-AU/U (loose)	FCN-723J-AU/W (loose)	FCN-M100-120	FCN-A118	FCN-723T-T018/H	0.52—0.64	0.75—0.85 (.029—.033)	1.3—1.8 (.051—.070)	3.1—3.6 (.122—.141)
22	FCN-723J-AU/V (strip form)	FCN-723J-AU/X (strip form)				0.30—0.40	0.70—0.80 (.027—.031)		
24	FCN-723J-AU/Q (loose)	FCN-723J-AU/S (loose)		FCN-A107	FCN-723T-T007/H	0.20—0.24	0.70—0.80 (.027—.031)	1.1—1.6 (.043—.062)	
26					FCN-723T-T014/H (fine wire covered)	0.13—0.16	0.66—0.76 (.025—.029)		
28						0.088—0.096	0.60—0.68 (.023—.026)		
30	FCN-723J-AU/R (strip form)	FCN-723J-AU/T (strip form)		FCN-A108	FCN-723T-T008/H	0.055—0.060	0.68—0.75 (.023—.029)	0.7—1.0 (.027—.034)	
32					FCN-723T-T015/H (very fine wire covered)	0.032—0.038	0.68—0.74 (0.26—.029)		

Notes:
- An instruction manual is included with the solderless-connection tool when it is purchased.
- If you have any questions about crimping, contact the nearest Fujitsu sales office or sales agent.



Manual crimping tool



Automatic crimping machine

FUJITSU AMERICA, INC.

FUJITSU
Component Division
918 Sherwood Drive, Lake Bluff, IL 60044
(312) 295-2610 Telex: 206196 TWX 910-651-2259

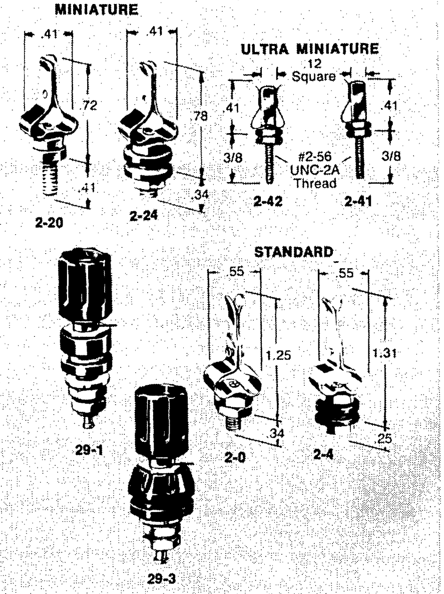
Printed in USA

Termination Hardware

Grayhill INC.

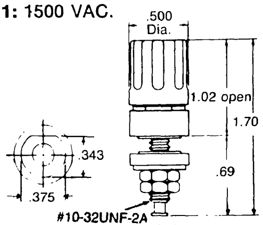
Test Clips

Designed for panel mounting on test equipment or for breadboarding to allow rapid connections without manual opening and closing of jaws. Hex nut under clip allows for tension adjustment of individual clip. Applicable to part numbers 2-0, 2-4, 2-20, 2-24, 2-41, and 2-42.

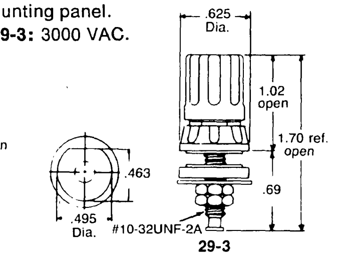

MINIATURE
.41
.41
.72
.78
.41
.34
2-20
2-24
ULTRA MINIATURE
.12 Square
.41
.41
3/8
3/8
#2-56 UNC-2A Thread
2-42
2-41
STANDARD
.55
.55
1.25
1.31
.34
.25
29-1
2-0
2-4
29-3

Binding Posts

Rating at 120 VDC: 15 amps continuously with a max. temperature rise of 20°C.
Insulation Resistance: Between stud and mounting panel.
No. 29-1: 120,000 megohms. **No. 29-3:** 200,000 megohms.
Voltage Breakdown: Between studs and mounting panel.
No. 29-1: 1500 VAC. **No. 29-3:** 3000 VAC.


.500 Dia.
1.02 open
1.70 ref. open
.343
.69
.375
#10-32UNF-2A

29-1


.625 Dia.
1.02 open
1.70 ref. open
.463
.69
.495 Dia.
#10-32UNF-2A

29-3

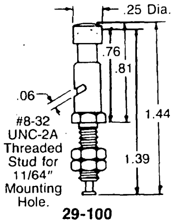
29-1 Standard Screw Type Binding Post with Straight Skirt. Fits ⅜" Diameter Mounting Hole Allowing Close Spacing.

29-3 Standard Screw Type Binding Post with Flared Skirt Fits ½" Diameter Mounting Hole Allowing Wider Spacing.

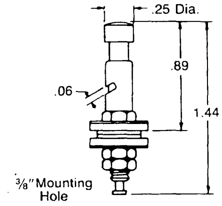
Push Post™

New plunger type binding post for positive connections. To operate, button is depressed, lead is placed in slot, and button is released. Spring pressure assures firm positive contact. Extends only ⅞" above mounting board.

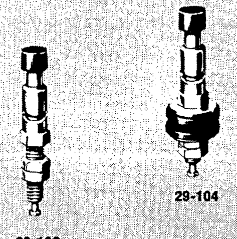
Rating at 120 VDC: 20 amps continuously with a max. temperature rise of 20°C.


.25 Dia.
.76
.81
.06
1.44
#8-32 UNC-2A Threaded Stud for 11/64" Mounting Hole.
1.39

29-100

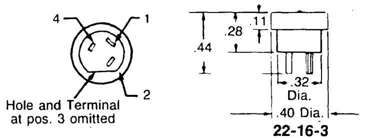

.25 Dia.
.89
.06
1.44
⅜"Mounting Hole

29-104


29-104
29-100

Sockets

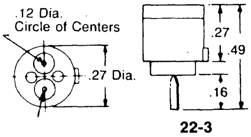
Also available in 4 terminal, different pin to flat orientation and 4 pin, screw or rivet mount. See GRAYHILL Hardware catalog.


4
1
2
Hole and Terminal at pos. 3 omitted
.28
.11
.44
.32 Dia.
.40 Dia.

22-16-3

TRANSISTOR TYPE

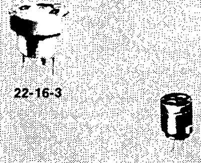
Designed to accept the standard outline (TO-5, 9, 11, 16, 26, 29, 31 & 39). Leads fit on standard 100 mil grid for PC mount or fit a "D" hole to be held by a ring fastener. Wrap around terminals and molded-in indicator line for can tab orientation.


.12 Dia. Circle of Centers
.27 Dia.
.27
.49
.16

22-3

BI-PIN LAMP

Accepts standard T-1¼ and T-1¾ outline lamps when leads are trimmed to 0.215". PC mount terminals fit .032" diameter hole.



ORDERING INFORMATION

Test Clips

Part Number	Price 1-1999	Price 2000-4999
2-0	$.85	$.72
2-4	1.10	.94
2-20	.85	.72
2-24	1.10	.94
2-41	.85	.72
2-42	.90	.77

Sockets

Part Number	Price 1-499	Price 500-999
22-3	$1.54	$1.23
22-16-3	1.29	1.03

Binding Posts

Part Number	Button Cap Color	Prices 1-99	Prices 100-499
29-1 RED	Red	$1.84	$1.56
29-1 BLK	Black	1.84	1.56
29-3 RED	Red	1.84	1.56
29-3 BLK	Black	1.84	1.56

Push Post

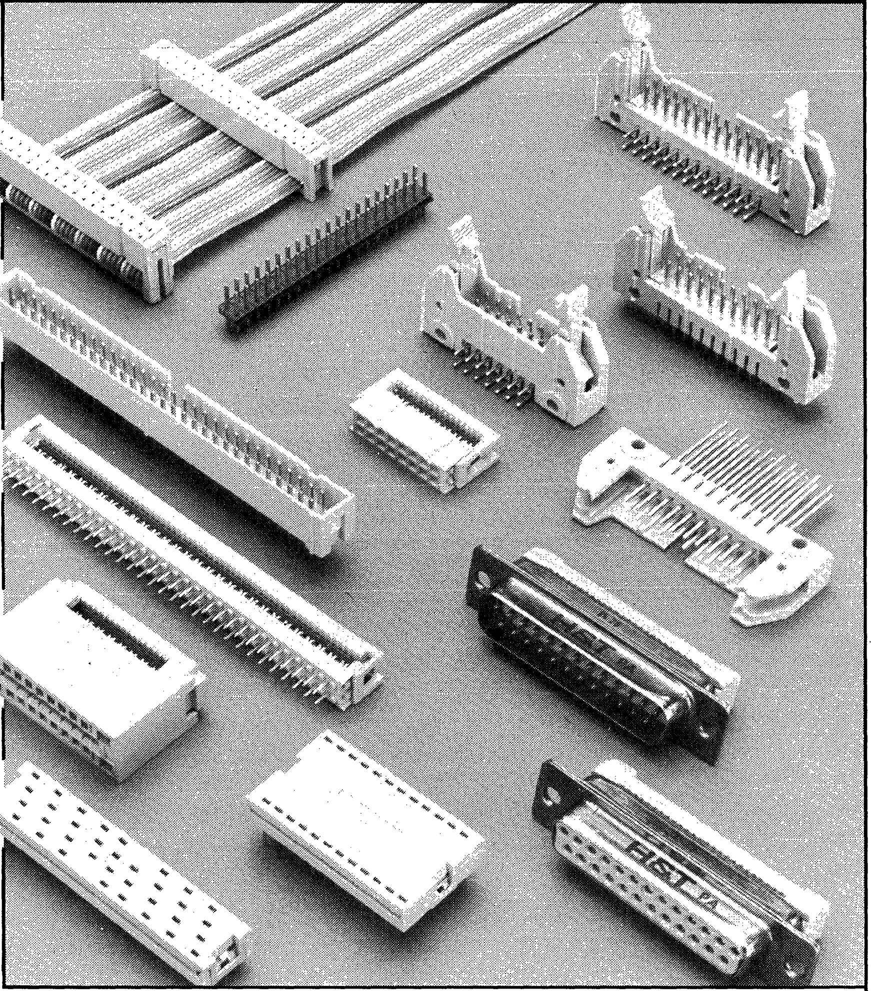
Part Number	Button Cap Color	Prices 1-99	Prices 100-499
29-100 RED	Red	$1.28	$1.09
29-100 BLK	Black	1.28	1.09
29-104 RED	Red	1.75	1.49
29-104 BLK	Black	1.75	1.49

Prices and Discounts subject to change without notice.
For additional quantity pricing contact your local distributor or Grayhill.

Available Locally Through Your Grayhill Distributor

H&T COMPONENTS

IDC Connectors –



Your local H&T distributor stocks a broad line of MIL-C-83503 compatible insulation displacement connectors, manufactured in gray Valox® for immediate delivery.

His prices are very competitive for IDC components that are completely intermateable and interchangeable with connectors that you are now using.

He can deliver complete, tested ribbon cable assemblies to your specifications, typically below your true cost.

H&T Components supports both you and your distributor through a nationwide network of manufacturers' representatives. They will gladly share their experience, give you applications assistance, and show you how IDC connectors can save you time and money. They will demonstrate or provide samples of these H&T products:

- **SOCKETS,** completely intermateable and interchangeable with other industry standard connectors, 10 to 60 contacts. Sockets have selectively gold plated dual beam contacts, mate reliably with .025" round or square posts or headers. Can be daisy chained.
- **HEADERS,** standard 3 or 4-wall, ***new*** low profile 4-wall box style. Right angle or straight, solder or wire wrap termination. Molded in polarization keys. Box style's low profile and high density saves height and board space. Low cost, low profile strip headers, 10 to 80 contacts, can be cut to any length.
- **PCB TRANSITION CONNECTORS,** connect ribbon cable permanently to PCB without stripping. Terminate before or after soldering to board. Standard 4-row 10 to 60 contacts. ***New*** 2-row (10 to 64 contacts) occupies 25% less board space than 4-row, and is cost saving replacement for standard IDC headers and sockets with .100" centers.
- **CARD EDGE CONNECTORS,** double sided, 10 to 60 contacts on 100" centers. Plain or with mounting ears. Separate polarization key.
- **DUAL-IN-LINE PLUGS,** 14, 16, 24, and 40 contacts. Mate with standard IC sockets to provide reliable, low cost interconnection.
- **NEW ALL METAL SHELL D SUB CONNECTORS,** help comply with FCC EMI/RFI emission requirements. Steel shells supplied with tin or zinc chromate finish. 9, 15, 25, and 37 contacts. Can be daisy chained. Mate with all industry standard D subminiature connectors.
- **RIBBON CABLE,** 10 to 60 conductors. UL Style No. 2651 and Style No. 2884. Plain, with single polarizing stripe, or fully color coded for breakout identification.
- **TOOLING,** hand termination tool, bench press, dies and tooling for H&T, 3M, Ansley, and other industry standard presses.

If you're not saving time and money yet with IDC connectors, CALL H&T AT (516) 567-2282 or write today for our 20 page catalog, list of stocking distributors, and the name of your local representative.

IN A HURRY? Contact distributor under our listing in the Manufacturers' Directory for a free sample and an immediate competitive price quote on an H&T connector interchangeable with the one you are now using.

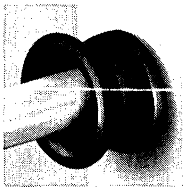
H&T COMPONENTS INC.

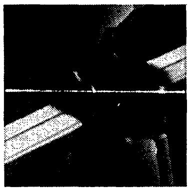
35 Carlough Road, Bohemia, NY 11716 Tel: 516-567-2282 TWX: 510-228-7886
West Coast Office: Laguna Niguel, CA 92677 Tel: 714-831-8705

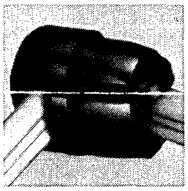
When the job calls for...

Relieving strain

Anchor, insulate and flex-protect cable with Heyco® Nylon Strain Relief Bushings.

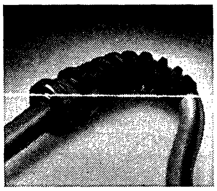

Bell-mouth type

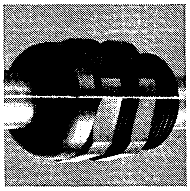

Straight-thru type


Right angle type

Sealing out liquids

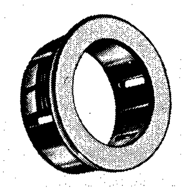
Keep the fluids where they belong with Heyco Nylon Liquid Tight Connectors.

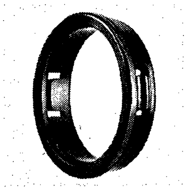

Flex liquid tight connector

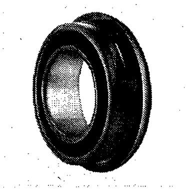

Liquid tight connector

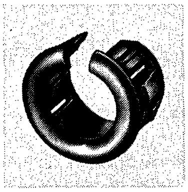
Insulating cables

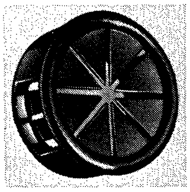
Smooth raw edged cable holes, protect cable and install easily with Heyco Nylon Insulating Bushings.

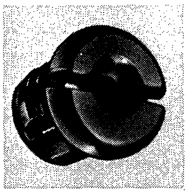

Snap bushing


Shorty bushing


Double insulated bushing

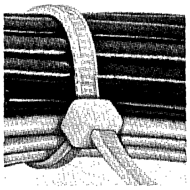

Open/closed bushing

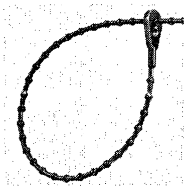

Universal bushing

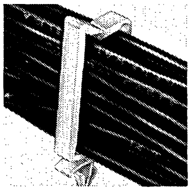

Snub bushing

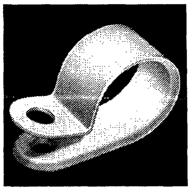
Gathering and tying cables

Anchor, bundle, tie and hold with Heyco Nylon Cable Ties, Holders and Cable Clamps.


Nytye® cable tie

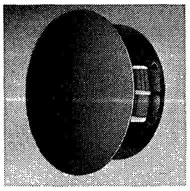

Beaded wire tie

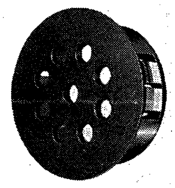

Wire and cable holder


Cable clamp

Plugging holes

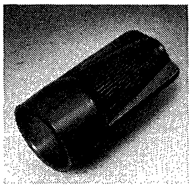
Close unused holes or provide ventilation with Heyco Nylon Hole and Vent Plugs.

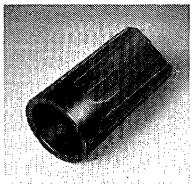

Hole plug

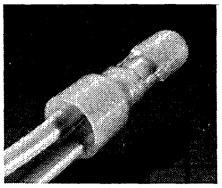

Vent plug

Connecting Wires

Make your connections thru Heyco turn-on or crimp-on wire connectors.

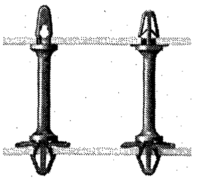

Polypropylene & phenolic turn-on wire connectors


Nylon turn-on wire connector


Closed end/crimp-on wire connector

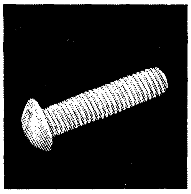
Spacing printed circuit boards

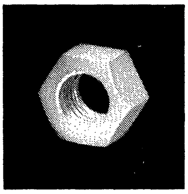
Provide needed spacing between printed circuit boards and chassis with Heyco Nylon Spacer Supports.

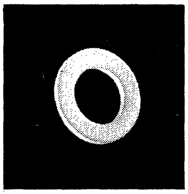

Spacer supports

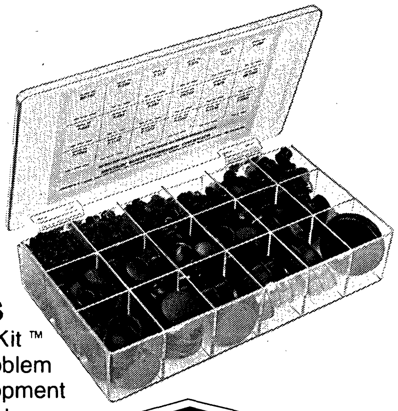
Assembly

Heyco nylon screws, nuts and washers are an inexpensive, long-lasting alternative to costly metal parts.


Screws


Nuts


Washers



A box of solutions

Keep a Heyco LabKit ™ handy for problem solving or development work on your projects.

HEYCO®

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P.O. Box 160B, Kenilworth, New Jersey 07033 • (201) 245-0033 • TELEX: 844771
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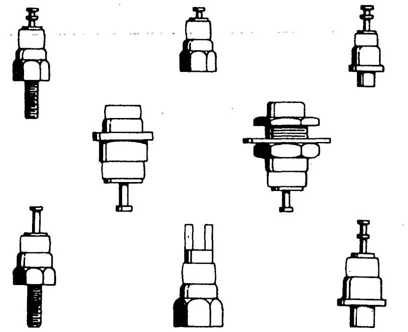
manufacture and design of circuit components

HIRAM JONES
11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

Teflon† Insulated * One-Piece * Terminals and Test Jacks



*** DELIVERY** Immediate—from stock on catalog items.

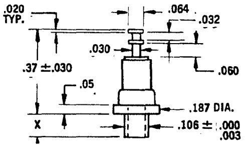
*** QUALITY** QPL facility, insuring highest product reliability. Complete traceability on all raw material and processes.

*** PRODUCTION** Precision Swiss automatic machines—long or short runs to customer design and specifications.

† Reg. Trademark,
E. I. DuPont de Nemours and Co.

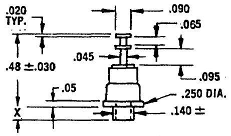
* ONE-PIECE *

Teflon† Insulated Terminals Male-Female Threads and Swage Types and Test Jacks


.020 TYP.
.064
.032
.030
.37 ±.030
.060
.05
.187 DIA.
X
.106 ± .000 .003

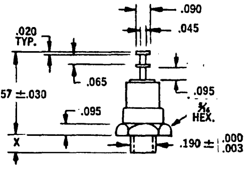
Single Turret also available
O/A Height above Board: .30 ±.030
P/N TS-111-A/-4

Part No.	X	Board Thickness
TS-112-A	.055	1/64
TS-112-0	.075	1/32
TS-112-1	.095	.050
TS-112-2	.105	1/16
TS-112-3	.135	3/32
TS-112-4	.165	1/8


.020 TYP.
.090
.065
.045
.48 ±.030
.095
.05
.250 DIA.
X
.140 ±

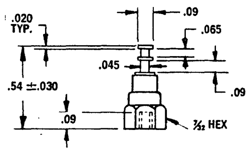
Single Turret also available
O/A Height above Board: .39 ±.030
P/N TS-231-0/-4

Part No.	X	Board Thickness
TS-232-0	.075	1.32
TS-232-1	.095	.050
TS-232-2	.105	1/16
TS-232-3	.135	3/32
TS-232-4	.175	1/8


.090
.045
.020 TYP.
.065
.57 ±.030
.095
.095
5/16 HEX.
X
.190 ± .000 .003

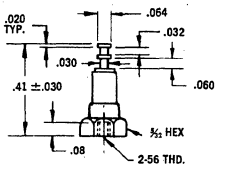
Single Turret also available
O/A Height above Board: .50 ±.030
P/N TS-351-0/-4

Part No.	X	Board Thickness
TS-352-0	.075	1/32
TS-352-1	.095	.050
TS-352-2	.105	1/16
TS-352-3	.135	3/32
TS-352-4	.165	1/8


.020 TYP.
.09
.065
.045
.54 ±.030
.095
.09
7/32 HEX

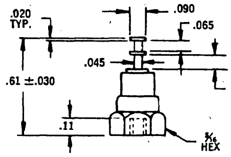
Part No.	Thread
TS-232-8F	4-40
TS-232-9F	6-32

Single Turret also available
O/A Length: .47 ±.030
P/N TS-231-8F/-9F


.020 TYP.
.064
.032
.030
.41 ±.030
.060
5/32 HEX
.08
2-56 THD.

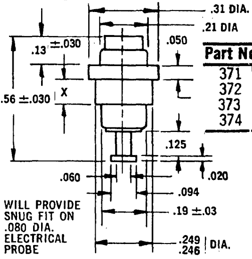
Part No.	Thread
TS-112-6F	2-56

Single Turret also available
O/A Length: .35 ±.030
P/N TS-111-6F


.020 TYP.
.090
.065
.045
.61 ±.030
.095
.11
5/16 HEX

Part No.	Thread
TS-352-8F	4-40
TS-352-9F	6-32

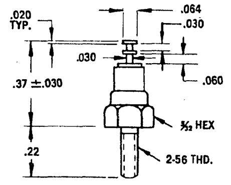
Single Turret also available
O/A Length: .54 ±.030
P/N TS-351-8F/-9F


.31 DIA.
.21 DIA
.13 ±.030
.050
.56 ±.030
X
.125
.060
.020
.094
.19 ±.03
.249 .246 DIA.

Part No.	X	T
371	.095	.050
372	.105	1/16
373	.135	3/32
374	.165	1/8

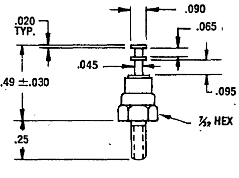
WILL PROVIDE SNUG FIT ON .080 DIA. ELECTRICAL PROBE

SWAGE TEST JACK
Available in 10 Standard E.I.A. colors


.020 TYP.
.064
.030
.030
.37 ±.030
.060
5/32 HEX
.22
2-56 THD.

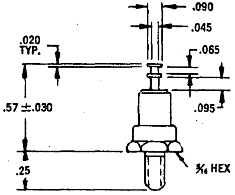
Part No.	Thread
TS-112-6M	2-56

Single Turret also available
O/A Height above Board: .34 ±.030
P/N TS-111-6M


.020 TYP.
.090
.065
.045
.49 ±.030
.095
7/32 HEX
.25

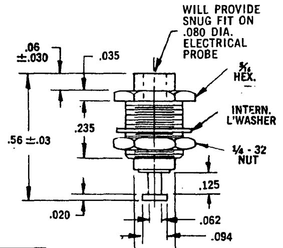
Part No.	Thread
TS-232-8M	4-40
TS-232-9M	6-32

Single Turret also available
O/A Height above Board: .42 ±.030
P/N TS-231-8M/-9M


.090
.045
.020 TYP.
.065
.57 ±.030
.095
.25
5/16 HEX

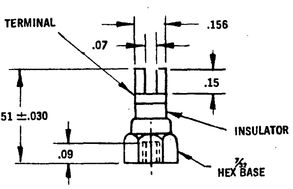
Part No.	Thread
TS-352-8M	4-40
TS-352-9M	6-32

Single Turret also available
O/A Height above Board: .50 ±.030
P/N TS-351-8M/9M

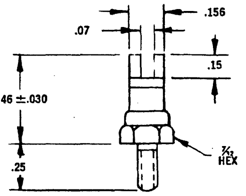

WILL PROVIDE SNUG FIT ON .080 DIA. ELECTRICAL PROBE
.06 ±.030
.035
5/16 HEX.
INTERN. L'WASHER
.235
.56 ±.03
1/4 - 32 NUT
.125
.020
.062
.094
.22

Part No.
375

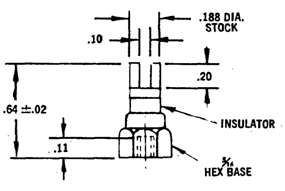
THREADED TEST JACK


TERMINAL
.156
.07
.15
.51 ±.030
INSULATOR
.09
7/32 HEX BASE

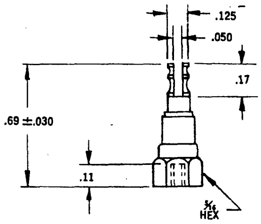
Part No.	Thread
TS-233-8F	4-40
TS-233-9F	6-32


.156
.07
.15
.46 ±.030
7/32 HEX
.25

Part No.	Thread
TS-233-8M	4-40
TS-233-9M	6-32


.188 DIA. STOCK
.10
.20
.64 ±.02
INSULATOR
.11
5/16 HEX BASE

Part No.	Thread
TS-353-8F	4-40 NC-2B
TS-353-9F	6-32 NC-2B


.125
.050
.17
.69 ±.030
.11
5/16 HEX

Part No.	Thread
338-2050	6-32

manufacture and design of circuit components

HIRAM JONES

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

Teflon† Insulated * Press-Type * Terminals and Test Jacks

TEFLON†

(TFE-FLUOROCARBON) per MIL-P-19468 has outstanding mechanical and electrical properties over a wide range of frequencies and temperatures (−100°C to +250°C), extreme chemical inertness, high heat resistance, zero water absorption and complete anti-hesiveness which make it a superior insulation.

TERMINALS

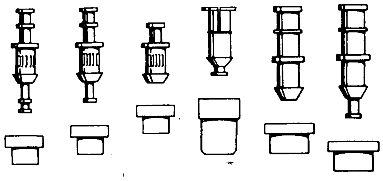
MATERIAL: Half-hard Brass per QQ-B-626, CDA360.
FINISH: Standard plating is Gold per MIL-G-45204. Other finishes supplied on request.

INSTALLATION TOOLS

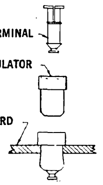
Tools are available for all HIRAM JONES components. Specify Part Number and prefix "S." Example: S-602 Assembly Tool.

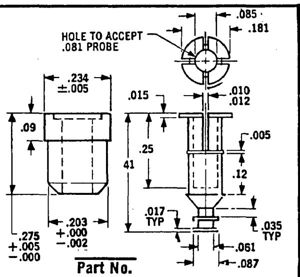
* PRESS-TYPE *

For simple, fast economical installation



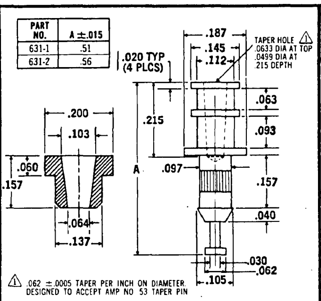
* PRESS-TYPE * Teflon† Insulated Components


TERMINAL
INSULATOR
BOARD

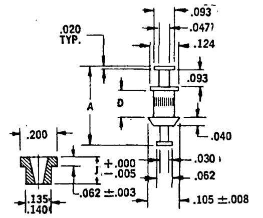

HOLE TO ACCEPT .081 PROBE
.085
.181
.234 ±.005
.015
.010
.012
.09
.005
.25
41
.12
.017 TYP
.035 TYP
.275 +.005 −.000
.203 +.000 −.002
.061
.087

Part No.
L-606

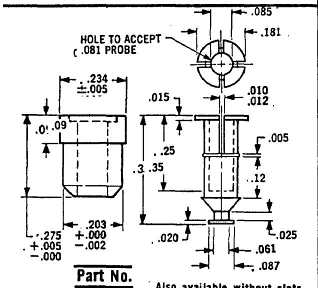
Also available without slots (non-gripping) P/N 606


.020 TYP (4 PLCS)
.187
.145
.112
TAPER HOLE ⚠ .0633 DIA AT TOP .0499 DIA AT .215 DEPTH
.200
.103
.215
.063
.093
.060
.157
A
.097
.157
.040
.064
.137
.030
.062
.105
⚠ .062 ±.0005 TAPER PER INCH ON DIAMETER DESIGNED TO ACCEPT AMP NO 53 TAPER PIN

PART NO.	A ±.015
631-1	.51
631-2	.56

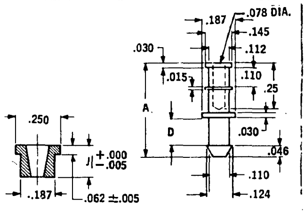

.093
.047
.124
.020 TYP.
.093
A
D
.200
.040
+.000 −.005
J
.030
.062
.135 .140
.062 ±.003
.105 ±.008

Part No.	A	D	J	Board Thickness
625-A	.41	.147	.147	1/32-.050
625-G	.42	.157	.157	1/16

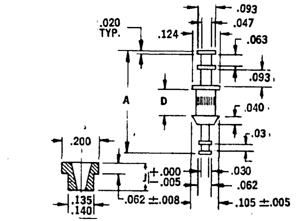

HOLE TO ACCEPT .081 PROBE
.085
.181
.234 ±.005
.015
.010
.012
.09
.005
.25
.35
.12
.203 +.000 −.002
.275 +.005 −.000
.020
.025
.061
.087

Part No.
L-602

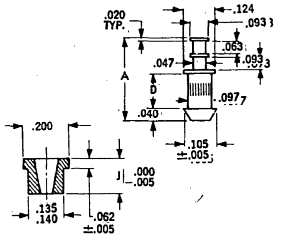
Also available without slots (non-gripping) P/N 602


.187
.078 DIA.
.145
.112
.030
.015
.110
.25
A
.250
D
.030
+.000 −.005
J
.046
.110
.187
.062 ±.005
.124

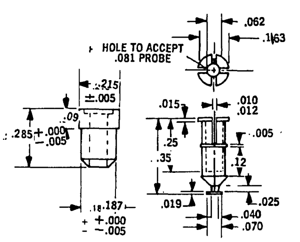
Part No.	A	D	J	Board Thickness
630-A	.51	.150	.150	1/32-.050
630-G	.52	.160	.160	1/16
630-H	.58	.220	.220	1/8


.093
.047
.020 TYP.
.124
.063
.093
A
D
.040
.200
.03
+.000 −.005
J
.030
.062
.135 .140
.062 ±.008
.105 ±.005

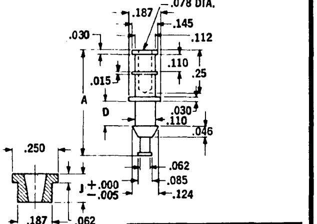
Part No.	A	D	J	Board Thickness
622-A	.55	.147	.147	1/32-.050
622-G	.56	.157	.157	1/16
622-H	.59	.189	.189	1/8


.124
.020 TYP.
.093
.047
.063
.093
A
D
.097
.040
.200
.105 ±.005
J
.000 .005
.135 .140
.062 ±.005

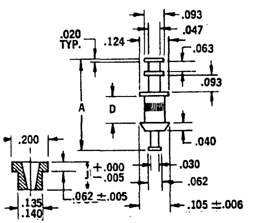
No.	A	D	J	Thickness
626-A	.40	.147	.147	1/32-.050
626-G	.41	.157	.157	1/16


.062
.163
HOLE TO ACCEPT .081 PROBE
.215 ±.005
.015
.010
.012
.09
.285 +.000 −.005
.25
.005
.35
.12
.187 +.000 −.005
.019
.025
.040
.070

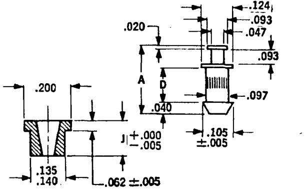
Part No.
605


.187
.078 DIA.
.145
.112
.030
.015
.110
.25
A
D
.030
.110
.046
.250
.062
+.000 −.005
J
.085
.124
.187
.062 ±.005

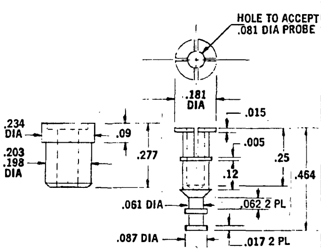
Part No.	A	D	J	Board Thickness
632-A	.61	.150	.150	1/32-.050
632-G	.62	.160	.160	1/16
632-H	.69	.220	.220	1/8


.093
.047
.020 TYP.
.124
.063
.093
A
D
.200
.040
+.000 −.005
.030
.062
.135 .140
.062 ±.005
.105 ±.006

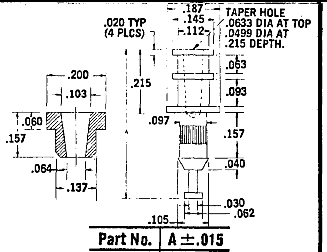
Part No.	A	D	J	Board Thickness
623-A	.50	.147	.147	1/32-.050
623-G	.51	.157	.157	1/16


.124
.093
.020
.047
.093
A
D
.200
.097
.040
+.000 −.005
J
.105 ±.005
.135 .140
.062 ±.005

Part No.	A	D	J	Board Thickness
627-A	.32	.147	.147	1/32-.050
627-G	.33	.157	.157	1/16


HOLE TO ACCEPT .081 DIA PROBE
.181 DIA
.015
.234 DIA
.09
.005
.203 .198 DIA
.277
.25
.12
.464
.061 DIA
.062 2 PL
.087 DIA
.017 2 PL

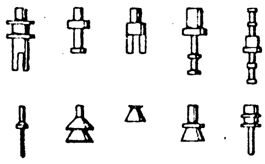
Part No.
L-607


.020 TYP (4 PLCS)
.187
.145
.112
TAPER HOLE .0633 DIA AT TOP .0499 DIA AT .215 DEPTH.
.200
.103
.215
.063
.093
.060
.157
.097
.157
.064
.040
.137
.030
.062
.105

Part No.	A ±.015
631-1	.51
631-2	.56

Other Hiram Jones Products:

Non-Insulated Terminals, Test Jacks and Contacts
Printed Circuit, MS and MIL-T-55155 Terminals

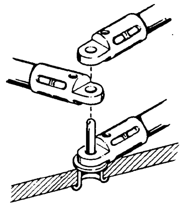


HIRAM JONES

manufacture and design of circuit components

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

9W WIRE TERMINATION SYSTEM



Design Features

SOLDER-WICKING BARRIER

The design of HIRAM JONES 9W Wire Termination Systems provides a solder-wicking barrier, assuring flexibility of the wire and thus minimizing wire failures due to fatigue.

Wires are inserted in the 9W Crimp Terminals and crimped in place. Full engagement of the wire is determined by means of the inspection hole provided in each crimp terminal. The 9W Crimp Terminals are then attached to their mating Terminal Posts and soldered in place.

The entire termination is made without application of solder to the wire itself. It is, therefore, impossible for solder to "wick" up the wire.

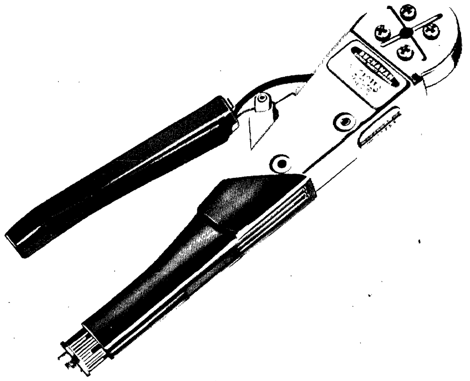
EQUIPMENT SERVICEABILITY

HIRAM JONES 9W Wire Termination System provides all the advantages of a hard wired system without the disadvantages of foreshortening of the service loop when disconnection and reconnection is required. The ease with which connections are made is a feature which is particularly advantageous in systems where connectors are undesirable, yet assemblies or sub-assemblies must be disconnected from time to time for service or replacement. To disconnect HIRAM JONES 9W Crimp Terminals, simply heat and lift off the mating terminal post. Reconnect by resoldering the 9W Crimp Terminals to the terminal post. Neither the mechanical nor electrical joint is affected by repeated removal and resoldering.

Increased Production Efficiency

By permitting pre-assembly of wires by unskilled operators, HIRAM JONES 9W Wire Termination Systems reduce production costs. Wires may be cut to length, stripped, and the 9W Crimp Terminals crimped in place. Final assembly consists of simply laying the pre-assembled Crimp Terminal on its mating terminal post and soldering in place.

9W MINIATURE MICROCRIMP TOOL

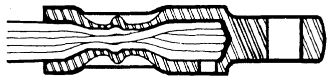


The 9W Miniature Microcrimp Tool (Buchanan No. 612118) is cycle-controlled to assure crimping to the selected depth. Once the crimping operation is started, the tool cannot be opened without completing its cycle.

9W LOCATORS — Specially designed locators are available for each of HIRAM JONES 9W Crimp Terminals. The use of one 9W Miniature Microcrimp Tool and the custom-designed 9W Locators is recommended to guarantee the precise crimp depth setting for each Crimp Terminal. When ordering, specify part number — i.e., 9W-206 Locator.

OCTADENT CRIMP — The 9W Miniature Microcrimp Tool produces an octadent configuration which provides uniform displacement of wire and crimp terminal material. The wire strands and the crimp terminal material are formed together in a solid mass with little or no reduction of the mil area of the wire strands.

CROSS-SECTION OCTADENT CONFIGURATION



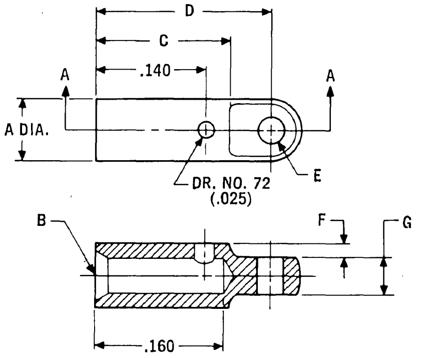
manufacture and design of circuit components

HIRAM JONES

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

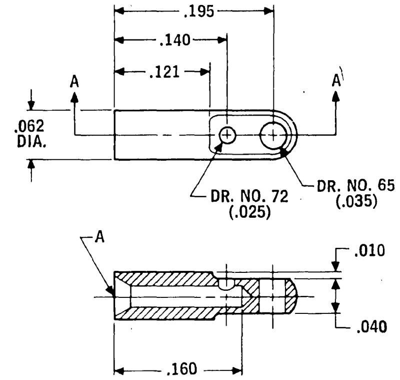
WIRE TERMINATION SYSTEM COMPONENTS

CRIMP TERMINAL


D
C
.140
A
A
A DIA.
DR. NO. 72
(.025)
E
B
F
G
.160

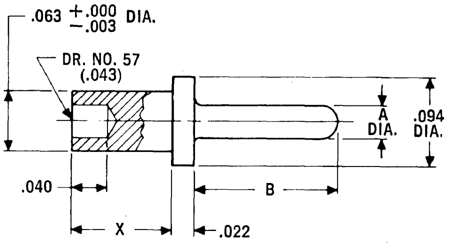
PART NO.	A DIA.	B DRILL	C	D	E DRILL	F	G	WIRE SIZE
9W-206	.078	3/64	.170	.220	.035	.017	.044	20 & 22
9W-230	.094	1/16	.175	.235	.046	.020	.054	16 & 18
9W-209	.078	.028	.170	.220	.046	.017	.044	24 & 26
9W-205	.078	3/64	.170	.220	.046	.017	.044	20 & 22

CRIMP TERMINAL


.195
.140
.121
A
A
.062
DIA.
DR. NO. 72
(.025)
DR. NO. 65
(.035)
A
.010
.040
.160

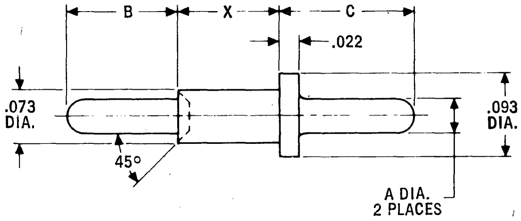
PART NO.	A DIA.	WIRE SIZE
9W-207	.028	24 & 26
9W-208	.020	28 & 30

STANDOFF TERMINAL


.063 +.000 −.003 DIA.
DR. NO. 57
(.043)
A
DIA.
.094
DIA.
.040
B
X
.022

PART NO.	A ±.001	B ±.010	X +.004 −.000	T
9W-507-1	.031	.187	.115	3/32″
9W-507-3	.041	.225	.115	3/32″
9W-507-5	.031	.187	.084	1/16″
9W-507-7	.041	.225	.084	1/16″
9W-507-9	.031	.187	.141	1/8″
9W-507-0	.031	.187	.048	1/32″

FEED-THRU TERMINAL


B
X
C
.022
.073
DIA.
45°
.093
DIA.
A DIA.
2 PLACES

PART NO.	A ±.001	B ±.010	C ±.010	X +.004 −.000	T
9W-510-1	.031	.187	.209	.115	3/32″
9W-510-2	.041	.225	.247	.115	3/32″
9W-510-3	.031	.187	.209	.084	1/16″
9W-510-4	.041	.225	.247	.084	1/16″

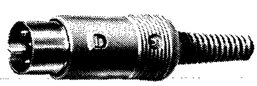
TOLERANCES: ±.005 Unless Otherwise Noted.
X = Shank Length T = Board Thickness
Wire size is AWG
MATERIAL: Brass per QQ-B-626, ½ Hard, Composition 22.
FINISH: Electrodeposited Solder Plate over Copper Plate.

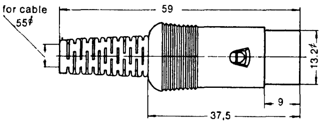
Other Sizes Available.
Contact Factory.

Hirschmann

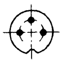
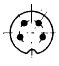
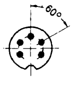
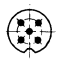
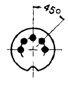
SCREENED MULTIPOLE CONNECTORS

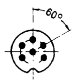
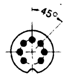
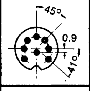
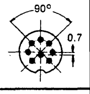
Circular DIN Mas Plug



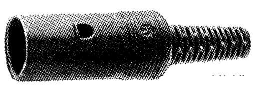


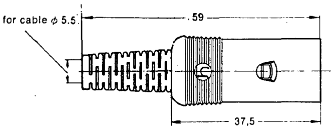
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N per contact
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Color: Grey (other colors upon request)
Standard Carton: 50

Pin Arrangement					
Type	**Mas 30**	**Mas 40**	**Mas 50**	**Mas 50 W**	**Mas 50 S**
Ordering Code	**930014-317**	**930015-317**	**930016-317**	**930805-317**	**930131-317**
Positions	3	4	5	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	—	DIN 45327	DIN 41524

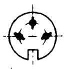
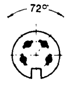
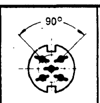
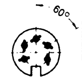
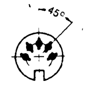
Pin Arrangement					
Type	**Mas 60**	**Mas 70 S**	**Mas 80 S**	**Mas 80 SN**	
Ordering Code	**930017-317**	**930356-317**	**930298-317**	**931518-317**	
Positions	6	7	8	8	
Pin Arrangement in Aćcordance With:	DIN 45322	DIN 45329 IEC 10	Pos. 1-5 DIN 41425	DIN 45326	

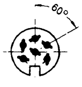
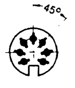
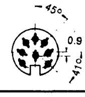
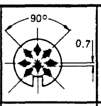
Circular DIN Mak Socket



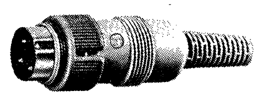


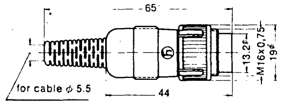
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N per contact
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Color: Grey (other colors upon request)
Standard Carton: 50

Pin Arrangement					
Type	**Mak 30**	**Mak 40**	**Mak 50 W**	**Mak 50**	**Mak 50 S**
Ordering Code	**930171-317**	**930150-317**	**930827-317**	**930151-317**	**930172-317**
Positions	3	4	5	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	DIN 45327	—	DIN 41524

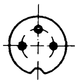
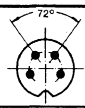
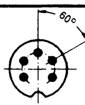
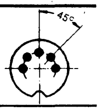
Pin Arrangement					
Type	**Mak 60**	**Mak 70 S**	**Mak 80 S**	**Mak 80 SN**	
Ordering Code	**930152-317**	**930388-317**	**930348-317**	**931519-317**	
Positions	6	7	8	8	
Pin Arrangement in Accordance With:	DIN 45322	DIN 45329 IEC 10	Pos. 1-5 DIN 41524	DIN 45326	

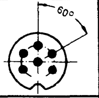
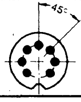
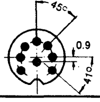
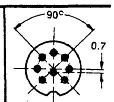
Circular DIN Mas Plug with Screw Lock



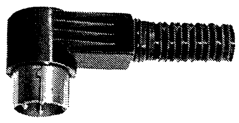


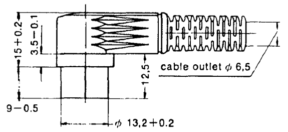
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N per contact
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Color: Grey (other colors upon request)
Standard Carton: 50

Pin Arrangement				
Type	**Mas 3100**	**Mas 4100**	**Mas 5100**	**Mas 5100 S**
Ordering Code	**930304-117**	**930963-117**	**930964-117**	**930965-117**
Positions	3	4	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	—	DIN 41524

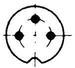
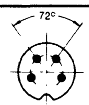
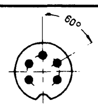
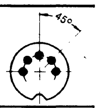
Pin Arrangement				
Type	**Mas 6100**	**Mas 7100 S**	**Mas 8100 S**	**Mas 8100 SN**
Ordering Code	**930966-117**	**930688-117**	**930539-117**	**931750-117**
Positions	6	7	8	8
Pin Arrangement in Accordance With:	DIN 45322	DIN 45329	Pos. 1-5 DIN 41524	DIN 45326

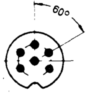
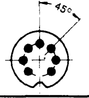
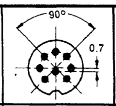
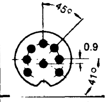
Circular DIN Mawi Right Angle Plug





SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N per contact
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Color: Grey (other colors upon request)
Standard Carton: 50

Pin Arrangement				
Type	**Mawi 30 B**	**Mawi 40 B**	**Mawi 50 B**	**Mawi 50 SB**
Ordering Code	**931597-117**	**931567-117**	**931569-117**	**931571-117**
Positions	3	4	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	—	DIN 41524

Pin Arrangement				
Type	**Mawi 60 B**	**Mawi 70 SB**	**Mawi 80 SNB**	**Mawi 80 SB**
Ordering Code	**931573-117**	**931575-117**	**931577-117**	**931740-117**
Positions	6	7	8	8
Pin Arrangement in Accordance With:	DIN 45322	DIN 45329	DIN 45326	Pos. 1-5 DIN 41524

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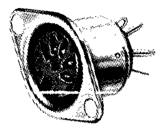
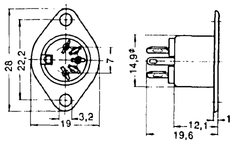
Hirschmann

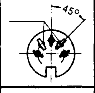
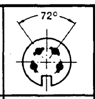
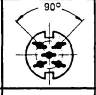
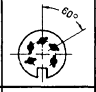
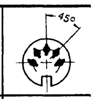
SCREENED MULTIPOLE CONNECTORS

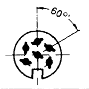
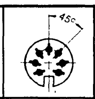
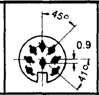
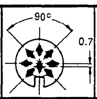
Circular DIN Panel Mount with Mounting Flange and Solder Tabs



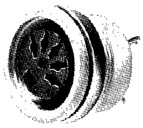


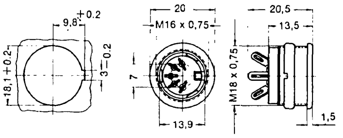
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Standard Carton: 200

Pin Arrangement					
Type	**Mab 3 S**	**Mab 4**	**Mab 5 W**	**Mab 5**	**Mab 5 S**
Ordering Code	**930018-100**	**930009-100**	**930469-100**	**930010-100**	**930071-100**
Positions	3	4	5	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	DIN 45327	—	DIN 41524

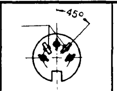
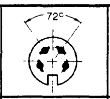
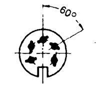
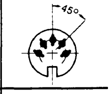
Pin Arrangement					
Type	**Mab 6**	**Mab 7 S**	**Mab 8 S**	**Mab 8 SN**	
Ordering Code	**930011-100**	**930343-100**	**930345-100**	**931613-100**	
Positions	6	7	8	8	
Pin Arrangement in Accordance With:	DIN 45322	DIN 45329	Pos. 1-5 DIN 41524	DIN 45326	

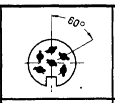
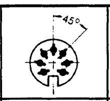
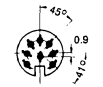
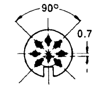
Circular DIN Mab Female Panel Mount with Screw Lock



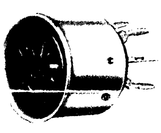


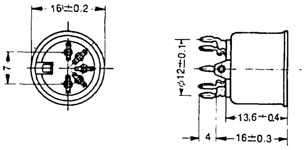
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Standard Carton: 50

Pin Arrangement				
Type	**Mab 3100 S**	**Mab 4100**	**Mab 5100**	**Mab 5100 S**
Ordering Code	**930303-117**	**930951-117**	**930952-117**	**930950-117**
Positions	3	4	5	5
Pin Arrangement in Accordance With:	DIN 41524	—	—	DIN 41524

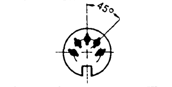
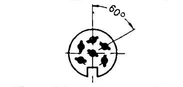
Pin Arrangement				
Type	**Mab 6100**	**Mab 7100 S**	**Mab 8100 S**	**Mab 8100 SN**
Ordering Code	**930954-117**	**931351-117**	**930537-117**	**931749-117**
Positions	6	7	8	8
Pin Arrangement in Accordance With:	DIN 45322	DIN 45329	Pos. 1-5 DIN 41524	DIN 45326

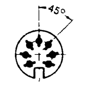
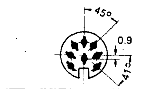
Circular DIN Mab Vertical Printed Circuit Board Mount



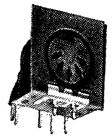


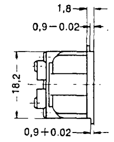
SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Standard Carton: 200

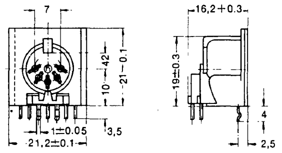
Pin Arrangement		
Type	**Mab-5 SV**	**Mab 6 V**
Ordering Code	**930777-100**	**930812-100**
Positions	5	6
Pin Arrangement in Accordince With:	DIN 41524	DIN 45322

Pin Arrangement		
Type	**Mab 7 SV**	**Mab 8 SV**
Ordering Code	**931657-100**	**931735-100**
Positions	7	8
Pin Arrangement in Accordince With:	DIN 45329	Pos. 1-5 DIN 41524

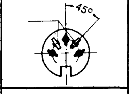
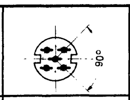
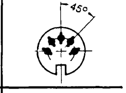
Circular DIN Mab Right Angle Socket for Printed Board Mount

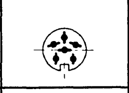
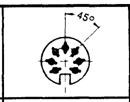
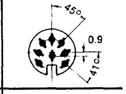






SPECIFICATIONS
Contact Resistance: 4 mOhm
Current Rating: 4 Amp
Dielectric Withstanding Voltage: 500 V RMS
Insulation Resistance: 10″ Ohm
Insertion Force: 0.7-1.2 N
Withdrawal Force: Max. 0.8 N per contact
Cycle Life: 5000 Insertions/ Withdrawals
Standard Carton: 200

Pin Arrangement			
Type	**Mab 3 SH**	**Mab 5 WH**	**Mab 5 SH**
Ordering Code	**930360-100**	**930236-100**	**930359-200**
Positions	3	5	5
Pin Arrangement in Accordance With:	DIN 41524	DIN 45327	DIN 41524

Pin Arrangement			
Type	**Mab 6 H**	**Mab 7 SH-L**	**Mab 8 SH**
Ordering Code	**930778-200**	**930518-100**	**931399-100**
Positions	6	7	8
Pin Arrangement in Accordance With:	DIN 45322	DIN 45328	Pos. 1-5 DIN 41524

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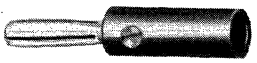
Hirschmann

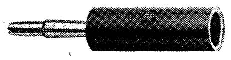
SINGLE POLE CONNECTORS

Banana Plug with Cross Slotted Pin 4 mm (16 Amp)

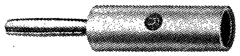
Sr 10



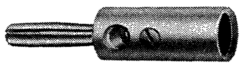
Bsu 10



Bs 10



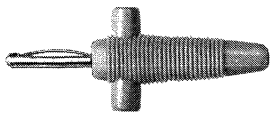
Bq 1



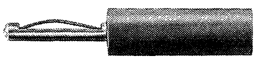
Type	Ordering Code	Description
Sr 10	**930138-000**	4 mm pin, with short insulator, screw type. Assorted colors.
Bsu 10	**930266-000**	Universal pin 3 and 4 mm, screw connection. Assorted colors.
Bs 10	**930262-000**	Standard 4 mm, screw connection. Assorted colors.
Bq 1	**930118-100**	4mm pin, short insulator with 4 mm transverse hole, screw type. Assorted colors.

Full Contact Plug 4 mm (16 Amp)

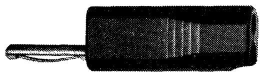
Vq 200/



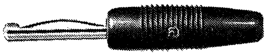
Von 10



Vsb 200



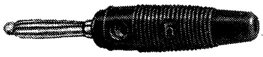
Von 20



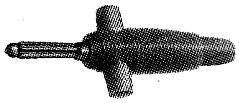
Type	Ordering Code	Description
Vq 200	**931624-100**	Shock proof plug; insulated sleeves on transverse hole; screw connection; 16 AWG max.
Von 10	**930271-000**	4 mm pin; phenolic insulator; screw type; 16 AWG max. Assorted colors.
Vsb 200	**931291-100**	Shock proof plug; 4 mm parallel socket; screw connection; 18 AWG max.
Von 20	**930046-100**	4 mm pin; PVC insulator; screw connection; 16 AWG max. (Solder 12 AWG max.)

Bunch Pin Plug 4 mm (16 Amp)

Buela 20 K

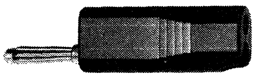


Buela 200 K



Buela 10 K

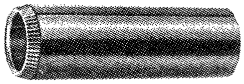
Bsb 200



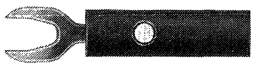
Type	Ordering Code	Description
Buela 20 K	**930726-000**	4 mm pin; PVC insulator with 4 mm transverse hole; screw connection; 16 AWG max.
Buela 200 K	**931666-100**	Shock proof plug; insulated sleeves on transverse hole; screw connection; 16 AWG max.
Buela 10 K	**930725-100**	4 mm pin; phenolic insulator; axial and transverse plug and wire connection.
Bsb 200	**931293-100**	4 mm pin; shock proof with parallel 4 mm socket screw connection; 16 AWG max.

Couplers and Spade Contacts

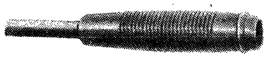
Kun 10



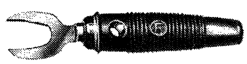
Kb 20



Kun 30



Kb 2



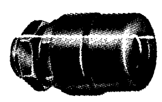
Type	Ordering Code	Description
Kun 10	**930274-000**	Coupler with 4 mm socket; screw connection; phenolic insulator.
Kb 20	**930110-100**	Spade terminal with axial and transverse 4 mm sockets; phenolic insulator (max. 100°C).
Kun 30	**931804-100**	Couples with 4 mm socket; PVC insulator solder connection; 12 AWG max.
Kb 2	**930584-100**	Spade terminal with axial and transverse 4 mm sockets; PVC insulator; screw connection.

Hirschmann

SINGLE POLE CONNECTORS

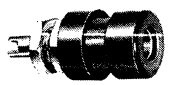
Single Pole Socket for 4 mm Plug

Bi 20

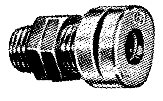


Bug 10

Bil 20

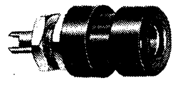


Bg 10



Bu 20

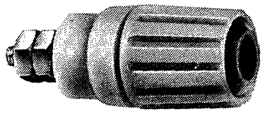
Bil 30



Type	Ordering Code	Description
Bi 20	**930164-100**	4 mm insulated socket for panel mount (2 mm panels).
Bug 10	**930175-100**	4 mm insulated sockets with oval head untinned solder tags.
Bil 20	**930176-100**	4 mm insulated socket for panel mount (2 mm panels) tinned solder tags.
Bg 10	**930175-100**	4 mm insulated socket with oval head.
Bu 20	**930177-000**	4 mm all metal socket; extra long shank
Bil 30	**930166-100**	4 mm insulated panel mount socket panel thickness 2.5-4 mm.

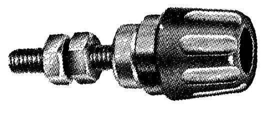
Binding Post for 4 mm Plug

Pki 100

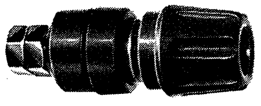


Pkni 20 B

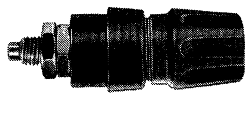
Pk 10 A



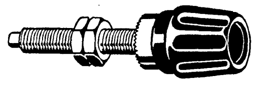
Pki 10 A



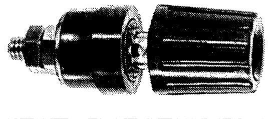
Pkni 10 B



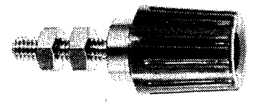
Pkn 10 B



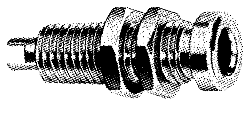
Pki 110



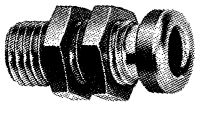
Pk 110



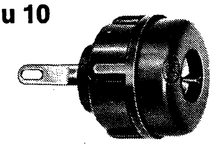
Bu 10



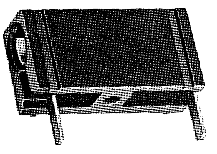
Bo 10



Ibu 10



Pb 4



Type	Ordering Code	Description
Pki 100	**930757-100**	Meets VDE 0411 for meters and test equipment. Panel thickness to 3.5 mm.
Pkni 20 B	**930144-100**	Heavy duty long shank with insulating collar. Transverse hole for 12 AWG max.
Pk 10 A	**930099-100**	Standard post with 4 mm metric threads transverse hole for wires 14 AWG max.
Pki 10 A	**930103-100**	Standard post with insulating collars transverse hole for wires 14 AWG max.
Pkni 10 B	**930136-100**	Heavy duty type stud with 6 mm thread transverse hole for wires 12 AWG max.
Pkn 10 B	**930117-100**	Same as Pkni 10 B except without insulating collars.
Pki 110	**931714-100**	Standard 4 mm post with insulating collar. Transverse hole for wires 18 AWG max.
Pk 110	**931713-100**	Same as Pki 110 except without insulating collars.
Bu 10	**930147-000**	All metal socket with solder tags. For 4 mm plugs.
Bo 10	**930160-000**	All metal socket for 4 mm plug.
Ibu 10	**930250-100**	Completely insulated 4 mm socket for max. panel thickness of 4 mm.
Pb 4	**973582-100**	4 mm test socket; right angle for printed circuit board mount.

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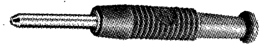
SINGLE POLE CONNECTORS

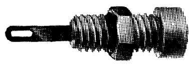
Miniature 2 mm Connectors

Mst 3

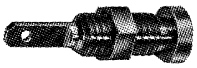


Mku 1

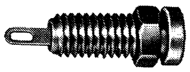
Mbi 1



Mbu 4

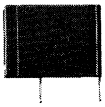


Mbu 1

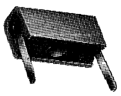


Mpk 1

Mpb 2 M



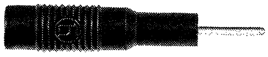
Mpb 1



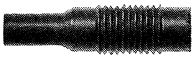
Type	Ordering Code	Description
Mst 3	**930302-100**	2 mm plug to DIN 41649. Contact nickel plated brass. Insulator PVC.
Mku 1	**930320-100**	2 mm socket. Contact: Silved plated spring bronze. Insulator PVC.
Mbi 1	**930308-100**	2 mm socket. Contact: Spring bronze with tinned solder tag. Insulator: Acetal resin.
Mbu 4	**931609-000**	2 mm all metal socket. Flat pin connection 2.8 x 0.8 mm.
Mbu 1	**930312-000**	2 mm all metal socket, nickel plated brass.
Mpk 1	**930268-100**	2 mm socket terminal with 2 mm transverse hole. Nickel plated brass.
Mpb 2M	**973587-100**	Min. PCB test socket. Rt. angle. Soldered to edge of PCB.
Mpb 1	**930224-100**	2 mm PCB test socket. Probe connected vertically or horizontally.

Adaptors

Mzs 2



Mzk 12



Mzs 14

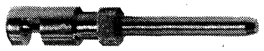
Mzs 4

Mzs 12

Mks 1

Mbi 11

Mst 11



Type	Ordering Code	Description
Mzs 2	**930770-100**	Adaptor with 2 mm plug and 4 mm socket. Contacts: Tin plated brass.
Mzk 12	**973566-100**	Adaptor coupling with one 2 mm socket and 1 mm socket.
Mzs 14	**973572-100**	Adaptor with 4 mm plug and 1 mm socket.
Mzs 4	**930771-100**	Adaptor with 4 mm plug and 2 mm socket.
Mzs 12	**973571-100**	Adaptor with 2 mm plug and 1 mm socket.
Mks 1	**930201-100**	Miniature spade terminal, solder connection. Fits 4.2 mm stud.
Mbi 11	**973614-100**	Miniature 1 mm plug with solder connection.
Mst 11	**973611-100**	Insulated 1 mm socket. Contact: Be Cu Insulator: Acetal resin.

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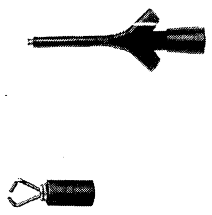
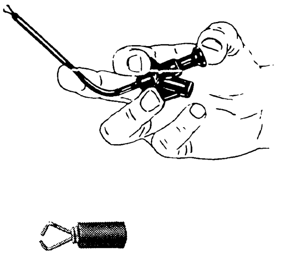
SINGLE POLE CONNECTORS

Test Probes and Patch Cords

Kleps 3 St 0,64[2]
Kleps 3[1]

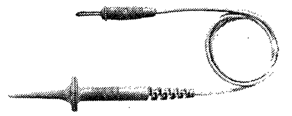


Kleps 30

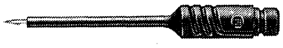


Kleps 2 Bu

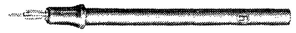
Ms 100



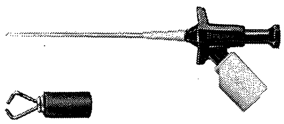
Pruef 2



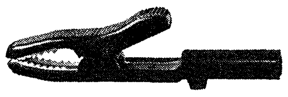
Pruef 10



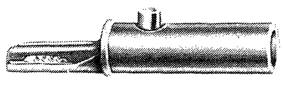
Kleps 250



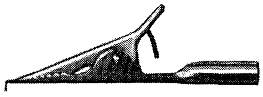
Ak 2 S



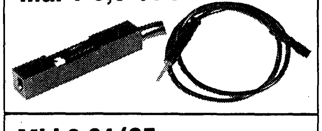
Ak 10



Agf 30

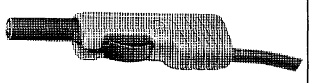


Mal 1-0,64/25

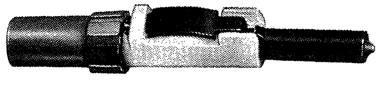


Mkl 0,64/25

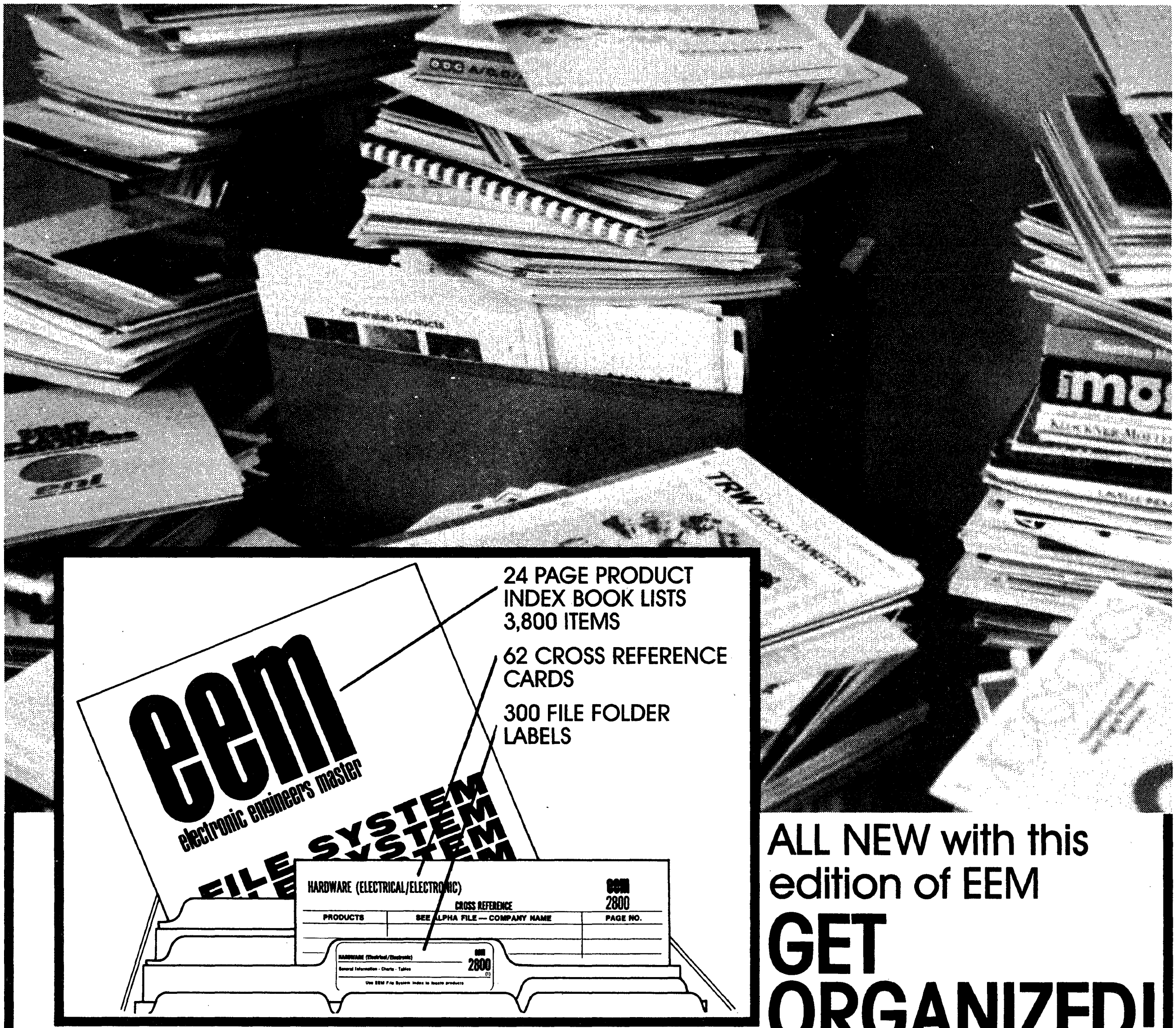
Mlb...V



Sls 10 B/Sls 20 B



Type	Ordering Code	Description
Kleps 3	**973554-100**	Miniature test clip with rotating claws. 1 mm socket accepts Mal-1-0.64/25 pin.
Kleps 3 St 0.64	**973592-100**	Test clip with gold pin accepts Mkl 0.64/25 or Mal 1-0.64/25.
Kleps 30	**930113-100**	Test probe with flexible shank and turnable gripping claws. Socket for 4 mm plug connection and screw for direct wire termination.
Kleps 2 Bu	**973501-100**	Single hook test probe; 2 mm socket for plug connection. Au plated hook.
Ms 100	**931513-101**	Test point with touch proof handle for scanning voltages up to 1000 V.
Pruef 2	**973368-100**	Test probe with 4 mm socket for banana plug. Insulation: PVC.
Pruef 10	**930227-100**	Test probe with nickel plated spring steel probe and 4 mm bunch pin plug.
Kleps 250	**973528-100**	Test probe with sleeve for 250 V. Accepts 4 mm plugs. Flexible shank.
Ak 2 S	**932146-101**	Fully insulated clip. Socket for 4 mm plug. Screw connection for wires 12 AWG max.
Ak 10	**930126-100**	Insulated clip for very thin wires. 4 mm socket for banana plug.
Agf 30	**930122-000**	All metal clip. Acid resistant steel. 4 mm plug socket or solder connection.
Mal 1-0.64/25	**973637-100**	Miniature test lead with 0.64 socket and 1 mm plug. 24 AWG-250 mm long.
Mkl 0.64/25	**973604-100**	Miniature test lead with 25^2 socket each end. 250 mm long — 24 AWG.
Mlb...V	—	Touch proof patch cord with sliding insulation sleeve and locking spring. 4 mm parallel socket. Consult factory for lengths and colors.
Sls 10 B	**931824-100**	Shock proof plug 4 mm. Spring release. Solder connection. 14 AWG max.
Sls 20 B	**931825-100**	Shock proof plug 4 mm. Spring release screw connection. 16 AWG max.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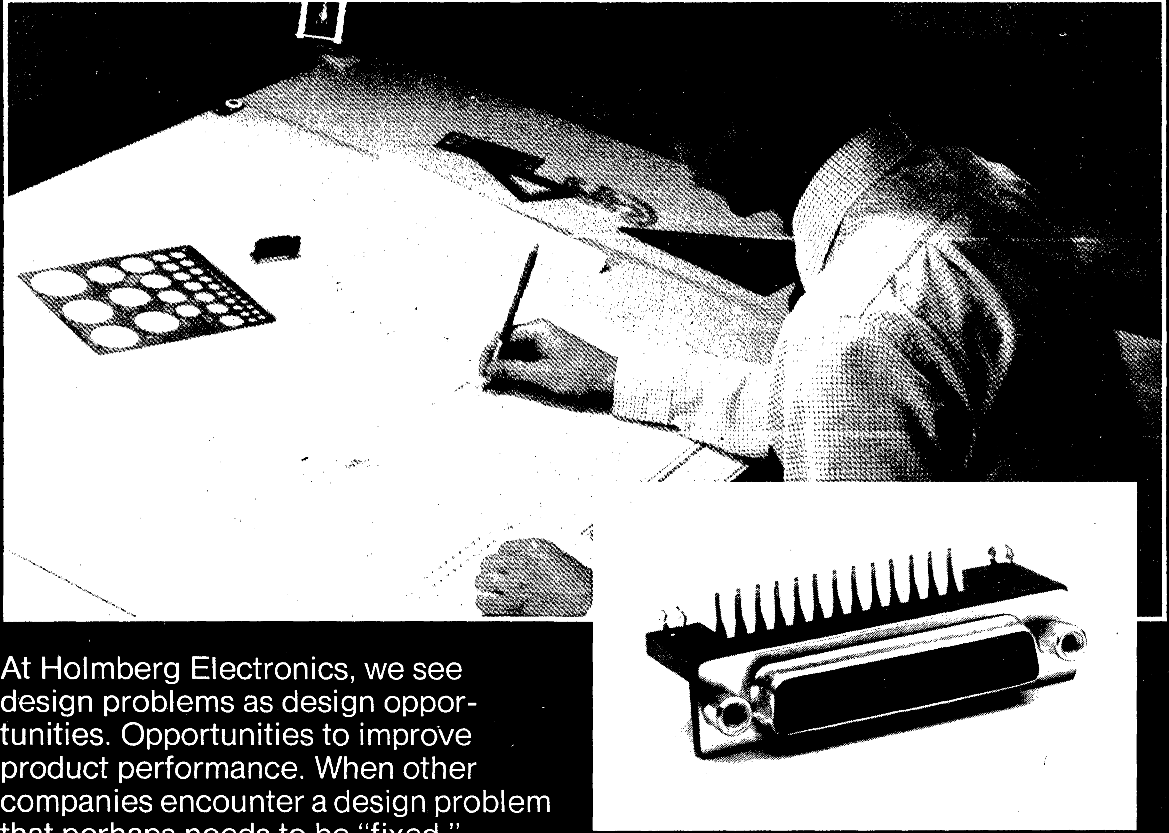

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At Holmberg, our approach to innovation is simple. We use over three decades of acquired expertise, in-depth research and complicated experimentation to develop a simple end-result: a more practical and cost-efficient connector.

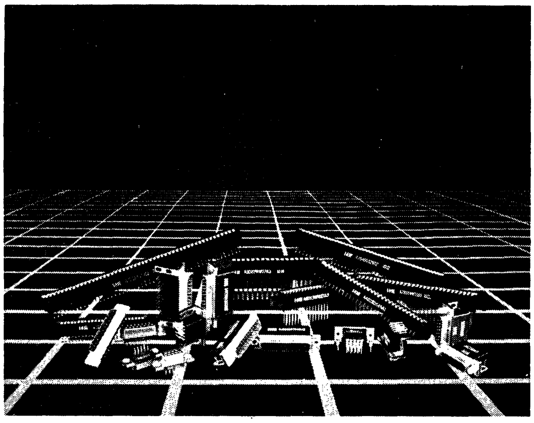
Offering a wide range of D-subminiature connectors, all-plastic and metal shell, and PC card edge connectors, Holmberg features custom-designed quality at all product levels.

At Holmberg Electronics, we don't fix problems. We solve them.

HOLMBERG ELECTRONICS®
The Innovation Connection.

P.O. Box 37, Inman, SC 29349
803/472-4141 • TELEX II 810 690-2302

PC CARD EDGE CONNECTORS



"UL Recognized and CSA Certified"

DESIGN FEATURES

Holmberg's card edge connector series are double readout, configured with optional wire-wrap and square or round dip-solder tails and are suitable for either hand or automatic termination in backplane or discrete applications. Individual connectors are functionally and dimensionally interchangeable with any industry standard PC connector regardless of manufacturer and conform to the applicable design requirements of MIL-C-21097. All popular sizes from 6 to 65 positions are available.

PROVEN CONTACT DESIGN

Highly reliable contacts are utilized to ensure optimum normal contact force over the full range of PC board thicknesses. A uniquely contoured mating surface on each contact further increases reliability by concentrating the normal force in the real contact area while maintaining circuit continuity under all stipulated test and operating conditions. Individual contacts are replaceable if accidentally damaged during handling or installation for most series.

PROVEN INSULATOR DESIGN

Designed to meet or exceed UL flammability requirements, connector bodies are molded in UL 94V-0 thermoplastic material and are offered in several mounting styles. Solder standoffs are provided to facilitate cleaning and preclude solder wicking; all styles incorporate polarizing keyways between the contacts and a generous lead-in chamber for ease of PC card entry.

PROVEN PERFORMANCE

Utilizing only proven and the most cost-effective designs and materials, Holmberg connectors guarantee performance which meets or exceeds industry standard requirements, at the same time, providing an exemplary level of operational reliability at attractive and competitive prices.

DESIGN OPTIONS

A variety of plating, mounting, termination and identification options are offered to meet specific user requirements.

PERFORMANCE CHARACTERISTICS

Operating voltage:	600VDC (sea level)
Current rating:	3 - 5 Amperes*
Operating temperature:	-55°C to +125°C
Contact resistance:	10 milliohms
Insulation resistance:	5000 megohms minimum
Contact retention:	4 lbs. minimum - Dip Solder, 8 lbs. minimum - wire wrap.
Durability:	up to 500 insertions and withdrawals without degradation of performance, dependent upon contact plating thickness selected
Insertion/withdrawal force:	2 to 8 oz. average contact pair using .0620 steel test blade.
Temperature cycling:	MIL-STD-202, method 107B
Moisture resistance:	Humidity per MIL-STD-202, method 103
Vibration:	MIL-STD-202, method 204A
Thermal shock:	MIL-STD-202, method 107

Note: Specifications are subject to change without notice-consult factory for available modifications and verification of design details.

Note: Wire-wrap is a registered trademark of Gardner-Denver, specifications are subject to change without notice - consult factory for available modifications and verification of design details.

All dimensions shown in inches.

MATERIALS

Insulator body:	Glass filled thermoplastic, UL rating 94V-O, color - black
Spring contact:	Hi-Strength Copper Alloy
Polarizing Key:	Nylon, color-white

*3 AMPS: A5, A8, A4, A7, A6, A2D, C8, C7
*5 AMPS: B3, A9, A2S

PART NUMBER DESCRIPTION AND ORDERING INFORMATION

A8 D43 WW 27 A 3

Series Designator
A2, B3, A4, A5, A6
A7, A8, A9, B9, C7, C8

Number of Contact Pairs and Readouts
D - Double Readout
6, 10, 15, 18, 22, 28, 30, 31, 36, 43, and 50
contact pairs typical

Termination Style
WW - Wire-wrap, DS - Dip Solder
SR - Solder Round, PE - Pierced Eyelet, RA - Right Angle

Contact Plating
Standard Plating
27 - Selective .000015" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails
28 - Selective .000010" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails
29 - Selective .000030" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails

Mounting Style
A — 125" diameter mounting holes
B — #4-40 threaded inserts
C — Without mounting ears
D — Flush mount
E — Flush mount with #4-40 threaded inserts
F — Offset Mounting

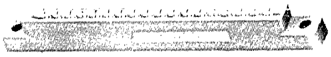
Contact Tail Length
See Series Charts
Consult factory for availability of other lengths.

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

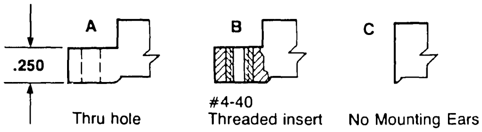
PC Card Edge Connectors

A2S-DS, PE SERIES

.156" CENTER-TO-CENTER

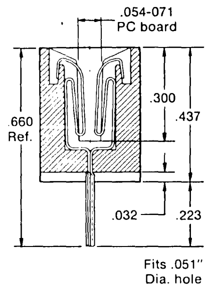


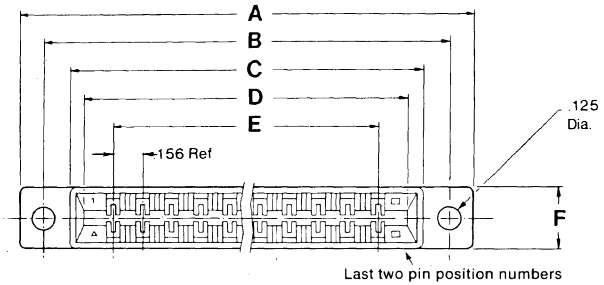
MOUNTING STYLES


A
B
C
.250
Thru hole
#4-40
Threaded insert
No Mounting Ears

PART NUMBER	A (±.020)	B (±.010)	C (±.010)	D (±.010)	E (±.010)
A2S06XX**A1	1.871	1.531	1.218	1.078	.780
A2S10XX**A1	2.406	2.156	1.843	1.703	1.404
A2S12XX**A1	2.719	2.469	2.156	2.016	1.712
A2S15XX**A1	3.187	2.937	2.624	2.484	2.184
A2S18XX**A1	3.656	3.406	3.093	2.952	2.652
A2S22XX**A1	4.281	4.031	3.717	3.578	3.276
A2S25XX**A1	4.747	4.497	4.184	4.044	3.744

XX - DS, PE Termination Style
** - Contact Plating Code

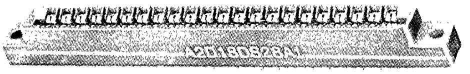

.054-071
PC board
.300
.437
.660
Ref.
.032
.223
Fits .051"
Dia. hole


A
B
C
D
E
.156 Ref
.125
Dia.
F
1
Last two pin position numbers

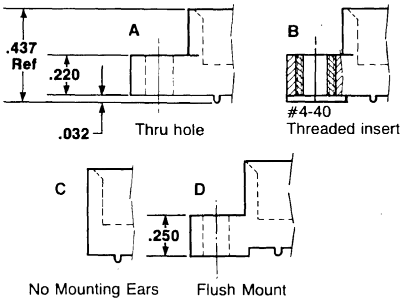
A2D-DS, PE SERIES

.156" CENTER-TO-CENTER

.145" ROW-TO-ROW

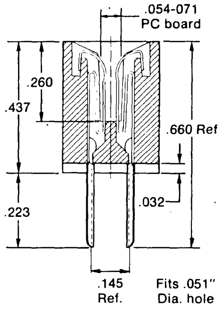


MOUNTING STYLES


A
.437
Ref
.220
.032
Thru hole
B
#4-40
Threaded insert
C
D
.250
No Mounting Ears
Flush Mount

PART NUMBER	A (±.020)	B (±.010)	C (±.010)	D (±.010)	E (±.010)	F (±.010)
A2D06XX**A1	1.781	1.531	1.218	1.078	.780	.325
A2D10XX**A1	2.406	2.156	1.843	1.703	1.404	.325
A2D12XX**A1	2.719	2.469	2.156	2.016	1.712	.325
A2D15XX**A1	3.187	2.937	2.624	2.484	2.184	.325
A2D18XX**A1	3.656	3.406	3.093	2.952	2.652	.325
A2D22XX**A1	4.281	4.031	3.717	3.578	3.276	.325
A2D25XX**A1	4.747	4.497	4.184	4.044	3.744	.325
A2D28XX**A1	5.214	4.964	4.652	4.532	4.212	438
A2D36XX**A1	6.469	6.219	5.906	5.778	5.460	.438
A2D43XX**A1	7.552	7.302	7.000	6.802	6.552	.438

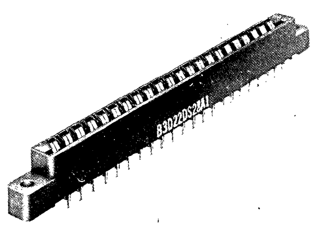
XX - DS, PE Termination Style
** - Contact Plating Code


.054-071
PC board
.260
.437
.660 Ref
.223
.032
.145
Ref.
Fits .051"
Dia. hole

B3D-DS, PE SERIES

.156" CENTER-TO-CENTER

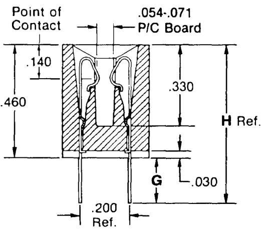
.200" ROW-TO-ROW

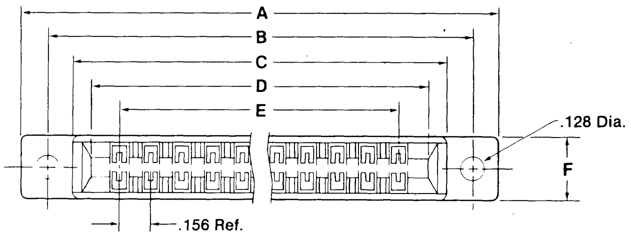


PART NUMBER	A	B	C	D	E	F
B3D06XX**A1	1.785	1.531	1.239	1.100	.780	.340
B3D10XX**A1	2.409	2.155	1.863	1.724	1.404	.340
B3D12XX**A1	2.721	2.467	2.175	2.036	1.716	.340
B3D15XX**A1	3.189	2.935	2.643	2.504	2.184	.340
B3D18XX**A1	3.657	3.403	3.111	2.972	2.652	.340
B3D22XX**A1	4.281	4.027	3.735	3.596	3.276	.340
B3D24XX**A1	4.593	4.339	4.047	3.908	3.588	.340
B3D25XX**A1	4.749	4.495	4.203	4.064	3.744	.340
B3D28XX**A1	5.217	4.963	4.671	4.532	4.212	.438
B3D36XX**A1	6.465	6.211	5.919	5.780	5.460	.438
B3D43XX**A1	7.557	7.303	7.011	6.872	6.552	.438

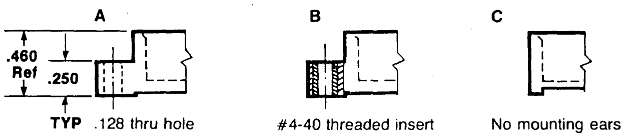
XX - DS, PE, SF Termination Style
** - Contact Plating Code

	G	H
DS	.155	.615
PE	.220	.680
SF	.155	.615


Point of
Contact
.054-.071
P/C Board
.140
.460
.330
H Ref.
G
.030
.200
Ref.


A
B
C
D
E
.128 Dia.
F
.156 Ref.

MOUNTING STYLES


A
.460
Ref
.250
TYP .128 thru hole
B
#4-40 threaded insert
C
No mounting ears

POLARIZING KEY: A2S, A2D, B3D — **98013**

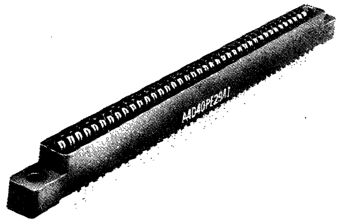
HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

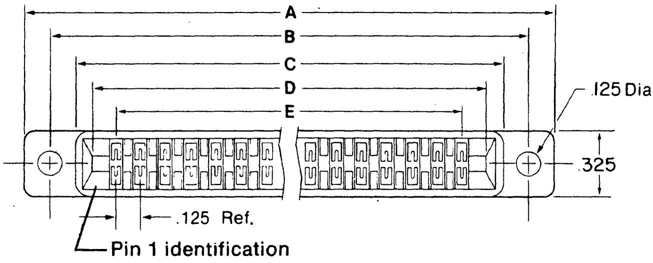
PC Card Edge Connectors

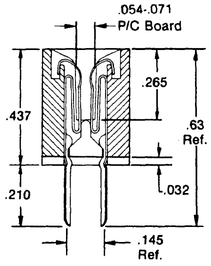
A4D-DS, PE SERIES

.125" CENTER-TO-CENTER

.145" ROW-TO-ROW

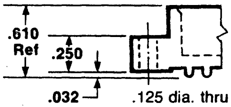



A
B
C
D
E
.125 Dia.
.325
.125 Ref.
Pin 1 identification


.054-.071
P/C Board
.265
.437
.63
Ref.
.210
.032
.145
Ref.

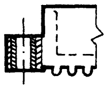
MOUNTING STYLES

A


.610
Ref
.250
.032

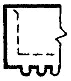
.125 dia. thru hole

B



#4-40 threaded insert

C



No mounting ears

PART NUMBER	A	B	C	D	E
A4D10XX**A1	2.055	1.795	1.535	1.375	1.125
A4D15XX**A1	2.680	2.420	2.160	2.000	1.750
A4D22XX**A1	3.555	3.295	3.035	2.875	2.625
A4D25XX**A1	3.930	3.670	3.410	3.250	3.000
A4D28XX**A1	4.305	4.045	3.785	3.625	3.375
A4D30XX**A1	4.555	4.295	4.035	3.875	3.625
A4D31XX**A1	4.680	4.420	4.160	4.000	3.750
A4D36XX**A1	5.305	5.045	4.785	4.625	4.375
A4D40XX**A1	5.805	5.545	5.285	5.125	4.875
A4D43XX**A1	6.180	5.920	5.660	5.500	5.250
A4D50XX**A1	7.055	6.795	6.535	6.375	6.125

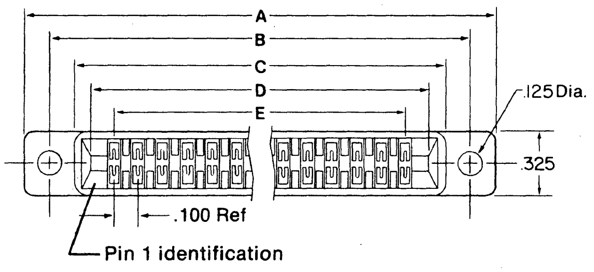
XX - DS or PE Termination Style
** - Contact Plating Code

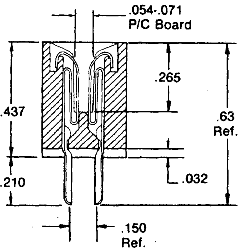
POLARIZING KEY: A4, A5 — **98022**

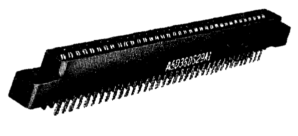
A5D-DS, PE SERIES

.100" CENTER-TO-CENTER

.150" ROW-TO-ROW

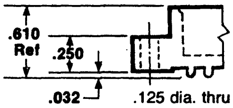

A
B
C
D
E
.125 Dia.
.325
.100 Ref
Pin 1 identification


.054-.071
P/C Board
.265
.437
.63
Ref.
.210
.032
.150
Ref.



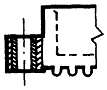
MOUNTING STYLES

A


.610
Ref
.250
.032

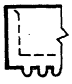
.125 dia. thru hole

B



#4-40 threaded insert

C



No mounting ears

PART NUMBER	A	B	C	D	E
A5D10XX**A1	1.875	1.575	1.268	1.107	.900
A5D15XX**A1	2.375	2.075	1.768	1.607	1.400
A5D18XX**A1	2.675	2.375	2.068	1.907	1.700
A5D20XX**A1	2.875	2.575	2.268	2.107	1.900
A5D22XX**A1	3.075	2.775	2.468	2.307	2.100
A5D25XX**A1	3.375	3.075	2.768	2.607	2.400
A5D28XX**A1	3.675	3.375	3.068	2.907	2.700
A5D30XX**A1	3.875	3.575	3.268	3.107	2.900
A5D36XX**A1	4.475	4.175	3.868	3.707	3.500
A5D40XX**A1	4.875	4.575	4.268	4.107	3.900
A5D43XX**A1	5.175	4.875	4.568	4.407	4.200
A5D50XX**A1	5.875	5.575	5.268	5.107	4.900

XX - DS or PE Termination Style
** - Contact Plating Code

HOLMBERG ELECTRONICS CORPORATION
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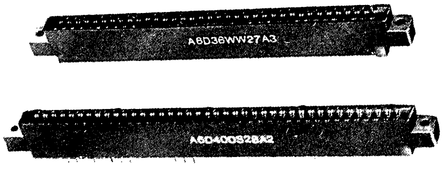
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

PC Card Edge Connectors

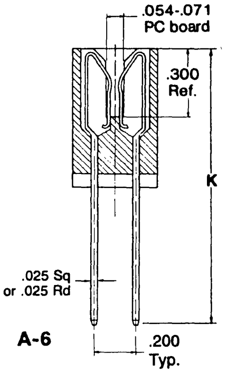
A6D-DS, WW, SR SERIES

.156" CENTER-TO-CENTER
.200" ROW-TO-ROW

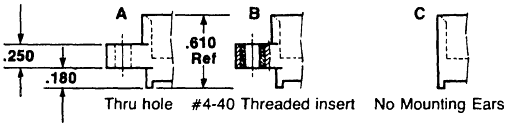

A6D36WW27A3
A6D40DS28A2

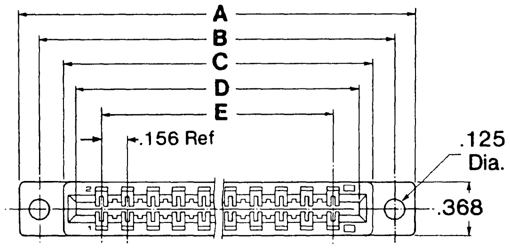
PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A6D10XX**A†	2.408	2.158	1.845	1.724	1.404
A6D15XX**A†	3.188	2.938	2.625	2.504	2.184
A6D18XX**A†	3.656	3.406	3.093	2.972	2.652
A6D22XX**A†	4.280	4.030	3.717	3.596	3.276
A6D25XX**A†	4.748	4.498	4.185	4.064	3.744
A6D28XX**A†	5.216	4.966	4.653	4.532	4.212
A6D36XX**A†	6.464	6.214	5.901	5.780	5.460
A6D43XX**A†	7.556	7.306	6.993	6.872	6.552

XX - DS, WW, or SR Termination Style
** - Contact Plating Code
† - Tail Length


.054-.071
PC board
.300
Ref.
K
.025 Sq
or .025 Rd
A-6
.200
Typ.

MOUNTING STYLES


A
B
C
.250
.180
.610
Ref
Thru hole
#4-40 Threaded insert
No Mounting Ears


A
B
C
D
E
.156 Ref
.125
Dia.
.368

STANDARD CONTACT TAIL LENGTHS

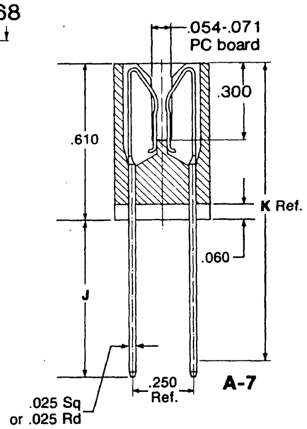
Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. tail

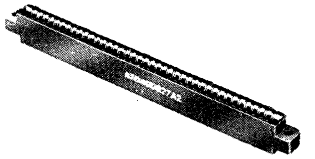
Consult factory for other lengths.

POLARIZING KEY: A6, A7 — **98023**


.054-.071
PC board
.300
.610
K Ref.
.060
J
.250
Ref.
A-7
.025 Sq
or .025 Rd

A7D-DS, WW, SR SERIES

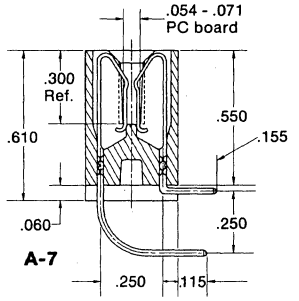
.125" CENTER-TO-CENTER
.250" ROW-TO-ROW



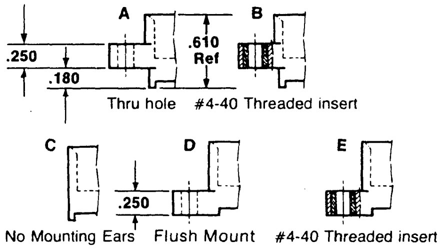
PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A7D10XX**A†	2.055	1.795	1.535	1.375	1.125
A7D15XX**A†	2.680	2.420	2.160	2.000	1.750
A7D18XX**A†	3.055	2.795	2.535	2.375	2.125
A7D20XX**A†	3.305	3.045	2.785	2.625	2.375
A7D22XX**A†	3.555	3.295	3.035	2.875	2.625
A7D25XX**A†	3.930	3.670	3.410	3.250	3.000
A7D28XX**A†	4.305	4.045	3.785	3.625	3.375
A7D30XX**A†	4.555	4.295	4.035	3.875	3.625
A7D35XX**A†	5.180	4.920	4.660	4.500	4.250
A7D36XX**A†	5.305	5.045	4.785	4.625	4.375
A7D40XX**A†	5.805	5.545	5.285	5.125	4.875
A7D43XX**A†	6.180	5.920	5.660	5.500	5.250
A7D50XX**A†	7.055	6.795	6.535	6.375	6.125

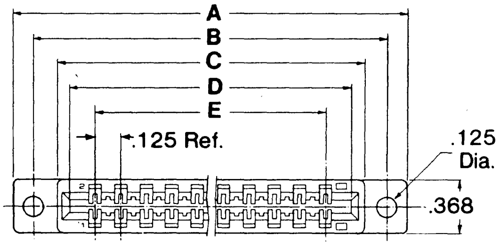
XX - DS, WW or SR Termination Style
** - Contact Plating Code
† - Tail Length

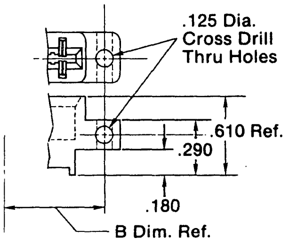
A7 RIGHT ANGLE TAILS


.054 - .071
PC board
.300
Ref.
.610
.550
.155
.060
.250
A-7
.250
.115

MOUNTING STYLES


A
B
.250
.180
.610
Ref
Thru hole
#4-40 Threaded insert
C
D
E
.250
No Mounting Ears
Flush Mount
#4-40 Threaded insert


A
B
C
D
E
.125 Ref.
.125
Dia.
.368


.125 Dia.
Cross Drill
Thru Holes
.610 Ref.
.290
.180
B Dim. Ref.

STANDARD CONTACT TAIL LENGTHS

Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. tail

Consult factory for other lengths.

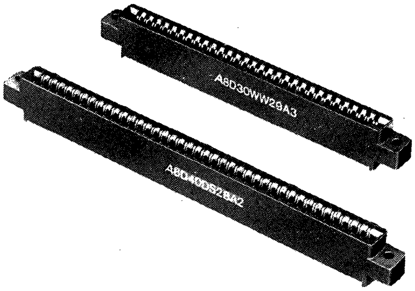
A7DXXRAXXA = .250
A7DXXRAXXM23 = .180

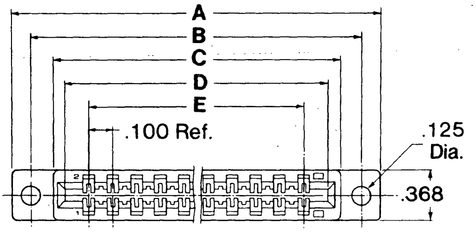
HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

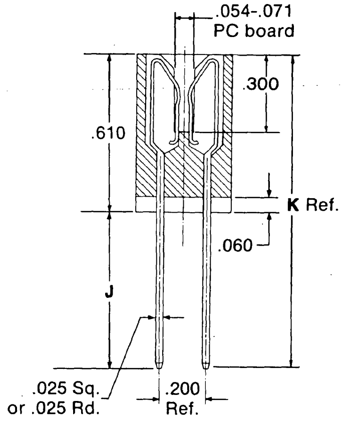
PC Card Edge Connectors

A8D-DS, WW, SR SERIES

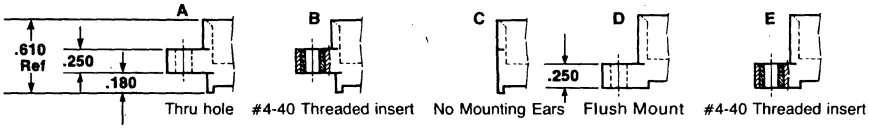
.100" CENTER-TO-CENTER
.200" ROW-TO-ROW


A8D30WW29A3
A8D40DS62BA2


A
B
C
D
E
.100 Ref.
.125 Dia.
.368


.054-.071 PC board
.300
.610
K Ref.
.060
J
.025 Sq. or .025 Rd.
.200 Ref.

MOUNTING STYLES


A
B
C
D
E
.610 Ref
.250
.180
.250
Thru hole
#4-40 Threaded insert
No Mounting Ears
Flush Mount
#4-40 Threaded insert

STANDARD CONTACT TAIL LENGTHS

Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

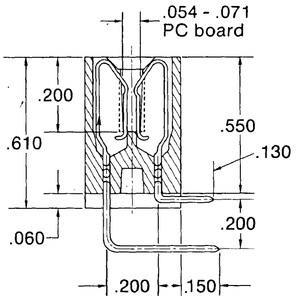
DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. rail

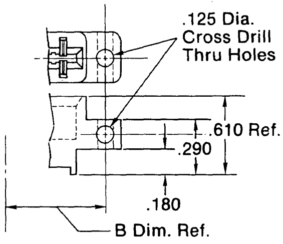
Consult factory for other lengths.

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A8D10XX**A†	1.835	1.575	1.260	1.100	.900
A8D12XX**A†	2.035	1.775	1.460	1.300	1.100
A8D15XX**A†	2.335	2.075	1.760	1.600	1.400
A8D20XX**A†	2.835	2.575	2.260	2.100	1.900
A8D22XX**A†	3.035	2.775	2.460	2.300	2.100
A8D25XX**A†	3.335	3.075	2.760	2.600	2.400
A8D28XX**A†	3.635	3.375	3.060	2.900	2.700
A8D30XX**A†	3.835	3.575	3.260	3.100	2.900
A8D31XX**A†	3.935	3.675	3.360	3.200	3.100
A8D35XX**A†	4.335	4.075	3.760	3.600	3.400
A8D36XX**A†	4.435	4.175	3.860	3.700	3.500
A8D40XX**A†	4.835	4.575	4.260	4.100	3.900
A8D43XX**A†	5.135	4.875	4.560	4.400	4.200
A8D50XX**A†	5.835	5.575	5.260	5.100	4.900
A8D60XX**A†	6.835	6.575	6.260	6.100	5.900
A8D65XX**A†	7.335	7.075	6.760	6.600	6.400

XX - DS, WW or SR Termination Style ** - Contact Plating Code † - Tail Length

A8 RIGHT ANGLE TAILS


.054 - .071 PC board
.200
.610
.550
.130
.060
.200
.200
.150


.125 Dia. Cross Drill Thru Holes
.610 Ref.
.290
.180
B Dim. Ref.

A8DXXRAXXA = .200
A8DXXRAXXM23 = .150

POLARIZING KEY: 98023

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

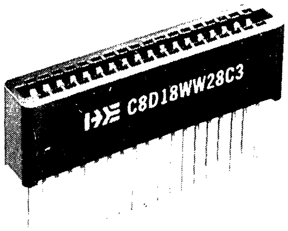
PC Card Edge Connectors

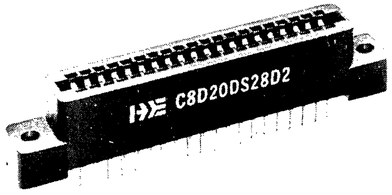
C8D-DS, WW SERIES

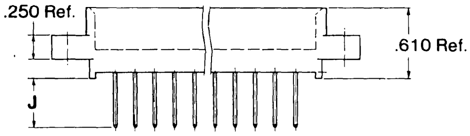
.100" CENTER-TO-CENTER

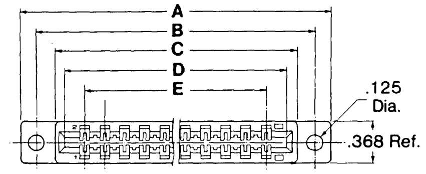
.200" ROW-TO-ROW

Cantilever (Economy) Version
of A8 Connectors









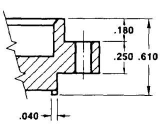
PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
C8D10XX**A†	1.835	1.575	1.260	1.100	.900
C8D12XX**A†	2.035	1.775	1.460	1.300	1.100
C8D15XX**A†	2.335	2.075	1.760	1.600	1.400
C8D20XX**A†	2.835	2.575	2.260	2.100	1.900
C8D22XX**A†	3.035	2.775	2.460	2.300	2.100
C8D25XX**A†	3.335	3.075	2.760	2.600	2.400
C8D28XX**A†	3.635	3.375	3.060	2.900	2.700
C8D30XX**A†	3.835	3.575	3.260	3.100	2.900
C8D31XX**A†	3.935	3.675	3.360	3.200	3.000
C8D35XX**A†	4.335	4.075	3.760	3.600	3.400
C8D36XX**A†	4.435	4.175	3.860	3.700	3.500
C8D40XX**A†	4.835	4.575	4.260	4.100	3.900
C8D43XX**A†	5.135	4.875	4.560	4.400	4.200
C8D50XX**A†	5.835	5.575	5.260	5.100	4.900
C8D60XX**A†	6.835	6.575	6.260	6.100	5.900

XX — DS or WW Termination Style
** — Contact Plating Code
† — Tail Length
Available in configurations 06-60

NOTE: Wire-wrap is a registered trademark of Gardner-Denver, specifications are subject to change without notice - consult factory for available modifications and verification of design details.

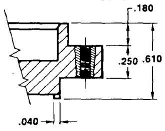
MOUNTING STYLES

.125 DIA. THRU HOLE



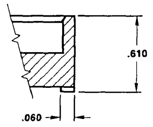
A

#4-40 THD INSERT



B

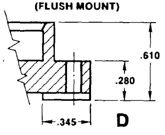
NO MOUNTING EARS



C

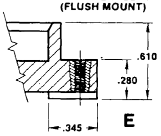
For Mounting Style C,
overall length is dimension C.

.125 DIA. THRU HOLE
(FLUSH MOUNT)



D

#4-40 THD INSERT
(FLUSH MOUNT)



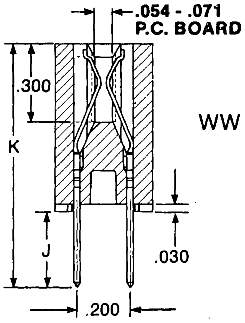
E

STANDARD CONTACT TAIL LENGTHS

Size	DS	
	J	K
2	.160	.770

Size	WW	
	J	K
3	.560	1.170

DS = .024 x .012
WW = .025 sq. tail



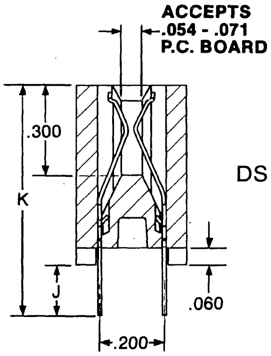
C7D-DS, WW SERIES

.125" CENTER-TO-CENTER

.250" ROW-TO-ROW

Cantilever (Economy) Version
of A7 Connectors

PART NUMBER	A. (± .010)	B (± .006)	C (± .008)	D (± .005)	E (± .004)
C7D10XX**A†	2.055	1.795	1.535	1.375	1.125
C7D15XX**A†	2.680	2.420	2.160	2.000	1.750
C7D18XX**A†	3.055	2.795	2.535	2.375	2.125
C7D20XX**A†	3.305	3.045	2.785	2.625	2.375
C7D22XX**A†	3.555	3.295	3.035	2.875	2.625
C7D25XX**A†	3.930	3.670	3.410	3.250	3.000
C7D28XX**A†	4.305	4.045	3.785	3.625	3.375
C7D30XX**A†	4.555	4.295	4.035	3.875	3.625
C7D35XX**A†	5.180	4.920	4.660	4.500	4.250
C7D36XX**A†	5.305	5.045	4.785	4.625	4.375
C7D40XX**A†	5.805	5.545	5.285	5.125	4.875
C7D43XX**A†	6.180	5.920	5.660	5.500	5.250
C7D50XX**A†	7.055	6.795	6.535	6.375	6.125

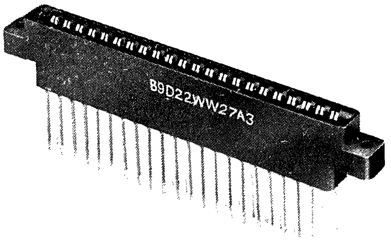


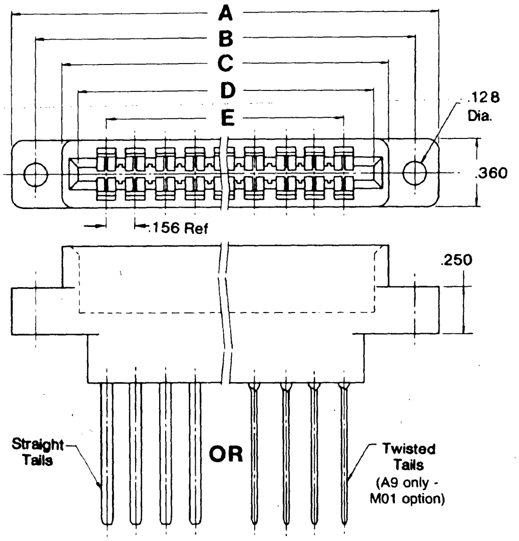
HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

PC Card Edge Connectors

A9D AND B9D-WW SERIES

.156" CENTER-TO-CENTER
.188" ROW-TO-ROW


B9D22WW27A3

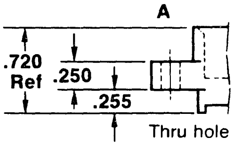

A
B
C
D
E
.128 Dia.
.360
.156 Ref
.250
Straight Tails
OR
Twisted Tails (A9 only - M01 option)

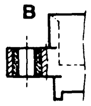
A9D-WW SERIES

Operating voltage: 1800VDC (sea level)

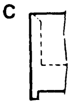
Current rating: 5 Amperes

MOUNTING STYLES


A
.720 Ref
.250
.255
Thru hole



#4-40 Threaded insert

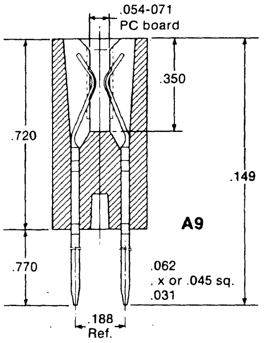


No Mounting Ears

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A9D10WW**A3	2.406	2.158	1.876	1.724	1.404
A9D15WW**A3	3.188	2.938	2.656	2.504	2.184
A9D18WW**A3	3.654	3.406	3.124	2.972	2.652
A9D22WW**A3	4.280	4.030	3.748	3.596	3.276
A9D28WW**A3	5.214	4.966	4.684	4.532	4.212
A9D30WW**A3	5.528	5.278	4.996	4.844	4.524
A9D31WW**A3	5.684	5.434	5.152	5.000	4.680
A9D36WW**A3	6.462	6.214	5.932	5.780	5.460
A9D40WW**A3	7.088	6.838	6.556	6.404	6.084
A9D43WW**A3	7.554	7.306	7.024	6.872	6.552

Note Wire-wrap is a registered trademark of Gardner-Denver, specifications are subject to change without notice - consult factory for available modifications and verification of design details

** - Contact Plating Code


.054-071 PC board
.350
.720
.149
A9
.770
.062 x or .045 sq. .031
.188 Ref.

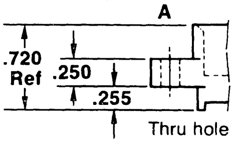
B9D-WW SERIES

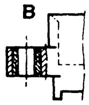
POLARIZING KEYS: 98023

Operating Voltage: 1800VDC (sea level)

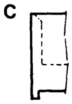
Current rating: 5 Amperes

MOUNTING STYLES

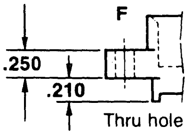

A
.720 Ref
.250
.255
Thru hole



#4-40 Threaded insert



No Mounting Ears



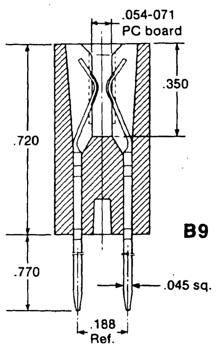
Thru hole

Consult factory for available design modifications and verification of design details.

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
B9D10WW**A3	2.406	2.158	1.876	1.724	1.404
B9D15WW**A3	3.188	2.938	2.656	2.504	2.184
B9D18WW**A3	3.654	3.406	3.124	2.972	2.652
B9D22WW**A3	4.280	4.030	3.748	3.596	3.276
B9D28WW**A3	5.214	4.966	4.684	4.532	4.212
B9D30WW**A3	5.528	5.278	4.996	4.844	4.524
B9D31WW**A3	5.684	5.434	5.152	5.000	4.680
B9D36WW**A3	6.462	6.214	5.932	5.780	5.460
B9D40WW**A3	7.088	6.838	6.556	6.404	6.084
B9D43WW**A3	7.554	7.306	7.024	6.872	6.552

Note Wire-wrap is a registered trademark of Gardner-Denver; specifications are subject to change without notice - consult factory for available modifications and verification of design details

** - Contact Plating Code


.054-071 PC board
.350
.720
B9
.770
.045 sq.
.188 Ref.

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

PRODUCT DESCRIPTION

Holmberg's H2, H3 and H4 Series D Subminiature connectors are all plastic or metal-shielded for printed circuit board applications in the telecommunications, data processing, instrumentation, industrial control and other industries where low cost and high performance are required. They are fully intermatable with all D Subminiature connectors - including crimp, solder and insulation displacement types.

The connector housing is molded in black glass-filled polyester, UL rated 94 V-O. Contacts are high strength copper alloy and are selectively plated- gold-over-nickel in the contact area with solder plating on the tails. This assures contact reliability, superior solderability and long shelf life at a lower cost.

The metal shielded connector is designed specifically for mating with EMI-RFI qualified cables, the H4 metal shell connectors incorporate a grounding bulkhead mount, or can be supplied with a grounding strap for grounding to the topside, underside or both, of PC boards. The bright tin-plated steel metal shell provides a cost-effective medium for grounding -- which can also be accomplished through the mounting hardware.

Available in 9, 15, 25 and 37 positions, the unique design of the Holmberg D Subminiature connectors ensures excellent contact retention and precisely located, rigid contact tails for easy assembly.

DESIGN FEATURES

LARGE LEAD-IN PROVIDES EASY MATING, Allows male plug to be off true position as much as + .040" and still mate. Corner radii around "D" outline also aids pin alignment. SMOOTH LEAD ON TIP OF PINS. Allows easy mating and low insertion force with mating receptacle.

RIGID TAILS NEED NO SUPPORT. Right angle tails have channel cross-section for exceptional strength and rigidity. They are precisely positioned for easy mounting. Since no plastic inserts or spacers are required for alignment or support, nothing obstructs cleaning during soldering.

60/40 TIN/LEAD SELECTIVE PLATING ON THE TAIL ENHANCES SOLDERABILITY. Nickel-plated tail surface above the board forms effective solder mask. Large cross-section of the above board tail portion provides good heat sink to further control solder application.

SELECTIVE GOLD PLATING. A unique double-stamping process permits precise placement of valuable gold only where needed.

METAL SHELL provides electrical ground path continuity and magnetic shielding, from the mating receptacle metal shell through the grounding bumps on the male shell. The steel shell with bright tin-plating also provides for grounding through the factory installed mounting hardware.

HARDWARE KIT

Part No. 98039 (RA)
Part No. 98044 (ST)

Consists of: 2 #4-40 screw-threaded inserts
2 Flat washers
2 Lock washers
2 Retaining nuts

Packaged in a polyethylene bag.

PERFORMANCE CHARACTERISTICS

Operating voltage:	600VDC (sea level)
Current rating:	5 Amperes
Operating temperature:	-55°C to +125°C
Contact resistance:	10 milliohms max. @ rated current
Insulation resistance:	5000 megohms minimum
Dielectric withstanding voltage	1000 VAC minimum
Durability:	up to 500 insertions and withdrawals without degradation of performance, dependent upon contact plating thickness selected

MATERIALS

Insulator body:	Glass filled polyester, UL rating 94V-0, color-black
Contact:	High yield strength brass alloy per Spec QQ-B-750.
Metal Shell:	Steel, bright tin plate.

UL Recognized and CSA Certified

PART NUMBER DESCRIPTION AND ORDERING INFORMATION

H2 R 25 RA 29 A P M

SERIES DESIGNATOR
H2 — All Plastic
H4 — Metal Shell

CONTACT TYPE
R — Female Receptacle
M — Male Pins

NUMBER OF CONTACTS
09, 15, 25, 37

PC TERMINATION TYPE
RA — Right Angle
ST — Straight Tail
SW — Straight Retention Tails
RW — Right Angle Retention Tails

CONTACT PLATING
28 — Selective .000010" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.
29 — Selective .000030" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.

MOUNTING STYLE
Right Angle & Right Angle Retention Tails
A — Basic Connector
B — Round Standoff, 4-40 Thread
C — Flush Molded-in insert, 4-40 Thread
D — Plastic Standoff, with 4-40 Threaded Insert
E — Latch with Plastic Standoff (RS 449)
F — Locking Post
G — Hex Standoff, 4-40 Thread
J — Latch with Plastic Standoff and 4-40 Threaded Insert (RS 449 & 232)
T — Torque-Lok, Flush, 4-40 Thread

Straight Tail and Straight Retention Tails
A — Basic Connector with Thru Holes
B — Round Standoff, # 4-40 Thread
C — Flush Molded-in Insert, # 4-40 Thread
D — Flush board mounting with Thru Holes
J — Latch with Plastic Standoff and # 4-40 Threaded Insert (for RS 449 and RS 232 cable assemblies)
H — Plastic Standoff with 4-40 Threaded Insert

PCB OPTIONS
P — Snap Latch / 062 PCB
Consult factory for SW and RW PCB hole sizes

SPECIAL MODIFICATIONS
M30 — Metric Thread Size M3
M42 — Outside Ground Strap
M43 — Inside Ground Strap
M44 — Solder Ground
M50 — Back Board Mounting Hole
M52 — Back Board Mounting Hole with outside ground strap
M53 — Back Board Mounting Hole with inside ground strap
M62 — Metric Thread with outside ground strap
M63 — Metric Thread with inside ground strap
M64 — Metric Thread with solder ground tail
Consult factory for grounding options on straight tail connectors

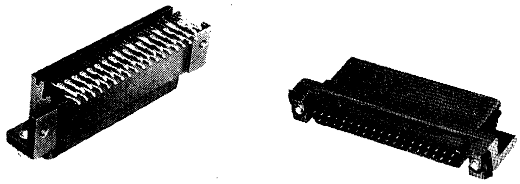
HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H2 SERIES

9, 15, 25 AND 37 POSITIONS

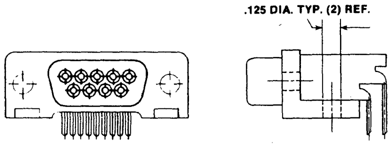
ALL PLASTIC RIGHT ANGLE FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING



MOUNTING STYLES

STYLE A

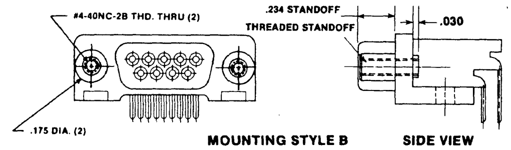
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available.


.125 DIA. TYP. (2) REF.

MOUNTING STYLE A SIDE VIEW

STYLE B

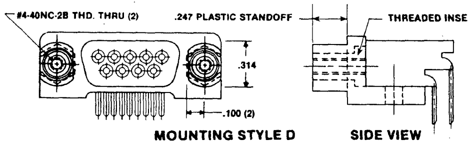
This configuration includes a #4-40 threaded standoff-which provides 8 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40NC-2B THD. THRU (2)
.234 STANDOFF
THREADED STANDOFF
.030
.175 DIA. (2)

MOUNTING STYLE B SIDE VIEW

STYLE D

Unique Style D configuration has molded-in plastic standoff with factory-installed zinc-plated brass hex-headed, #4-40 threaded insert. Specifically designed for RS 232 cable assemblies. Insert is threaded all the way through. Hexagonal shape positively locks insert in place to provide 8 in-lb torque retention and eliminate rotation. Style D is functionally equivalent to Style B and Style G inserts. Available with Style 2 board mounting holes only.

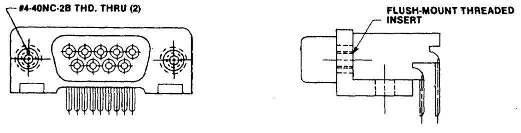

#4-40NC-2B THD. THRU (2)
.247 PLASTIC STANDOFF
THREADED INSERT
.314
.100 (2)

MOUNTING STYLE D SIDE VIEW

STYLES C & T

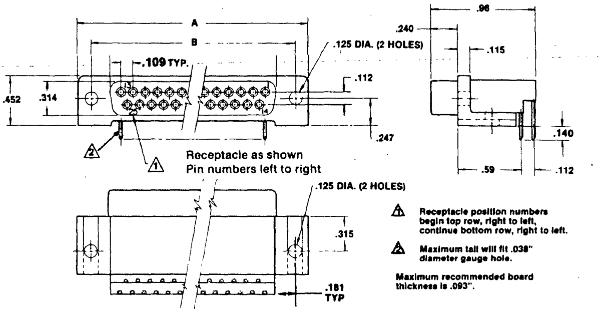
Style C mounting provides a flush, molded-in, #4-40 threaded insert of zinc-plated brass. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 10 in-lb).

Style T2 is the same as mounting style C2 except it uses self-locking stainless steel inserts with black dry-film lubricant. They are designed to prevent the jack-screw from loosening and eliminates lockwashers and nuts.


#4-40NC-2B THD. THRU (2)
FLUSH-MOUNT THREADED INSERT

MOUNTING STYLE C & T SIDE VIEW

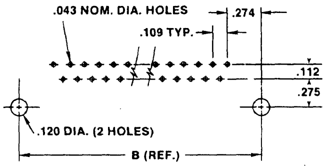
DIMENSIONS (Shown In Inches)


A
B
.109 TYP.
.125 DIA. (2 HOLES)
.452
.314
.112
.247
.96
.240
.115
.140
.59
.112
2
1
Receptacle as shown
Pin numbers left to right
.125 DIA. (2 HOLES)
.315
.181 TYP

△1 Receptacle position numbers begin top row, right to left, continue bottom row, right to left.

△2 Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".


.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

NUMBER OF CONTACTS	A	B
9	1.224	.984
15	1.552	1.312
25	2.092	1.852
37	2.740	2.500

STYLE F

Style F has brass locking posts designed to mate with AMP's slide-latch clip assembly. Positronic's slide-lock assembly and equivalent connectors.

STYLE G

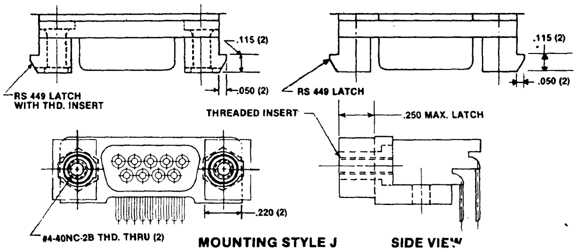
Style G is essentially the same as Style B, but with threaded inserts in a hexagonal cross-section.

STYLE J2

Style J2 provides a unique connector which mates to both RS 232 and RS 449 cable assemblies. It combines molded-in latch of Style E and hex-headed #4-40 threaded insert of Style D. Available with Style 2 board mounting holes only.

STYLE E2

Style E2 is the same as Style J2 without the #4-40 threaded inserts.

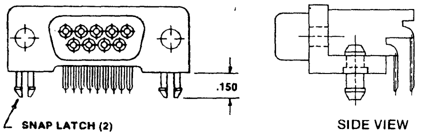

.115 (2)
RS 449 LATCH WITH THD. INSERT
.050 (2)
RS 449 LATCH
.115 (2)
.050 (2)
THREADED INSERT
.250 MAX. LATCH
.220 (2)
#4-40NC-2B THD. THRU (2)

MOUNTING STYLE J SIDE VIE'W

PCB OPTIONS

PCB OPTION P - Snap Latch

Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Maximum installation force 5 lbs. Material: Nylon.


.150
SNAP LATCH (2)

SIDE VIEW

HOLMBERG ELECTRONICS CORPORATION

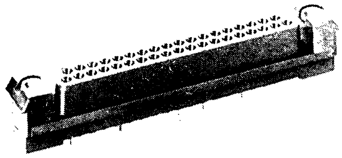
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

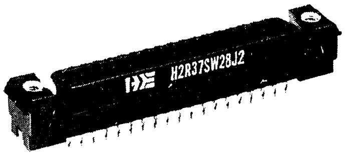
D SUBMINIATURE CONNECTORS

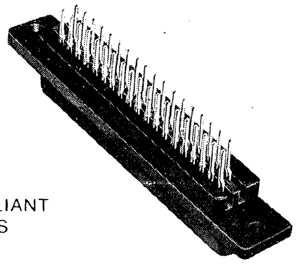
H2 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL ALL PLASTIC
FEMALE RECEPTACLES FOR
PRINTED CIRCUIT BOARD MOUNTING



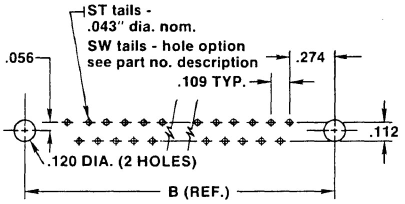

H2R37SW28J2



OPTIONAL COMPLIANT
SOLDER TAILS

DIMENSIONS (Shown In Inches)

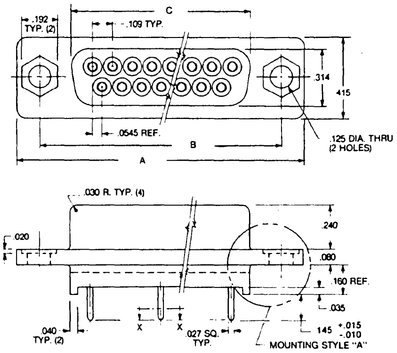
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.646
15	1.552	1.312	.974
25	2.092	1.852	1.514
37	2.740	2.500	2.162

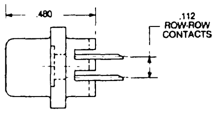

ST tails -
.043" dia. nom.
SW tails - hole option
see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

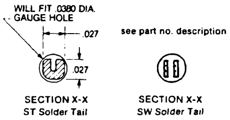
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

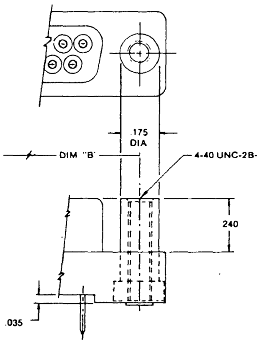
MOUNTING STYLE A


.192 TYP. (2)
C
.109 TYP.
.314
.415
.0545 REF.
B
A
.125 DIA. THRU (2 HOLES)
.030 R. TYP. (4)
.020
.240
.080
.160 REF.
.035
.040 TYP. (2)
X
X
.027 SQ. TYP.
.145 +.015 -.010
MOUNTING STYLE "A"

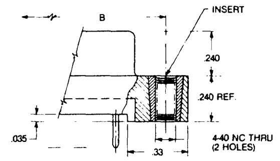

.480
.112 ROW-ROW CONTACTS


WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
see part no. description
SECTION X-X ST Solder Tail
SECTION X-X SW Solder Tail

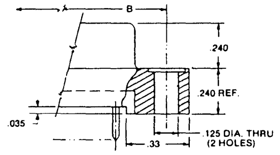
MOUNTING STYLE B


.175 DIA
DIM "B"
4-40 UNC-2B-THRU
.240
.035

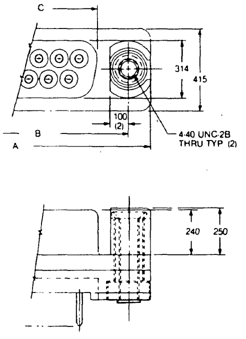
MOUNTING STYLE C


B
INSERT
.240
.240 REF.
.035
.33
4-40 NC THRU (2 HOLES)

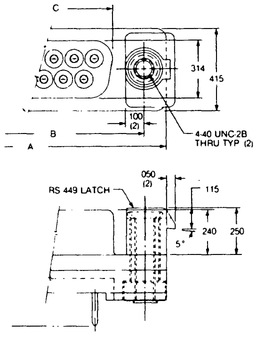
MOUNTING STYLE D


B
.240
.240 REF.
.035
.33
.125 DIA. THRU (2 HOLES)

MOUNTING STYLE H


C
.314
.415
.100 (2)
B
A
4-40 UNC-2B THRU TYP (2)
.240
.250

MOUNTING STYLE J


C
.314
.415
.100 (2)
B
A
4-40 UNC-2B THRU TYP (2)
.050 (2)
RS 449 LATCH
.115
5°
.240
.250

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

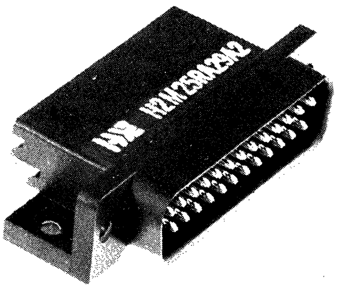
D SUBMINIATURE CONNECTORS

H2 SERIES

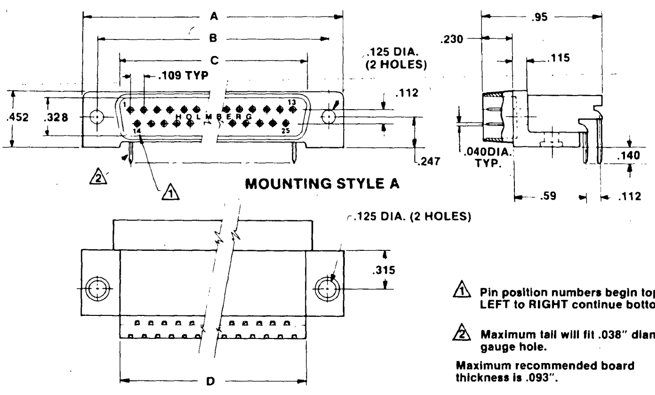
9, 15, 25 AND 37 POSITIONS

ALL PLASTIC RIGHT ANGLE

MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING


H2M25RA2G12

DIMENSIONS (Shown In Inches)


A
B
C
.109 TYP
.125 DIA. (2 HOLES)
.112
.452
.328
1
13
14
25
HOLMBERG
.247
2
1
.95
.230
.115
.040DIA. TYP.
.140
.59
.112
.125 DIA. (2 HOLES)
.315
D

MOUNTING STYLE A

1 Pin position numbers begin top row, LEFT to RIGHT continue bottom row,

2 Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.624
15	1.552	1.312	.994	.952
25	2.092	1.852	1.534	1.492
37	2.740	2.500	2.183	2.140

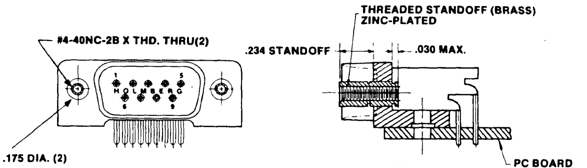
MOUNTING STYLES

STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. Style A is a new design which is produced in a cammed mold, eliminating top and bottom grooves around board-mounting holes. This style is easier to rivet to the board because the rivet head is completely supported by solid plastic. It is also recommended for installations having board traces running under the connector — since there are no sharp edges to damage traces.

STYLE B

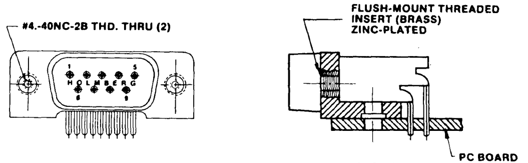
This configuration includes a #4-40 threaded standoff which provides 8 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40NC-2B X THD. THRU(2)
.234 STANDOFF
THREADED STANDOFF (BRASS) ZINC-PLATED
.030 MAX.
HOLMBERG
.175 DIA. (2)
PC BOARD

MOUNTING STYLE B **SECTIONAL VIEW**

STYLE C

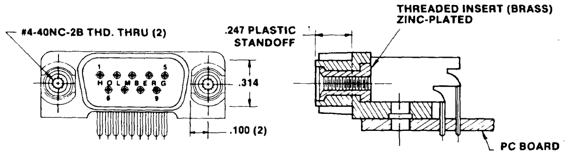
Style C mounting provides a flush, molded-in, #4-40 threaded insert of zinc-plated brass. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 10 in-lb).


#4.-40NC-2B THD. THRU (2)
FLUSH-MOUNT THREADED INSERT (BRASS) ZINC-PLATED
HOLMBERG
PC BOARD

MOUNTING STYLE C **SECTIONAL VIEW**

STYLE D

Unique Style D configuration has molded-in plastic standoff with factory-installed zinc-plated brass hex-headed, #4-40 threaded insert. Specifically designed for RS 232 cable assemblies. Insert is threaded all the way through. Hexagonal shape positively locks insert in place providing 8 in-lb torque retention. Style D is functionally equivalent to Style B and Style G inserts.


#4-40NC-2B THD. THRU (2)
.247 PLASTIC STANDOFF
THREADED INSERT (BRASS) ZINC-PLATED
HOLMBERG
.314
.100 (2)
PC BOARD

SECTIONAL VIEW

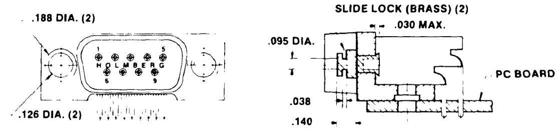
MOUNTING STYLE D

STYLE E

Style E2 provides a molded-in RS 449 latch for 9 and 37-position H2 D Subminiature connectors. No separate pieces of hardware are needed.

STYLE F

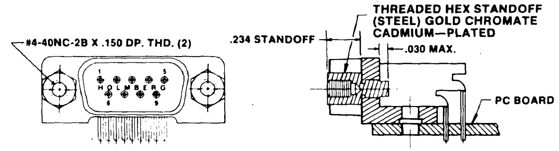
This configuration has brass locking posts designed to mate with AMP's slide-latch clip assembly. Positronics' slide-lock assembly and equivalent connectors.


.188 DIA. (2)
SLIDE LOCK (BRASS) (2)
.030 MAX.
.095 DIA.
PC BOARD
.038
.140
.126 DIA. (2)
HOLMBERG

MOUNTING STYLE F **SECTIONAL VIEW**

STYLE G

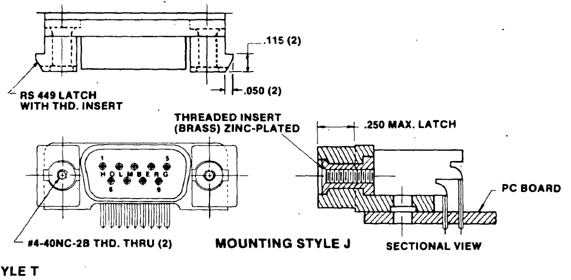
Style G is the same as Style B, but equipped with gold chromate cadmium-plated steel, threaded inserts in a hexagonal cross-section.


THREADED HEX STANDOFF (STEEL) GOLD CHROMATE CADMIUM—PLATED
#4-40NC-2B X .150 DP. THD. (2)
.234 STANDOFF
.030 MAX.
HOLMBERG
PC BOARD

MOUNTING STYLE G **SECTIONAL VIEW**

STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies. It combines molded-in latch of Style E and hex-headed #4-40 threaded insert of Style D.


.115 (2)
.050 (2)
RS 449 LATCH WITH THD. INSERT
THREADED INSERT (BRASS) ZINC-PLATED
.250 MAX. LATCH
HOLMBERG
PC BOARD
#4-40NC-2B THD. THRU (2)

MOUNTING STYLE J **SECTIONAL VIEW**

STYLE T

Style T same as mounting Style C except: self-locking insert with #4-40 threads. The insert is stainless steel with black dry-film lubricant. It has a knurl that captures it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 15 in-lb). Thread performance: torque on, 5.0 in-lb max., torque off .5 in-lb min., up to 15 times on-off. Self-locking threads meets mil spec. MIL-N-25027A

PCB OPTION - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Circuit Board. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Maximum installation force 5 lbs. Material: Nylon.

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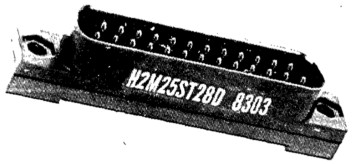
D SUBMINIATURE CONNECTORS

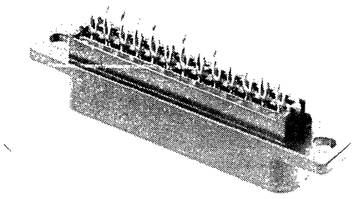
H2 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL ALL PLASTIC

MALE PINS FOR
PRINTED CIRCUIT BOARD MOUNTING

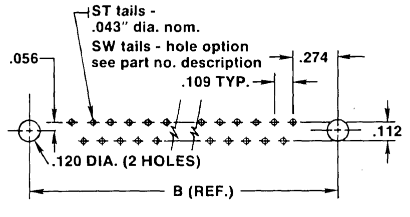

H2M25ST28D 8303



OPTIONAL COMPLIANT
SOLDER TAILS

DIMENSIONS (Shown In Inches)

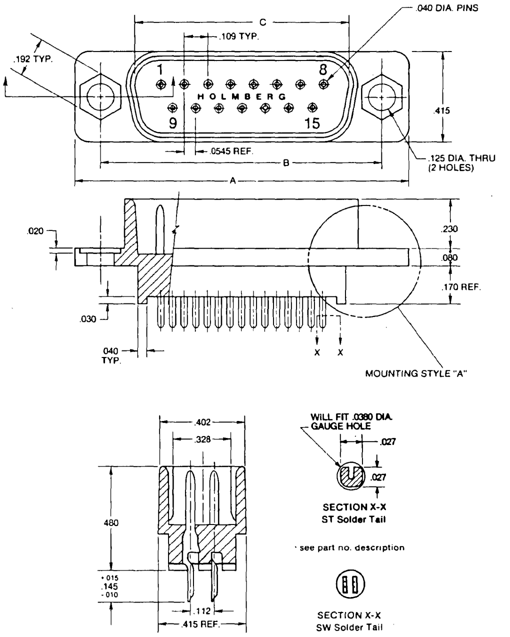
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.666
15	1.552	1.312	.994
25	2.092	1.852	1.534
37	2.740	2.500	2.183


ST tails -
.043" dia. nom.
SW tails - hole option
see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

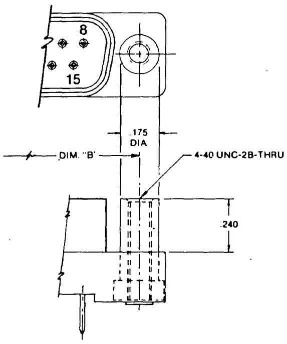
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

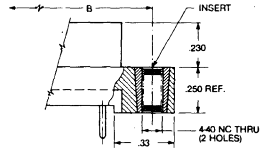
MOUNTING STYLE A


C
.109 TYP.
.040 DIA. PINS
.192 TYP.
1
8
HOLMBERG
9
15
.415
.0545 REF.
B
A
.125 DIA. THRU (2 HOLES)
.020
.230
.080
.170 REF.
.030
040 TYP.
X X
MOUNTING STYLE "A"
.402
.328
480
+.015 .145 -.010
.112
.415 REF.
WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
SECTION X-X
ST Solder Tail
· see part no. description
SECTION X-X
SW Solder Tail

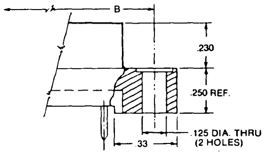
MOUNTING STYLE B


8
15
.175 DIA
DIM. "B"
4-40 UNC-2B-THRU
.240

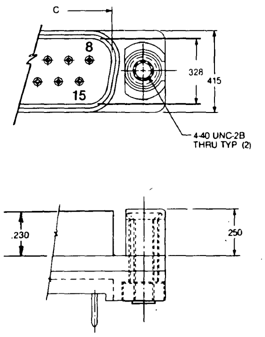
MOUNTING STYLE C


B
INSERT
.230
.250 REF.
4-40 NC THRU (2 HOLES)
.33

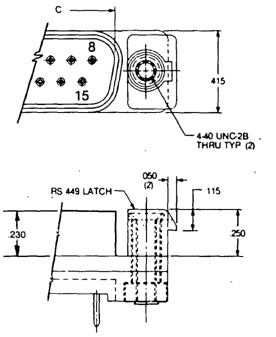
MOUNTING STYLE D


B
.230
.250 REF.
.125 DIA. THRU (2 HOLES)
.33

MOUNTING STYLE H


C
8
15
328
415
4-40 UNC-2B THRU TYP (2)
.230
250

MOUNTING STYLE J


C
8
15
415
4-40 UNC-2B THRU TYP (2)
050 (2)
RS 449 LATCH
115
.230
.250

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

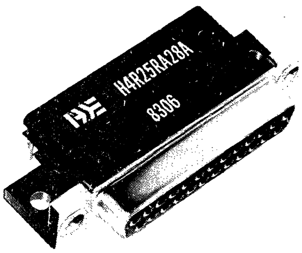
D SUBMINIATURE CONNECTORS

H4 SERIES

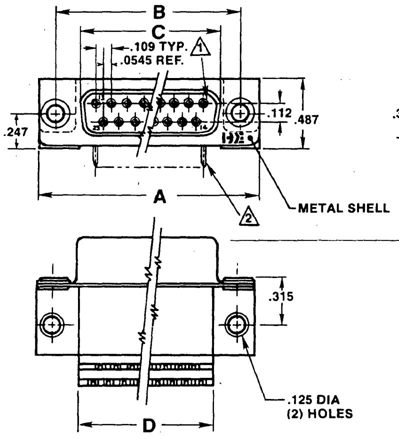
9, 15, 25 AND 37 POSITIONS

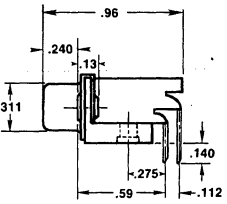
METAL SHELL RIGHT ANGLE

FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING


H4R25RA28A
8306

DIMENSIONS (Shown In Inches)


B
C
.109 TYP. 1
.0545 REF.
.112
.487
.247
A
2
METAL SHELL
.315
.125 DIA
(2) HOLES
D

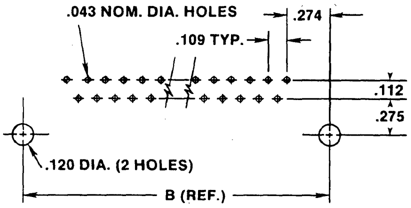

.96
.240
.13
.311
.140
.275
.59
.112

1. Pin position numbers begin top row, right to left, continue bottom row, right to left.

2. Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.624
15	1.552	1.312	.974	.952
25	2.092	1.852	1.514	1.492
37	2.740	2.500	2.162	2.140

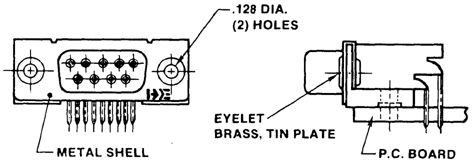

.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

MOUNTING STYLES

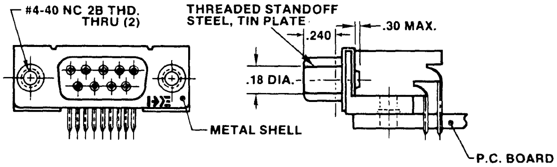
STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. For grounding to the P.C. board there are outside and inside grounding straps available, factory installed (see part number description for ordering). Grounding straps are .012 thick, phosphor bronze, bright tin plate.


.128 DIA.
(2) HOLES
EYELET
BRASS, TIN PLATE
METAL SHELL
P.C. BOARD

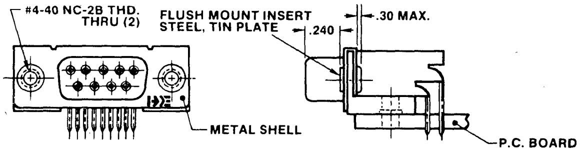
STYLE B

Style B designates a round standoff which has #4-40 threads. This provides 8 in-lb torque retention, for mating to R.S. 232 cable assemblies. One-piece construction of the factory installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).


#4-40 NC 2B THD.
THRU (2)
THREADED STANDOFF
STEEL, TIN PLATE
.240
.30 MAX.
.18 DIA.
METAL SHELL
P.C. BOARD

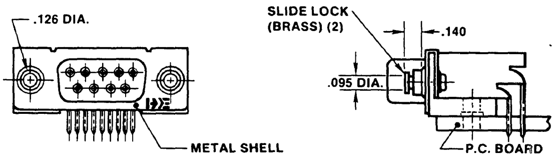
STYLE C

Style C mounting provides a flush #4-40 threaded insert with 8 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.

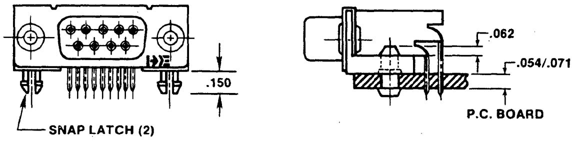

#4-40 NC-2B THD.
THRU (2)
FLUSH MOUNT INSERT
STEEL, TIN PLATE
.240
.30 MAX.
METAL SHELL
P.C. BOARD

STYLE F

Style F designates locking posts. This configuration has factory installed brass locking posts, designed to mate with AMP's slide-lock assembly and equivalent connectors. Also, available with outside or inside grounding straps.


.126 DIA.
SLIDE LOCK
(BRASS) (2)
.140
.095 DIA.
METAL SHELL
P.C. BOARD

PCB OPTION P - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Maximum installation force 5 lbs. Material: Nylon.


.150
SNAP LATCH (2)
.062
.054/.071
P.C. BOARD

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
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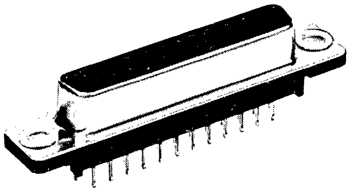
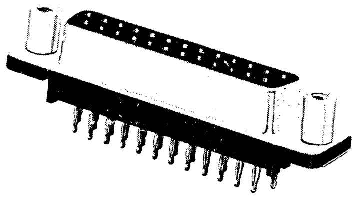
D SUBMINIATURE CONNECTORS

H4 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL METAL SHELL
FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

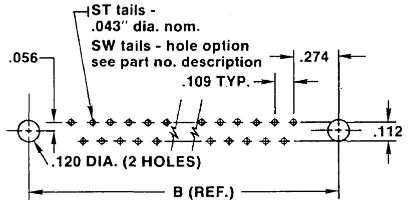




OPTIONAL COMPLIANT SOLDER TAILS

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.646
15	1.552	1.312	.974
25	2.092	1.852	1.514
37	2.740	2.500	2.162

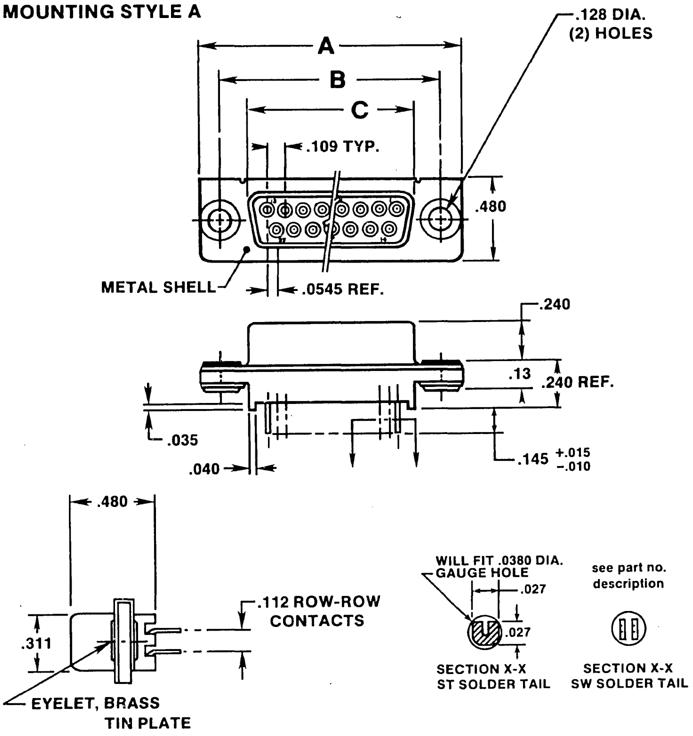


ST tails - .043" dia. nom.
SW tails - hole option see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

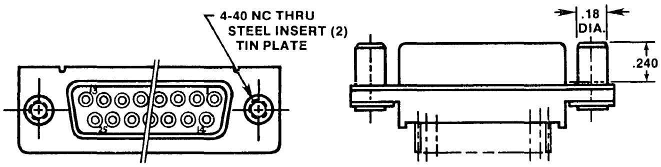
DIMENSIONS (Shown In Inches)

MOUNTING STYLE A



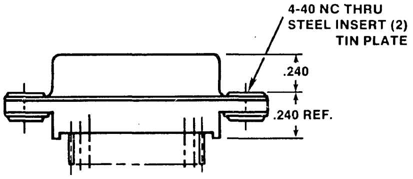
.128 DIA. (2) HOLES
A
B
C
.109 TYP.
.480
METAL SHELL
.0545 REF.
.240
.13
.240 REF.
.035
.040
.145 +.015 −.010
.480
.112 ROW-ROW CONTACTS
.311
EYELET, BRASS TIN PLATE
WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
SECTION X-X ST SOLDER TAIL
see part no. description
SECTION X-X SW SOLDER TAIL

MOUNTING STYLE B



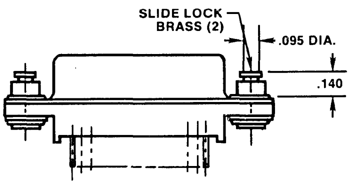
4-40 NC THRU STEEL INSERT (2) TIN PLATE
.18 DIA.
.240

MOUNTING STYLE C



4-40 NC THRU STEEL INSERT (2) TIN PLATE
.240
.240 REF.

MOUNTING STYLE F



SLIDE LOCK BRASS (2)
.095 DIA.
.140

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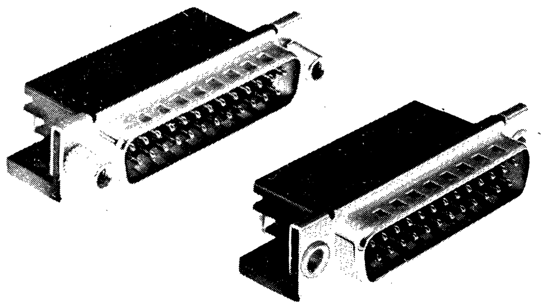
D SUBMINIATURE CONNECTORS

H4 SERIES

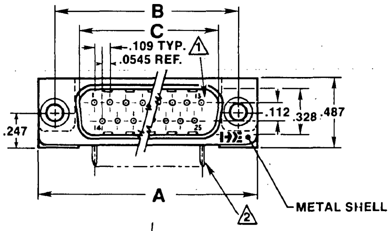
9, 15, 25 AND 37 POSITIONS

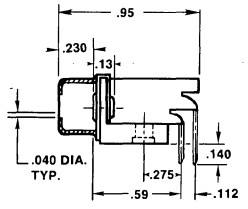
METAL SHELL RIGHT ANGLE

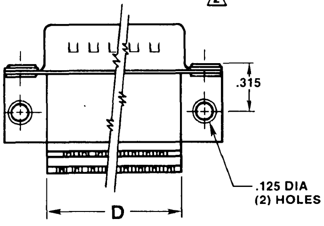
MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING



DIMENSIONS (Shown In Inches)


B
C
.109 TYP.
1
.0545 REF.
.112
.328
.487
.247
A
2
METAL SHELL


.95
.230
.13
.040 DIA.
TYP.
.140
.275
.59
.112

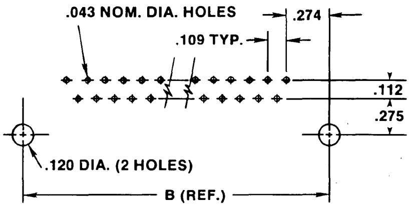

.315
.125 DIA
(2) HOLES
D

1. Pin position numbers begin top row, right to left, continue bottom row, right to left.

2. Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.624
15	1.552	1.312	.974	.952
25	2.092	1.852	1.514	1.492
37	2.740	2.500	2.162	2.140

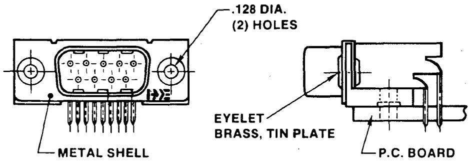

.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

MOUNTING STYLES

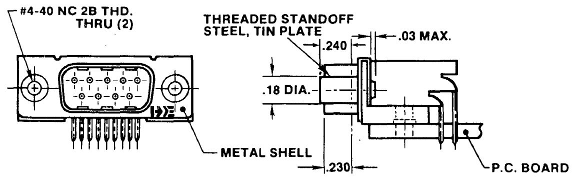
STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. For grounding to the P.C. board there are outside and inside grounding straps available, factory installed (see part number description for ordering). Grounding straps are .012 thick, phosphor bronze, bright tin plate.


.128 DIA.
(2) HOLES
EYELET
BRASS, TIN PLATE
METAL SHELL
P.C. BOARD

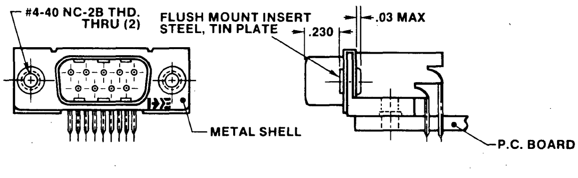
STYLE B

Style B designates a round standoff which has #4-40 threads. This provides 8 in-lb torque retention, for mating to R.S. 232 cable assemblies. One-piece construction of the factory installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).


#4-40 NC 2B THD.
THRU (2)
THREADED STANDOFF
STEEL, TIN PLATE
.240
.03 MAX.
.18 DIA.
METAL SHELL
.230
P.C. BOARD

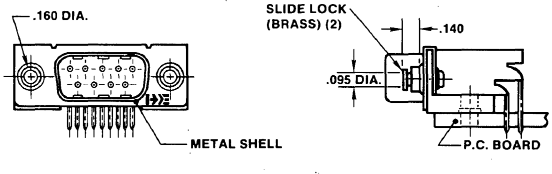
STYLE C

Style C mounting provides a flush #4-40 threaded insert with 8 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.

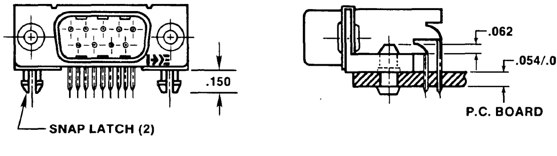

#4-40 NC-2B THD.
THRU (2)
FLUSH MOUNT INSERT
STEEL, TIN PLATE
.230
.03 MAX
METAL SHELL
P.C. BOARD

STYLE F

Style F designates locking posts. This configuration has factory installed brass locking posts, designed to mate with AMP's slide-lock assembly and equivalent connectors. Also, available with outside or inside grounding straps.


.160 DIA.
SLIDE LOCK
(BRASS) (2)
.140
.095 DIA.
METAL SHELL
P.C. BOARD

PCB OPTION P - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Maximum installation force 5 lbs. Material: Nylon


.150
SNAP LATCH (2)
.062
.054/.071
P.C. BOARD

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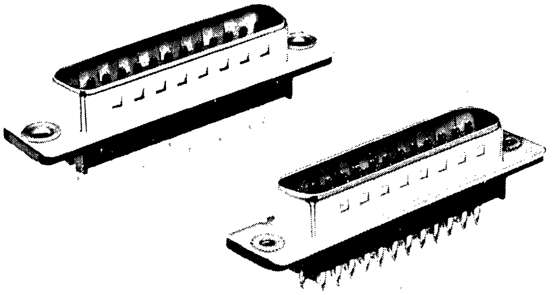
D SUBMINIATURE CONNECTORS

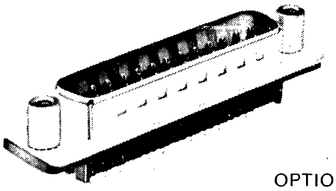
H4 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL METAL SHELL

MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING

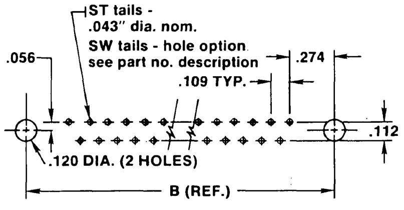




OPTIONAL COMPLIANT SOLDER TAILS

DIMENSIONS (Shown In Inches)

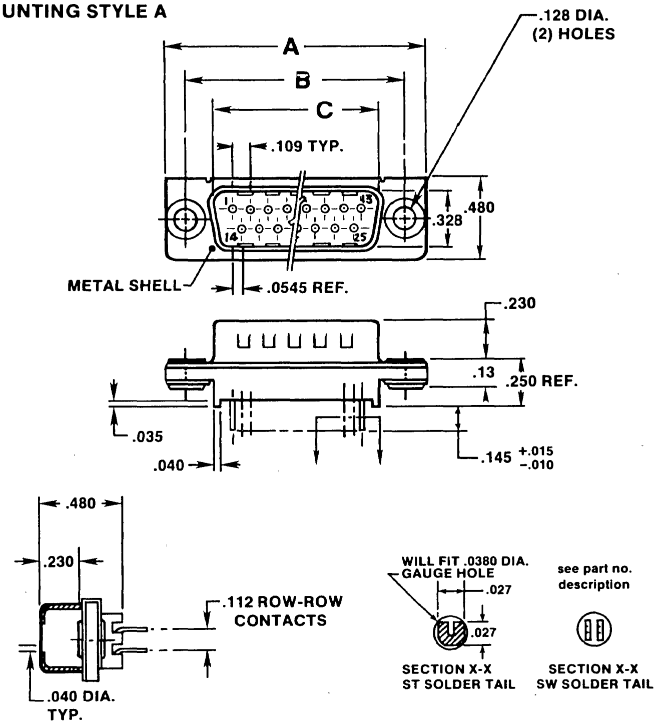
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.666
15	1.552	1.312	.994
25	2.092	1.852	1.534
37	2.740	2.500	2.182


ST tails -
.043" dia. nom.
SW tails - hole option
see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

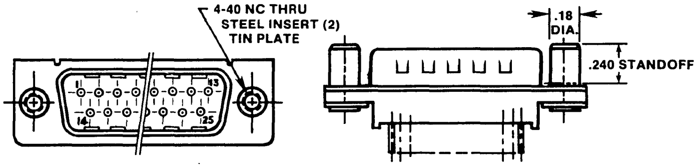
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

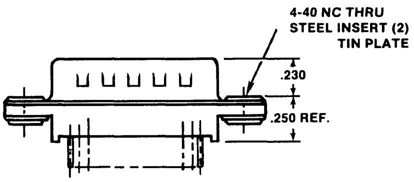
MOUNTING STYLE A


.128 DIA.
(2) HOLES
A
B
C
.109 TYP.
13
14
25
.480
.328
METAL SHELL
.0545 REF.
.230
.13
.250 REF.
.035
.040
.145 +.015 -.010
.480
.230
.112 ROW-ROW
CONTACTS
.040 DIA.
TYP.
WILL FIT .0380 DIA.
GAUGE HOLE
.027
.027
see part no.
description
SECTION X-X
ST SOLDER TAIL
SECTION X-X
SW SOLDER TAIL

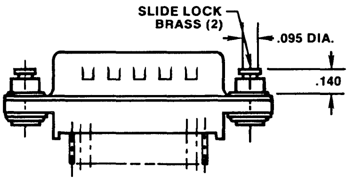
MOUNTING STYLE B


4-40 NC THRU
STEEL INSERT (2)
TIN PLATE
13
14
25
.18
DIA.
.240 STANDOFF

MOUNTING STYLE C


4-40 NC THRU
STEEL INSERT (2)
TIN PLATE
.230
.250 REF.

MOUNTING STYLE F


SLIDE LOCK
BRASS (2)
.095 DIA.
.140

HOLMBERG ELECTRONICS CORPORATION

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INMAN, SOUTH CAROLINA 29349
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D-SUBMINIATURE CONNECTORS .318 & .478 FOOTPRINT AND HIGH PROFILE

PRODUCT DESCRIPTION

Holmberg's H3, H5, H6, H7, H8 and H9 Series D Subminiature connectors are all plastic or metal-shielded for printed circuit board applications in the telecommunications, data processing, instrumentation, industrial control and other industries where low cost and high performance are required. They are fully intermatable with all D Subminiature connectors - including crimp, solder and insulation displacement types.

The connector housing is molded in black glass-filled polyester, UL rated 94 V-O. Contacts are high strength copper alloy and are selectively plated-gold-over-nickel in the contact area with solder plating on the tails. This assures contact reliability, superior solderability and long shelf life at a lower cost.

The metal shielded connector is designed specifically for mating with EMI-RFI qualified cables, the metal shell connectors incorporate a grounding bulkhead mount, or can be supplied with a grounding strap for grounding to the topside, underside or both, of PC boards. The bright tin-plated steel metal shell provides a cost-effective medium for grounding — which can also be accomplished through the mounting hardware.

Available in 9, 15, 25 and 37 positions, the unique design of the Holmberg D Subminiature connectors ensures excellent contact retention and precisely located, rigid contact tails for easy assembly.

DESIGN FEATURES

LARGE LEAD-IN PROVIDES EASY MATING, Allows male plug to be off true position as much as +.040" and still mate. Corner radii around "D" outline also aids pin alignment. SMOOTH LEAD ON TIP OF PINS. Allows easy mating and low insertion force with mating receptacle.

RIGID TAILS NEED NO SUPPORT. Right angle tails have channel cross-section for exceptional strength and rigidity. They are precisely positioned for easy mounting. Since no plastic inserts or spacers are required for alignment or support, nothing obstructs cleaning during soldering.

60/40 TIN/LEAD SELECTIVE PLATING ON THE TAIL ENHANCES SOLDERABILITY. Nickel-plated tail surface above the board forms effective solder mask. Large cross-section of the above board tail portion provides good heat sink to further control solder application.

SELECTIVE GOLD PLATING. A unique double-stamping process permits precise placement of valuable gold only where needed.

METAL SHELL provides electrical ground path continuity and magnetic shielding, from the mating receptacle metal shell through the grounding bumps on the male shell. The steel shell with bright tin-plating also provides for grounding through the factory installed mounting hardware.

HARDWARE KIT

98039-01
98039-04

Consists of: 2 #4-40 screw-threaded inserts
2 Flat washers
2 Lock washers
2 Retaining nuts

Packaged in a polyethylene bag.

Consult factory for mounting applications

PERFORMANCE CHARACTERISTICS

Operating voltage:	600VDC (sea level)
Current rating:	5 Amperes
Operating temperature:	-55° to +125° C
Contact resistance:	10 milliohms max. @ rated current
Insulation resistance:	5000 megohms minimum
Dielectric withstanding voltage	1000 VAC minimum
Durability:	up to 500 insertions and withdrawals without degradation of performance, dependent upon contact plating thickness selected

MATERIALS

Insulator body:	Glass filled polyester, UL rating 94V-O, color-black
Contact:	High yield strength brass alloy per Spec QQ-B-750.
Metal Shell:	Steel, bright tin plate.

UL Recognized and CSA Certified

PART NUMBER DESCRIPTION AND ORDERING INFORMATION

H3 R 25 RA 29 A P M**

SERIES DESIGNATOR

H3 — All plastic	.318
H5 — Metal Shell	.318
H6 - All plastic	.478
H7 — Metal Shell	.478
H8 — All plastic High Profile	ST
H9 — Metal Shell High Profile	ST

CONTACT TYPE
R — Female Receptacle
M — Male Pins

NUMBER OF CONTACTS
09, 15, 25, 37

PC TERMINATION TYPE
RA — Right Angle
ST — Straight Tail
SW — Straight Retention Tails
RW — Right Angle Retention Tails

CONTACT PLATING
28 — Selective .000010" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.
29 — Selective .000030" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.

MOUNTING STYLE

Right Angle & Right Angle Retention Tails
A — Basic Connector
B — Round Standoff, 4-40 Thread
C — Flush insert, 4-40 Thread
F — Locking Post
J — Latch with 4-40 Threaded Insert (RS 449 & RS 232)

High Profile Straight Tail and Straight Retention Tails
A — Basic Connector with Thru Holes
B — Round Standoff, #4-40 Thread
C — Flush Insert, #4-40 Thread
J — Latch with #4-40 Threaded Insert (for RS 449 and RS 232 cable assemblies)

PCB OPTIONS
P — Snap Latch /.062 PCB
Consult factory for SW and RW PCB hole sizes

SPECIAL MODIFICATIONS
M30 — Metric Thread Size M3
M32 — Metric Thread with outside ground strap
M33 — Metric Thread with inside ground strap
M42 — Outside Ground Strap
M43 — Inside Ground Strap
Consult factory for grounding options on straight tail connectors

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
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(803) 472-4141

D SUBMINIATURE CONNECTORS

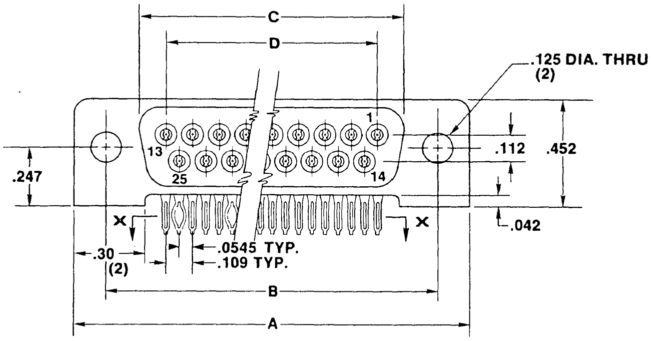
H3 SERIES, .318 FOOTPRINT

9, 15, 25 AND 37 POSITIONS

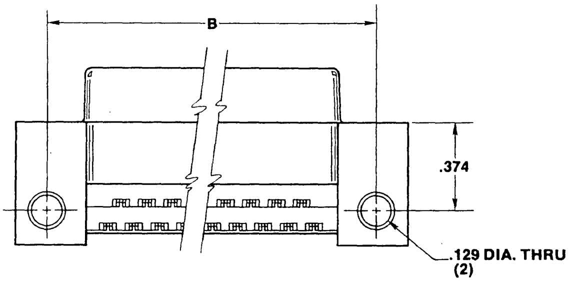
ALL PLASTIC RIGHT ANGLE FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

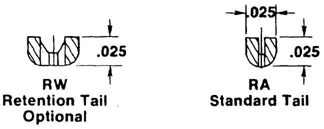
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.436
15	1.552	1.312	.974	.763
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962



C
D
.125 DIA. THRU (2)
1
13
25
14
.112
.452
.247
.042
X
X
.30 (2)
.0545 TYP.
.109 TYP.
B
A



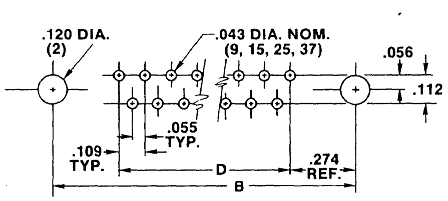
B
.374
.129 DIA. THRU (2)



RW Retention Tail Optional

RA Standard Tail

TAIL SECTION (X-X)



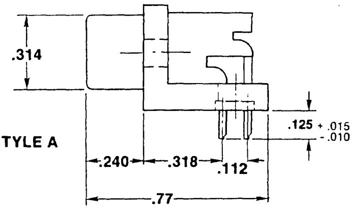
.120 DIA. (2)
.043 DIA. NOM. (9, 15, 25, 37)
.056
.112
.055 TYP.
.109 TYP.
D
.274 REF.
B

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.

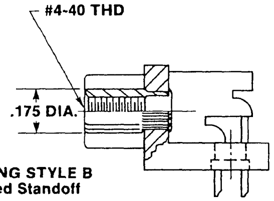


.314
.125 + .015 − .010
.240
.318
.112
.77

MOUNTING STYLE A

STYLE B

This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.

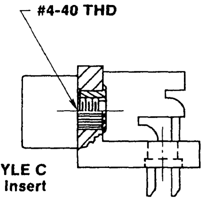


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

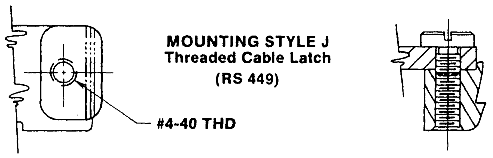
Style C mounting provides a flush, #4-40 threaded insert. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

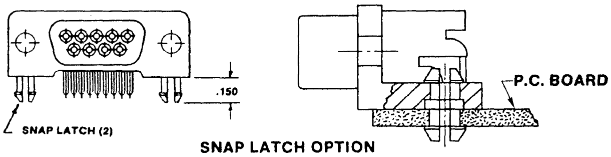
Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTIONS

PCB OPTION P - Snap Latch
Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Material: Nylon.



.150
SNAP LATCH (2)
P.C. BOARD

SNAP LATCH OPTION
(.062 Board)

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D SUBMINIATURE CONNECTORS

H3 SERIES, .318 FOOTPRINT

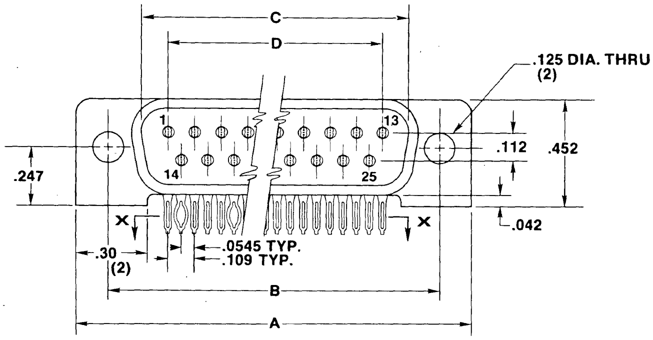
9, 15, 25 AND 37 POSITIONS

ALL PLASTIC RIGHT ANGLE

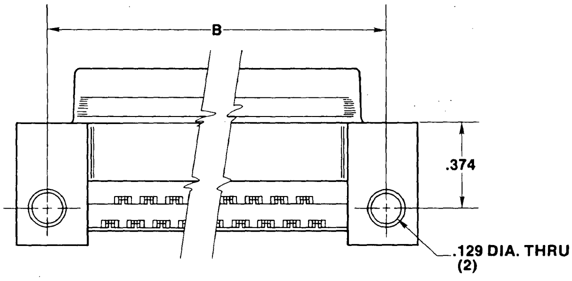
MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

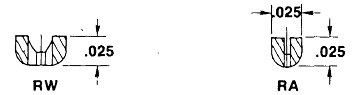
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
25	2.092	1.852	1.534	1.308
37	2.740	2.500	2.183	1.962



C
D
.125 DIA. THRU (2)
1
13
14
25
.112
.452
.247
X
X
.042
.30 (2)
.0545 TYP.
.109 TYP.
B
A



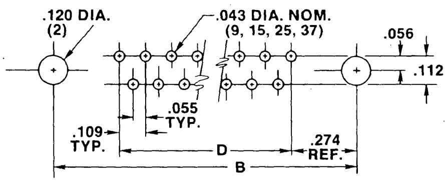
B
.374
.129 DIA. THRU (2)



RW Retention Tail Optional

RA Standard Tail

TAIL SECTION (X-X)



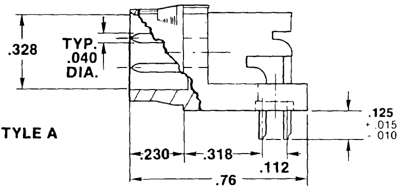
.120 DIA. (2)
.043 DIA. NOM. (9, 15, 25, 37)
.056
.112
.055 TYP.
.109 TYP.
D
.274 REF.
B

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.

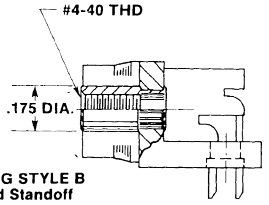


.328
TYP. .040 DIA.
.125 +.015 -.010
.230
.318
.112
.76

MOUNTING STYLE A

STYLE B

This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.

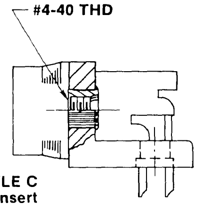


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

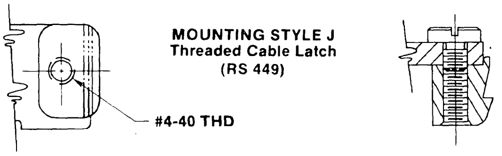
Style C mounting provides a flush, #4-40 threaded insert. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

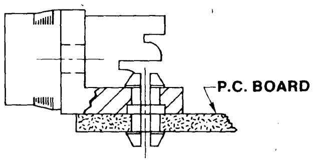
Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTION P

Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

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D SUBMINIATURE CONNECTORS

H5 SERIES, .318 FOOTPRINT

9, 15, 25 AND 37 POSITIONS

METAL SHELL RIGHT ANGLE

MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
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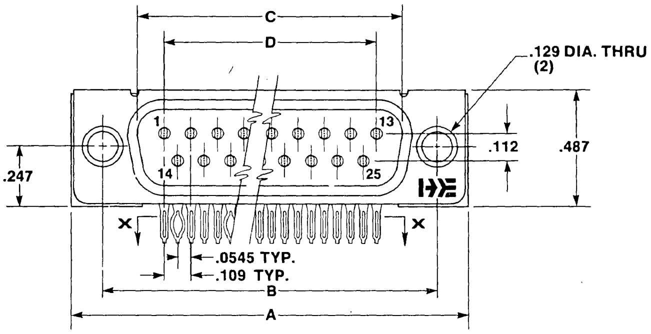
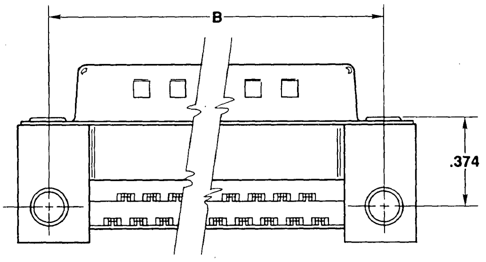
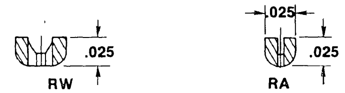
37	2.740	2.500	2.183	1.962



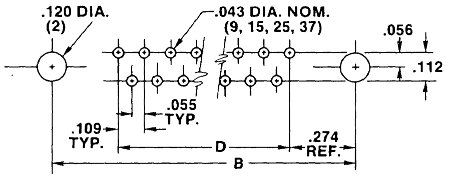




RW Retention Tail Optional

RA Standard Tail

TAIL SECTION (X-X)

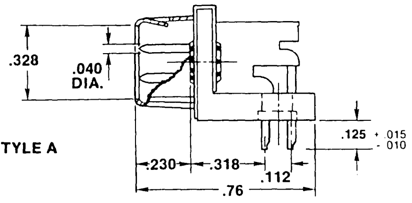


PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

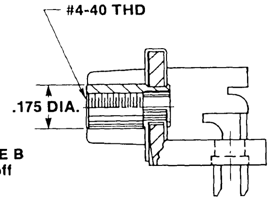
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.



MOUNTING STYLE A

STYLE B

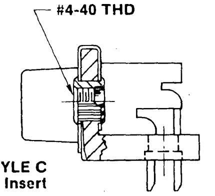
This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).



MOUNTING STYLE B
Threaded Standoff

STYLE C

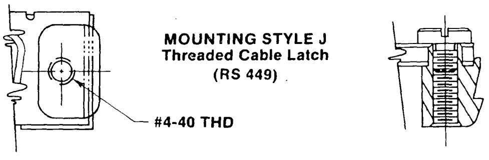
Style C mounting provides a flush #4-40 threaded insert with 6 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

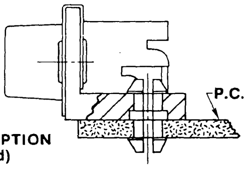
Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTION P

Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

HOLMBERG ELECTRONICS CORPORATION
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D SUBMINIATURE CONNECTORS

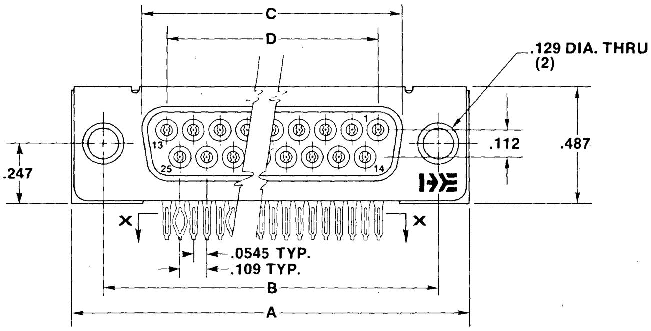
H5 SERIES, .318 FOOTPRINT

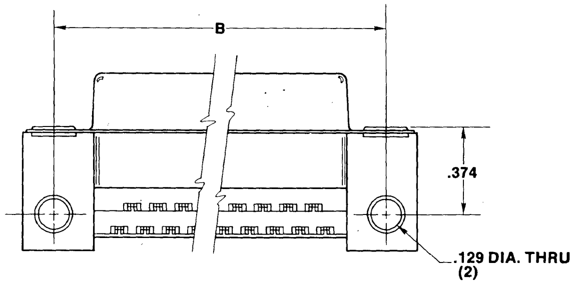
9, 15, 25 AND 37 POSITIONS

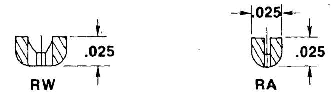
METAL SHELL RIGHT ANGLE
FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.436
15	1.552	1.312	.974	.763
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962



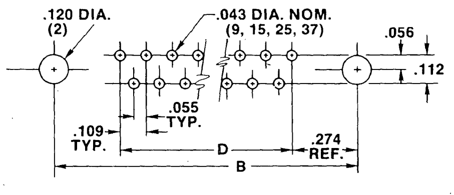




RW
Retention Tail
Optional

RA
Standard Tail

TAIL SECTION (X-X)



PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

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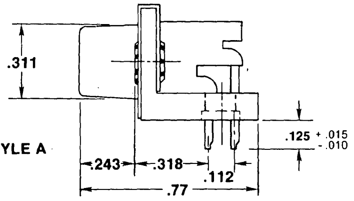
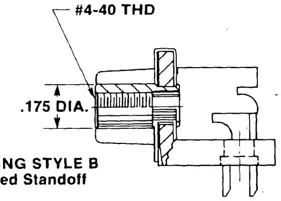


MOUNTING STYLE A

STYLE B

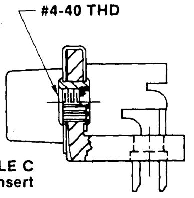
Style B designates a round standoff which has #4-40 threads. This provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).



MOUNTING STYLE B
Threaded Standoff

STYLE C

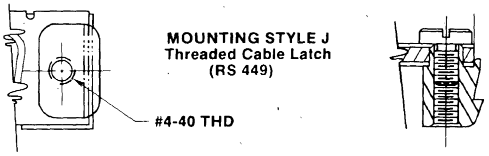
Style C mounting provides a flush #4-40 threaded insert with 6 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTION P

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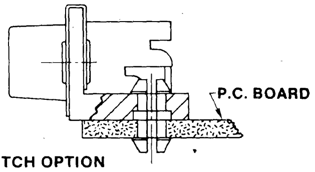

SNAP LATCH OPTION
(.062 Board)

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D SUBMINIATURE CONNECTORS

H6 SERIES, .478 FOOTPRINT

9, 15, 25 AND 37 POSITIONS

ALL PLASTIC RIGHT ANGLE
FEMALE RECEPTACLE FOR
PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

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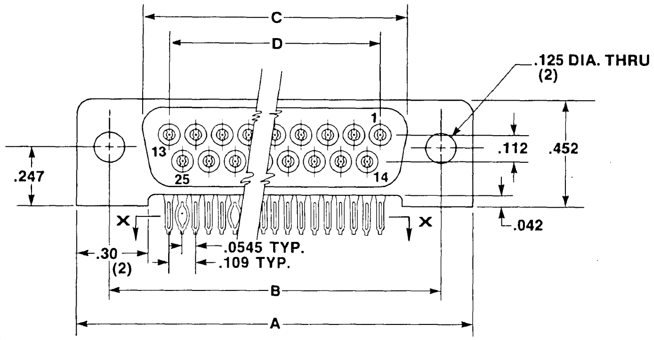
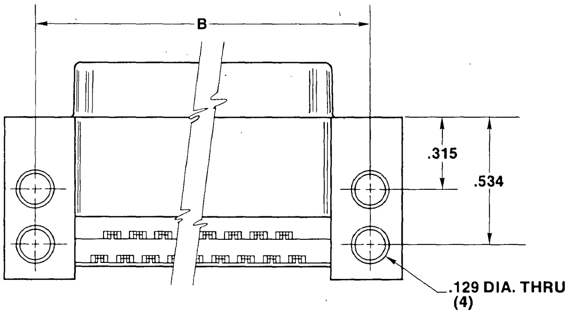
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962

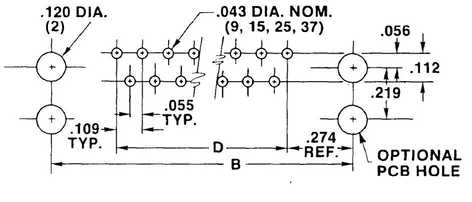

C
D
.125 DIA. THRU
(2)
1
13
25
14
.112
.452
.247
X
X
.042
.30
(2)
.0545 TYP.
.109 TYP.
B
A


B
.315
.534
.129 DIA. THRU
(4)

RW
Retention Tail
Optional

RA
Standard Tail

TAIL SECTION (X-X)

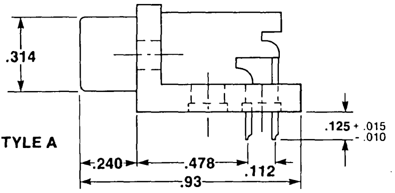

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.219
.055
TYP.
.109
TYP.
D
.274
REF.
B
OPTIONAL
PCB HOLE

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

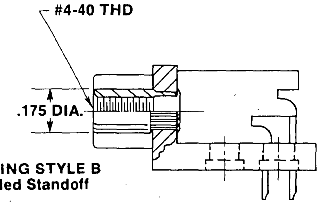
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.


.314
.125 + .015 - .010
.240
.478
.112
.93

MOUNTING STYLE A

STYLE B

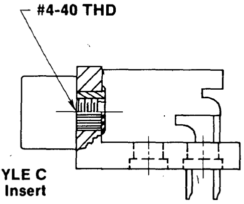
This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

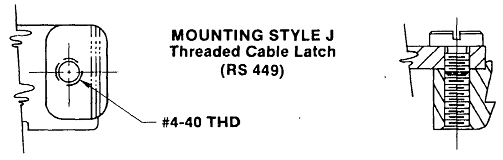
Style C mounting provides a flush, #4-40 threaded insert. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.

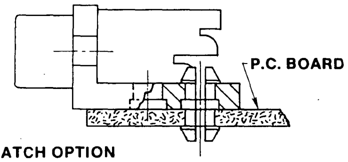


MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTIONS

PCB OPTION P - Snap Latch

Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H6 SERIES, .478 FOOTPRINT

9, 15, 25 AND 37 POSITIONS

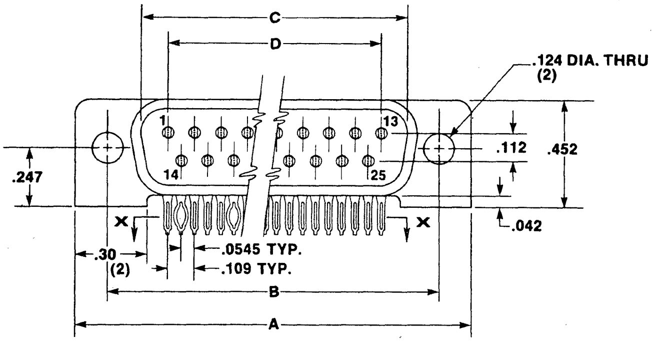
ALL PLASTIC RIGHT ANGLE

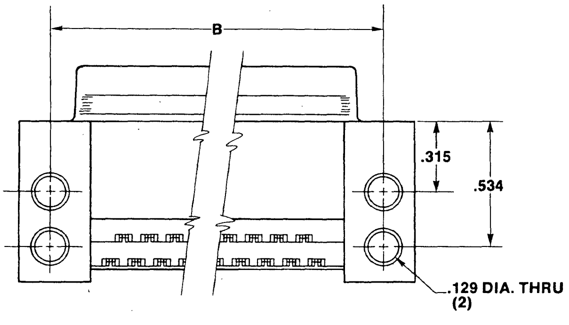
MALE PINS FOR

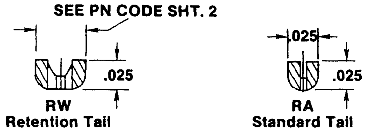
PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
25	2.092	1.852	1.534	1.308
37	2.740	2.500	2.183	1.962


C
D
.124 DIA. THRU
(2)
1
13
14
25
.112
.452
.247
X
X
.042
.30
(2)
.0545 TYP.
.109 TYP.
B
A

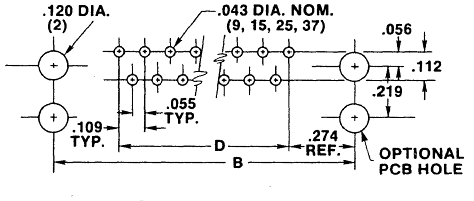

B
.315
.534
.129 DIA. THRU
(2)


SEE PN CODE SHT. 2
.025
.025
.025

RW Retention Tail

RA Standard Tail

TAIL SECTION (X-X)

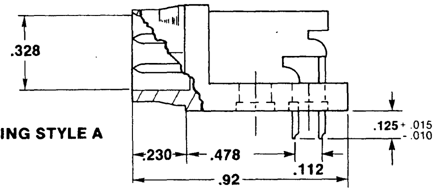

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.219
.055
TYP.
.109
TYP.
D
B
.274
REF.
OPTIONAL
PCB HOLE

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

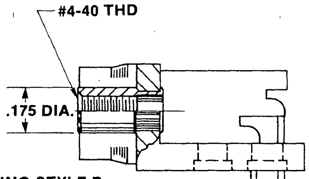
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.


.328
.230
.478
.92
.112
.125 + .015 - .010

MOUNTING STYLE A

STYLE B

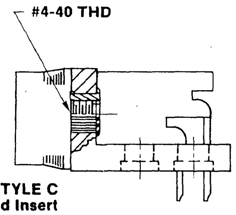
This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

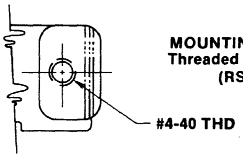
Style C mounting provides a flush, #4-40 threaded insert. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out.



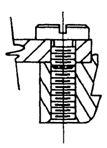
MOUNTING STYLE C
Flush Threaded Insert

STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



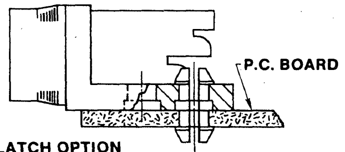
MOUNTING STYLE J
Threaded Cable Latch
(RS 449)



PCB OPTIONS

PCB OPTION P - Snap Latch

Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H7 SERIES, .478 FOOTPRINT

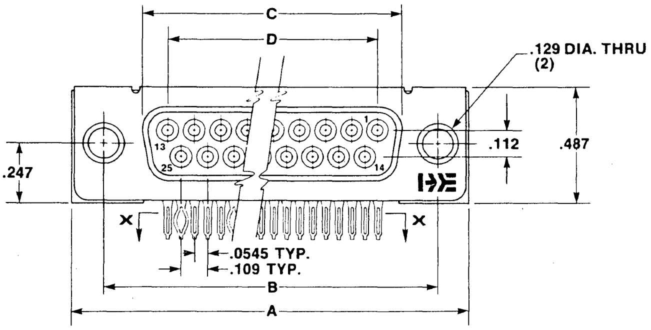
9, 15, 25 AND 37 POSITIONS

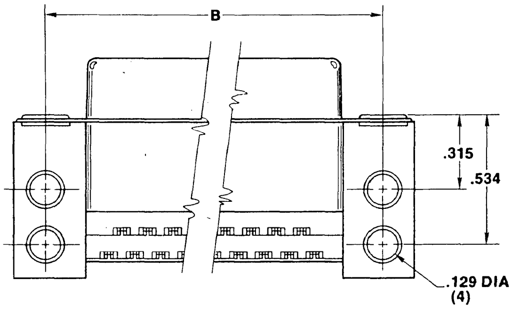
METAL SHELL, RIGHT ANGLE

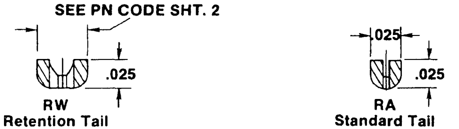
FEMALE RECEPTACLE FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

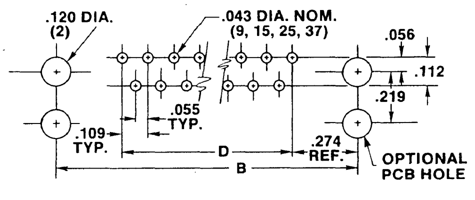
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.436
15	1.552	1.312	.974	,.763
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962


C
D
.129 DIA. THRU
(2)
1
13
25
14
.112
.487
.247
X
X
.0545 TYP.
.109 TYP.
B
A


B
.315
.534
.129 DIA. THRU
(4)


SEE PN CODE SHT. 2
.025
RW
Retention Tail
Optional
.025
.025
RA
Standard Tail

TAIL SECTION (X-X)

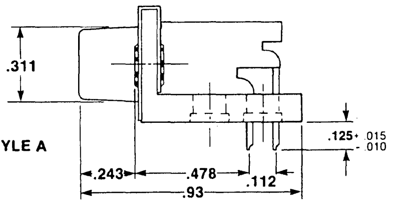

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.219
.055
TYP.
.109
TYP.
.274
REF.
D
B
OPTIONAL
PCB HOLE

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

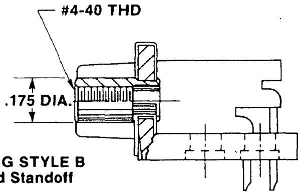
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.


.311
.125+ .015
- .010
.243
.478
.112
.93

MOUNTING STYLE A

STYLE B

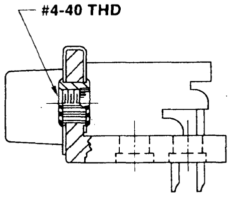
This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

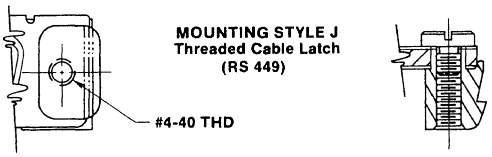
Style C mounting provides a flush #4-40 threaded insert with 6 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.



MOUNTING STYLE C

STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.

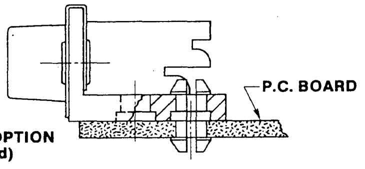


MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTIONS

PCB OPTION P - Snap Latch

Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H7 SERIES, .478 FOOTPRINT

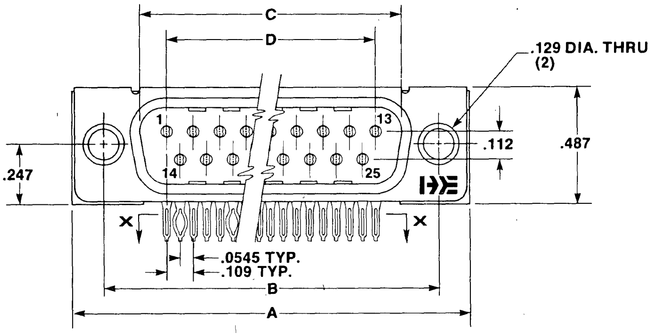
9, 15, 25 AND 37 POSITIONS

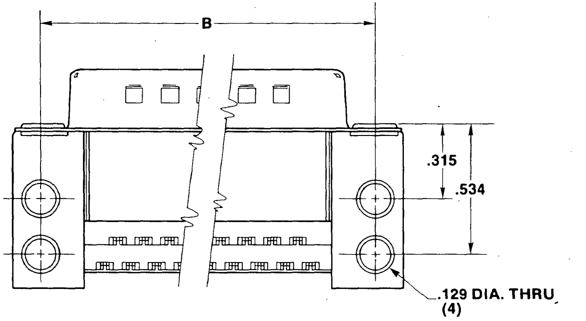
METAL SHELL RIGHT ANGLE

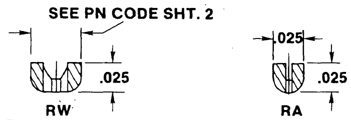
MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
25	2.092	1.852	1.534	1.308
37	2.740	2.500	2.183	1.962


C
D
.129 DIA. THRU
(2)
1
13
14
25
.112
.487
.247
X
X
.0545 TYP.
.109 TYP.
B
A

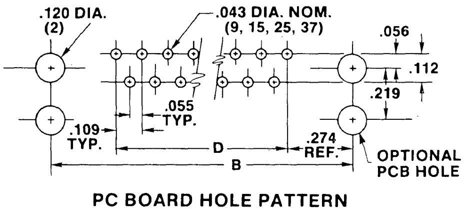

B
.315
.534
.129 DIA. THRU
(4)


SEE PN CODE SHT. 2
.025
.025
.025
.025

RW
Retention Tail
Optional

RA
Standard Tail

TAIL SECTION (X-X)

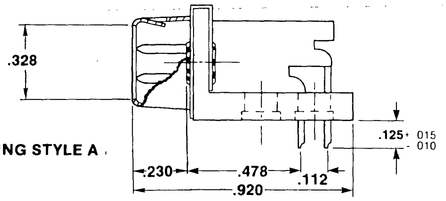

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.219
.055
TYP.
.109
TYP.
D
B
.274
REF.
OPTIONAL
PCB HOLE

PC BOARD HOLE PATTERN

MOUNTING STYLES

STYLE A

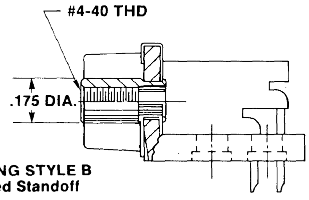
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039-01) is available.


.328
.125 ± .015/.010
.230
.478
.112
.920

MOUNTING STYLE A

STYLE B

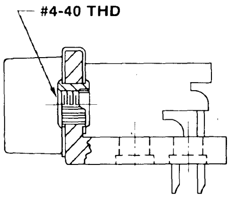
This configuration includes a #4-40 threaded standoff-which provides 6 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).


#4-40 THD
.175 DIA.

MOUNTING STYLE B
Threaded Standoff

STYLE C

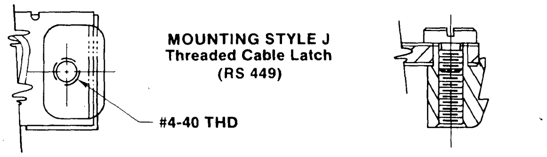
Style C mounting provides a flush #4-40 threaded insert with 6 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.



MOUNTING STYLE C
Flush Threaded Insert

STYLE J

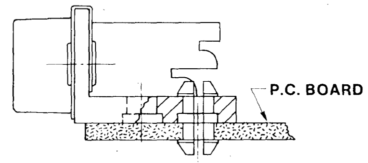
Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies.



MOUNTING STYLE J
Threaded Cable Latch
(RS 449)

PCB OPTIONS

PCB OPTION P - Snap Latch
Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Material: Nylon.



SNAP LATCH OPTION
(.062 Board)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H8 SERIES

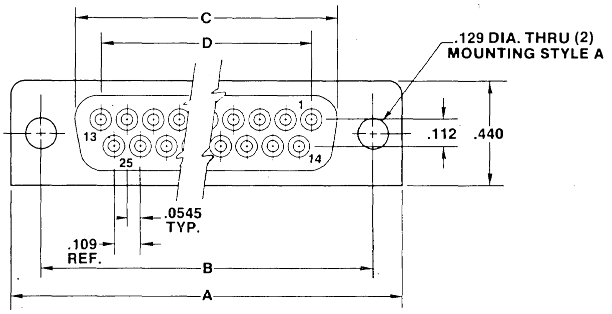
9, 15, 25 AND 37 POSITIONS

HIGH PROFILE STRAIGHT TAIL

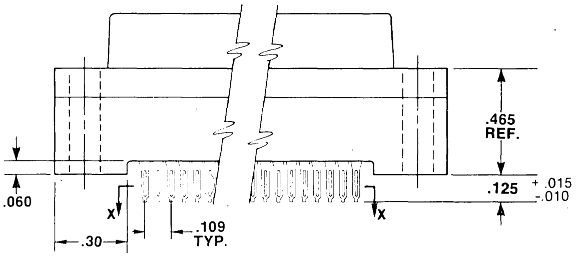
ALL PLASTIC RECEPTACLE

DIMENSIONS (Shown In Inches)

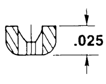
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.436
15	1.552	1.312	.974	.763
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962



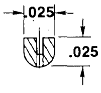
C
D
.129 DIA. THRU (2)
MOUNTING STYLE A
1
13
25
14
.112
.440
.0545
TYP.
.109
REF.
B
A



.465
REF.
.060
.125
+.015
-.010
X
X
.30
.109
TYP.

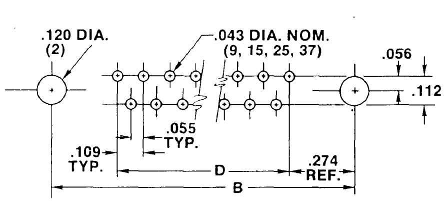


SW
Retention Tail



ST
Standard Tail

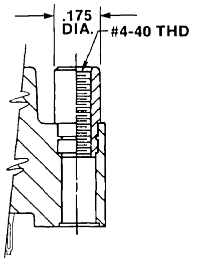
TAIL SECTION (X-X)



.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.055
TYP.
.109
TYP.
D
.274
REF.
B

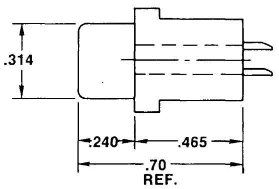
PC BOARD HOLE PATTERN

MOUNTING STYLES

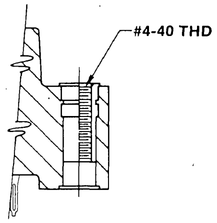


.175
DIA.
#4-40 THD

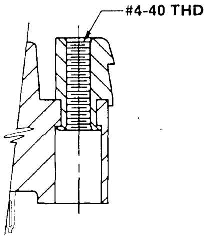
MOUNTING STYLE B
(Threaded Standoff)



.314
.240
.465
.70
REF.



MOUNTING STYLE C
(Flush Threaded Insert)



MOUNTING STYLE J
(RS 449)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H8 SERIES

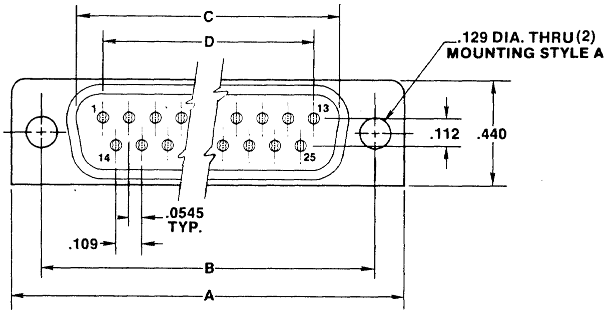
9, 15, 25 AND 37 POSITIONS

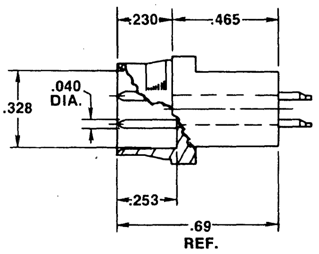
HIGH PROFILE STRAIGHT TAIL

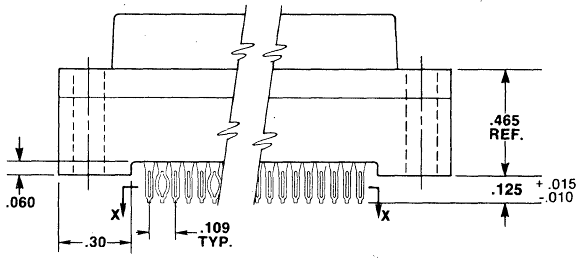
ALL PLASTIC MALE PIN

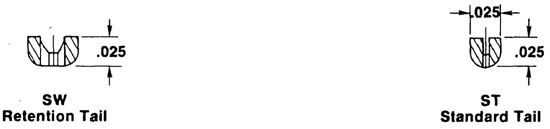
DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
25	2.092	1.852	1.534	1.308
37	2.740	2.500	2.183	1.962


C
D
.129 DIA. THRU (2)
MOUNTING STYLE A
1
13
14
25
.112
.440
.0545
TYP.
.109
B
A


.230
.465
.040
DIA.
.328
.253
.69
REF.

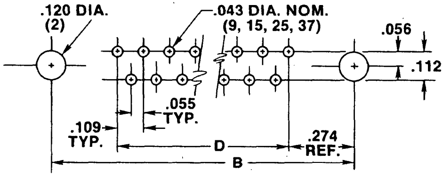

.465
REF.
.060
X
X
.125 + .015 -.010
.30
.109
TYP.



SW
Retention Tail

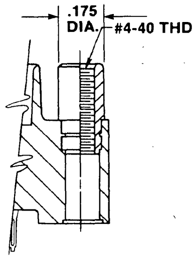
ST
Standard Tail

TAIL SECTION (X-X)

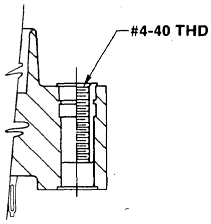

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.055
TYP.
.109
TYP.
D
.274
REF.
B

PC BOARD HOLE PATTERN

MOUNTING STYLES


.175
DIA.
#4-40 THD

MOUNTING STYLE B
(Threaded Standoff)



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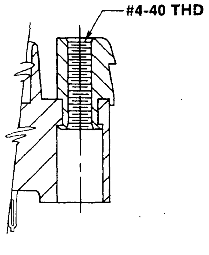
(Flush Threaded Insert)



MOUNTING STYLE J
(RS 449)

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

D SUBMINIATURE CONNECTORS

H9 SERIES

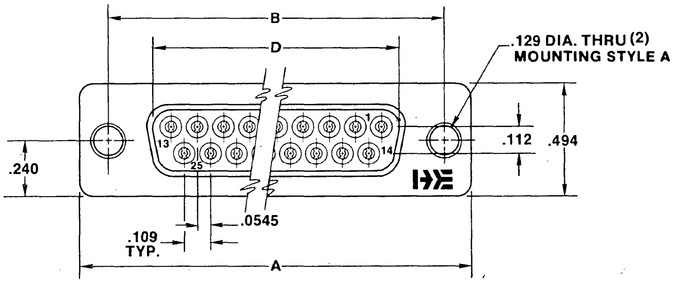
9, 15, 25 AND 37 POSITIONS

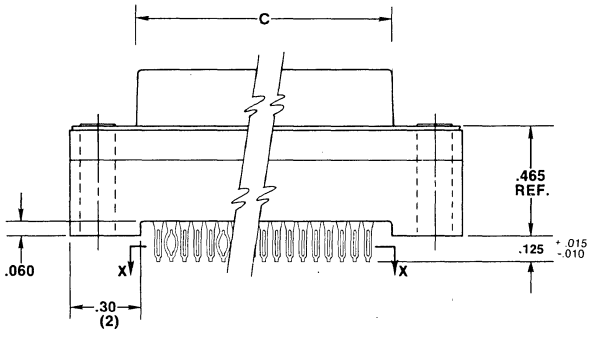
HIGH PROFILE STRAIGHT TAIL

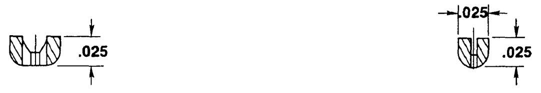
METAL SHELL RECEPTACLE

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.436
15	1.552	1.312	.974	.763
25	2.092	1.852	1.514	1.308
37	2.740	2.500	2.162	1.962


B
D
.129 DIA. THRU (2)
MOUNTING STYLE A
13
25
1
14
.112
.494
.240
.109
TYP.
.0545
A

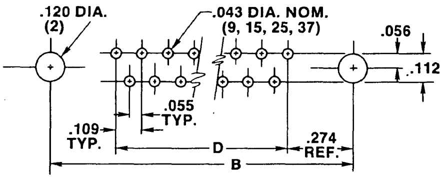

C
.465
REF.
.125 +.015 -.010
.060
X
X
.30
(2)



SW
Retention Tail

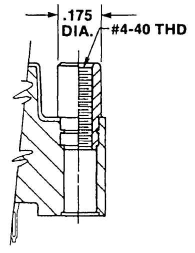
ST
Standard Tail

TAIL SECTION (X-X)

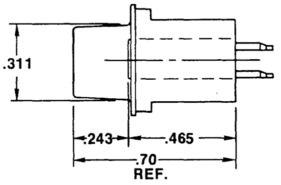

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.055
TYP.
.109
TYP.
D
.274
REF.
B

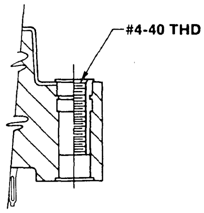
PC BOARD HOLE PATTERN

MOUNTING STYLES

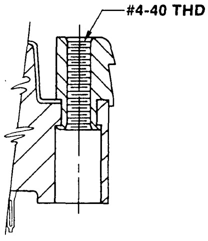

.175
DIA.
#4-40 THD

MOUNTING STYLE B
(Threaded Standoff)


.311
.243
.465
.70
REF.



MOUNTING STYLE C
(Flush Threaded Insert)



MOUNTING STYLE J

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

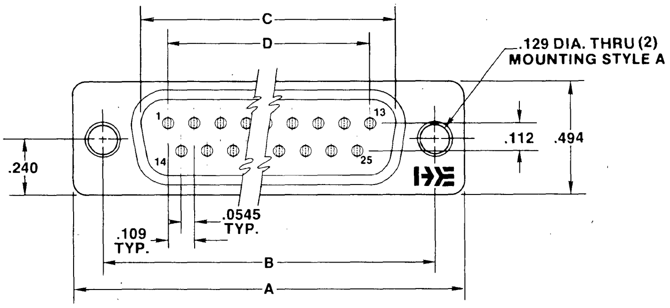
D SUBMINIATURE CONNECTORS

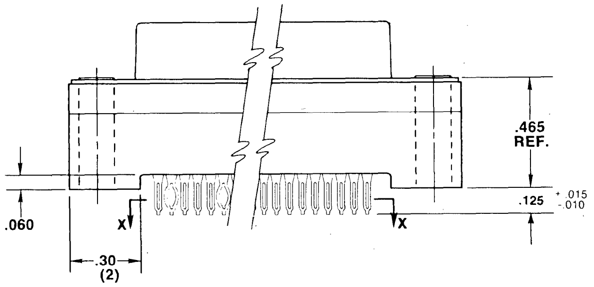
H9 SERIES

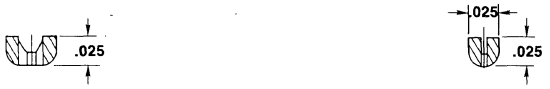
9, 15, 25 AND 37 POSITIONS
HIGH PROFILE STRAIGHT TAIL
METAL SHELL MALE PIN

DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.436
15	1.552	1.312	.994	.763
25	2.092	1.852	1.534	1.308
37	2.740	2.500	2.183	1.962


C
D
.129 DIA. THRU (2)
MOUNTING STYLE A
1
13
14
25
.112
.494
.240
.0545
TYP.
.109
TYP.
B
A

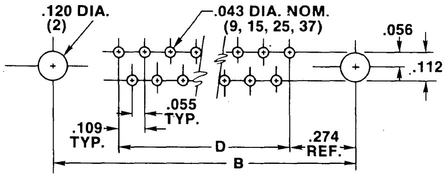

.465
REF.
.125 + .015 -.010
.060
X
X
.30
(2)



SW
Retention Tail

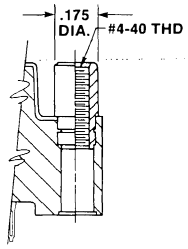
ST
Standard Tail

TAIL SECTION (X-X)

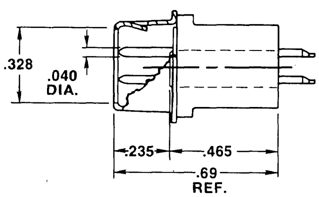

.120 DIA.
(2)
.043 DIA. NOM.
(9, 15, 25, 37)
.056
.112
.055
TYP.
.109
TYP.
D
.274
REF.
B

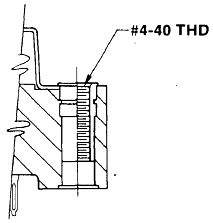
PC BOARD HOLE PATTERN

MOUNTING STYLES

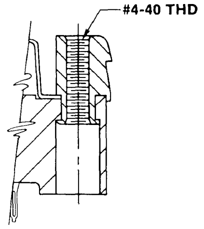

.175
DIA.
#4-40 THD

MOUNTING STYLE B
(Threaded Standoff)


.328
.040
DIA.
.235
.465
.69
REF.



MOUNTING STYLE C
(Flush Threaded Insert)



MOUNTING STYLE J

SALES REPRESENTATIVE LISTING

ARIZONA
Fred Board and Assoc.
7353 6th Ave.
Scottsdale, AZ 85251
(602) 994-9388

JR Engineering
P.O. Box 15270
3020 North 44th St.
Phoeniz, AZ 85018
(602) 956-4670

ARKANSAS
Erickson Sales, Inc.
4216 W. 12th St.
Little Rock, AR 72204
(501) 255-7379

CALIFORNIA
Berman Gravely
350 Fischer Ave.
Unit B
Costa Mesa, CA 92626
(714) 549-2122

Class 1 Electronics
330 W. Hedding St.
San Jose, CA 95110
(408) 297-8666

Hadden Assoc., Inc.
4710 Ruffner St.
Suite H
San Diego, CA 92111
(619) 565-9444

COLORADO
Electrodyne
2620 S. Parker Rd.
Suite 110
Aurora, CO 80013
(303) 695-8903

FLORIDA
Lawrence Assoc., Inc.
2151 N.W. 2nd Ave.
Suite 104
Boca Raton, FL 33432
(305) 368-7373

Lawrence Assoc., Inc.
1605 S. Missouri Ave.
Clearwater, FL 33516
(813) 584-8110

GEORGIA
B.T.F., Inc.
292 Lendan Ln.
Lawrenceville, GA 30245
(404) 963-9495

ILLINOIS
ECRO, Inc.
P.O. Box 216
740-A Industrial Dr.
Cary, IL 60013
(312) 639-1162

ECRO, INC.
(Branch Office)
South 96
W. 32631 Valley Court Rd.
Mukwonago, WI 53149

INDIANA
Electronic Marketing Consultants
5259 North Tacoma Ave.
Suite 8
Indianapolis, IN 46220
(317) 253-1668

LOUISIANA
Ericson Sales, Inc.
Box 144, 3008 Veronica Dr.
Chalmette, LA 70044
(504) 271-1976

MASSACHUSETTS
H.E.S. Components
6 Airport Rd., P.O. Box 118
Hopedale, MA 01747
(617) 473-4324

MICHIGAN
Lektronics
48900 W. 12 Mile Rd.
Novi, MI 48050
(313) 349-3304

MINNESOTA
Monroe Hanna
4917 Eden Ave.
Suite 101B
Edina, MN 55424
(612) 925-5700

NEW JERSEY
Check Associates
P.O. Box 35022, 625 Cheswick
Philadelphia, PA 19128-0577
(215) 487-3007

NEW MEXICO
Fred Board & Assoc.
4801 General Bradley, NE
Alburquerque, NM 87111
(505) 293-1399

NEW YORK
Dynorep, Inc.
P.O. Box 487
212 S. Main St.
Manville, NJ 08835
(201) 685-0135

Promark Electronics
Box 77B, Old State Rd. #1
Morrisville, NY 13408
(315) 662-3310

NORTH CAROLINA
B.T.F., Inc.
5933 Ponderosa Dr.
Raleigh, NC 27612
(919) 782-3493

OHIO
Del Steffen & Assoc., Inc.
1201 E. Dadid
Dayton, OH 45429
(513) 293-3145

OKLAHOMA
Erickson Sales, Inc.
1813 W. Detroit
Broken Arrow, OK 74012
(405) 682-2947

OREGON
Eclipse Marketing Group
2360 S.W. 170th Ave.
Beaverton, OR 97006
(503) 642-1661

PUERTO RICO
K.D. Tronics
P.O. Box 7317
Caguas, Puerto Rico 006267317
(809) 746-0275

TEXAS
Erickson Sales, Inc.
8350 Meadow Rd.
Suite 184
Dallas, TX 75231
(214) 739-5833

Erickson Sales
6362 Windswept
Suite 206
Houston, TX 77057
(713) 266-1604

Erickson Sales, Inc.
8642-A Spicewood Spring Rd. #495
Austin, TX 78759
(512) 244-3068

UTAH
Electrodyne
2480 S. Main St.
Suite 109
Salt Lake City, UT 84115
(801) 486-3801

VIRGINIA
Stinson Assoc. (UPS Mail)
12510 Glenbrook Woods Dr.
Herndon, VA 22070
(703) 620-0088

Stinson Assoc. (Mail)
P.O. Box 3507
Reston, VA 22090

WASHINGTON
Eclipse Marketing Group
17090 Avondale Way, N.E.
Redmond, WA 98052
(206) 885-6991

CANADA
Frank Eakin Sales, LTD.
81 Kelfield St.
Rexdale, Ontario M9W 5 A3
Canada
(416) 245-3600

HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

DISTRIBUTOR LISTING

ARIZONA

Arizona Components Co.
2901-A W. McDowell Rd.
Phoenix, AZ 85009
(602) 269-5655

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1705 West 4th St.
Tempe, AZ 85281
(602) 966-7800

Berquist Company
8001 E. Broadway
F.O.S. Box 1571
Mesa, AZ 85208
(602) 986-4271

CALIFORNIA

Component Center
11208 Young River Ave.
Fountain Valley, CA
92708
(619) 979-0433

Cypress Electronics
2586 Seaboard
San Jose, CA 95131
(408) 945-8400
Watts Line
1-800-538-5112

El-Com Sales
13854 Bentley Pl.
Cerritos, CA 90701
(619) 739-5656

El-Com Sales
7181 Construction Ct.
San Diego, CA 92121
(619) 578-0900

El-Com Sales
3193 Belick St., Suite 1
Santa Clara, CA 95050
(408) 496-0800

Electronic Supply
1099 La Cadena Dr.
Riverside, CA 92501
(714) 787-9220

Electronic Supply
9630-M Black
Mountain Rd.
San Diego, CA 92126
(619) 693-8222

Lodan, Inc.
521 Taylor Way
Belmont, CA 94002
(415) 592-4600

Peters-De-Laet
340 Harbor Way
San Francisco, CA 94080
(415) 873-9595

Peters-De-Laet
399 Mathew
Santa Clara, CA 95050
(415) 980-9243

Integrated Electronics
7000 Franklin Blvd.
Suite 625
Sacramento, CA 95823
(916) 424-5297

COLORADO

Industrial Electronics
8755 E. Orchard Rd.
Suite 605
Englewood, CO 80111
(303) 694-9444

CSID Electronics
438 E. 58th St.
Denver, CO 80216
(303) 292-9594

CONNECTICUT

Schaal Associates
60 Church St.
Yalesville, CT 06492
(203) 269-3779

FLORIDA

Deanco
7103 University Blvd.
Winter Park, FL 32792
(305) 671-5100

Intertec Compo. Inc.
762 Bigtree Dr.
Longwood, FL 32750
(305) 834-7777

K.S.M. Electronics
6630 N.W. 16th Ter.
Ft. Lauderdale, FL 33309
(305) 971-5900

GEORGIA

Deanco
189 Cobb Pkwy.
Bldg. B, Suite 7
Marietta, GA 30062
(404) 429-0126
TWX 810-763-4700

Pan American
889 Buford Rd.
Cumming, GA 30130
(800) 554-9796
(404) 577-2113

K.S.M. Electronics
3731 N. Crest Rd., Suite 1
Atlanta, GA 30340
(404) 458-2013

ILLINOIS

Components, Inc.
1989 D. University Ln.
Lisle, IL 60532
(312) 852-7707

K.S.M.
851 S. Rt. 53
Addison, IL 60101
(312) 953-9473

Lodan Electronics
11 West College Dr.
Suite E
Arlington Hts., IL 60004
(312) 398-5311

Prehler Electronics
2300 N. Kilbourn
Chicago, IL 60639
(312) 684-6100
(800) 621-4177

INDIANA

RM Indiana, Inc.
5545 W. Raymond St.
Suite K
Indianapolis, IN 46241
(317) 247-9701
(800) 792-3445

IOWA

Berquist Company
710 J. Ave. N.E.
Cedar Rapids, IA 52402
(319) 366-8733

MARYLAND

Deanco
7933 Queenair Dr.
Gaithersburg, MD 20879
(301) 948-5444

Resco/Baltimore
4961 Mercantile Rd.
White Marsh, MD 21236
(301) 529-0500

Resco/Washington
10523 Ewing Rd.
Beltsville, MD 20705
(301) 937-9100

Whitney Distributors
6707 Whitestone Rd.
Baltimore, MD 21207
(301) 944-8080

MASSACHUSETTS

Deanco, Inc.
87 Terrace Hall Ave.
Burlington, MA 01803
(617) 272-1506

Schaal Associates
87 Terrace Hall Ave.
Burlington, MA 01803
(617) 272-7940

Tec-Con Electronics, Inc.
7 Strathmore Rd.
Natick, MA 01760
(617) 655-9333

MICHIGAN

S&F Electronic Sup. Inc.
1200 Monroe N.W.
Grand Rapids, MI 49505
(616) 459-0216

R.M. Electric
4310 R.B. Chaffee Mem.
4310 Roger B. Chaffee
Mem. Dr. SE
Grand Rapids, MI 49508
(616) 531-9300

MINNESOTA

Bergquist Company
5300 Edina Indus. Blvd.
Minneapolis, MN 55435
(612) 835-2322

MISSOURI

Finnigan Electronics
2800 Rock Creek Pkwy.
Kansas City, MI 64117
(816) 421-4277

NEW JERSEY

Deanco
3 Edison Pl.
Fairfield, NJ 07006
(201) 575-7960

Tonar Industries
52 South Jefferson Rd.
Whippany, NJ 07981
(201) 884-1400

NEW YORK

Deanco
2415 N. Triphammer
Box 308
Ithaca, NY 14851
(607) 257-4444
TWX 510-255-5876

Peerless Radio Corp.
19 Wilbur St.
Lynbrook, NY 11563
(516) 593-2121

QAR Indus. Elec. Sls. Inc.
161 S. MacQuesten Pky.
Mt. Vernon, NY 10550
(914) 699-2224

Schaal Associates
639 B Old Willett Path
Hauppauge, NY 11787
(516) 234-4600

Tri-Start Electronics
56 Central Ave.
East Farmingdale, NY
11735
(516) 293-0400

Rome Electronics
216 Erie Blvd. East
Rome, NY 13440
(315) 476-2033
(315) 337-5400
(315) 735-2249
(800) 448-4403

NORTH CAROLINA

Century Electronics
1801-F New Hope
Church Rd.
Raleigh, NC 27609
(919) 872-2203

Deanco
7330 Chapel Hill Rd.
Suite 109
Raleigh, NC 27607
(919) 851-2065
TWX 510-928-1855

OHIO

Televox, Inc.
2593 Lance Dr.
Dayton, Ohio 45409
(513) 294-4499

OREGON

Bell Industries
6024 S.W. Jean Rd.
Lake Oswego, OR 97034
(503) 241-4115
TWX 910-455-8177

Murphy Electronics
2360 S.W. 170th
Beaverton, OR 97006
(503) 642-2001

Rose Electronic
Distributor Co., Inc.
17364 S.W. Boones
Ferry Rd.
Lake Oswego, OR 97034
(503) 635-8823

PENNSYLVANIA

Advacom, Inc.
P.O. Box 296
5620 West Rd.
McKean, PA 16426
(814) 476-7774

Century Electronic
Components
West Norriton Ind. Park
537 Foundry Rd.
Norristown, PA 19403
(215) 631-5400

Pytronic Industries, Inc.
Montgomeryville Ind. Ctr.
Stump Rd.
Montgomeryville, PA
18936
(215) 643-2850

TEXAS

Connec/Tek, Inc.
4251 B Kellway Circle
P.O. Box 1185
Addison, TX 75001
(214) 733-4411

Douglas Electronics
1118 S. Staples
P.O. Box 30994
Corpus Christi, TX 78404
(512) 883-5103

Texas Connector Corp.
8620 Clifford St.
Fort Worth, TX 76108
(817) 246-0109

UTAH

Diplomat
3007 S.W. Temple,
Suite C
Salt Lake City, UT 84115
(800) 453-5503

VIRGINIA

Deanco
5325 Cleveland St.
Suite 307
Virginia Beach, VA 23462
(804) 460-3558
TWX 710-992-9303

WASHINGTON

Bell Industries
1900 132nd St., 81E
Bellevue, WA 98005
(206) 747-1515
TWX 910-443-2482

Murphy Electronics
14933 N.E. 40th St.
Redmond, WA 98052
(206) 881-1234

WISCONSIN

G. W. Electronics Ltd.
515 Industrial Dr.
Hartland, WI 53029
(414) 367-6003

CANADA

Carsten Electronics,Ltd.
25 Howden Rd., Unit 5
Scarborough,(Ontario
M1R3E8
(416) 751-5095
Telex #06963748

C.M. Peterson Co., Ltd.
220 Adelaido St. N.
London Intario, Canada
(519) 434-3204

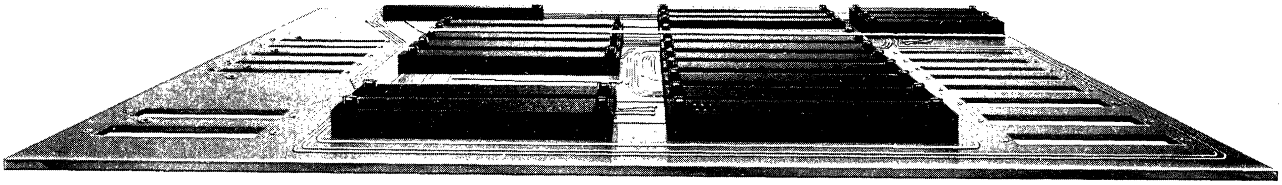
L.A. Varah, Ltd.
2077 Alberta St.
Vancouver, BC
V5Y IC4
(604) 873-3211

EXPORTER

Product Supply Company
17952 Skypark Circle,
Suite A
Irvine, CA 92714
(619) 250-0622
Telex #678385

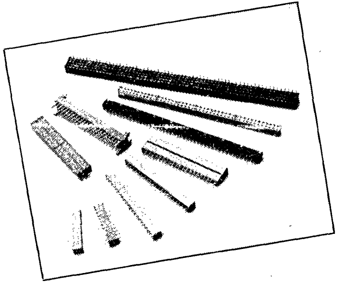
HOLMBERG ELECTRONICS CORPORATION
ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

THE BEST CONTACTS ACROSS THE BOARD...

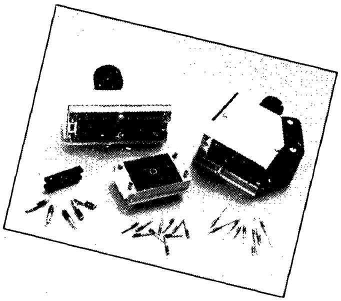


LOW INSERTION FORCE HYPERTACS®

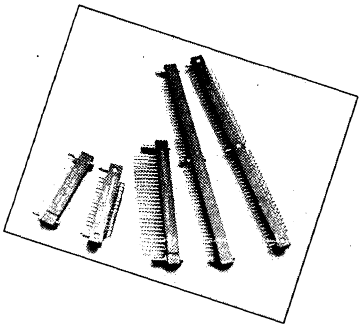
Hypertronics' connectors feature Hypertac®, a design innovation that satisfies requirements previously considered impossible. The essence is a hyperboloid shape formed by multiple wires that stretch and wrap around the mating pin to create multiple contact paths.



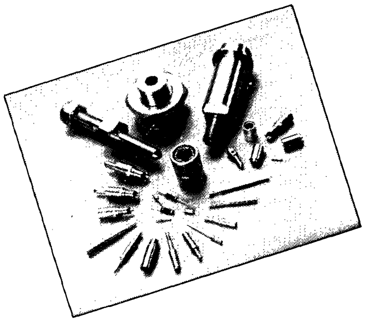
KG Series–Sub-Miniature Low Profile LIF/PCB Connectors • .100 x .100 grid from 22-90 positions • .240 height between parallel boards, sandwich style • Mother/daughter board, board to chassis and other applications • Inductance as low as 50% of comparable designs.



N Series–High Density LIF Mini-Modular Connectors • Design your own special connector from standard parts • 10 position–5 amp and 5 position – 9 amp modules • Up to 700 contacts on a .100 x .100 grid • Over 40,000 potential combinations for rack and panel, cable to chassis, and programming applications.



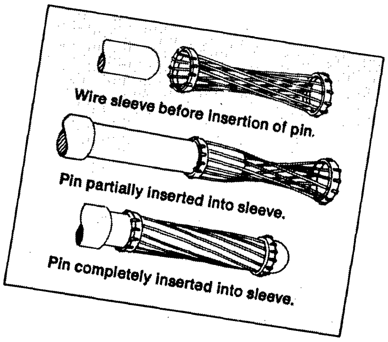
KA Series–Sub-Miniature LIF/PCB Connectors • The choice in demanding military and industrial applications • 17-320 position models with average contact insertion force of 1 ounce • Removable p.c., wire wrap, solder and crimp terminals • Integral guide and locking hardware.



Y Series–LIF Pins and Sockets • 2.5 to 200 amp standard pins and sockets • Customized p.c. or backplane mounting • Connect to cable or printed circuit boards.

All Hypertronics connectors utilize the Hyptertac® design, resulting in these unique characteristics:

- extremely low contact insertion/extraction force (as low as ½ ounce).
- electrical continuity under extremes of shock and vibration (tested below 10 n.s.).
- mechanical life exceeding 100,000 cycles with excellent electrical repeatability.

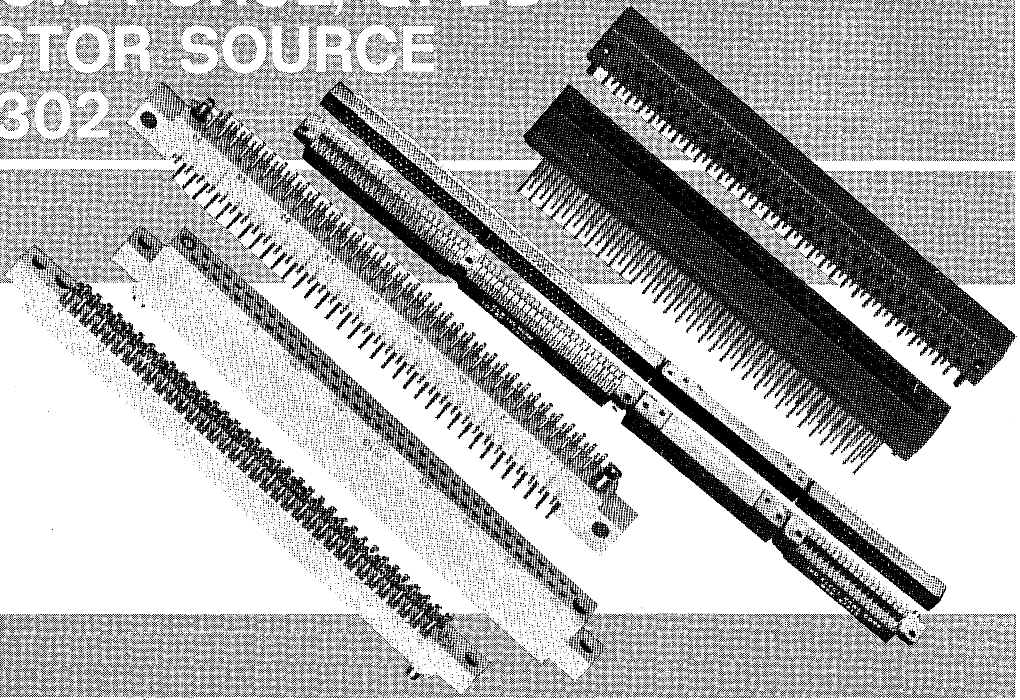

Wire sleeve before insertion of pin.
Pin partially inserted into sleeve.
Pin completely inserted into sleeve.

Customized designs featuring the Hypertac® contact are available from Special Products Division. For more information on these versatile connectors, call Toll-Free 1-800-225-9228 or write for a copy of our brochure, "New Horizons in Connectors."

HYPERTRONICS CORPORATION
16 Brent Drive
Hudson, MA
01749-2904
Telex: 95 1152
1-800-225-9228
Tel: (617)568-0451
in MA & Canada

IEH

YOUR LOW FORCE, QPL'D CONNECTOR SOURCE FOR 55302



FAMILY OF OVER 60 SIZES

Family of over 60 sizes including— 10 - 14 - 20 - 24 - 26 - 30 - 36 - 40 - 44 - 50 - 54 - 56 - 60 - 66 - 70 - 90 - 92 - 100 - 120 - 122 - 160 - 208 - 300 - 412 - 760.

Low force connectors utilizing Hypertac contacts are available from IEH in accordance with the following slash sheets of Military Specification 55302/56/57/58/59/60/61/62/64/138/139/21/22

Low force data:

Insertion: 0.11 lbs. x No. of contacts maximum

Extraction: 0.08 lbs. x No. of contacts minimum

Example — 160 Pin Hypertac
Max. insertion force = 17.6 lbs.
Min. extraction force = 12.8 lbs.

All our connectors are form, fit, and function, intermateable and interchangeable to the industry's most popular types.

Off shelf delivery nationally from Conco Electronics, Powell Electronics, & Time Electronics.

Please review our IEH Hypertac* low insertion force connector benefits:

1. An insertion and extraction force of less than one ounce per contact.
2. A high reliability closed entry socket which allows a minimum of 10,000 connector life cycles with no loss of mechanical or electrical integrity.
3. A multiplicity of pin to socket contact points (a **minimum** of 15 points, not a **maximum** of 2 or 3 points) due to a 360 "wraparound."
4. Unsurpassed shock and vibration characteristics.
5. Low contact resistance due to a greater than average contact area.
6. Lowest inductance for newly developing high speed circuits.
7. Elimination of heavy duty injectors extractors from your printed circuit cards — saves manufacturing time, money, and weight.
8. No more broken printed circuit board connectors—makes happier customers and assembly personnel.
9. Mil-C-55302 Approval.
10. A family of low force connectors (5 to 320 contacts with many variations).
11. Support from an electronics manufacturer with over 40 years of experience in the industry.
12. Cost savings methods of precious metals selective plating.
13. Excellent factory delivery and competitive pricing.
14. Off the shelf delivery from our national distributor network.

MIL-C-55302 QPL CONNECTORS
Low force connectors, utilizing Hypertac® contacts, are available from IEH in accordance with the following Slash Sheets of Military Specification MIL-C-55302.

M55302/56
M55302/57
M55302/58
M55302/59
M55302/60
M55302/61
M55302/62
M55302/64
M55302/138
M55302/139
M55302/21
M55302/22

If your needs require low force connectors with the added advantage of extended life cycles consider Hypertac® and IEH for future programs.

IEH, now producing the most modern state of the art High Density Low Force Hypertac® Connectors for the prime military electronics market place worldwide has created a careful blending of progressive management, creative and dedicated employees with modern equipment resulting in a highly successful product line of interconnecting devices.

IEH has demonstrated the experience and technical competence necessary for leadership in the manufacture and marketing of advanced connector designs and systems.

We hope you will consider us the next time you are planning purchases of electrical/electronic interconnections.

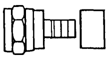
Our facilities, service, availability and lowest possible industry pricing combine with an honest interest to be a helpful and valuable supplier.

IEH

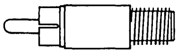
INDUSTRIAL ELECTRONIC HARDWARE CORPORATION
109 PRINCE STREET
NEW YORK, NEW YORK 10012
TELEPHONE — (212) 677-1881
TWX — 710-581-4338

Video Connectors, Modular Telephone Plugs, Jacks and Accessories by International

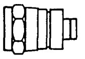
Video Connectors



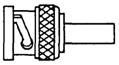
F59 Connectors
Separate Ferrule
Model A-F59 (Bulk)



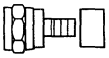
RCA Plug to "F" Jack Adaptor
Model A-VA9-B (Bulk)



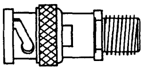
F59A Connectors
Built-in Ferrule
Model A-F59A (Bulk)



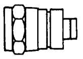
BNC Male Connector
Crimp Type
Model A-VA1-B (Bulk)



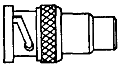
F56 Connectors
Model A-F56 (Bulk)



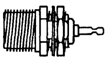
BNC Plug to "F" Jack Adaptor
Model A-VA4-B (Bulk)



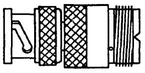
F56A Connectors
Model A-F56A (Bulk)



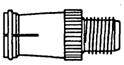
BNC Plug to RCA Jack Adaptor
Model A-VA5-B (Bulk)



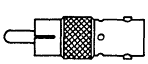
F61 Chassis Connectors with Nut and Washer
Model A-F61 (Bulk)



BNC Plug to UHF Jack Adaptor
Model A-VA6-B (Bulk)



Quick-Connect "F" Plug Adaptor
Model A-VA14-B (Bulk)

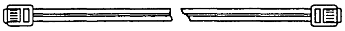


RCA Plug to BNC Jack Adaptor
Model A-VA7-B (Bulk)

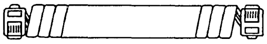
Many other types available.

Telephone Accessories

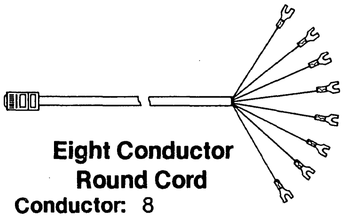
Modular Line Cord
Conductor: 2, 4 and 6
Length: 7,' 15' and 25'
Plug: 6 position



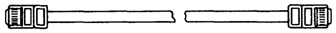
Modular Extension Cord
Conductor: 2, 4 and 6
Length: 7,' 15' and 25'
Plug: 6 position



Modular Handset Cord
Conductor: 4
Length: 7,' 15' and 25'
Plug: 4 position



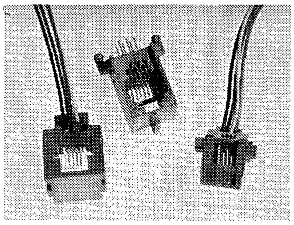
Eight Conductor Round Cord
Conductor: 8
Length: 7,' 15' and 25'
Plug: 8 position



Eight Conductor Flat Cord
Conductor: 8
Length: 7,' 15' and 25'
Plug: 8 position

Many other types available.

Modular Telephone Plugs



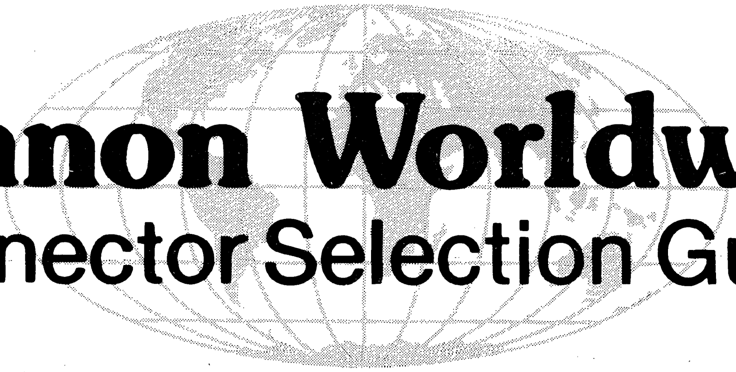
616M 2 and 4 contacts Gray	**623K** 2, 4 and 6 contacts Gray	**616PB** 2 and 4 contacts Gray	**641D** 8 contacts Gray
616T1 2 and 4 contacts Gray	**625F** 2, 4 and 6 contacts Ivory	**623PB** 2, 4 and 6 contacts Gray	**145** 2, 4 and 6 contacts Ivory

Many other types available.

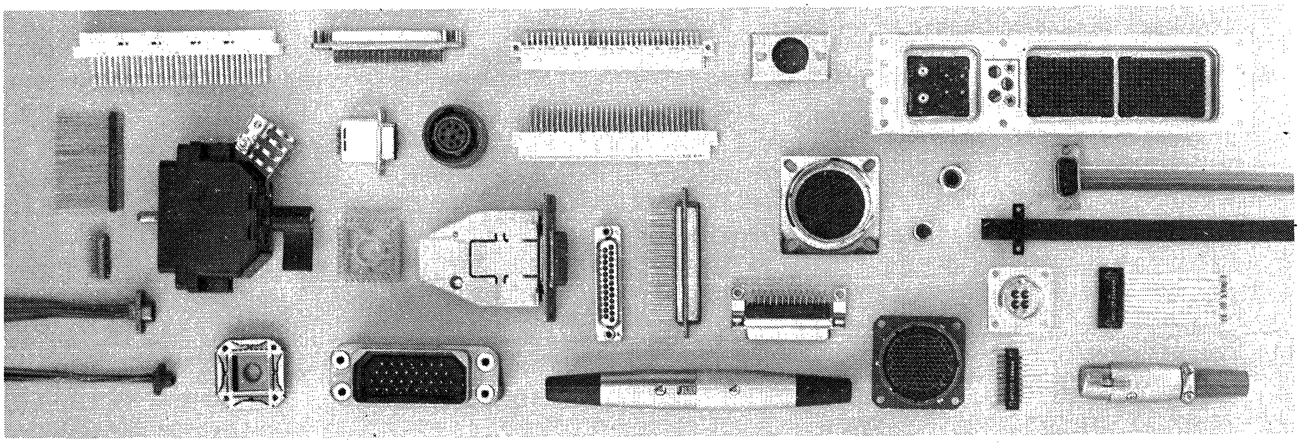
CALL TOLL FREE
800-645-9154
IN N.Y. STATE
516-293-1500

International
International Components Corporation

105 Maxess Road
Melville, New York 11747
(516) 293-1500
TELEX # 221576



Cannon Worldwide
Connector Selection Guide



Together, We Create Solutions

CANNON ITT
The Global Connection

INTRODUCTION

It's almost impossible to find electrical or electronic equipment anywhere in the world that doesn't involve the use of one or more ITT Cannon products. Our connectors are in place within electronic systems ranging from computers to telecommunications to transportation, vending machines to nuclear reactors, deep space to deep sea, in military aircraft to commercial aircraft.

This guide lists some of the more popular connector configurations, both standard and special and is designed to help you select the proper connector series and the appropriate catalog from which to specify for your requirements.

To use this guide simply determine the type of connector configuration you wish to use and identify your market application requirement. The Table of Contents lists the product by product configuration or special applications. A brief description and catalog reference, contact data, and broad application uses are shown so that you may better select the catalog (or catalogs) which you would like. We have also included on pages 4 and 5 a Commercial Market Product Cross Reference List and a North American and European Military Specification/Cannon Product Cross Reference List for your use. For catalog data please write to ITT Cannon, 666 East Dyer Road, P.O. Box 929, Santa Ana, California 92702-0929, telephone 714/557-4700. Or, call our toll-free number **(800) 845-7000** from anywhere in the U.S. and you will automatically reach your nearest Cannon Sales Office whc will quickly direct you to your nearest Cannon branch office.

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Military Specification/Cannon Cross Reference List by Mil Spec 5
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Rack and Panel Connectors 6, 7
DPD, DPDMA, DPJM/DPJMB, DPGM, DPK, DPX (2, 3, 4 gang), BKAD/E/F
Circular Connectors 8, 9, 10, 11
Miniature Series — KFS, KJ/KJL/KJA, KO, KPT/KPTM/KPSE, MC, PV, PVW/PVX, SRC/SRCB/SRCN
Standard Series — CA, CA-BVS, CA-COM, CGE, CA-HR, CA-KE, CVA, K, LRN, MR, MSA/B/E/F/R, MS/CV, Seismic, W, WFS
Firewall Series — FRF/FVF/FRA/FVA, HTMF, MS-K
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DPXJ, D*J, PVJ, KJJ/KJJL, TKJ
EMI/RFI Products 12
Shielded, D, Transverse Monolithic D Sub
Hermetic Connectors 13
D*H, GS, HRM, K, KPT/PVA, KJLY/KJY, MC/KH, Hydrospace
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Centi Series — 2D, CTA Centi-Loc
Nano Series — Strip, NJS
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Special Application Connectors 17
Audio, Chip Carriers, Fiber Optics, Sure-Seal, VE, Telephone Accessories

COMMERCIAL MARKET/CANNON PRODUCT CROSS REFERENCE LIST

ENTERTAINMENT MEDIA

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AUDIO (XLR/XLB/AXR/EP)	17
CIRCULAR DIN	Consult Factory
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MIDU	Consult Factory
MIKQ	14
RDL	Consult Factory
SRC/SCRC/SRCB	11
VE	17

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CM	Consult Factory
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D SUBMINIATURE	6
D*H	13
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GS	13
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IDC (Insulation Displacement)	Consult Factory
K	9
KPT/KPSE	10
KPTH	13
MD*	14
MIDU	Consult Factory
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PC INDIRECT, TWO-PIECE	16
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RDL	Consult Factory
TELEPHONE JACKS/PLUGS	17

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Description	Page No.
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CGE	8
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DL	16
D SUBMINIATURE	6
FODC FIBER OPTICS	17
FOMC FIBER OPTICS	17
FOSC FIBER OPTICS	Consult Factory
FOTC FIBER OPTICS	Consult Factory
GS	13
IC SOCKETS	16
IDC (Insulation Displacement)	Consult Factory
K	9
MC/KO	10

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Description	Page No.
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MC/KH	13
MSA/B/E/R/F	10
PC DIRECT, ONE-PIECE	16
PC INDIRECT, TWO-PIECE	16
PV	11
RDL	Consult Factory
SLE	Consult Factory
SRC	11
SURE SEAL®	17
VE	17
VEH	Consult Factory

INSTRUMENT TEST

Description	Page No.
CHD	Consult Factory
CIRCULAR DIN	Consult Factory
CM	Consult Factory
CVA	8
D*H	13
DL	16
D SUBMINIATURE	6
FILTER D SUBMINIATURE (TD)	12
FOSC	Consult Factory
FOTC	Consult Factory
GS	13
IC SOCKETS	16
IDC (Insulation Displacement)	Consult Factory
K	9
KPT/KPSE	10
KPTH	13
MC/KH	13
MD*	14
MIDU	Consult Factory
MIKQ	14
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PC INDIRECT, TWO-PIECE	16
RDL	Consult Factory
SRC	11

MEDICAL

Description	Page No.
CHD	Consult Factory
CIRCULAR DIN	Consult Factory
DL	16
K	9
KPT	10
MD*	14
MIKQ	14
MT*	14
NJS (NANO)	Consult Factory
RDL	Consult Factory
2D	15

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ADAPTA-CON	16
CHD	Consult Factory
CVA	8
D*H	13
DL	16
D SUBMINIATURE	6
FILTER D SUBMINIATURE (TD)	12
FOSC	Consult Factory
FOTC	Consult Factory
GS	13
IC SOCKETS	16
IDC (Insulation Displacement)	Consult Factory
K	9
KJL	9
KPTH	13
KPT/KPSE	10
MC/KH	13
PC DIRECT, ONE-PIECE	16
PC INDIRECT, TWO-PIECE	16
RDL	Consult Factory
SLE	Consult Factory
TELEPHONE JACKS/PLUGS	17

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D SUBMINIATURE	6
DPXJ	12
DPXNE/NA (DPX SERIES)	7
GS	13
K	9
KJLY/KJY	13
KM	Consult Factory
KPTH	13
MC/KH	13
MS/CV	11
MS/B/E/R/F	10
PVX/PVW	11
SLE	Consult Factory
SURE SEAL®	17
VE	17
VEH	Consult Factory

MILITARY SPECIFICATION/CANNON CROSS REFERENCE LIST BY MIL SPEC (See below for European specs)

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NAS-1599	PVJ	12
	PVX	11
NASA 40M39569	PVJ	12
MIL-C-24308 (Qualified To)	D*MM, D*MAM	6
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	D*H	13
	D*J, Shielded D	12
MIL-C-25955	KO	10
MIL-C-26482	KPT/KPTM/KPSE/KPTB, KTN/KTNM	10
	KPTH/PVA	13
	PV, PVW/PVX	11
	PVJ	12
MIL-C-28840	KFS	9
MIL-C-38999	KJ/KJL/KJA	9
	KJJ/KJJL/TKJA	12
	KJY/KJLY/KJA	13
MIL-C-5015	CA Bayonet, CA-COM/COM-B, CA-KE, FRF/FVF/FRA/FVA, MS-K	8
MIL-C-5015 (Continued)	GS	13
	MR, MSA/B/E/F/R	10
	WFS	11
MIL-C-81659	DPXNA/NE	7
MIL-C-83513	MD*, MDM	14
MIL-C-83723	CV, PV, PVW/PVX	11
	CVA	8
	HTMF	9
	PVJ	12
MIL-C-83733	DPK	7

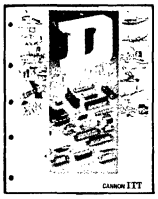
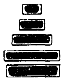
MILITARY SPECIFICATION/CANNON CROSS REFERENCE LIST BY CONNECTOR

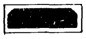
(contacts used in MIL spec. connectors are to the MIL-C-39029 specification)

Military Specification	Cannon Designator	Description	Page No.
NORTH AMERICA			
Subminiature Rectangular Connectors			
MIL-C-24308 (Qualified To)	D*MM	Metal shell	6
	D*MAM	Metal shell	6
MIL-C-24308 (Designed To)	D*	Metal shell	6
	D*C/D*U	Metal shell	6
	D*P	Plastic shell	6
	D*PF	Plastic shell	6
	D*SP	Metal shell	6
	D*SF Speedy-D	Metal shell	6
	PD*N/PD*S	Plastic shell	6
	D*M	Metal shell	6
	D*MA	Metal shell	6
	Accessories		6
	D*H	Hermetically sealed connectors	13
	D*J	Filtered connectors	12
	SHIELDED D	EMI/RFI	12
Rack/Panel Connectors			
MIL-C-83733	DPK	Rack/Panel connectors	7
MIL-C-81659	DPXNA/NE	Single 2-, 3-, 4-gang Rack/Panel connectors	7
Miniature Circular Connectors			
MIL-C-25955	KO	Miniature circular, general purpose	10
MIL-C-26482	KPT/KPTM/KPSE/KPTB	Miniature circular, general purpose	10
	KPTH/PVA	Hermetic connectors	13
	KTN/KTNM	Miniature circular, cupronickel	10
	PV	Miniature circular connectors	11
	PVJ	Filter connectors	12
	PVW/PVX	Miniature circular connectors	11
MIL-C-38999	KJ/KJL/KJA	Subminiature circular connectors	9
	KJY/KJLY/KJA	Hermetic connectors	13
	KJJ/KJJL/TKJA	Filter connectors	12
MIL-C-83723	CV	Standard circular connectors	11
	CVA	Standard circular connectors	8
	HTMF	Miniature firewall connectors	9
	PV	Miniature circular connectors	11
	PVJ	Filter connectors	12
	PVW/PVX	Miniature circular connectors	11
NAS-1599	PVJ	Filter connectors	12
	PVX	Miniature circular connectors	11
MIL-C-83513	MD*	Microminiature Rack and Panel connectors	14
	MDM	Microminiature Rack and Panel connectors	14
NASA 40M39569	PVJ	Filter connectors	12
Standard Circular Connectors			
MIL-C-5015	CA Bayonet	Standard circular connectors	8
	CA-COM/COM-B	Standard circular connectors	8
	CA-KE	Firewall connectors	8
	FRF/FVR/FRA/FVA	Firewall connectors	8
	GS	Hermetically sealed connectors	13
	MR	Weatherproof connectors	10
	MSA/B/E/F/R	General purpose connectors	10
	MS-K	Firewall connectors	8
	WFS	Front release, high temperature	11
MIL-C-28840	KFS	Front release, high contact density	9

Military Specification	Cannon Designator	Description	Page No.
EUROPEAN			
DEF 59-55 PATT 602 (UK) DEF 59-35 PATT 105 (UK) NFL 54125 (France) LN 29504 (Germany) NFC 93422 HE 301 (France)	PVW/PVX	Miniature circular connectors with hermetic versions	11
VG 95 234	CA	Standard circular connectors	8
	CGE	High voltage circular connectors	8
EL 2112 PATT 602	PVX	Miniature circular connectors	11
PAN 6432	PVW	Miniature circular connectors	11
DIN 41612, VG 95 234, IEC, MIL-C-55302	G06/G60	PC Edgecard connectors, indirect, two piece	16
DIN 41651, MIL-C-83503, BPO-SPEC, D 2632, UTE-C-93428	G80	Header (shrouded)	Consult Factory

ITT CANNON RECTANGULAR/RACK AND PANEL CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
D SUBMINIATURE SERIES **General commercial/industrial applications** D* — original D, solder contacts D*C — general purpose economy version; rear release of crimp snap-in machined, stamped and formed contacts D*U — flame retardant D*C connector	**9-50 CONTACTS** Contact/Wire Size 20 #18-#32 AWG CRIMP TERMINATION	• Aircraft • Missiles • Test Equipment • Ground Support Equipment • Computer Peripheral Equipment • Telecommunications • Industrial Processing Controls • Avionics • Weapons/Navigation Systems • Communications Systems • Instrumentation • Shipboard Radar Systems • Data Processing • Medical Electronics • Entertainment Systems • Torpedos • Mobile Test Equipment • Deep Space Probes • Transportation • Vending Machines	
insulation displacement D*SP — MAS/TER® D (Mass Terminated) flame retardant pin and socket connectors. SPEEDY-D — very low profile, low cost; termination to ribbon cable on .050" (1.27) centers.	**9-37 CONTACTS** Contact/Wire Size 20 #22-#28 AWG 20 #26-#28 AWG		
General military/aerospace applications  D*M — one piece insulator, solder contacts D*MA — rear release of crimp snap-in contacts D*MM/ D*MAM — same as D*M/D*MA except qualified to MIL-C-24308 D*BMA — feed-thru bulkhead GD* — environment, crimp contacts	**9-78 CONTACTS** Contact/Wire Size 20 Coax. contacts available SOLDER OR CRIMP TERMINATION		
Printed circuit board applications **plastic housing** D*P — right angle connectors, flame retardent D*PF — straight, wire wrappable and 90° PCB contact connectors with one-piece flame retardant insulators PD*N/ PD*S — one-piece flame retardant reinforced thermoplastic insulators, straight and 90° contacts **D SUBMINIATURE CATALOG**	Contact/Wire Size 20 COMPLIANT PRESS FIT, WRAP POST, OR P.C. TERMINATION		

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPD SERIES — general purpose single gang DPD — standard rack/panel connector with widest range of contact arrangements DPDMA — rear release of crimp snap-in contacts **— two gang DPD** DPD2 — two gang DPD DPD2MA — two gang DPD with rear release of crimp snap-in contacts ■	**2-128 CONTACTS** **(single gang)** **4-256 CONTACTS** **(two gang)** Contact/Wire Size 20 6 16 4 14 2 10 0 8 Coax. contacts available SOLDER OR CRIMP TERMINATION	• Military Aircraft • Missiles • Space Shuttle • Electronic Instrumentation • Flight Simulators • In Board Computers • Ground Support Systems • Avionics	RACK AND PANEL CONNECTORS CANNON ITT
DPGM/DPJM — general purpose, environmental DPGM — short shell, economical ring-type contact retention  DPJM — same as DPGM except shell is longer DPJMB — rear insertion/release of crimp snap-in contacts ■ **R/P CATALOG**	**12-98 CONTACTS** Contact/Wire Size 20 16 12 Coax. contacts available CRIMP TERMINATION		

☐ Environmental version only ■ Environmental versions available, consult factory

ITT CANNON RECTANGULAR/RACK AND PANEL CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPK — high performance, environmental, MIL-C-83733 Environmental sealing, thermal resistant connector with rear release of crimp snap-in contacts per PV/KJ circular series. ■	**18-185 CONTACTS** Contact/Wire Size 12 16 20 22 22D Coax. contacts available CRIMP TERMINATION	• Space Program Equipment • Computer Periphery • Environmental/Thermal Protection • Black Box Instrumentation • Military Aircraft • Test Equipment • Radar Systems • Ground Support Equipment • Test Equipment • Power Circuits • Communications Equipment • Guidance Controls • Early Warning Systems • Missile Ground Support • In-Flight Electronic Instrumentation • Commercial Aircraft • Retrofitting/repackaging with advantage of UF contacts • Avionics	RACK AND PANEL CONNECTORS CANNON ITT
DPX SERIES — rugged, general purpose, single gang **For commercial/industrial application** DPXA — single shell DPXAF — float mount DPXA DPXB — polarized ARINC shell DPXAL — large flange DPXLAF — float mount DPXL DPXAMA — LITTLE CAESAR® contact assembly DPXBMA — LITTLE CAESAR® contact assembly DPXBME — LITTLE CAESAR® contact assembly — environmental **For general military/aerospace application** DPXBNA — non-environmental, MIL-C-81659, type IV DPXBNE — environmental, MIL-C-81659, types II and III	**2-106 CONTACTS** Contact/Wire Size 22 20 16 2 6 4 Coax. contacts available SOLDER OR CRIMP TERMINATION		
DPX2 — two gang DPX DPX2 — two gang DPX DPX2A — ARINC A shell DPX2B — ARINC B shell DPX2MA — LITTLE CAESAR® contact assembly DPX2ME — LITTLE CAESAR® contact assembly — environmental DPX2NA — non-environmental, MIL-C-81659, type IV DPX2NE — environmental, MIL-C-81659, types II and III	**4-212 CONTACTS**		
DPX3 — three gang DPX DPX3 — three gang DPX DPX3MA — LITTLE CAESAR® contact assembly DPX3ME — LITTLE CAESAR® contact assembly — environmental DPX3NA — non-environmental, MIL-C-81659, type IV DPX3NE — environmental, MIL-C-81659, types II and III	**6-318 CONTACTS**		
DPX4 — four gang DPX DPX4 — four gang DPX DPX4MA — LITTLE CAESAR® contact assembly DPX4ME — LITTLE CAESAR® contact assembly — environmental DPX4NA — non-environmental, MIL-C-81659, type IV DPX4NE — environmental, MIL-C-81659, types II and III ■	**8-424 CONTACTS**		
BKA Series — ARINC 600 connectors High performance, environmental, non-environmental versions with low insertion force front and rear removable contacts. BKAD/E — rear release/rear removable crimp contacts BKAF — front release/front removable solder tail or wrap post size 22 contacts ■ **R/P CATALOG**	**3-800 CONTACTS** Contact/Wire Size 22 20 16 12 Coax contacts available SOLDER TAIL, CRIMP, or WRAP POST TERMINATION		

☐ Environmental version only ■ Environmental versions available, consult factory

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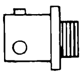
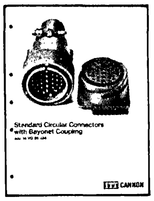
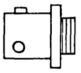
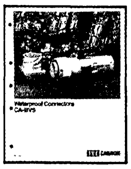
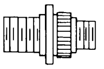
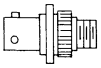
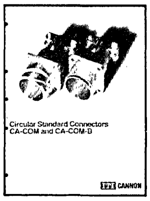
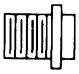
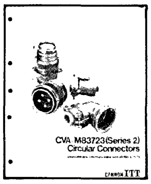
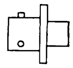
CIRCULAR CONNECTORS

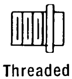
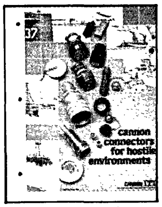
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CA BAYONET — rugged, bayonet connector series  Bayonet Coupling Designed in accordance with European spec VG 95 234, interchangeable but not intermateable with MIL-C-5015; for use in heavy military equipment. **VG CATALOG**	**1-61 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR SOLDER TERMINATION	● Military Radios ● Radar Systems ● Heavy Military Equipment ● Power Supplies ● Communications and Ground Test Equipment ● Earth Moving Equipment ● Backstage Lighting Equipment ● Mass Transit	 Standard Circular Connectors with Bayonet Coupling ITT CANNON

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CA-BVS — rugged, water-proof connectors  Bayonet Coupling Designed for the stringent requirements for mining equipment; contact arrangements to MIL-C-5015, VG 95 234; 360° HF shielding available. **GS-1E CATALOG**	**1-61 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	● Underground Mining Installations ● Heavy Duty Equipment	 Waterproof Connectors CA-BVS ITT CANNON

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CA-COM/CA-COM-B standard circular connectors  Threaded Coupling  Bayonet Coupling CA-COM — threaded coupling CA-COM-B — bayonet coupling General purpose for commercial marketplace; interchangeable with corresponding MIL-C-5015 and VG 95234 types. ■ **CC CATALOG**	**2-48 CONTACTS** Contact/Wire Size 16 12 SOLDER OR CRIMP TERMINATION	● Industrial Machinery and Equipment	 Circular Standard Connectors CA-COM and CA-COM-B ITT CANNON

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CVA — standard circular MIL-C-83723 (Series II)  Threaded Coupling High performance, mates with MIL-C-5015 thread coupled connectors. Environmental and fluid resistant, rear release crimp snap-in contacts. ☐ **CVA/MIL-C-83723 CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	● Commercial/Military Aerospace ● Test Equipment ● Ground Support Equipment ● Communications Equipment ● Guidance Controls ● Surface/Naval Vehicles ● Black Box Instrumentation	 CVA M83723 (Series 2) Circular Connectors Cannon ITT

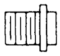
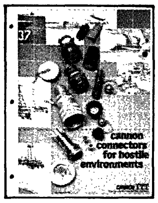
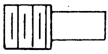
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CGE — high power connectors  Bayonet Coupling Used to transmit high current at low voltage; meets mechanical requirements of VG 95234; operating temperature range −55 °C to +125 °C. ■ **HS CATALOG**	**1 CONTACT** Contact/Wire Size H2 H15 H5 H24 H9 Coax. contacts available CRIMP OR THREADED BOLT TERMINATION	● Heavy Vehicles Military/Commercial ● Tanks ● Any High Amperage Requirement	 High Power Connectors CGE ITT CANNON

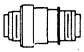
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
FIREWALL CONNECTORS  Threaded Coupling MS-K — 350°F (177°C); meets MIL-C-5015 fireproof test, crimp contacts CA-KE — 350°F (177°C), moisture-resistant, for sealable wires, meets MIL-C-5015 fireproof test or 350°F (177°C) continuous FRF/FVF/FRA/FVA — firewall connector with front release crimp snap-in contacts; moisture sealed, exceeds MIL-C-5015 fireproof requirements; 400°F (204°C) continuous ■ **HEC CATALOG**	**1-47 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	● Provides protection against extreme high temperatures, emergency fire retardant conditions, moisture, atmospheric conditions, resistant to fuels, cleaning agents, coolants, hydraulic fluids ● Nuclear-Radiation Resistant ● Aircraft Firewall	 cannon connectors for hostile environments

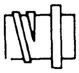
☐ Environmental version only ■ Environmental versions available, consult factory

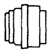
ITT CANNON

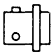
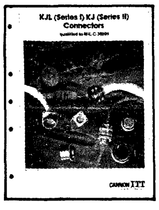
CIRCULAR CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors CA-HR — +371°F (+700°C), nuclear-radiation resistant  Threaded Coupling	**1-73 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR WELD TERMINATIONS	• Provides protection against extreme high temperatures, emergency fire retardant conditions, moisture, atmospheric conditions, resistant to fuels, cleaning agents, coolants, hydraulic fluids • Nuclear-Radiation Resistant • Aircraft Firewall	 cannon connectors for hostile environments
GEOPHYSICAL SERIES — hermaphroditic connectors  Threaded Coupling Connectors designed for seismic applications in hostile environments. **HEC CATALOG**	**122, 176, 216 CONTACTS** Contact/Wire Size 20 18 SOLDER TERMINATION	• Oil Exploration	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors HTMF – qualified to MIL-C-83723 Series III Class K and Class G. Temperature range from −85°F to +392°F (−65°C to +200°C). Meets U.S., NATO and British Govmnt. specifications  Threaded Coupling **HTMF CATALOG**	**3-55 CONTACTS** Contact/Wire Size 12 16 20 Thermocouple contacts available CRIMP TERMINATION	• High Temperature Engines	 High Temperature Miniature Connectors Qualified to MIL-C-83723 Series III Class K & Class G

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
K — standard lightweight, rugged general purpose  Quick Coupling Acme Threads K — with special Acme thread coupling nut with internal threads RK — reverse coupling unit with external threads SK — "BEEP" telephone connectors **K CATALOG**	**2-110 CONTACTS** Contact/Wire Size 20 16 14 10 8 6 4 Coax. contacts available SOLDER TERMINATION	• Aircraft Radios/Cameras • Instrument Panels • Black Boxes/"U" Boxes • TV Cameras • Transmitters • Communications and Radar Interconnects • CRT/Data Terminals • Automotive Instrument Sensors	 K Connectors

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KFS — standard circular, MIL-C-28840 KFS – front release contacts, high impact shock resistance for use with Navy Shipboard cable.  Threaded Coupling ☐ **28840 CATALOG**	**7-155 CONTACTS** Contact/Wire Size 20 CRIMP TERMINATION	• Navy Shipboard Cable • RFI/EMI and Hermetic • Filter	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KJL/KJ/KJA — Series I, II and III subminiature high density, qualified to MIL-C-38999  Bayonet Coupling/ Threaded Coupling KJL Series I (Scoop Proof), KJ Series II (Low Profile). High performance, high density, lightweight, compact, environment-resistant connectors; rear release of crimp snap-in contacts; bayonet coupling. KJA Series III Scoop Proof self-locking threaded coupling for EMI/EMP shielding capability. ☐ **KJL/KJ CATALOG** **KJA CATALOG**	**3-128 CONTACTS** Contact/Wire Size 22M 22D 22 20 16 12 CRIMP TERMINATION	• Black Boxes • Electronic Instrumentation • Test Equipment • Ground Support Radar Systems • Space Shuttle • Guidance Controls • Military Spacecraft/Satellite Programs • Military/Commercial Aircraft • Military Missiles	 KJL (Series I) KJ (Series II) Connectors

☐ Environmental version only ■ Environmental versions available, consult factory

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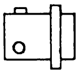
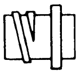
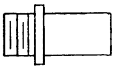
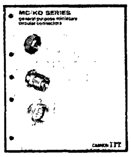
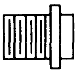
CIRCULAR CONNECTORS

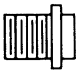
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KPT/KPTM/KPSE/KTN/KTNM — miniature general purpose, MIL-C-26482 Series I  Bayonet Coupling KPT — Solder contacts KPTM — Crimp montacts in DUAL-SHORE® insulator KPSE — Crimp contacts in integrally molded insulator KPTB — Thru-bulkhead receptacles KTN — Solder contacts, cupro-nickel hardware; corrosion-resistant KTNM — Crimp contacts, curpro-nickel hardware; corrosion-resistant **KPT/KPTM/KPSE/KTN/KTNM CATALOG** ☐	**2-61 CONTACTS** Contact/Wire Size 20 16 12 SOLDER OR CRIMP TERMINATION	• Cable Assemblies • Black Box Avionics • Guidance Systems • Control Systems • Missile Instrumentation • Word Processors • Printers • Cable Assemblies • Chassis and Panel Mounting	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KO — rugged lightweight  Acme Threads Miniature environmental version of standard K connector with special Acme threads. Note: When potted they can meet MIL-C-25955. **MC CATALOG** ☐	**3-50 CONTACTS** Contact/Wire Size 20 16 12 SOLDER TERMINATION	• Rapid Transit • Recreation Vehicles • Automotive Test Instrumentation • Aircraft/Ground Support Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
LRN — connectors  Power connector for use on nuclear fueling machines; environmentally sealed and impervious to serious degradation from radiation. **HEC CATALOG**	**4-72 CONTACTS** Contact/Wire Size 16 12 4 SOLDER OR CRIMP TERMINATION	• Nuclear	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MC — subminiature, sealed connectors Acme Threads Heavy duty, general-purpose, designed to withstand severe handling and a variety of environmental conditions. **MC CATALOG** ☐	**3-12 CONTACTS** Contact/Wire Size 20 SOLDER TERMINATION	• Military Instrument Panels • Medical Instrumentation • Air Traffic Control Ground Support • Aircraft Communications Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MR — standard weatherproof, submersible  Submersible Rugged environmental MIL-C-5015 type; withstands severe conditions involving mud, ice, and water. **HEC CATALOG** ☐	**1-56 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR SOLDER TERMINATION	• Rapid Transit • Recreational Vehicles • Missile Ground Support • Radar Installations • Heavy Construction Equipment • Radio/TV Stations	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MS — general purpose, MIL-C-5015  Threaded Coupling MS-A — solid shell MS-B — split shell MS-E — environmental, cable clamp MS-R — environmental, interfacial seal MSF — environmental, interfacial and periphery seal F-80 — crimp contact termination modification **MS CATALOG** Note: Catalog includes connectors for potting, bulkhead, quick disconnect and weatherproof applications. ■	**1-100 CONTACTS** Contact/Wire Size 16 12 8 4 0 SOLDER OR CRIMP TERMINATION High voltage Cartridges and Coax. Cartridges available	• Avionics • Radar Systems • Portable Power Generators • Tanks, Trucks • Farm Equipment • Power Leads • Electronic Scoreboards • Traffic Signals • Medical Equipment • Computer Hardware	

☐ Environmental version only ■ Environmental versions available, consult factory

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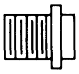
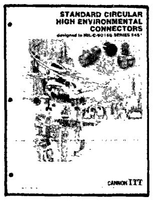
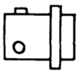
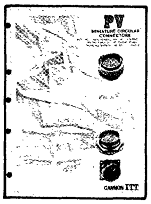
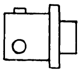
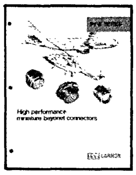
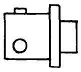
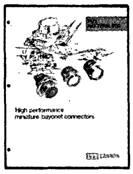
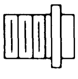
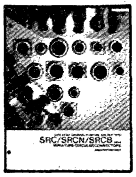
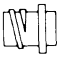
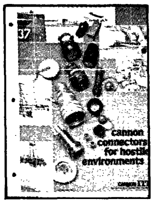
CIRCULAR CONNECTORS

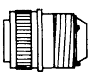
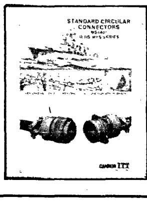
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MS/CV 345*— MIL-C-5015G (NAVY) environmental, standard circular, crimp versions  Threaded Coupling The latest military design, high performance 5015 connectors with crimp removable contacts. Fully intermateable with existing MIL-C-5015 and threaded MIL-C-83723 (USAF) Series II connectors. ■ **MS/CV CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	• Mass Transit Systems • Military Space Programs • Black Box Instrumentation • Test Equipment • Radar Systems • Power Circuits • Ground Support Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PV — miniature circular MIL-C-83723 (Series 1) MIL-26482 (Series 2)  Bayonet Coupling Intermateable with MIL-C-26482 Series 1 bayonet coupled connectors. High performance, environmentally sealed; fluid resistant; rear release crimp snap-in contacts; eight shell sizes and 25 contact arrangements. □ **PV CATALOG**	**3-61 CONTACTS** Contact/Wire Size 20 16 12 CRIMP TERMINATION	• Missile On-Board Electronics Systems • Transportation Electronics • Military Armored Vehicles Electronics • CAB, Engine, Power Applications • Space Shuttle	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PVW — miniature circular connectors  Bayonet Coupling Lightweight version of PV Series, mates with M26482 and M83723 Series 1; temperature range −55 °C to +175 °C. □ **PVW CATALOG**	**3-61 CONTACTS** Contact/Wire Size 20 16 12 CRIMP TERMINATION	• Missiles • Aerospace Programs • Armored Vehicles • Black Box • Airbus/SST Concorde • Military Aircraft	
PVX — miniature circular connectors  Bayonet Coupling Same as PV Series except with 4 additional polarization positions (total 9 possibilities); temperature range −65 °C to +200 °C. **PVX CATALOG**			

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
SRC/SRCB/SRCN — miniature circular, rugged, lightweight, general-purpose connectors SRC — machined contacts (threaded coupling) SRCB — SRC with bayonet coupling SRCN — with stamped contacts (threaded coupling)  Threaded Coupling **SRC CATALOG**	**3-24 CONTACTS** Contact/Wire Size 20 16 SOLDER OR CRIMP TERMINATION	• Measurement and Test Equipment • Communications Systems • Medical Equipment • "Mini-cam" TV • Video Tape Recorders	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
W SERIES — waterproof connectors  For extreme underwater geophysical applications, uses MIL-C-5015 contact arrangements, Acme thread coupling. **HEC CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 Coax. contacts available SOLDER TERMINATION	• Underwater Geophysical Exploration • Underground Drilling Equipment • Moisture-Resistant Outdoor Requirements	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
WFS – standard circular, MIL-C-5015G-340*  WFS – front release contacts, for use in commercial/industrial, military, mass transit, retrofit programs. **WFS CATALOG**	**7-104 CONTACTS** Contact/Wire Size 16-16 16-22 CRIMP TERMINATION	• Navy Shipboard Cable • Mass Transportation • Heavy Equipment • Space Programs	

□ Environmental version only ■ Environmental versions available, consult factory

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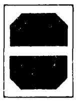
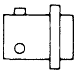
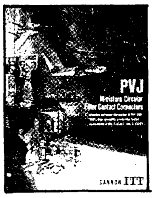
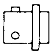
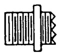
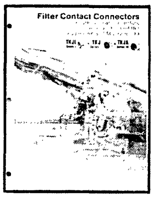
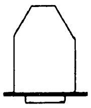
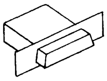
FILTER CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPXJ  Rack/panel filter connectors in single, two, three or four gang shells interchangeable with standard DPX, DPXMA, DPXME and meets requirements of ARINC 404. Provide optimum attenuation of RFI/EMI. **FDPXJ CATALOG**	**CONTACTS** Contact/Wire Size 22 20 16 Coax. contacts available SOLDER TERMINATION Consult factory for availability of crimp filter contacts	• Electronic Countermeasures Equipment • Communications Equipment • Encoder/Decoder Equipment • Radar Guidance Systems • Instrumentation • Navigational Equipment • Deep Space Applications • Military Aircraft • Commercial Aircraft	
D*J Rectangular subminiature filter connectors intermateable with standard D subminiature and MIL-24308 types. Optimum RFI/EMI attenuation provided. **FDJ CATALOG**	**CONTACTS** Contact/Wire Size 20 Coax. contacts available SOLDER TERMINATION Consult factory for availability of crimp filter contacts		
PVJ  Bayonet Coupling Miniature circular filter connectors provide optimum attenuation of RFI/EMI. PVJ equivalents to MIL-C-26482 and MIL-C-83723 types. Also available in hermetic. **FPVJ CATALOG**	**CONTACTS** Contact/Wire Size 20 16 SOLDER TERMINATION Consult factory for availability of crimp filter contacts		
KJJ/KJJL  Bayonet Coupling KJJ (low profile)/KJJL (scoop proof) miniature circular filter connectors combine functions of standard connector and a feed-thru filter into one complete package. Meet applicable portions of MIL-C-38999 Series I, II and III. Provides optimum RFI/EMI attenuation. Also available in hermetic. **FKJJ CATALOG**	**CONTACTS** Contact/Wire Size 22D 20 16 SOLDER TERMINATION Consult factory for availability of cirmp filter contacts		

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
TKJ  Threaded Coupling A transverse monolith filter design incorporated into the KJJ (M38999) connector family. **TKJ CATALOG**	**CONTACTS** Contact/Wire Size 22D 22M 22 20 16 12	• Missiles • Military Communications • Military Weapons System • Radar Ground Control Equipment	

EMI/RFI PRODUCTS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
SHIELDED D subminiature  Available in kits or individual connectors to suit your EMI/RFI equipment requirements. Assures equipment compliance with FCC Docket 20780.	**CONTACTS** Contact/Wire Size 20 SOLDER OR CRIMP TERMINATION	• Computers • Electronic Games • Telecommunications • Medical Electronics • Computer Peripherals • Black Box • Business Machines • Compact Packaging Requirements	
TRANSVERSE MONOLITH D subminiature  Significantly reduces EMI/RFI emissions, assuring equipment compliance with FCC Docket 20780. **FCC CATALOG**	20 SOLDER POT, STRAIGHT AND RIGHT ANGLE PC, WIRE WRAPPABLE		

☐ Environmental version only ■ Environmental versions available, consult factory

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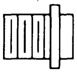
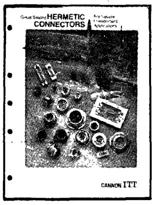
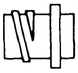
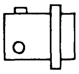
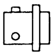
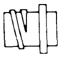
HERMETIC CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
GS – standard circular MIL-C-5015  Threaded Coupling TBFH — through bulkhead fitting BFH — bulkhead fitting GS — glass seated	**1-54 CONTACTS** Contact/Wire Size 16 4 12 0 8 EYELET OR SOLDER POT TERMINATION	● Medical Equipment ● Relays ● Tachometers ● Directional Finders ● Aircraft Instrumentation ● Spacecraft/Satellite Systems ● Fuel Tanks ● Sensors ● Nuclear Instrumentation ● Transmitters ● TV Cameras ● Aircraft Ground Support Equipment ● Rapid Transit ● Recreational Vehicles ● Automotive Test Equipment ● Shipboard Instrumentation ● Communication Systems ● Submersible Vehicles ● Electronic Countermeasures ● Glove Boxes ● Construction and Oil Field Equipment ● Automotive Transmissions ● Mining Equipment	
***KH — standard circular, lightweight general purpose, quick disconnect**  Quick Coupling KH — Acme threaded coupling RKH — Reverse type coupling nut	**2-57 CONTACTS** Contact/Wire Size 20 10 16 6 14 EYELET OR SOLDER POT TERMINATION		
KPT/PVA — miniature circular MIL-C-26482 (Series I and Series II)  Bayonet Coupling Connector for broad-base commercial, military, and industrial applications ranging from general purpose to space environments.	**2-61 CONTACTS** Contact/Wire Size 20 16 12 EYELET OR SOLDER POT TERMINATION		
KJLY/KJY — miniature circular MIL-C-38999 (Series I and Series II)  Bayonet Coupling Lightweight, scoop-proof/low-profile, environment-resistant, engineered for high density circuitry applications.	**3-128 CONTACTS** Contact/Wire Size 22 20 16 SOLDER OR CRIMP TERMINATION		
MC/KH — subminiature circular, general purpose  Acme Threads Quick disconnect with Acme threads used for instrumental, machine tools, automotive, recreational vehicles and many military guidance and instrument applications.	**3-50 CONTACTS** Contact/Wire Size 20 16 12 SOLDER TERMINATION		
HYDROSPACE connectors — designed to withstand stringent environments encountered by submarines and other undersea vehicles MIL-C-24217 — hermetic seal capability of withstanding pressures up to 10,000 psi. MIL-C-22249 — features receptacles with feed through pin-pin contacts mated to low pressure (internal) plug and high pressure (hydrostatic) plug. MIL-C-22539 — similar to MIL-C-24217 connectors, accommodates different contact arrangements.	**3-208 CONTACTS** Contact/Wire Size 20 8 16 4 12 0 SOLDER, SET SCREW CRIMP TERMINATION		
D Subminiature for general military/aerospace application, qualified to MIL-C-24308 D*H — standard D subminiature D*TBH — through bulkhead **HCC CATALOG**	**9-50 CONTACTS** Contact/Wire Size 20 EYELET OR SOLDER POT TERMINATION (D*H) PIN-PIN (D*TBH)		

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors Threaded Coupling HRM +315° (+600°F), nuclear radiation-resistant miniature circular connector **HEC CATALOG**	**1-73 CONTACTS** Contact/Wire Size 16 4 12 0 8 CRIMP OR WELD TERMINATIONS	● Temperature Sensing Detection Devices ● Radiation- and Temperature-Resistant Environmental Applications	

☐ Environmental version only ■ Environmental versions available, consult factory

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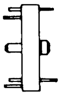
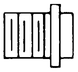
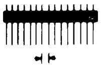
MICROMINIATURE CONNECTORS

THE MICRO CONTACT SERIES

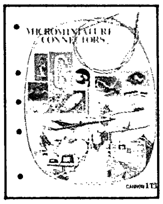
3 amp contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
RACK/PANEL, connectors **Micro-D connectors** **plastic shells** .050″ Centers MD — clip mounting, diallyl phthalate insulator MDA — clip mounting, polycarbonate insulator MDB — Screw mounting, diallyl phthalate insulator MDC — screw mounting, polycarbonate insulator MDN — clip mounting, nylon insulator MDNB — screw mounting, nylon insulator MDV — clip mounting, polyester insulator MDVB — screw mounting, polyester insulator **metal shells** MDM — screw mounting, aluminum die cast shell ■ **MMC CATALOG — Section I**	**9-100 CONTACTS** 3 Amps SOLID OR STRANDED LEADS SOLDER TERMINATION Coaxial contact layouts available.	• Integrated Airborne Interconnection Systems • Mobile Military Radio • Military Aircraft • Commercial Aircraft • Analog/Digital Electronics • Navigational Systems • ECM Ground Support • Weapons/Guidance Systems Instrumentation • Flight Simulators • Entertainment Systems • Security Systems • Computer Mainframes • Computer Peripherals • Geophysical/Seismic Survey Equipment • Medical Instrumentation • Satellite Telemetry	
RECTANGULAR CONNECTORS **Center jack screw**  MJS — micro contact, interconnect pc boards, pc boards-to-harness, in-line wire interconnects **MMC CATALOG — Section I**	**10-66 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		
CIRCULAR CONNECTORS Meet applicable performance requirements of MIL-C-38999, threaded or push/pull (quick connect/disconnect) coupling  MIK — thermoplastic shell/insulator, threaded coupling, 7-55 contacts MIKM — metal shell, thermoplastic insulator, threaded coupling, 7-55-85 contacts MIKQ — metal shell, thermoplastic insulator, push/pull (quick disconnect) coupling, 7, 19, 37 contacts ■ **MMC CATALOG — Section I**	**7-85 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		
STRIP CONNECTORS — 50-MIL strip For edge mounting on PC boards and encapsulation in modules.  .050″ or .100″ Centers MTB — diallyl phthalate (up to 81 contacts) MTV — polyester insulation, up to 120 contacts (special configurations are available; consult factory) **MMC CATALOG — Section I**	**UP TO 120 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		

☐ Environmental version only ■ Environmental versions available, consult factory

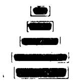
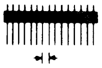
THE MICRO CONTACT SERIES (Continued)

3 amp contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PRINTED CIRCUIT BOARD connectors MDMPC —metal shell, high reliability, board-to-board, board-to-cable, cable-to-cable applications MEB —metal shell, mother board, daughter board 2-piece edgeboard connector system. DUAL-ROW — plastic version of MEB available in 74 contacts on .075″ centers **MMC CATALOG — Section I**	**9-100 CONTACTS** 3 Amps 90° OR STRAIGHT LEADS **128, 184 CONTACTS** 3 Amps SOLID OR STRANDED LEADS	- Flex Circuitry - Flat Cable - Industrial and Commercial Control Systems	

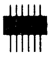
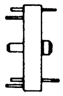
THE CENTI CONTACT SERIES

5 amps contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
2D — double density D  D subminiature shell and hardware; 19, 31, 52, 79 or 100 crimp removable contacts on .075″ centers. **MMC CATALOG — Section II** ■	**19-100 CONTACTS** 5 Amps Wire Size 22 thru 30 CRIMP TERMINATION	- Model Airplane Radio Control Equipment - Calculators - Communications and Audio Equipment - Streamer Cables	
CENTI-LOC® connectors  .075″ or .100″ Centers Low cost, commercial strip connector available in "yardage" form for up to 53 crimp snap-in contacts on .075″ centers and up to 60 contacts on .100″ centers. **MMC CATALOG — Section II**	**1-60 CONTACTS** 5 Amps Contact/Wire Size 22 thru 30 (P.C. tails avail.)		

THE NANO CONTACT SERIES

1 amp contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
NANO connectors — strip  0.025″ Centers A high density connector using twist pins on .025″ centers. Available to various configurations including center jackscrew version. **MMC CATALOG — Section III**	**1-40 CONTACTS** 1 Amp SOLID OR STRANDED LEADS	- Medical Research Implementations - Hearing Aid Harnessing - Inertial Guidance Platform Harnessing	
RECTANGULAR CONNECTORS **Center jack screw**  NJS — Nano contact, interconnect pc boards, pc boards-to-harness, in-line wire interconnects. **MMC CATALOG — Section III**	**9-22 CONTACTS** 1 Amp SOLID OR STRANDED LEADS		

☐ Environmental version only ■ Environmental versions available, consult factory

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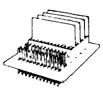
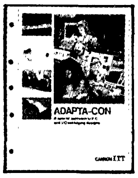
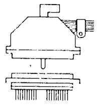
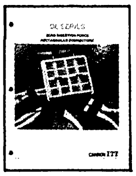
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
ADAPTA-CON CONNECTORS  Low-force receptacle interconnections for P.C. and I/O applications, custom made to any size or configuration. **ACBP CATALOG**	**UBS UP TO 130 CONTACTS** **UBC UP TO 86 CONTACTS** Contact/Wire Size 18 thru 28 SOLDER, CRIMP TERMINATION	• PC Board Interconnections • Computer Peripheral Equipment • Automatic Test Equipment	
DL CONNECTORS  Low mating force, high performance, cam-actuated spring contacts on .100″ centers. I/O, cord-to-cord, cord-to-panel applications. **DL CATALOG**	**UP TO 2496 CONTACTS** Contact/Wire Size 18 thru 30 CRIMP OR WIRE-WRAPPING TERMINATION	• Computer Main Frames • Computer Peripherals • Communications Systems • Ground Support Systems • Guidance/Control Systems	

ITT Cannon offers a broad range of edgecard (printed circuit) connectors. Available are modular printed circuit connectors accommodating from 2 to 200 contacts in gold, silver or tin plating. Contact spacing ranges from .100 to .200 inches. Commercial, military specification and DIN types are also available in a variety of mounting styles. The following generally describes several of ITT Cannon's direct and indirect discrete and backpanel types. Condensed technical data is provided in a selector chart below.

DESCRIPTION | **APPLICATIONS** | **CATALOG**

PC CONNECTORS DIRECT (ONE PIECE)

Series	Number of Contacts	Contact Arrangement	Current Rating	Termination Styles
G03	5 to 89 10 to 178	Single read-out Dual read-out	3 A max.	Eyelet, Solder Tails, Wrap Posts
G05	2 to 100 4 to 200	Single read-out Dual read-out	4.5 A max.	Eyelet, Solder Tails, Wrap Posts
G08 (unshrouded)	8-70 (even increments, double row) 2-35 (single row)	Dual read-out	3 A max.	Solder Tails, Wrap Posts

PC CONNECTORS INDIRECT (TWO PIECE)

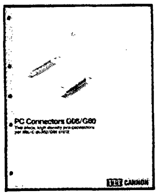
				Termination Styles	
Series	**Number of Contacts**	**Contact Arrangement**	**Current Rating**	**Male Connector**	**Female Connector**
G06 (DIN)	32, 64, 96	Two rows Three rows	2 A max.	Solder Tails, Straight and 90°	Solder Tails, Wrap Posts
G60 (Reverse DIN)	64, 96	Two rows Three rows	2 A max.	Solder Tails, Wrap Posts	Solder Tails, Straight and 90°
G06 (IDC)	64	Two rows Three rows	3 A max.	—	IDC Termination
G612* Compliant Pin	96	Three rows	2 A max.	Press-fit Wrap Posts	Solder Tails 90°
G60* Compliant Pin Press-fit	96	Three rows	2 A max.	Press-fit Wrap Posts	—

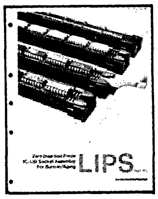
*G612 compliant pins are ordered separately.
G60 connectors are ordered with compliant pins installed.

IC SOCKETS

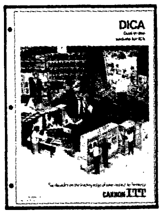
				Termination Styles	
Series	**Number of Contacts**	**Contact Arrangement**	**Current Rating**	**Male Connector**	**Female Connector**
DICA	14, 16, 18, 22, 24, 28, 40, 42	Two rows	1 A max.	—	Solder Tails

- Missile Instrumentation Equipment
- Radar Early Warning Systems
- Dual Readout PC Applications
- Videotape Recorders
- Television Equipment
- Stereo Equipment
- Air Conditioners
- Computer/Micro Computer Equipment
- Automobile Dashboards
- Office Equipment
- Medical Equipment
- Tape Recorders
- Commercial/Industrial Electronic Equipment
- Computer Periphery
- Measuring Instruments
- Communications Equipment
- High Density PC Board Applications





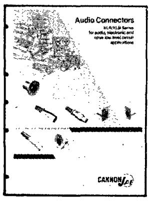
DICF Series

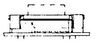
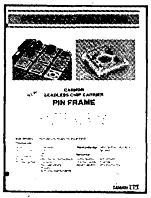


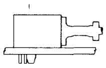
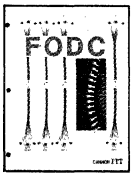
☐ Environmental version only ■ Environmental versions available, consult factory

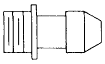
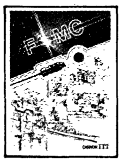
ITT CANNON

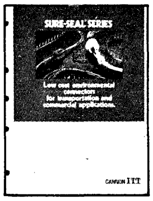
SPECIAL APPLICATIONS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
AUDIO/ELECTRONIC CONNECTORS Used on microphones, audio/video, amplifiers, test instrumentation, computers and other low level circuit applications. AUD CATALOG	**2-8 CONTACTS** Contact/Wire Size 10 14 16 Coax. contacts available SOLDER OR CRIMP TERMINATION	• Microphones • Video Tape Recorders • Amplifiers • Medical Electronics • Computers • Audio/Video Systems	

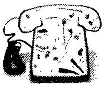
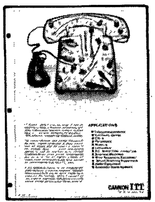
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
LEADLESS CHIP CARRIER PACKAGING Chip carrier sockets and pin frames designed to accept leadless chip carriers (JEDEC A, B and C) with PC boards. Pin patterns of .050″ × .100″ and .100″ × .100″.  PB83-9/PB83-10	**68-196 CONTACTS** SOLDER (FLOW, DIP) WAVE	• Microprocessors • Digital Telephone Switching Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
FIBER OPTIC CONNECTORS FODC – Low cost fiber optic device connectors for PCB fiber optic applications.  FODC CATALOG	**Single Channel** (simplex) CRIMP TERMINATION	• Office Equipment • Computers • Local area network	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
FIBER OPTIC CONNECTORS Multi-channel tactical communications connectors for fiber optics.  FOMC CATALOG	2, 4, 8 Channels Epoxy, grind and polish of fiber Cable and cable strength member is crimp	• Tactical Radio C3 Systems • Ground Support Equipment • Avionics and Instrumentation • Flight Simulators • Communications	

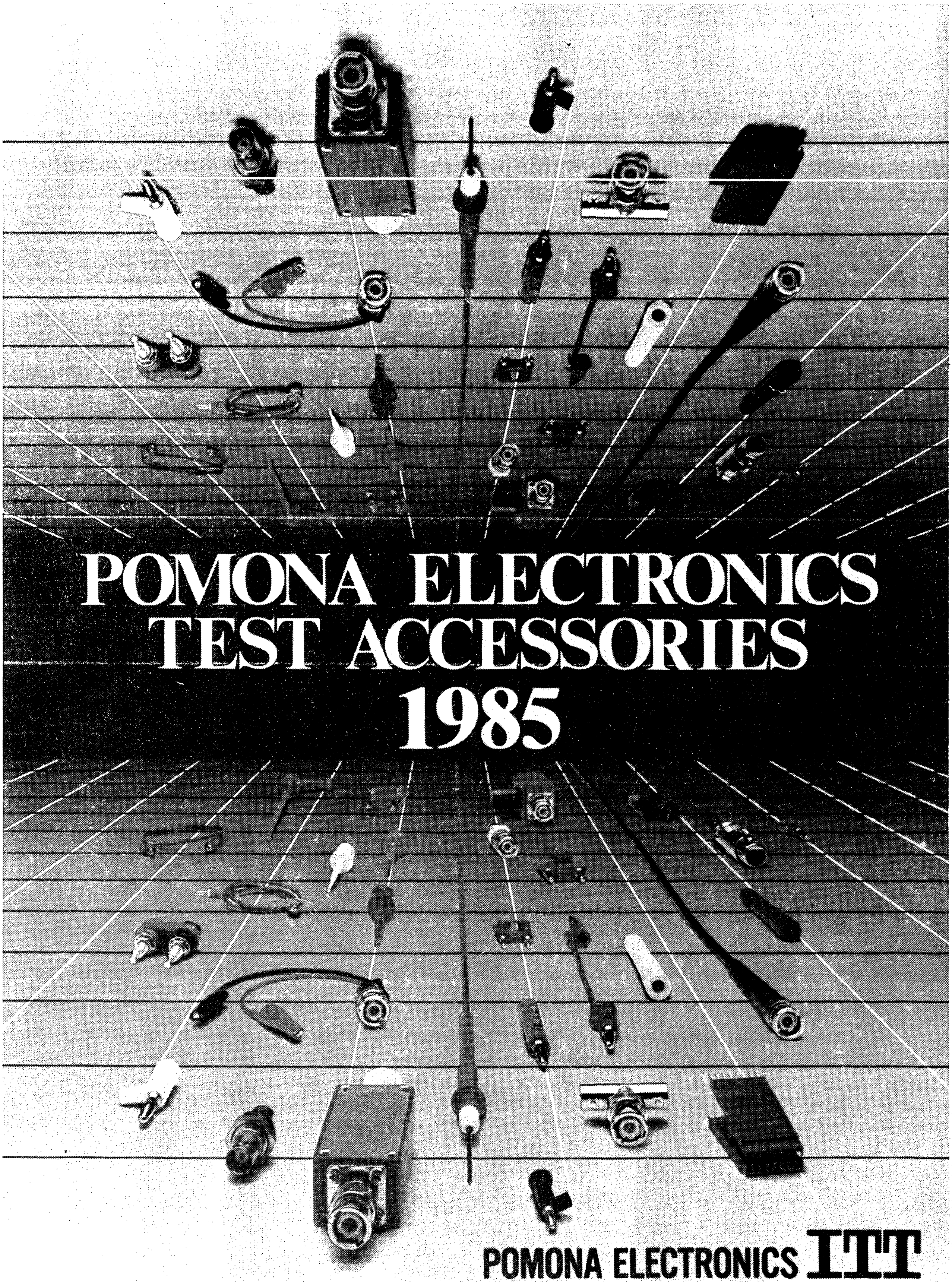
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
SURE SEAL® CONNECTORS High performance, low cost environmentally sealed connectors with rugged multiple moisture seals. Meets automotive/industrial standards including vibration, shock, temp. cycling, salt water spray, immersion, etc. ☐ SS CATALOG	**1-10 CONTACTS** Contact/Wire Size #14 AWG #16 AWG #18 AWG CRIMP TERMINATION WITH OR WITHOUT INSULATION SUPPORT	• Missle Disconnect • Trucks/Off-Road Vehicles • Farm Machinery • Process Control Systems • Automotive/Mobile Units • Household Appliances • Solar Energy • Telephone Communication Lines	 SURE-SEAL SERIES Low cost environmental connectors for transportation and commercial applications CANNON ITT

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
VE CONNECTORS — heavy duty automotive/transportation General purpose connectors for industrial marketplace; quick harness termination; environmentally sealed. Super Caesar™ contact assembly retention. ☐ VE CATALOG	**12-37 CONTACTS** Contact/Wire Size 16 12 8 4 Power and Signal Contacts CRIMP TERMINATION	• Digital Electronic Systems • Off-Road Vehicles • Engines • Generators • Transportation Electronics • Farm Machines • CAB, Signal and Chassis Power Systems	The first connector made for the real world of transportation VE SERIES CANNON ITT

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
ZTC MODULAR TELEPHONE CONNECTORS  Complete range of modular telephone connectors including telephone cords and hardware, modular jacks, multi-line equipment and cable harnessing. TAC CATALOG	SPADE LUGS, PIN OR SOLDER DIP TERMINATION	• Telecommunications • Electronic Games • CRT's • Computers • Optical Scanning Equipment • Audio Equipment • PC Board Interconnections	

☐ Environmental version only. ■ Environmental version available, consult factory.

There are many other special products manufactured by ITT Cannon. For additional information please contact ITT Cannon at 666 E. Dyer Rd., P.O. Box 929, Santa Ana, CA 92702-0929, (714) 557-4700. Or, call our toll-free number **(800) 845-7000** for the nearest Cannon Sales Office.



POMONA ELECTRONICS
TEST ACCESSORIES
1985

POMONA ELECTRONICS ITT

ITT POMONA ELECTRONICS

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All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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All dimensions are shown in millimeters (inches)

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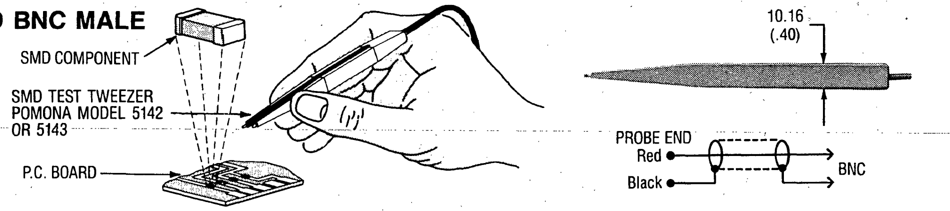
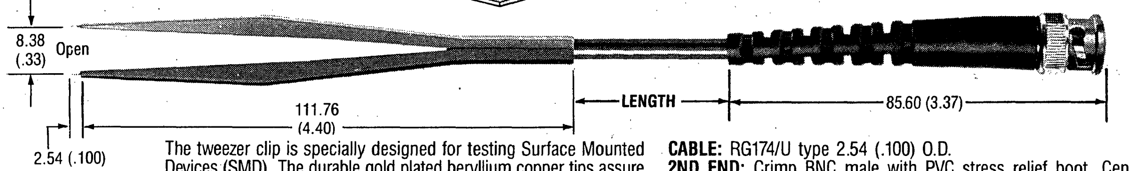
ITT POMONA ELECTRONICS

FEATURED NEW PRODUCTS

NEW

SMD TEST TWEEZER TO BNC MALE





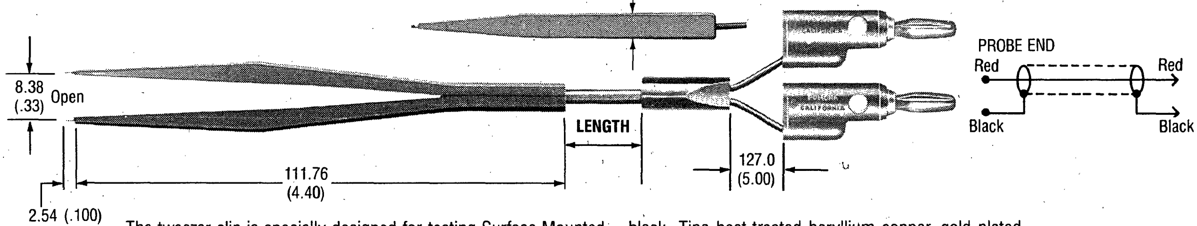
Model No.
5142-K-48

The tweezer clip is specially designed for testing Surface Mounted Devices (SMD). The durable gold plated beryllium copper tips assure a positive electrical connection. The tweezer gives rapid and convenient testing.
1ST END: SMD Test Tweezer: Glass filled nylon, Color: One red, one black. Tips heat-treated beryllium copper, gold plated.
CABLE: RG174/U type 2.54 (.100) O.D.
2ND END: Crimp BNC male with PVC stress relief boot. Center conductor gold plated brass.† Teflon insulated. Shell, tarnish resistant plating.
RATING: 500 VRMS, 3 Amps, +50°C. (+122°F.) Max.

NET 13.25

NEW

SMD TEST TWEEZER TO SINGLE STACKING BANANA PLUGS.



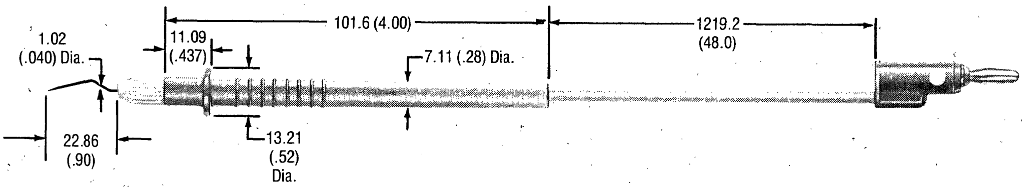
Model No.
5143-K-48

The tweezer clip is specially designed for testing Surface Mounted Devices (SMD). The durable gold plated beryllium copper tips assure a positive electrical connection. The tweezer gives rapid and convenient testing.
1ST END: SMD Test Tweezer: Glass filled nylon, Color: One red, one black. Tips heat-treated beryllium copper, gold plated.
CABLE: RG174/U type 2.54 (.100) O.D.
2ND END: 2 single stacking banana plugs; one red, one black.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.

NET 13.25

NEW

SMD MICROTIP TEST PROBE



Model No.	Color
5144-48-0	Black
5144-48-2	Red

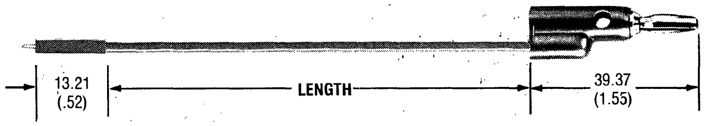
The microtip is specially designed to probe SMD contacts. It features a stainless steel needle point tip that is flexible to help prevent damage to the SMD lands. The microtip is curved to aid in probing of hard to reach areas.
1ST END: SMD Microtip Test Probe. Molded nylon with finger guard and replaceable stainless steel microtip. (See model 5133, page 37).
WIRE: 20 AWG, strand. 41 x 36 T.C. extra flexible polyvinyl insulation 2.21 (.087) O.D.
2ND END: Banana Plug; spring, one piece heat treated beryllium copper, nickel plated. Polypropylene insulated.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.

NET 6.75

NEW

TEST PROD FOR P.C. BOARD PLATED THRU HOLES

Model No.	Length	P.C. Hole Dia.	Net
5190-12-	304.8 (12.0)	.71 (.028) to .89 (.035)	3.50
5190-24-	609.6 (24.0)		3.50
5190-36-	914.4 (36.0)		3.50
5190-48-	1219.2 (48.0)		3.70
5190-60-	1524.0 (60.0)		3.90
5191-12-	304.8 (12.0)	.91 (.036) to 1.09 (.043)	3.50
5191-24-	609.6 (24.0)		3.50
5191-36-	914.4 (36.0)		3.50
5191-48-	1219.2 (48.0)		3.70
5191-60-	1524.0 (60.0)		3.90



This test prod to banana plug was designed for testing plated through holes in P.C. boards. A pressure fit ensures good electrical connection and hands free testing.
1ST END: Test Prod, contact, steel, gold plated. ABS insulated.
WIRE: 22 AWG, 19 x 34 T.C., PVC insulation, 1.63 (.064) O.D.
2ND END: Banana Plug; spring, one piece heat treated beryllium copper, nickel plated; Polypropylene insulated.
RATING: 1000 WVDC, 1 Amp, +50°C. (+122°F.) Max.

Color Code
0-Black
2-Red

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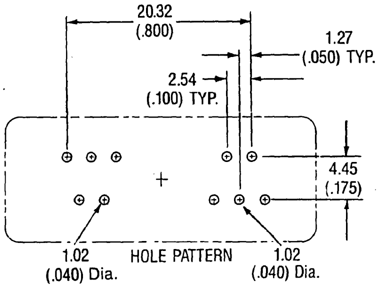
†Teflon is a trademark of DuPont.

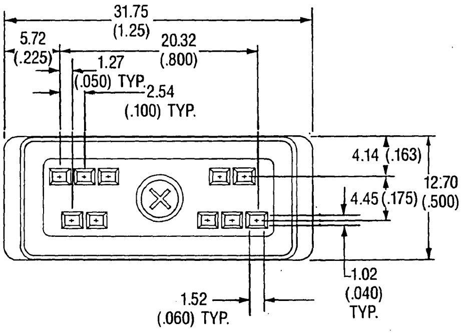
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

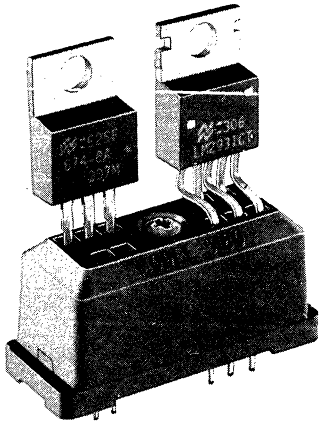
FEATURED NEW PRODUCTS

TRANSISTOR "BURN-IN" SOCKET

This burn-in socket was specifically designed to test transistors and regulators where high currents and temperatures are encountered. The flat bladed contacts make it ideal for testing TO-92 or TO-220 configurations, both straight or stagger lead. The two piece design allows easy replacement of the contacts.
MATERIAL: Contacts, beryllium copper.
FINISH: Selective gold plated 30 microinch in contact area, remainder gold flashed.
INSULATION: Polyphenylene sulfide, UL 94V-0
RATING: 100 WVDC, 10 Amps, +150°C. (+302°F.) Max.


20.32
(.800)
1.27
(.050) TYP.
2.54
(.100) TYP.
4.45
(.175)
1.02
(.040) Dia.
HOLE PATTERN
1.02
(.040) Dia.


31.75
(1.25)
5.72
(.225)
20.32
(.800)
1.27
(.050) TYP.
2.54
(.100) TYP.
4.14 (.163)
12.70
(.500)
4.45 (.175)
1.02
(.040)
TYP.
1.52
(.060) TYP.



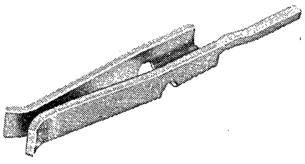
NEW

Model No.
5180

NET 3.50

REPLACEMENT CONTACTS FOR MODEL 5180

MATERIAL: Beryllium copper
FINISH: Selective gold plated 30 microinch in contact area, remainder gold flashed.
RATING: 10 Amps, +150°C. (+302°F.) Max.



NEW

Model No.
5239

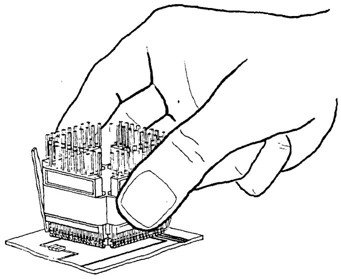
(50 Per Pkg.)

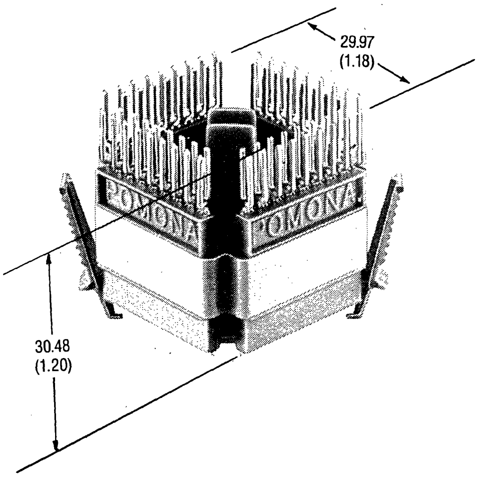
NET 8.95 PKG

68 PIN QUAD CLIP™ PCC TEST CLIP*

This test adapter is designed for 68 pin Plastic Leaded Chip Carriers (PCC or PLCC) with "J" leads. Latches on diagonal sides allow the adapter to be positively held in place providing hands free testing. All 68 pins are accessed with .635 mm (.025) square pins.
UPPER: .635 mm (.025) phosphor bronze pins, gold plated.
INSULATION: Nylon, color gray.
LOWER: Contacts heat treated beryllium copper, gold plated.
RATING: +80°C. (+176°F.) Max.

*Patent pending.




29.97
(1.18)
POMONA
POMONA
30.48
(1.20)

NEW

Model No.
5060

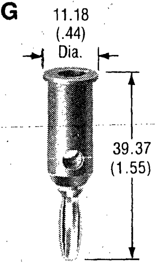
NET 49.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD BANANA PLUGS/JACKS

SOLDERLESS STACKUP BANANA PLUG



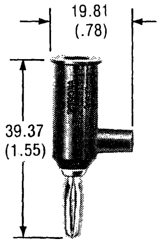
Wire firmly held in place with internal setscrew, eliminating soldering. Assembly of test leads simplified.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: ABS.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color	Model No.	Color
1325-0	Black	1325-5	Green
1325-1	Brown	1325-6	Blue
1325-2	Red	1325-7	Violet
1325-3	Orange	1325-8	Gray
1325-4	Yellow	1325-9	White

(Pkg. Ten Per Color)

NET 1.05 EA.

SOLDERLESS STACKUP STANDARD BANANA PLUG WITH SAFETY COLLAR



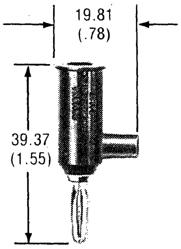
Features integral safety collar that insulates exposed wire leads. Wire firmly held in place with internal setscrew, eliminates soldering, simplifies assembly of test leads.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: ABS.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color	Model No.	Color
1825-0	Black	1825-5	Green
1825-1	Brown	1825-6	Blue
1825-2	Red	1825-7	Violet
1825-3	Orange	1825-8	Gray
1825-4	Yellow	1825-9	White

(Pkg. Ten Per Color)

NET 1.05 EA.

GOLD PLATED SOLDERLESS STACKUP BANANA PLUG WITH SAFETY COLLAR



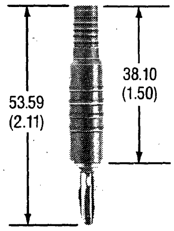
Similar to Model 1825, except banana plug is gold plated.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, gold plated.
INSULATION: ABS.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits standard 4.22 mm (.166) dia. banana jack.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color
4897-0	Black
4897-2	Red

NET 1.95

DO-IT-YOURSELF IN-LINE BANANA PLUG WITH FLEXIBLE BOOT

NEW



This in-line banana plug is ideal for making patch cords and field repairs. A snap-on two piece design allows the wire to be crimped or soldered to the banana plug.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jack.
FINISH: Nickle plated
INSULATION: Flexible PVC.

RATING:	5169	5170
Voltage	3000 VDC	5000 VDC
Current	7 amps	12 amps
Temp.	+50°C. (+122°F.) Max.	

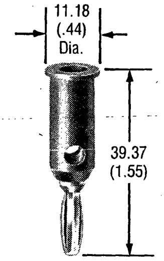
*Max wire dia. 3.94 (.155)

Model No.	Color	accept wires AWG*
5169-0 5169-2	Black Red	22, 20, 18
5170-0 5170-2	Black Red	16, 14

NET 1.40

HIGH TEMPERATURE SOLDERLESS STACK UP BANANA PLUG

NEW



Similar to Model 1325, except insulation is high temperature.
UPPER: Banana jack 4.22 mm (.166) dia.; brass, nickel plated.
INSULATION: Polyphenylene sulfide, UL 94V-0.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps +220°C. (+428°F.) Max.

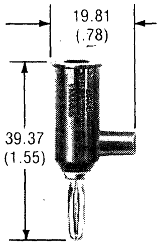
Model No.	Color
5230-0	Black
5230-6	Blue

(Pkg. Ten Per Color)

NET 1.25 EA.

HIGH TEMPERATURE STACKUP SOLDERLESS BANANA PLUG WITH SAFETY COLLAR

NEW



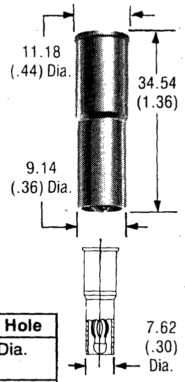
Similar to Model 1825, except insulation is high temperature.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
INSULATION: Polyphenylene Sulfide UL 94V-0
LOWER: Banana plug. Spring, one piece heat-treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jack.
RATING: 5000 WVDC, 15 Amps, +220°C. (+428°F.) Max.

Model No.	Color
4899-0	Black
4899-6	Blue

(Pkg. Ten Per Color)

NET 1.25 EA.

DO-IT-YOURSELF IN-LINE SHEATHED BANANA PLUG



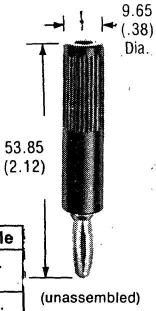
(unassembled)

This sheathed in-line banana plug provides protection from accidental shorting when dropped. A plastic tip on the banana plug offers further protection. A threaded, two piece design allows wire to be crimped or soldered to banana plug. This plug fits models 4912, 4921, 4934 & 4987.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
INSULATION: Nylon.
RATING: 5000 WVDC, 15 Amps +80°C. (+176°F.) Max.

Model No.	Color	accept wires AWG	Wire Access Hole
4933-0 4933-2	Black Red	22, 20, 18	4.04 (.159) Dia.
4986-0 4986-2	Black Red	16, 14	5.08 (.200) Dia.

NET 2.60

DO-IT-YOURSELF IN-LINE BANANA PLUG



This In-Line Banana Plug is ideal for on-the-job repairs or patch cords. Plug can either be soldered or crimped.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
INSULATION: Glass-filled nylon.
RATING: 5000 WVDC, 15 Amps, +102°C. (+216°F.) Max.

Model No.	Color	accept wires AWG	Wire Access Hole
4433-0 4433-2	Black Red	22, 20, 18	4.04 (.159) Dia.
4498-0 4498-2	Black Red	16, 14	5.08 (.200) Dia.

(unassembled)

NET 2.50

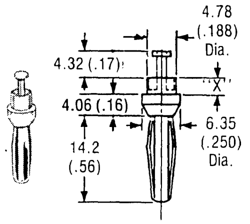
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

RIVET TYPE BANANA PLUG WITH TURRET

Excellent for riveting to panels or boards. Solder turrent for rapid attachment of wires.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
RATING: 5000 WVDC, 15 Amps.

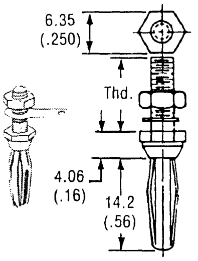


Model No.	"X" Dim.	Panel
3260	2.67 (.105)	1.57 (.062)
3261	3.43 (.135)	2.37 (.093)

(Ten Per Pkg.) **NET .95 EA.**

BANANA PLUG WITH THREADED STUD

Threaded stud for rapid mounting. Furnished with hex nut and tin plated solder lug.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
RATING: 5000 WVDC, 15 Amps.

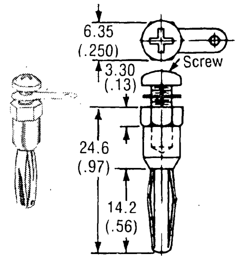


Model No.	Thread	Net
3263	6-32x12.7 (.50)	.95 EA.
3264	8-32x12.7 (.50)	.95 EA.
4511	6-32x15.9 (.63)	.95 EA.
4512	8-32x15.9 (.63)	1.10 EA.

(Ten Per Pkg. unassembled)

BANANA PLUG WITH SCREW

Mounts to various size panels. Furnished with screw and tin plated solder lug.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
RATING: 5000 WVDC, 15 Amps.

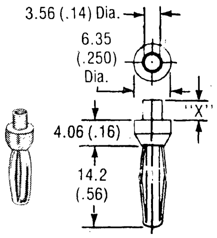


Model No.	Screw
3265	6-32x6.4 (.25)
3266	8-32x6.4 (.25)

(Ten Per Pkg., unassembled) **NET 1.25 EA.**

RIVET TYPE BANANA PLUG

Excellent for riveting to panels or boards.
MATERIAL: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
RATING: 5000 WVDC, 15 Amps.



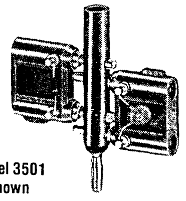
Model No.	"X" Dim.	Panel	Net
3257	2.39 (.094)	1.57 (.062)	.95 EA.
3258	3.18 (.125)	2.37 (.093)	.85 EA.
3259	3.96 (.156)	3.18 (.125)	1.30 EA.

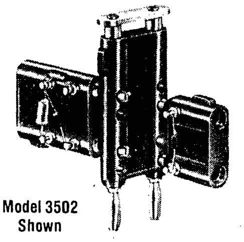
(Ten Per Pkg.)

SERIES-PARALLEL ISOLATION PLUGS

These plugs enable you to build unlimited combinations of series-parallel networks e.g., voltage dividers, attenuator, etc.

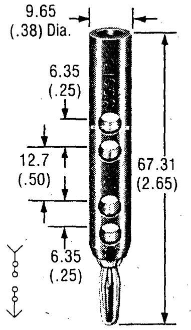
Upper cross holes spaced 19.05 mm (.750) on centers from lower cross holes to allow connection of double banana plugs. Double banana plugs may be plugged in from both sides.


Model 3501
Shown


Model 3502
Shown

SERIES-PARALLEL ISOLATION PLUG

Top banana jack and upper pair of cross holes isolated from lower pair of cross holes and banana plug. 4 cross holes 4.22 mm (.166) dia.
UPPER: Banana jack 4.22 mm (.166) dia. brass, nickel plated.
INSULATION: ABS, Color red.
LOWER: Banana plug. Fits standard 4.22 mm (.166) dia. banana jack.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

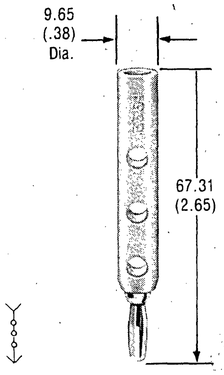


Model No.
3501

NET 5.95

QUAD STACKING PLUG

Features four parallel connectors to the same point. 3 cross holes, 4.22 mm (.166) dia. provide side stackup connection.
UPPER: Banana jack, 4.22 mm (.166) dia. brass, nickel plated.
INSULATION: ABS
LOWER: Banana plug. Fits standard 4.22 mm (.166) dia. banana jack.
RATING: 5000 WVDC, 15 Amps. +50°C. (+122°F.) Max.

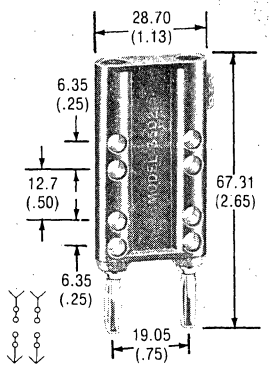


Model No.	Color
3364-0	Black
3364-2	Red

NET 5.95

DUAL SERIES-PARALLEL ISOLATION PLUG

Top banana jacks and upper pair of cross holes isolated from lower pair of cross holes and banana plugs. 8 cross holes 4.22 mm (.166) dia.
UPPER: Double banana jack 4.22 mm (.166) dia., on 19.05 mm (.750) centers.
INSULATION: ABS, Color red.
LOWER: Double banana plug on 19.05 mm (.750) centers. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.



Model No.
3502

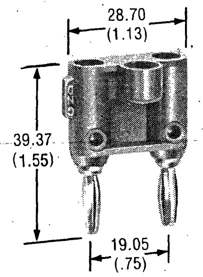
NET 9.85

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

STANDARD DOUBLE BANANA PLUG



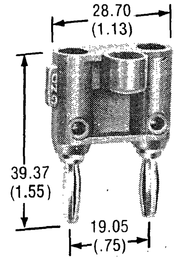
Setscrews secure leads. Simplifies cable construction or component mounting.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: ABS
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color	Model No.	Color
MDP-0	Black	MDP-5	Green
MDP-1	Brown	MDP-6	Blue
MDP-2	Red	MDP-7	Violet
MDP-3	Orange	MDP-8	Gray
MDP-4	Yellow	MDP-9	White

NET 1.85

NEW

HIGH TEMPERATURE DOUBLE BANANA PLUG

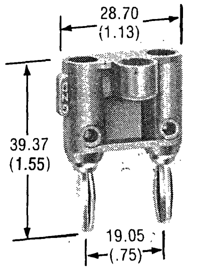


Similar to Model MDP, except insulation is high temperature.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass nickel plated.
INSULATION: Polyphenylene sulfide, UL 94V-0.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +220°C. (+428°F.) Max.

Model No.	Color
4898-0	Black
4898-6	Blue

NET 1.95

GOLD PLATED DOUBLE BANANA PLUG

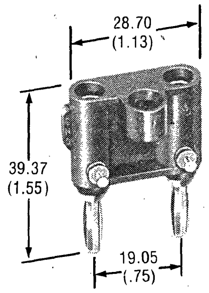


Similar to Model MDP, except banana plugs are gold plated.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, gold plated.
INSULATION: ABS.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper. Gold plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color
4892-0	Black
4892-2	Red

NET 3.25

DOUBLE BANANA PLUG WITH SOLDER TURRET TERMINALS

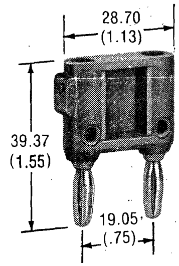


Similar to Model MDP, except has bright tin plated solder turret terminals for permanent noise-free connections of cables and components.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: Polypropylene, black.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+131°F.) Max.

Model No.
MDP-ST

NET 2.35

COMPONENT MOUNTING

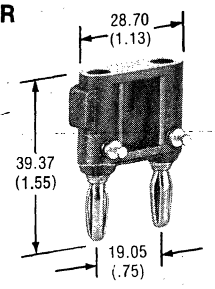


Setscrews secure leads. Features recess for mounting small components.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: ABS.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color
1330-0	Black
1330-2	Red

NET 1.95

COMPONENT PLUG WITH SOLDER TURRET TERMINALS

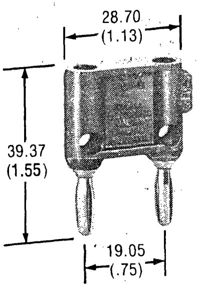


Similar to Model 1330, except has bright tin plated solder turret terminals.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: Polypropylene.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +55°C. (+131°F.) Max.

Model No.	Color
1330-ST-0	Black
1330-ST-2	Red

NET 2.35

INSULATED SHORTING BAR

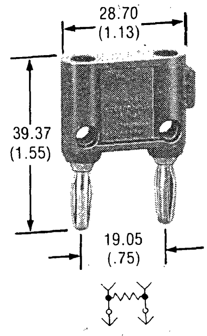


Banana plugs internally shorted with #14 AWG wire. Banana jacks provide top stackup. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: ABS.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color
MDP-S-0	Black
MDP-S-2	Red
MDP-S-9	White

NET 2.95

MOLDED PRECISION RESISTOR

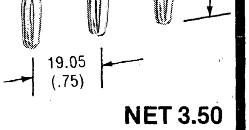


Ideal where rapid interchange of resistance values is required. Deposited carbon 1% resistor, ½ watt, molded internally. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Resistance value stamped on top of plug.
UPPER: Double banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: ABS, red.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: ½ Watt Max, +50°C. (+122°F.) Max.

Model No.	* Specify Resistance in Ohms				
MDP-R-*	50	150	900	10K	100K
	75	200	1K	20K	1 Meg.
	130	600	5K	50K	10 Meg.

NET 5.95

TRIPLE BANANA PLUG



Setscrews secure leads. Ideal for balanced line 2 conductor shielded cable assemblies.
UPPER: Triple banana jack, 4.22 mm (.166) dia., brass, nickel plated.
INSULATION: ABS.
LOWER: Triple banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 2500 WVDC, 15 Amps, +50°C. (+122°F.) Max.

Model No.	Color
2970-0	Black
2970-2	Red

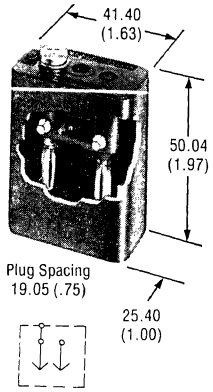
NET 3.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

SHIELDED DOUBLE BANANA PLUG WITH IN-LINE CABLE ENTRY

Shielded double banana plug with GND molded in shell. Bright tin plated solder turret terminals for cable connections. 5.56 mm (.219) dia. cable opening.
MATERIAL: Shell, die cast aluminum. Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Shell, black anodized. Banana plug, nickel plated.
INSULATION: Polypropylene, black.
RATING: 1200 WVDC, 15 Amps, +55°C. (+131°F.) Max., 2.5 pF @ 1 MHz. Noise Rejection, greater than 70 dB.

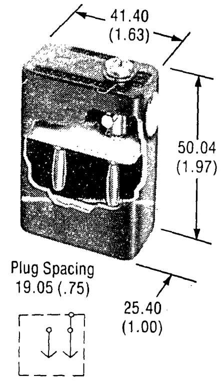


Model No.
1433

NET 9.95

SHIELDED DOUBLE BANANA PLUG WITH RIGHT ANGLE CABLE ENTRY

Shielded double banana plug with GND clearly molded in shell. Bright tin plated solder turret terminals for cable connections. Vinyl grommet (one side) and nickel plated snap button (other side) supplied. 6.35 mm (.25) dia. side entry.
MATERIAL: Shell, die cast aluminum. Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Shell, black anodized. Banana plug, nickel plated.
INSULATION: Polycarbonate base, white.
RATING: 2800 W V Peak, 15 Amps, +55°C. (+131°F.) Max. 2.0 pF @ 1 MHz. Noise Rejection, greater than 70 dB.

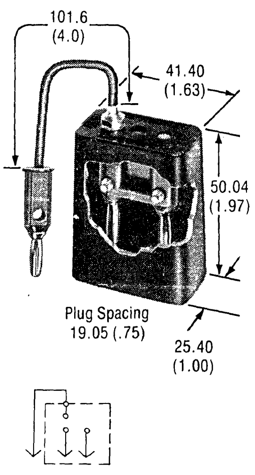


Model No.
1791

NET 12.95

BALANCED LINE SHIELDED DOUBLE BANANA PLUG

Three terminal design allows connection to shielded two conductor cable while maintaining balanced conditions. Minimizes ground loop errors in low signal level applications. Bright tin plated solder turret terminals for reliable noise-free connections.
MATERIAL: Shell, die cast aluminum. Banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jack.
FINISH: Shell, black anodized. Banana plug, nickel plated.
INSULATION: Polypropylene, black.
RATING: 1000 W V Peak, Line to Shield; 2000 W V Peak, Line to Line; 2.0 pF @ 1 MHz, Line to line; 3.0 pF @ 1 MHz, both lines to shield; Noise Rejection, greater than 70 dB. 15 Amps, +55°C. (+131°F.) Max.

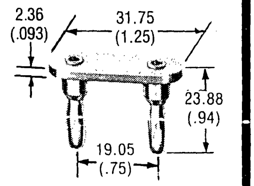


Model No.
1921

NET 18.95

DOUBLE BANANA PLUG SHORTING BAR

MATERIAL: Bar and banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
RATING: 15 Amps, +125°C. (+257°F.) Max., resistance less than 1.5 milliohms.

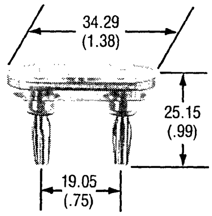


Model No.
1855

NET 2.50

ENCAPSULATED DOUBLE BANANA PLUG SHORTING BAR

Low profile, completely insulated shorting bar. Insulation has finger ridge for ease of insertion and removal.
MATERIAL: Bar and banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
FINISH: Nickel plated.
INSULATION: ABS, Clear.
RATING: 15 Amps, +50°C. (+122°F.) Max., resistance less than 1.5 milliohms.



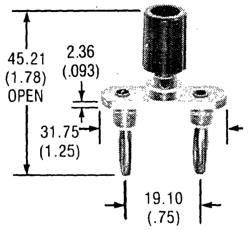
NEW

Model No.
5145

NET 3.95

DOUBLE BANANA PLUG SHORTING BAR WITH BINDING POST

Double banana plugs swaged to 2.36 mm (.093) thick bar. Features insulated binding post for ease of insertion and removal.
UPPER: Binding post, brass, nickel plated. Polycarbonate insulation.
LOWER: Bar and banana plug, brass, nickel plated. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jack.
RATING: 15 Amps, +115°C. (+239°F.) Max, resistance less than 1.5 milliohms.

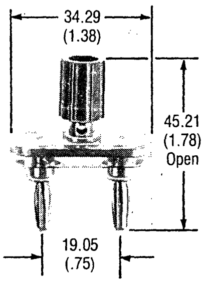


Model No.	Color
4665-0	Black
4665-2	Red

NET 5.25

ENCAPSULATED DOUBLE BANANA PLUG SHORTING BAR WITH BINDING POST

Completely insulated shorting bar. Binding post eases insertion and removal.
UPPER: Binding post, brass nickel plated. Polycarbonate insulation.
INSULATION: ABS, Clear
LOWER: Bar and banana plug body, brass, nickel plated. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 2500 WVDC, 15 Amps, +50°C. (+122°F.) Max. Resistance less than 1.5 Milliohms.



NEW

Model No.	Color
5165-0	Black
5165-2	Red

NET 6.50

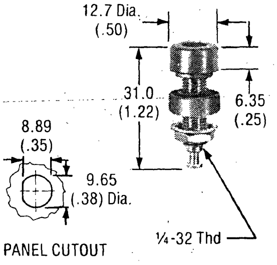
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD BANANA JACKS

BANANA JACK

Closed entry jack 4.22 mm (.166) dia. x 23.37 mm (.920) deep. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



Model No.	Color	Model No.	Color
1581-0	Black	1581-5	Green
1581-1	Brown	1581-6	Blue
1581-2	Red	1581-7	Violet
1581-3	Orange	1581-8	Gray
1581-4	Yellow	1581-9	White

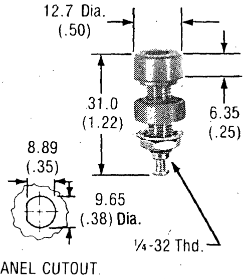
(Pkg. Ten Per Color, unassembled)

NET .75 EA.

HIGH TEMPERATURE BANANA JACK

NEW

Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep. Insulation is high temperature, suitable for environmental chambers and medical applications. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polyphenylene Sulfide, UL 94V-0.
RATING: 2500 WVDC, 15 Amps, +220°C. (+428°F.) Max.



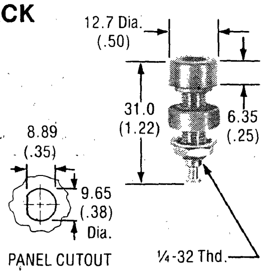
Model No.	Color
4900-0	Black
4900-6	Blue

(Ten Per Pkg. unassembled)

NET 1.05 EA.

GOLD PLATED BANANA JACK

Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut.
MATERIAL: Brass.
FINISH: Gold plated.
INSULATION: Polycarbonate
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



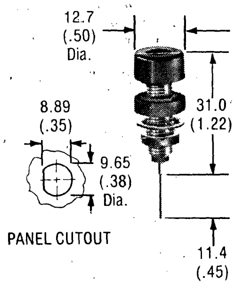
Model No.	Color	Model No.	Color
2854-0	Black	2854-5	Green
2854-1	Brown	2854-6	Blue
2854-2	Red	2854-7	Violet
2854-3	Orange	2854-8	Gray
2854-4	Yellow	2854-9	White

(Pkg. Ten Per Color, unassembled)

NET 1.10 EA

BANANA JACK WITH WRAPPED WIRE TERMINAL

Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep. Excellent for rapid connection of wires using wrapped wire tools or machines. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut.
UPPER: Banana Jack, 4.22 mm (.166) Dia.; brass, nickel plated.
INSULATION: Polycarbonate.
LOWER: 0.64 mm (.025) sq. Wrapped Wire Terminal, beryllium copper, gold plated.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



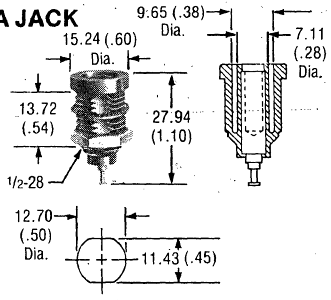
Model No.	Color	Model No.	Color
4005-0	Black	4005-5	Green
4005-1	Brown	4005-6	Blue
4005-2	Red	4005-7	Violet
4005-3	Orange	4005-8	Gray
4005-4	Yellow	4005-9	White

(unassembled)

NET 1.45

PANEL MOUNT BANANA JACK FOR SHEATHED PLUGS

This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug. Nickel plated lockwasher and nut included.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Polycarbonate.
RATING: 1200 V AC/DC Max., 15 Amps, +115°C. (+239°F.) Max.



(unassembled)

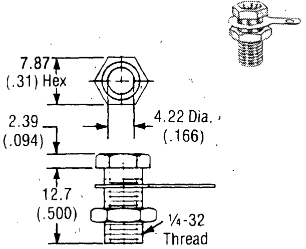
NET 1.95

Model No.
4921-*

*COLOR CODES				
0-Black	2-Red	4-Yellow	6-Blue	8-Gray
1-Brown	3-Orange	5-Green	7-Violet	9-White

UNINSULATED BANANA JACK

Threaded for rapid mounting. Used with standard banana plugs. Furnished with hex nut and solder lug.
MATERIAL: Banana jack and hex nut, brass. Solder lug, copper.
FINISH: Banana jack and hex nut, nickel plated. Solder lug, tin plated.
RATING: 15 Amps.



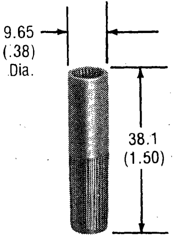
Model No.
3267

(Ten Per Pkg. unassembled)

NET .55 EA.

DO-IT-YOURSELF IN-LINE BANANA JACK

This in-line banana jack will accept all standard banana plugs including the 20.3 mm (.800) long banana plugs. A threaded, two piece design allows wire to be crimped or soldered to banana jack.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Glass-filled nylon.
RATING: 2500 WVDC, 15 Amps, +102°C. (+216°F.) Max.



(unassembled)

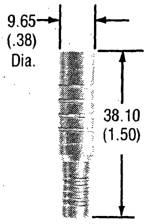
Model No.	Color	Accepts wires AWG	Wire Access Hole	Net
4237-0 4237-2	Black Red	22, 20, 18	4.04 (.159) Dia.	1.95
4499-0 4499-2	Black Red	16, 14	5.09 (.200) Dia.	2.20

DO-IT-YOURSELF IN-LINE BANANA JACK WITH FLEXIBLE BOOT

NEW

This in-line banana jack is ideal for making patch cords and field repairs. A snap-on two piece design allows the wire to be crimped or soldered to the banana jack.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Flexible PVC.

RATING:	5167	5168
Voltage	3000 WVDC	5000 WVDC
Current	7 Amps	12 Amps
Temp.	+50°C. (+122°F.) Max.	



*Max wire dia. 3.94 mm (.155)

Model No.	Color	Access wire AWG*	Net
5167-0 5167-2	Black Red	22, 20, 18	1.30
5168-0 5168-2	Black Red	16, 14	1.60

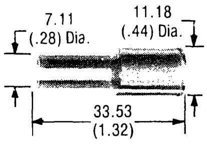
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

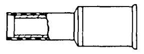
ITT POMONA ELECTRONICS

STANDARD BANANA JACKS

DO-IT-YOURSELF IN-LINE SHEATHED BANANA JACK

This sheathed in-line banana jack provides protection from accidental shorting when dropped. This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug. A threaded, two piece design allows wire to be crimped or soldered to banana jack.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Nylon.
RATING: 1200 V AC/DC, +80°C. (+176°F.) Max.





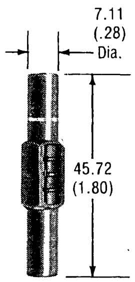
(unassembled)

Model No.	Color	Accepts wires AWG	Wire Access Hole
4934-0 4934-2	Black Red	22, 20, 18	4.04 (.159) Dia.
4987-0 4987-2	Black Red	16, 14	5.09 (.200) Dia.

NET 2.50

BANANA PLUG SPLICE FOR SHEATHED PLUGS

This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Polypropylene.
RATING: 1200 V AC/DC Max., 15 Amps, +55°C. (+131°F.) Max.

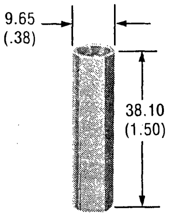


Model No.	Color
4922-0	Black
4922-2	Red

NET 1.50

SINGLE BANANA PLUG SPLICE

Provides rapid method for splicing single banana plug patch cords. Reduces the necessity of storing extra long patch cords. Molded thermoplastic body provides protective insulation. 4.22 mm (.166) dia. banana jack.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Polypropylene.
RATING: 2500 VDC, 15 Amps, +55°C. (+131°F.) Max.



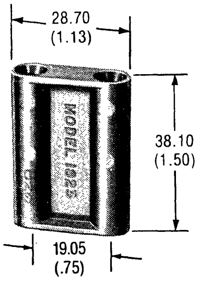
Model No.	Color
1829-0	Black
1829-2	Red

(Pkg. Ten Per Color)

NET 1.10 EA.

DOUBLE BANANA PLUG SPLICE

Provides rapid method for splicing cables. Reduces necessity of storing extra long cables. 4.22 mm (.166) dia. banana jacks.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Polypropylene.
RATING: 2500 VDC, 15 Amps, +55°C. (+131°F.) Max.

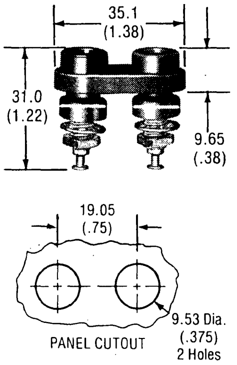


Model No.	Color
1823-0	Black
1823-2	Red

NET 1.95

DOUBLE BANANA JACK

Closed entry receptacle 4.22 mm (.166) dia. x 23.37 (.920) deep on 19.05 mm (.750) centers. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut. One black and one red jack. Choice of black or red mounting base. ¼-32 thread.
MATERIAL: Brass.
FINISH: Bright tin plated.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



Model No.	Mtg. Base Color
2269-0	Black
2269-2	Red

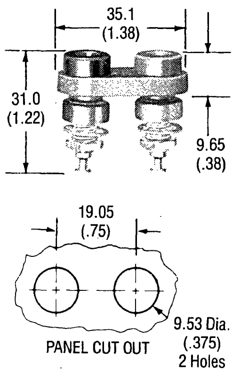
(unassembled)

NET 2.15

HIGH TEMPERATURE DOUBLE BANANA JACK

NEW

Similar to Model 2269, except insulation is high temperature, suitable for environmental chambers and medical applications. Closed entry receptacle 4.22 mm (.166) dia. x 23.37 (.920) deep on 19.05 mm (.750) centers. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut. One black and one blue jack. Black mounting base. ¼-32 thread.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polyphenylene sulfide, UL 94V-0.
RATING: 2500 WVDC, 15 Amps, +220°C. (+428°F.) Max.



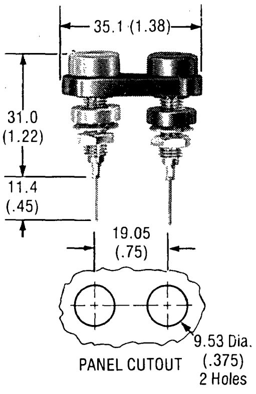
Model No.	Color
5233-0	Black

(unassembled)

NET 2.95

DOUBLE BANANA JACK WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wrapped wire tools or machines. Closed entry receptacle 4.22 mm (.166) dia. x 23.37 (.920) deep on 19.05 mm (.750) centers. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut. One black and one red jack. Choice of black or red mounting base.
UPPER: Banana Jack, brass, nickel plated.
INSULATION: Polycarbonate.
LOWER: 0.64 mm (.025) sq. Wrapped Wire Terminal, beryllium copper, gold plated.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



Model No.	Mtg. Base Color
4069-0	Black
4069-2	Red

(unassembled)

NET 3.15

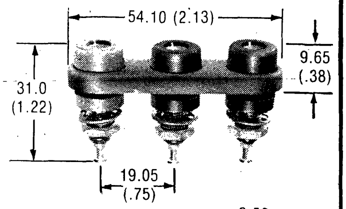
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

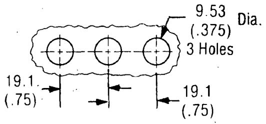
ITT POMONA ELECTRONICS

STANDARD JACKS/BINDING POSTS

TRIPLE BANANA JACK

Closed entry receptacle 4.22 mm (.166) dia. x 23.37 (.920) deep. Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick. Nickel plated lockwasher and hex nut. One black, one red and one green jack. Choice of black or red mounting base.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.





PANEL CUTOUT

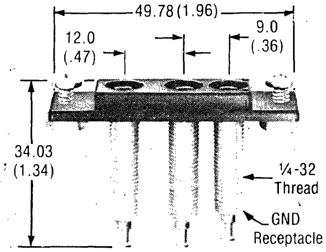
Model No.	Mtg. Base Color
4601-0	Black
4601-2	Red

(unassembled)

NET 3.10

EXTRA DEEP TRIPLE BANANA JACK

Initial connection made with ground receptacle. Accepts 20.32 mm (.800) long banana plugs. Supplied with two 6-32 hex nuts and screws, unassembled.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.

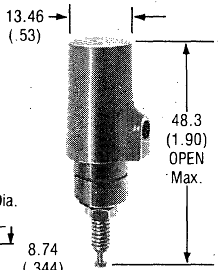


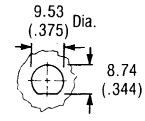
Model No.	Color
4163-0	Black

NET 3.95

FULLY INSULATED SPRING-LOADED BINDING POST

Spring loaded, fully insulated binding post allows fast and simple attachment of wires or plugs up to 2.16 mm (.085) dia. with insulation up to 4.06 mm (.160) dia. Nickel plated lockwasher and hex nut.
MATERIAL: Brass.
FINISH: Bright tin plated.
INSULATION: Polycarbonate.
RATING: 630 V Peak, 15 Amps, +115°C. (+239°F.) Max.





PANEL CUTOUT

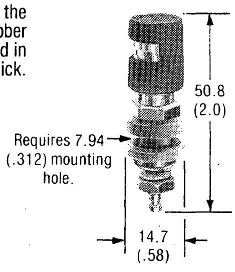
Model No.	Color
4770-0	Black
4770-2	Red
4770-4	Yellow
4770-5	Green
4770-6	Blue
4770-9	White

(unassembled)

NET 5.95

BINDING POST PER MIL-P-55149

Spring-loaded insulated binding post that meets the requirements of MIL-P-55149 (U106/U). Silicone rubber O-rings provide water resistant seal when mounted in panels from 1.57 mm (.062) to 3.18 mm (.125) thick. Supplied with red or black boot.
MATERIAL: Brass.
FINISH: Nickel plated.



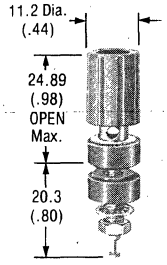
(unassembled)

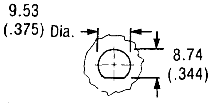
Model No.	Color	Military No.
4995-0	Black	PB08NA01
4995-2	Red	PB08NA02

NET 11.50

STANDARD BINDING POST

Accepts standard banana plug. Thin line design for high-density packaging. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.57 mm (.062) to 6.35 mm (.250) thick.
MATERIAL: Binding post body and captive thumb nut, brass.
FINISH: Gold or bright tin plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC 15 Amps, +115°C. (+239°F.) Max.





PANEL CUTOUT

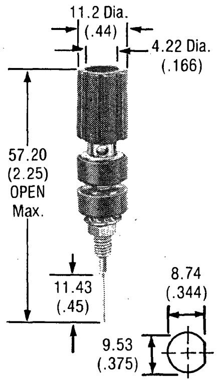
Gold Plated Model No.	Tin Plated Model No.
3750*	3760*
NET 2.95	NET 2.10

(unassembled)

* Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

STANDARD BINDING POST WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wire-wrapping tools or machines. Accepts standard banana plug. Thin line design for high-density packaging. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.57 mm (0.62) to 6.35 mm (.250) thick.
UPPER: Binding post body and captive thumb nut, brass, nickel plated.
INSULATION: Polycarbonate.
LOWER: 0.63 mm (.025) sq. wrapped wire terminal, beryllium copper, gold plated.
RATING: 2500 WVDC 3 Amps, +115°C. (+239°F.) Max.



PANEL CUTOUT

(unassembled)

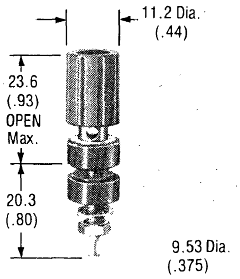
Model No.
4098*

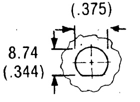
* Color Code		
0 - Black	4 - Yellow	9 - White
2 - Red	5 - Green	

NET 3.15

LOW THERMAL EMF BINDING POST

Accepts standard banana plug. Thin line design for high-density packaging. Excellent for use when thermoelectric effects are a significant source of error. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.57 mm (0.62) to 6.35 mm (.250) thick.
MATERIAL: Binding post body and captive thumb nut, tellurium copper.
FINISH: Gold plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC 15 Amps, +115°C. (+239°F.) Max.





PANEL CUTOUT

Model No.
3770*

(unassembled)

* Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

NET 4.15

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

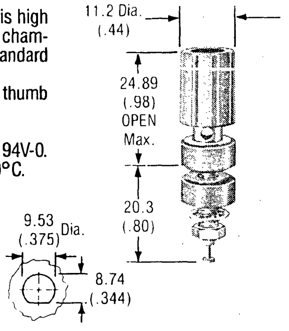
ITT POMONA ELECTRONICS

STANDARD PLUGS/BINDING POSTS

HIGH TEMPERATURE STANDARD BINDING POST

NEW

Similar to Model 3760, except insulation is high temperature, suitable for environmental chambers and medical applications. Accepts standard banana plug.
MATERIAL: Binding post body and captive thumb nut, brass.
FINISH: Bright tin plated.
INSULATION: Polyphenylene Sulfide, UL 94V-0.
RATING: 2500 WVDC, 15 Amps, +220°C. (+428°F.) Max.

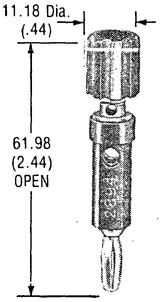


Model No.	Color
4901-0	Black
4901-6	Blue

(unassembled) **NET 2.35**

BINDING POST TO SINGLE BANANA PLUG

Features insulated binding post for rapid mounting and interchangeability of components. Center cross hole 4.22 mm (.166) dia. provides side stackup connections.
UPPER: Insulated binding post accepts standard banana plug. Brass, nickel plated. Polycarbonate insulation. Red or black.
INSULATION: ABS, black. Body, brass. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jack.
LOWER: Single banana plug.
RATING: 2500 WVDC, 15 Amps, +50°C. (+122°F.) Max.

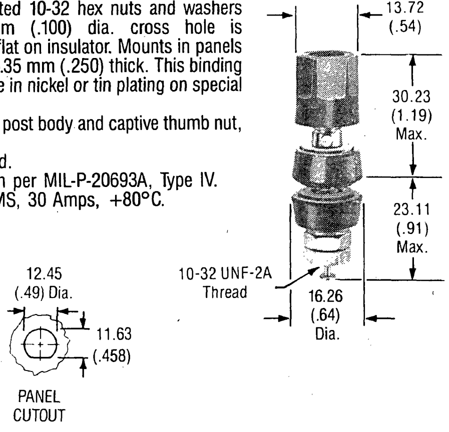


Model No.	Color
2894-0	Black
2894-2	Red

NET 3.25

HEX HEAD BINDING POST

Designed to meet all the requirements of MIL-P-55149/1A. Gold plated 10-32 hex nuts and washers included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.57 mm (.062) to 6.35 mm (.250) thick. This binding post is also available in nickel or tin plating on special orders.
MATERIAL: Binding post body and captive thumb nut, brass.
FINISH: Gold plated.
INSULATION: Nylon per MIL-P-20693A, Type IV.
RATING: 1500 VRMS, 30 Amps, +80°C. (+176°F.) Max.



Model No.
5018-*

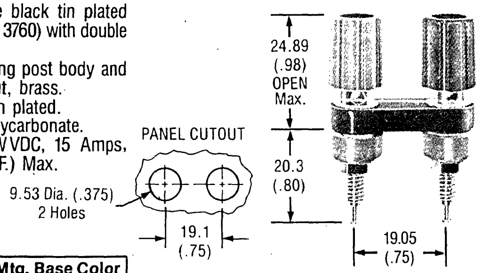
*

Color Code		
0 - Black	4 - Yellow	6 - Blue
2 - Red	5 - Green	9 - White

NET 4.95

DOUBLE BINDING POSTS ASSEMBLY

One red and one black tin plated binding post (type 3760) with double mounting base.
MATERIAL: Binding post body and captive thumb nut, brass.
FINISH: Bright tin plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.

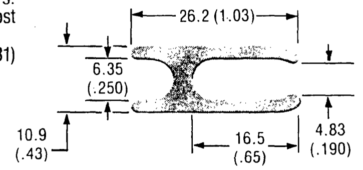


Model No.	Mtg. Base Color
4243-0	Black
4243-2	Red

(unassembled) **NET 3.95**

SHORTING LINK FOR STANDARD BINDING POSTS

Shorting link for standard binding posts on 19.05 mm (.750) centers. A snap-on feature holds link on post when short not needed.
MATERIAL: Brass, 0.79 mm (.031) thick.
FINISH: Nickel plated.

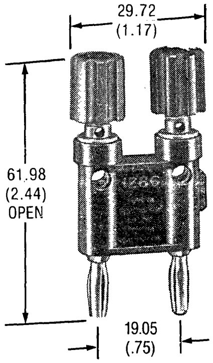


Model No.
4115

(Ten Per Pkg.) **NET .50 EA.**

BINDING POSTS TO DOUBLE BANANA PLUG

Features insulated binding posts on 19.05 mm (.750) centers for rapid mounting and interchangeability of components. Center cross hole 4.22 mm (.166) dia. provides side stackup connections.
UPPER: Insulated binding posts accept standard banana plugs. Brass, nickel plated. Polycarbonate insulation, one red, one black.
INSULATION: ABS, black.
LOWER: Double banana plug. Body, brass, Spring, one piece beryllium copper. Nickel plated. Fits standard banana jack.
RATING: 2500 WVDC, 15 Amps, +50°C. (+122°F.) Max.

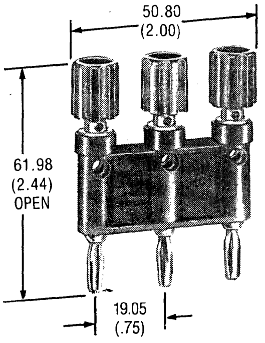


Model No.
1286

NET 5.95

BINDING POSTS TO TRIPLE BANANA PLUG

Features insulated binding posts on 19.05 mm (.750) centers for rapid mounting and interchangeability of components. Center cross hole 4.22 mm (.166) dia. provides side stackup connections.
UPPER: Insulated binding posts accept standard banana plugs. Brass, nickel plated. Polycarbonate insulation, one black, one red and one green.
INSULATION: ABS, black.
LOWER: Triple banana plug. Body, brass, Spring, one piece beryllium copper. Nickel plated. Fits standard banana jack.
RATING: 2500 WVDC, 15 Amps, +50°C. (+122°F.) Max.



Model No.
3405

NET 9.75

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

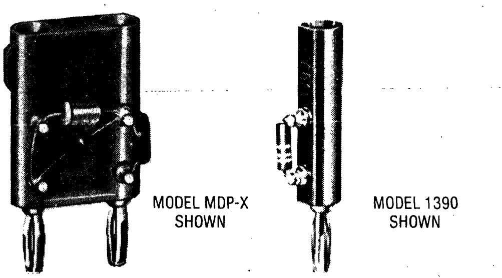
COMPONENT MOUNTING ISOLATION PLUGS

SPLIT-TERMINAL ISOLATION PLUGS

Create passive and active networks, voltage dividers, isolation networks or attenuators with the split-terminal isolation plugs described below.

Tough thermoplastic material molded to plug body and connectors insures maximum strength, moisture resistance and excellent insulative properties.

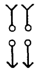
TYPICAL APPLICATION

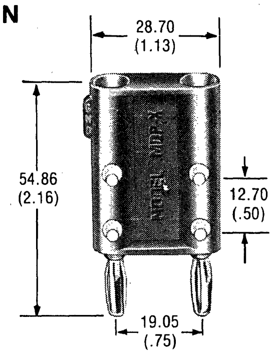


DOUBLE BANANA PLUG FOUR TERMINAL ISOLATION

Provides four terminal isolation. Top stackup receptacles isolated from lower plugs. Ideal for insertion of matching network in laboratory VTVM's, signal generators, etc. Bright tin plated solder turret terminals for permanent noise-free connections.

UPPER: Double banana jack 4.22 mm (.166) dia., on 19.05 (.750) centers.
INSULATION: Polypropylene, red.
LOWER: Double banana plug, Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard banana jack.
RATING: 2500 WVDC, 15 Amps, +55°C. (+131°F.) Max.





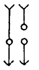
Model No.
MDP-X

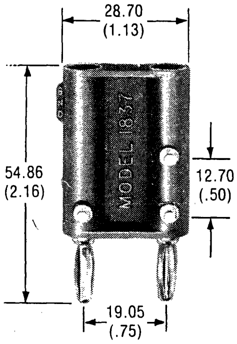
NET 5.95

DOUBLE BANANA PLUG THREE TERMINAL ISOLATION

Provides three terminal isolation. Excellent for "L" and "Pi" networks. Plug and receptacle nickel plated. Bright tin plated solder turret terminals for permanent noise-free connections. "Ground" is straight feed-thru. Hot side isolated.

UPPER: Banana jacks, 4.22 mm (.166) dia. Brass, nickel plated.
INSULATION: Polypropylene, blue.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard banana jack.
RATING: 2500 WVDC, 15 Amps, +55°C. (+131°F.) Max.





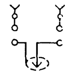
Model No.
1837

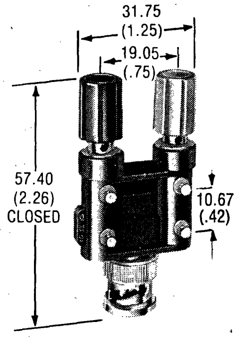
NET 6.50

ADAPTER — BINDING POSTS TO BNC MALE FOUR TERMINAL ISOLATION

Permits single or double banana plugs to be used with equipment having BNC female. Provides isolation for a four terminal network. Binding posts facilitate connections of test leads or additional components. Bright tin plated solder turret terminals provide permanent noise-free connections.

UPPER: Insulated binding posts on 19.05 mm (.750) center with 4.22 mm (.166) dia. jacks.
INSULATION: Polypropylene, black.
LOWER: BNC male.
COLOR: Black.
RATING: 500 VRMS, +55°C. (+131°F.) Max.





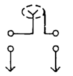
Model No.
1469

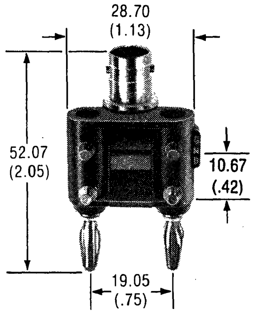
NET 17.50

ADAPTER — BNC FEMALE TO DOUBLE BANANA PLUG — FOUR TERMINAL ISOLATION

Permits BNC male to be used with equipment having banana jacks. Provides isolation for a four terminal network. Excellent for matching pad networks. Bright tin plated solder turret terminals for permanent noise-free connections.

UPPER: BNC female.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard banana jack.
INSULATION: Polypropylene, black.
COLOR: Black.
RATING: 500 VRMS





Model No.
1468

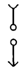
NET 13.80

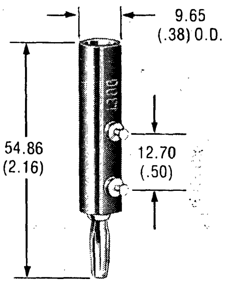
SINGLE BANANA PLUG TWO TERMINAL ISOLATION

Provides two terminal isolation. Top stackup receptacle is isolated from lower plug to permit addition of series resistors, diodes, etc. Ideal for computers, lab, circuit design and testing. Bright tin plated solder turret terminals for permanent noise-free connections.

UPPER: Banana jack, 4.22 mm (.166) dia. Brass, nickel plated.
INSULATION: Polypropylene.
LOWER: Banana plug. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard banana jack.
RATING: 2500 WVDC, 15 Amps, +55°C. (+131°F.) Max.

Model No.	Color
1390-0	Black
1390-2	Red





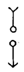
NET 3.85

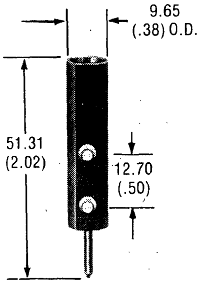
PIN TIP PLUG TWO TERMINAL ISOLATION

Pin tip jack is isolated from 2.03 mm (.080) pin tip plug. Provides for addition of series components. Ideal for use with computer boards, lab circuit designs, etc. Bright tin plated solder turret terminals for permanent noise-free connections.

UPPER: Tip jack, beryllium copper, gold plated; accepts 2.03 mm (.080) dia. pin.
INSULATION: Polypropylene.
LOWER: Pin tip, plug 2.03 mm (.080) dia. Brass, nickel plated.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

Model No.	Color
1910-0	Black
1910-2	Red





NET 4.95

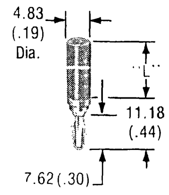
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MINIATURE BANANA PLUGS

MINIATURE SOLDER TYPE BANANA PLUG

Miniature in-line plug for use with miniature binding posts or banana jacks. Wire is soldered directly to threaded plug.
MATERIAL: Miniature banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
INSULATION: Nylon.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

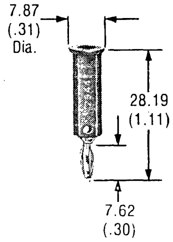


Model No.	Color	"L"	Net
3690-0	Black	11.43 (.45)	1.05 EA.
3690-2	Red	11.43 (.45)	1.05 EA.
4617-0	Black	25.4 (1.00)	1.65 EA.
4617-2	Red	25.4 (1.00)	1.65 EA.

(Pkg. Ten Per Color)

MINIATURE SOLDERLESS STACKUP BANANA PLUG

Wire firmly held in place with internal setscrew.
UPPER: Miniature banana jack, 2.64 mm (.104) dia., brass, gold plated.
INSULATION: ABS.
LOWER: Miniature banana plug, spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.



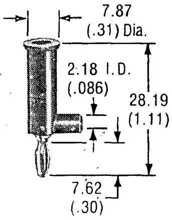
Model No.	Color
2944-0	Black
2944-2	Red

(Recommend using Screwdriver No. 3736)

NET 2.30

MINIATURE SOLDERLESS STACKUP BANANA PLUG WITH SAFETY COLLAR

Wire firmly held in place with setscrew. The integral collar insulates leads and acts as a strain relief by preventing the flexing of lead at set screw.
UPPER: Miniature banana jack, 2.64 mm (.104) dia., brass, gold plated.
INSULATION: ABS.
LOWER: Miniature banana plug, spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jack.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.



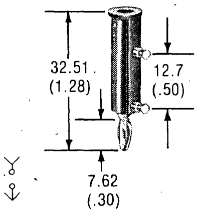
Model No.	Color
2945-0	Black
2945-2	Red

(Recommend using Screwdriver No. 3736)

NET 2.30

SINGLE BANANA PLUG ISOLATION

Provides two terminal isolation. Excellent for circuit design and testing. Gold plated solder turret terminals for permanent noise-free connections.
UPPER: Miniature banana jack, 2.64 mm (.104) dia. brass, gold plated.
INSULATION: Polypropylene.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits miniature banana jack.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

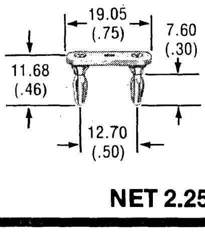


Model No.	Color	Model No.	Color
2831-0	Black	2831-2	Red

NET 5.95

METAL SHORTING BAR

Low profile 1.57 mm (.062) thick brass shorting bar. Center hole accepts #4-40 screw, for easy removal.
MATERIAL: Bar and miniature banana plug body, brass. Spring, one piece, heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
RATING: 5 Amps.

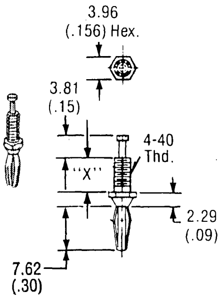


Model No.
3030

NET 2.25

MINIATURE BANANA PLUG WITH THREADED STUD

Threaded stud for rapid mounting. Solder turret for attachment of wires. Finished with 4-40 nickel plated hex nut, unassembled.
MATERIAL: Miniature banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
RATING: 2500 WVDC, 5 Amps.

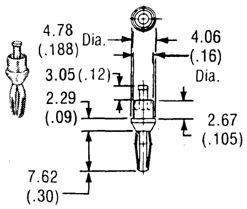


Model No.	"X" Dim.	Net
3276	5.84 (.230)	.95 EA.
4513	12.19 (.480)	1.00 EA.

(Ten Per Pkg., unassembled)

MINIATURE RIVET TYPE BANANA PLUG WITH TURRET

Excellent for riveting to panels or boards. Solder turret for rapid attachment of wires. Mounts in 1.57 mm (.062) panel.
MATERIAL: Miniature banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
RATING: 2500 WVDC, 5 Amps.



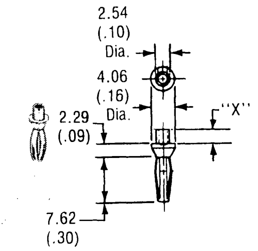
Model No.
3273

(Ten Per Pkg.)

NET .75 EA.

MINIATURE RIVET TYPE BANANA PLUG

Excellent for riveting to panels or boards.
MATERIAL: Miniature banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
RATING: 2500 WVDC, 5 Amps.



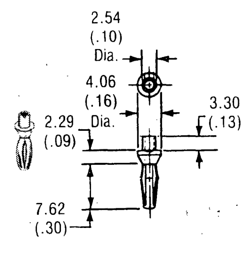
Model No.	"X" Dim.	Panel
3268	2.39 (.094)	1.57 (.062)
3271	3.18 (.125)	2.37 (.093)
3272	3.96 (.156)	3.17 (.125)

(Ten Per Pkg.)

NET .75 EA.

MINIATURE CRIMP TYPE BANANA PLUG

Miniature in-line plug crimps directly to wire. Accepts 22, 20 & 18 AWG wire sizes.
MATERIAL: Miniature banana plug body, brass. Spring, one piece heat treated beryllium copper. Fits miniature 2.64 mm (.104) dia. banana jacks.
FINISH: Gold plated.
RATING: 2500 WVDC, 5 Amps.



Model No.
4938

(Ten Per Pkg.)

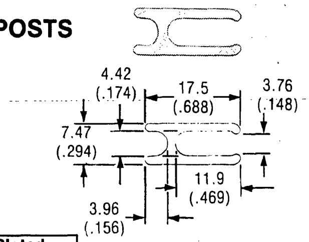
NET .95 EA.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MINIATURE BANANA JACKS

SHORTING LINK FOR MINIATURE BINDING POSTS



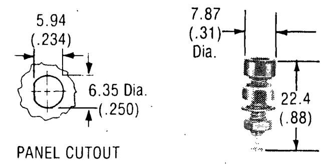
Shorting link for miniature binding posts on 12.70 mm (.500) centers. A snap-on feature holds link on posts when short not needed.
MATERIAL: Brass 0.79 mm (.031) thick.
FINISH: Nickel or gold plated.
RATING: 5 Amps.

Gold Plated Model No.	Nickel Plated Model No.
3478	3479
NET 1.95 EA.	NET 1.35 EA.

(Ten Per Pkg.)

MINIATURE INSULATED BANANA JACK

Closed entry 2.64 mm (.104) dia. jack. Mounts in panels up to 6.35 mm (.250) thick. 8-32 hex nut and lockwasher included.
MATERIAL: Miniature Banana Jack and hex nut, brass. Lockwasher, steel.
FINISH: Miniature banana jack, gold plated. Hex nut and lockwasher, nickel plated.
INSULATION: Polycarbonate.
RATING: 1500 WVDC, 5 Amps, +115°C. (+239°F.) Max.

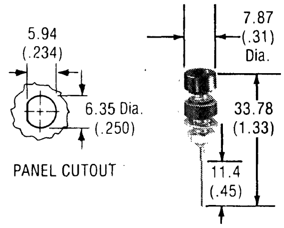


Model No.	Color
2142-0	Black
2142-1	Brown
2142-2	Red
2142-3	Orange
2142-4	Yellow
2142-5	Green
2142-6	Blue
2142-7	Violet
2142-8	Gray
2142-9	White

(Pkg. Ten Per Color, unassembled) **NET .95 EA.**

MINIATURE INSULATED BANANA JACK WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wrapped wire tools or machines. Closed entry 2.64 mm (.104) dia. jack. Mounts in panels up to 6.35 mm (.250) thick. 8-32 hex nut and lockwasher included.
UPPER: Miniature banana jack.
INSULATION: Polycarbonate.
LOWER: 0.64 mm (.025) Sq. Wrapped Wire Terminal, Beryllium copper, gold plated. Lockwasher, steel, nickel plated. Hex Nut, brass, nickel plated.
RATING: 1500 WVDC, 3 Amps, +115°C. (+239°F.) Max.



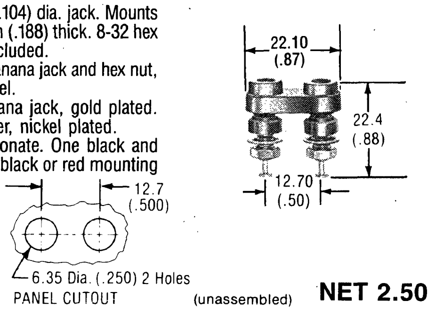
Model No.
4022-*

*Color Code		
0 - Black	4 - Yellow	6 - Blue
2 - Red	5 - Green	9 - White

(Pkg. Ten Per Color, unassembled) **NET 1.35 EA.**

MINIATURE INSULATED DOUBLE BANANA JACK

Closed entry 2.64 mm (.104) dia. jack. Mounts in panels up to 4.77 mm (.188) thick. 8-32 hex nut and lockwasher included.
MATERIAL: Miniature banana jack and hex nut, brass. Lockwasher, steel.
FINISH: Miniature banana jack, gold plated. Hex nut and lockwasher, nickel plated.
INSULATION: Polycarbonate. One black and one red jack. Choice of black or red mounting base.

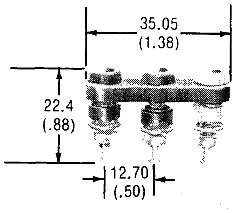


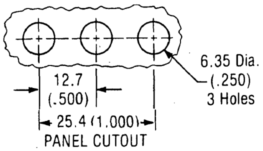
Model No.	Color
2143-0	Black
2143-2	Red

(unassembled) **NET 2.50**

MINIATURE INSULATED TRIPLE BANANA JACK

Closed entry 2.64 mm (.104) dia. jacks on 12.70 mm (.500) centers. Mounts in panels up to 4.77 mm (.188) thick. 8-32 hex nut and lockwasher included.
MATERIAL: Miniature banana jack and hex nut, brass. Lockwasher, steel.
FINISH: Miniature banana jack, gold plated. Hex nut and lockwasher, nickel plated.
INSULATION: Polycarbonate. One red, one black and one green banana jack. Choice of black or red mounting base.
RATING: 1500 WVDC, 5 Amps. +115°C. (+239°F.) Max.



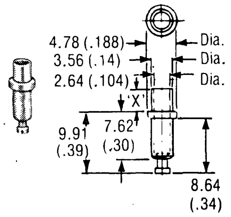


Model No.	Mtg. Base Color
4618-0	Black
4618-2	Red

(unassembled) **NET 3.50**

MINIATURE RIVET TYPE BANANA JACK WITH TURRET

Excellent for riveting to panels or boards. Solder turret for rapid attachment of wires.
MATERIAL: Miniature banana jack, tellurium copper.
FINISH: Gold plated.
RATING: 1500 WVDC, 5 Amps.

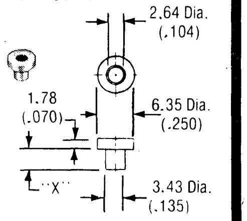


Model No.	"X" Dim.	Panel	Net
3277	2.67 (.105)	1.57 (.062)	.55 EA.
3278	3.43 (.135)	2.37 (.093)	.60 EA.
3279	4.19 (.165)	3.18 (.125)	.55 EA.

(Ten Per Pkg.)

MINIATURE — RIVET TYPE BANANA JACK

Excellent for riveting to panels or boards.
MATERIAL: Miniature banana jack, leaded copper.
FINISH: Gold plated.
RATING: 1500 WVDC, 5 Amps.

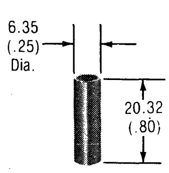


Model No.	"X" Dim.	Panel	Net
3280	2.67 (.105)	1.57 (.062)	.40 EA.
3281	3.43 (.135)	2.37 (.093)	.60 EA.
3282	4.19 (.165)	3.18 (.125)	.50 EA.

(Ten Per Pkg.)

MINIATURE BANANA PLUG SPLICE

Permits splicing of single miniature banana plugs.
UPPER: Miniature banana jack 2.64 mm (.104) dia., brass, nickel plated.
INSULATION: Polypropylene.
LOWER: Same as upper.
RATING: 1500 WVDC, 5 Amps, +55°C. (+131°F.) Max.



Model No.	Color
3833-0	Black
3833-2	Red

(Pkg. Ten Per Color) **NET 1.50 EA.**

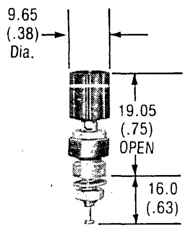
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

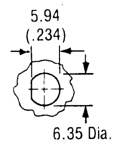
MINIATURE BINDING POSTS/BANANA PLUGS

MINIATURE INSULATED BINDING POST

Accepts miniature banana plug. #8-32 hex nut and lockwasher included. 2.18 mm (.086) dia: crosshole is perpendicular with flat on insulator. Mounts in panels up to 4.77 mm (.188) thick.
MATERIAL: Binding post body and captive thumb nut and hex nut, brass. Lockwasher, steel.
FINISH: Binding post body and one captive thumb nut, gold or bright tin plated. Hex nut and lockwasher, nickel plated.
RATING: 1500 WVDC, 5 Amps, +115°C. (+239°F.) Max.



Gold Plated		Tin Plated	
Model No.	**Color**	**Model No.**	**Color**
2382-0	Black	2439-0	Black
2382-1	Brown	2439-1	Brown
2382-2	Red	2439-2	Red
2382-3	Orange	2439-3	Orange
2382-4	Yellow	2439-4	Yellow
2382-5	Green	2439-5	Green
2382-6	Blue	2439-6	Blue
2382-7	Violet	2439-7	Violet
2382-8	Gray	2439-8	Gray
2382-9	White	2439-9	White
NET 2.75		NET 2.15	

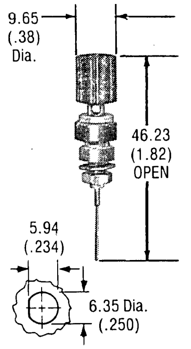


PANEL CUTOUT

(unassembled)

MINIATURE BINDING POST WITH WRAPPED WIRE TERMINAL

UPPER: Miniature banana jack, brass, nickel plated.
INSULATION: Polycarbonate.
LOWER: 0.64 mm (.025) Sq. Wrapped Wire Terminal, beryllium copper, gold plated. Lockwasher, steel, nickel plated. Hex nut, brass, nickel plated.
RATING: 1500 WVDC, 3 Amps, +115°C. (+239°F.) Max.



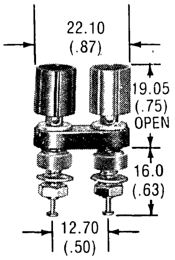
PANEL CUTOUT

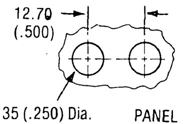
Model No.	Color
5039-0	Black
5039-2	Red

NET 2.95

MINIATURE INSULATED DOUBLE BINDING POST

Accepts miniature banana plug. #8-32 hex nut and lockwasher included. 2.18 mm (.086) dia. crosshole is perpendicular with flat on insulator. Mounts in panels up to 4.77 mm (.188) thick.
MATERIAL: Miniature binding post body, Captive thumb nut and hex nut, brass. Lockwasher, steel.
FINISH: Miniature binding post body and captive thumb nut, gold or bright tin plated. Lockwasher, and hex nut, nickel plated.
RATING: 1500 WVDC, 5 Amps, +115°C. (+239°F.) Max.





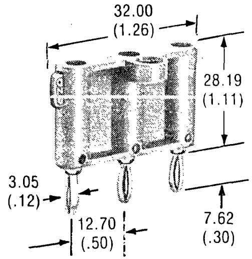
PANEL CUTOUT

(unassembled)

Gold Plated		Tin Plated	
Model No.	**Color**	**Model No.**	**Color**
2383-0	Black	2440-0	Black
2383-2	Red	2440-2	Red
NET 5.50		NET 4.30	

MINIATURE TRIPLE PLUG BANANA PLUG

Ideal for balanced line 2 connector shielded cable assemblies. Setscrews secure leads.
UPPER: Miniature banana jack, brass, gold plated.
INSULATION: ABS.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

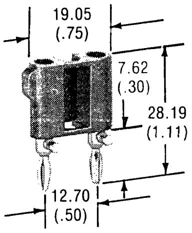


Model No.	Color
4653-0	Black

NET 6.25

MINIATURE DOUBLE BANANA PLUG WITH SOLDER TURRET TERMINALS

UPPER: Miniature banana jack, brass, gold plated.
INSULATION: Polypropylene.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jacks. Solder turret terminal, brass, gold plated.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

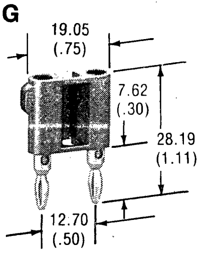


Model No.	Color
2245-0	Black
2245-2	Red

NET 3.95

MINIATURE DOUBLE BANANA PLUG WITH SETSCREWS

Internal setscrews to secure cable or component leads.
UPPER: Miniature banana jack, brass, gold plated.
INSULATION: ABS.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jacks. Setscrew, steel, cadmium plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.



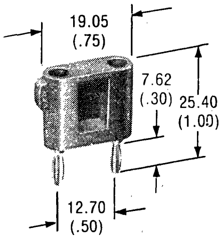
Model No.	Color
2244-0	Black
2244-2	Red

(Recommend using Screwdriver No. 3736)

NET 3.50

MINIATURE DOUBLE BANANA PLUG WITH SHORTING BAR

UPPER: Miniature banana jack, brass, gold plated.
INSULATION: ABS.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper, gold plated. Fits miniature 2.64 mm (.104) dia., banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

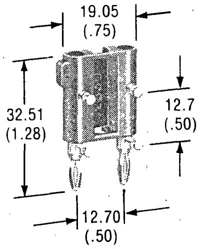


Model No.	Color
2035-0	Black
2035-2	Red

NET 3.45

DOUBLE BANANA PLUG — 4 TERMINAL ISOLATION

Provides four terminal isolation. Top stackup receptacles isolated from lower plugs.
UPPER: Miniature double banana jack, 2.64 mm (.104) dia. brass, gold plated.
INSULATION: Polypropylene.
LOWER: Miniature double banana plug. Gold plated. Springs, one piece heat-treated beryllium copper. Fits 2.64 mm (.104) dia. miniature banana jacks. Solder turrets brass, gold plated.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.



Model No.	Color
2830-0	Black
2830-2	Red

NET 9.95

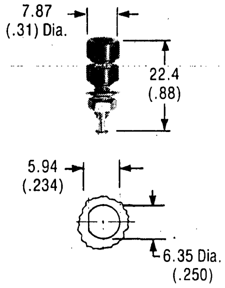
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MINIATURE PIN TIP PLUGS/JACKS

MINIATURE PIN TIP JACK 2.03 mm (.080) DIA.

Closed entry 2.03 mm (.080) dia. pin jack. Mounts in panels to 6.35 mm (.250) thick. #8-32 hex nut and lockwasher included.
MATERIAL: Pin jack body and hex nut, brass. Lockwasher, steel. Spring, beryllium copper.
FINISH: Pin jack, gold plated. Hex nut and lockwasher, nickel plated.
INSULATION: Polycarbonate.
RATING: 1500 WVDC, 5 Amps, +115°C. (+239°F.) Max.



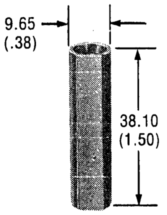
Model No.	Color	Model No.	Color
3542-0	Black	3542-5	Green
3542-1	Brown	3542-6	Blue
3542-2	Red	3542-7	Violet
3542-3	Orange	3542-8	Gray
3542-4	Yellow	3542-9	White

(Pkg. Ten Per Color, unassembled)

NET 1.15 EA.

SINGLE 2.03 mm (.080) DIA. PIN TIP PLUG SPLICE

Permits splicing of single 2.03 mm (.080) dia. pin tip patch cords. Tough thermoplastic molded onto the body provides protective insulation.
UPPER: Pin jack body, brass. Spring, beryllium copper. Gold plated.
INSULATION: Polypropylene.
LOWER: Same as upper.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

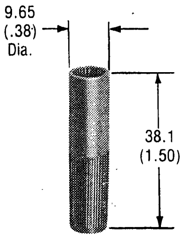


Model No.	Color
3832-0	Black
3832-2	Red

NET 2.25

DO-IT-YOURSELF PIN TIP JACK

This in-line pin tip jack accepts all standard 2.03 mm (.080) dia. pin tips. A threaded two piece design allows wire to be crimped or soldered to banana jack.
MATERIAL: Pin jack body, brass. Spring, beryllium copper.
FINISH: Pin jack body, nickel plated. Spring, gold plated.
INSULATION: Glass filled nylon.
RATING: 2500 WVDC, 5 Amps, +102°C. (+216°F.) Max.



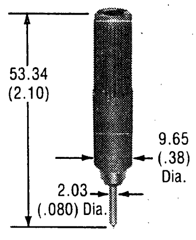
(unassembled)

Model No.	Color	Wire Size	Wire access hole
4942-0 4942-2	Black Red	22, 20, 18 AWG	4.04 (.159) dia.
4943-0 4943-2	Black Red	16, 14 AWG	5.08 (.200) dia.

NET 2.50

DO-IT-YOURSELF 2.03 mm (.080) DIA. PIN TIP PLUG

This In-Line 2.03 mm (.080) dia. pin tip plug is ideal for field service repairs of patch cords. Plug can either be soldered or crimped.
MATERIAL: Pin tip plug, brass.
FINISH: Nickel plated.
INSULATION: Glass filled nylon.
RATING: 2500 WVDC, 5 Amps, +102°C. (+216°F.) Max.



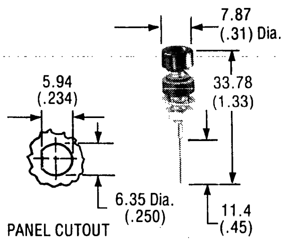
(unassembled)

Model No.	Color	Accepts wires AWG	Wire access hole
4495-0 4495-2	Black Red	22, 20, 18	4.04 (.159) dia.
4497-0 4497-2	Black Red	16, 14	5.08 (.200) dia.

NET 1.95

INSULATED PIN JACK WITH WRAPPED WIRE TERMINAL

Closed entry 2.03 mm (.080) dia. pin jack. Mounts in panels to 6.35 mm (.250) thick. #8-32 hex nut and lockwasher included.
UPPER: Pin jack body, brass, nickel plated. Spring, beryllium copper, gold plated.
INSULATION: Polycarbonate.
LOWER: 0.64 mm (.025) sq. pin wrapped wire terminal, beryllium copper, gold plated. Hex nut, brass, nickel plated. Lockwasher, steel, nickel plated.
RATING: 1500 WVDC, 3 Amps, +115°C. (+239°F.) Max.



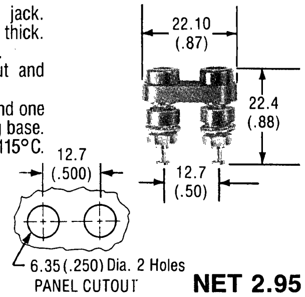
Model No.	Color Code*		
4773-*	0 - Black	4 - Yellow	6 - Blue
	2 - Red	5 - Green	9 - White

(unassembled)

NET 1.65

MINIATURE INSULATED DOUBLE PIN TIP JACKS 2.03 mm (.080) DIA.

Closed entry 2.03 mm (.080) dia. pin jack. Mounts in panels to 4.77 mm (.188) thick. #8-32 hex nut and lockwasher included.
FINISH: Pin jack, gold plated. Hex nut and lockwasher, nickel plated.
INSULATION: Polycarbonate. One black and one red jack. Choice of black or red mounting base.
RATING: 1500 WVDC, 5 Amps, +115°C. (+239°F.) Max.



Model No.	Color
4543-0	Black
4543-2	Red

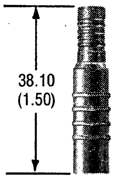
(unassembled)

NET 2.95

DO-IT-YOURSELF IN-LINE PIN TIP JACK WITH FLEXIBLE BOOT

NEW

This in-line 2.03 mm (.080) dia. pin tip jack is ideal for making patch cords and field repairs. A snap-on two piece design allows the wire to be crimped or soldered to the pin tip jack.
MATERIAL: Pin jack body, brass. Spring, beryllium copper.
FINISH: Pin jack body, nickel plated. Spring, gold plated.
INSULATION: Flexible PVC.
RATING: (Independent of Wire): 5000 WVDC, 5 Amps, +50°C. (+122°F.) Max.



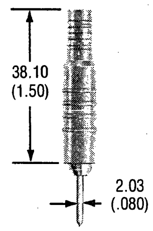
Model No.	Color	Accepts Wire AWG*	Net
5171-0 5171-2	Black Red	22, 20, 18	1.30
5172-0 5172-2	Black Red	16, 14	1.60

*Max wire dia. 3.94 mm (.155)

DO-IT-YOURSELF IN-LINE PIN TIP PLUG WITH FLEXIBLE BOOT

NEW

This in-line 2.03 mm (.080) dia. pin tip plug is ideal for making patch cords and field repairs. A snap-on two piece design allows the wire to be crimped or soldered to the pin tip plug.
MATERIAL: Pin tip plug, brass.
FINISH: Nickel plated.
INSULATION: Flexible PVC.
RATING: (Independent of Wire): 5000 WVDC, 5 Amps, +50°C. (+122°F.) Max.



Model No.	Color	Accepts Wire AWG*	Net
5173-0 5173-2	Black Red	22, 20, 18	1.75
5174-0 5172-4	Black Red	16, 14	1.75

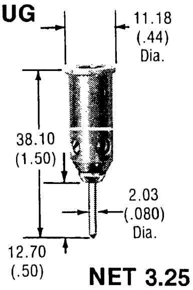
*Max wire dia. 3.94 mm (.155)

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE PIN TIP PLUGS

SOLDERLESS STACKUP PIN TIP PLUG

Wire firmly held in place with internal setscrew, eliminates soldering. Assembly of test leads simplified.
UPPER: Pin jack, spring beryllium copper, gold plated; accepts 2.03 mm (.080) dia. pin.
INSULATION: ABS
LOWER: Pin tip plug, brass, nickel plated. Nylon setscrew.
RATING: 2500 WVDC, 5 Amps, +50°C.(+122°F.) Max.

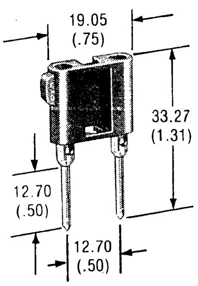


Model No.	Color
1922-0	Black
1922-2	Red

NET 3.25

MINIATURE DOUBLE PIN TIP PLUG WITH SETSCREWS

Miniature 2.03 mm (.080) dia. double pin tip plug on 12.70 mm (.500) centers. Setscrews secure cable or component leads.
UPPER: Pin jack, spring, beryllium copper, gold plated.
INSULATION: ABS.
LOWER: Pin tip plug, brass, gold plated. Setscrew, steel, cadmium plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

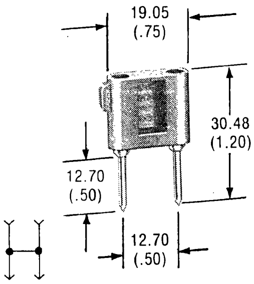


Model No.	Color
3544-0	Black
3544-2	Red

NET 3.25

MINIATURE DOUBLE PIN TIP PLUG WITH SHORTING BAR

Ideal as a connecting link for use with 12.70 mm (.500) spaced pin tip jacks. Miniature 2.03 mm (.080) double pin tip plugs internally solder-bonded with #20 AWG wire. "Shorting bar" stamped on plug.
UPPER: Pin jack, spring, beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
INSULATION: ABS.
LOWER: Pin tip plug, brass, gold plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

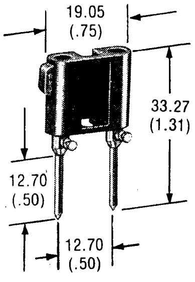


Model No.	Color
3452-0	Black
3452-2	Red

NET 2.95

MINIATURE DOUBLE PIN TIP PLUG WITH SOLDER TURRET TERMINALS

Miniature 2.03 mm (.080) dia. double pin tip plug on 12.70 mm (.500) centers. Solder turret terminals for permanent noise-free connection of cables.
UPPER: Pin jack, spring, beryllium copper, gold plated.
INSULATION: Polypropylene.
LOWER: Pin tip plug and solder turret terminal, brass, gold plated.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

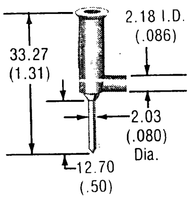


Model No.	Color
3545-0	Black
3545-2	Red

NET 3.95

SOLDERLESS PIN TIP PLUG WITH SAFETY COLLAR

This integral collar insulates exposed wire leads and acts as a strain relief by preventing the flexing of the lead at the setscrew. Wire firmly held in place with internal setscrew.
UPPER: Miniature banana jack, brass, gold plated.
INSULATION: ABS.
LOWER: Pin tip plug, brass, gold plated. Setscrew, steel, cadmium plated.
RATING: 2500 WVDC, 5 Amps, +50°C.(+122°F.) Max.



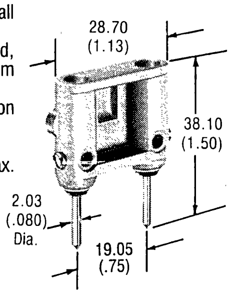
Model No.	Color
3548-0	Black
3548-2	Red

(Recommended using Screwdriver No. 3736)

NET 1.75

COMPONENT MOUNTING — TIP JACKS TO DOUBLE PIN TIP PLUG WITH SETSCREWS

Features setscrews on side of body to secure leads or components. Recess permits mounting of small component parts.
UPPER: Pin jack, spring beryllium copper, gold plated, spaced on 19.05 mm (.750) centers. Accepts 2.03 mm (.080) dia. pin tip plugs.
LOWER: Pin tip plug, brass, nickel plated. Nylon setscrews.
INSULATION: ABS.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

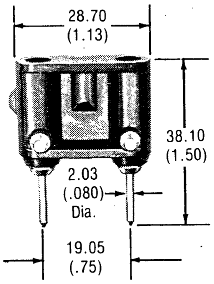


Model No.	Color
2192-0	Black
2192-2	Red

NET 6.25

COMPONENT MOUNTING DOUBLE PIN TIP PLUG WITH SOLDER TURRETS

Features recess for mounting components. Solder turret terminals for permanent noise-free connections.
UPPER: Pin jack, spring beryllium copper, gold plated, spaced on 19.05 mm (.750) centers. Accepts 2.03 mm (.080) dia. pin tip plugs.
LOWER: Pin tip plug, brass, nickel plated.
INSULATION: Polypropylene
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

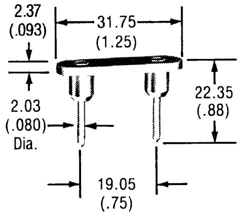


Model No.	Color
1904-0	Black
1904-2	Red

NET 3.40

METAL SHORTING BAR

Used as a connecting link with equipment having tip jacks.
MATERIAL: Brass.
FINISH: Nickel plated.
RATING: 5 Amps, +125°C. (+257°F.) Max. Resistance less than 1.5 milliohms.



Model No.
2072

NET 2.60

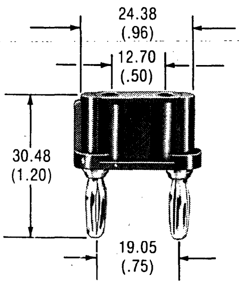
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MINIATURE PLUG/JACK ADAPTERS

MINIATURE DOUBLE BANANA JACK TO STANDARD DOUBLE BANANA PLUG ADAPTER

Permits miniature double banana plug on 12.70 mm (.500) centers to be used with equipment having standard double banana jacks on 19.05 (.750) centers.
UPPER: Miniature double banana jacks. Brass, nickel plated.
INSULATION: ABS, black.
LOWER: Standard double banana plug. Spring, one piece heat-treated beryllium copper. Fits 4.22 (.166) dia. standard banana jacks. Nickel plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

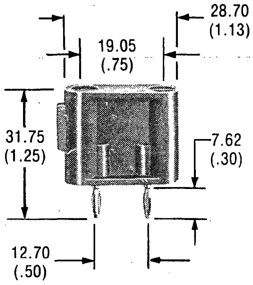


Model No.
2943

NET 6.50

STANDARD DOUBLE BANANA JACK TO MINIATURE DOUBLE BANANA PLUG

Permits standard double banana plug on 19.05 mm (.750) centers to be used with equipment having miniature double banana jacks on 12.70 mm (.500) centers.
UPPER: Standard Double banana jack, brass, nickel plated. Accepts standard banana plug.
INSULATION: ABS, black.
LOWER: Miniature double banana plug. Spring, one piece heat treated beryllium copper, nickel plated. Fits miniature banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

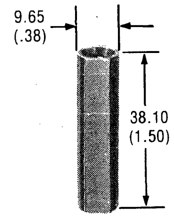


Model No.
2952

NET 4.95

STANDARD BANANA PLUG TO MINIATURE BANANA PLUG SPLICE

This splice accepts a standard banana plug on one end and a miniature banana plug on the other end.
UPPER: Standard banana jack, 4.22 mm (.166) dia., brass, nickel plated.
LOWER: Miniature banana jack, 2.64 mm (.104) dia., brass, nickel plated.
INSULATION: Polypropylene.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.



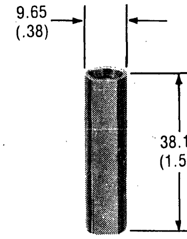
Model No.	Color
3835-0	Black
3835-2	Red

(Pkg. Ten Per Color)

NET .95 EA.

STANDARD BANANA PLUG TO 2.03 mm (.080) DIA. PIN TIP PLUG SPLICE

This splice accepts a standard banana plug on one end a 2.03 mm (.080) pin tip plug on the other end.
UPPER: Standard banana jack, 4.22 mm (.166) dia. Brass, nickel plated.
LOWER: Tip jack, beryllium copper, gold plated, accepts 2.03 mm (.080) dia. pin.
INSULATION: Polypropylene.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.



Model No.	Color
3834-0	Black
3834-2	Red

NET 1.75

CONNECTOR TEST ADAPTERS

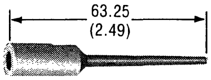
CONNECTOR TEST ADAPTERS

An ideal test adapter for the rapid testing of the hard-to-get-at contacts of multi-pin MS type connectors such as miniature circular, standard circular and rack and panel. Excellent for testing of continuity, voltage and signal on individual contacts. Test adapter available in pin and socket contact sizes 22, 20, 16 and 12.

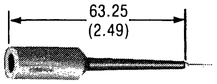
- Gold plated contacts.
- Flexible tip prevents damage to connector contacts if test adapter is accidentally bent.
- Flexible tip allows testing of adjacent contacts.
- Fully insulated to prevent accidental shorting.
- Accepts standard banana plug.
- Model 4690 also fits .635 mm (.025) square pins

UPPER: Banana jack, 4.22 mm (.166) dia., brass, nickel plated.
LOWER: "MS" style contact, copper, gold plated, see tab block.
INSULATION: Polyvinyl chloride (PVC)
RATING: 2500 WVDC, +50°C. (+122°F.) Max.
***COLOR CODE:** -0 Black, -2 Red

Model No.	Contact Size		Type	Current Rating	Net
4690-*	22		Socket	5 Amps	3.30
4691-*	22	.762 (.030) dia.	Pin	5 Amps	2.50
3560-*	20		Socket	7.5 Amps	2.50
3561-*	20	1.02 (.040) dia.	Pin	7.5 Amps	2.75
3562-*	16		Socket	13 Amps	2.75
3563-*	16	1.60 (.063) dia.	Pin	13 Amps	2.25
3564-*	12		Socket	23 Amps	4.25
3565-*	12	2.36 (.093) dia.	Pin	23 Amps	2.25

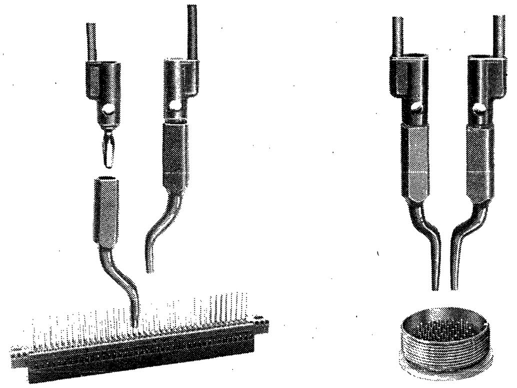


3562
SOCKET TYPE



3561
PIN TYPE

TYPICAL APPLICATION



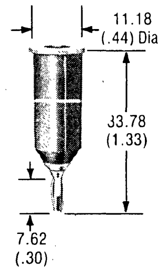
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

BANANA PLUG & JACK ADAPTERS

STANDARD BANANA JACK TO MINIATURE BANANA PLUG

Permits standard banana plug to be used with equipment having miniature banana jacks.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
INSULATION: ABS.
LOWER: Miniature banana plug. Spring, one piece heat treated beryllium copper. Fits 2.64 mm (.104) dia. miniature banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

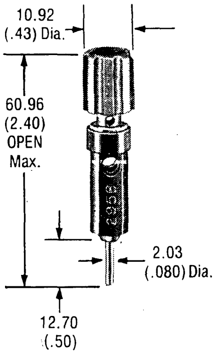


Model No.	Color
2138-0	Black
2138-2	Red

(Pkg. Five Per Color) **NET 1.45 EA.**

BINDING POST TO SINGLE PIN TIP PLUG

Center cross holes 4.22 mm (.166) dia. in body provide side stackup connection.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Polycarbonate insulation. Accepts standard banana plug.
INSULATION: ABS, black.
LOWER: Pin tip plug, brass, nickel plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

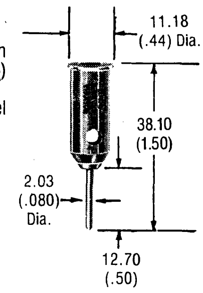


Model No.	Color
2953-0	Black
2953-2	Red

NET 3.95

BANANA JACK TO PIN TIP

Permits standard banana plug patch cords to be used with equipment having tip jacks. Cross hole 4.22 mm (.166) dia. provides side stackup connection.
UPPER: Banana jack, 4.22 mm (.166) dia. Brass, nickel plated.
INSULATION: ABS.
LOWER: Pin tip plug, brass, nickel plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

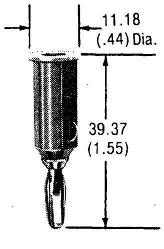


Model No.	Color
1432-0	Black
1432-2	Red

(Pkg. Ten Per Color) **NET .80 EA.**

2.03 mm (.080) DIA. TIP JACK TO BANANA PLUG

Permits pin tip cords to be used with equipment having banana jacks.
UPPER: Pin jack, spring, beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
INSULATION: ABS.
LOWER: Banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

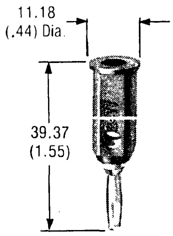


Model No.	Color
1809-0	Black
1809-2	Red

NET 1.50

MINIATURE BANANA JACK TO STANDARD BANANA PLUG

Permits miniature banana plugs to be used with equipment having standard banana jacks.
UPPER: Miniature banana jack, 2.64 mm (.104) dia.; brass, nickel plated.
LOWER: Standard banana plug. Spring, one piece heat treated beryllium copper. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

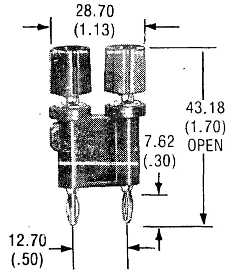


Model No.	Color
2477-0	Black
2477-2	Red

(Pkg. Five Per Color) **NET 1.35 EA.**

MINIATURE BINDING POSTS TO MINIATURE DOUBLE BANANA PLUG

This adapter converts miniature banana jacks to miniature binding posts.
UPPER: Miniature double binding post body and captive thumb nut, brass, gold plated. Polycarbonate insulation. One black and one red. Accepts miniature banana plugs.
INSULATION: ABS, black.
LOWER: Miniature double banana plug. Spring, one piece heat treated beryllium copper, gold plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.

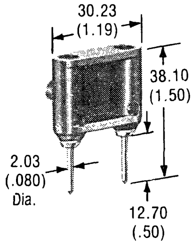


Model No.
3822

NET 8.95

BANANA JACKS TO DOUBLE PIN TIP WITH SETSCREWS

Permits single or double banana plugs to be used in equipment having tip jacks. Features recess for component mounting. Internal setscrews firmly secure wire leads.
UPPER: Banana jacks, 4.22 mm (.166) dia., on 19.05 mm (.075) centers. Brass, nickel plated.
INSULATION: ABS, black.
LOWER: Pin tips, brass, nickel plated.
RATING: 2500WVDC, 5 Amps, +50°C. (+122°F.) Max.

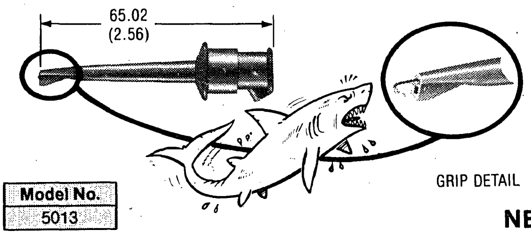


Model No.
1858

NET 2.80

MINIVISE (FISHHOOK HOLDER)

Truly a device with hundreds of uses. It was designed to help the fisherman hold a fishhook while tying flies or attaching leaders; however, its uses are endless when used as a miniature vise. The metal grip is made of gold plated beryllium copper to withstand the toughest environment. The body is orange colored glass-filled nylon to make it both rugged and easy to find.



Model No.
5013

NET 1.35

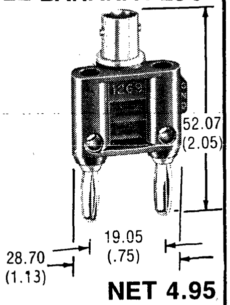
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

BNC ADAPTERS

BNC FEMALE TO STANDARD DOUBLE BANANA PLUG

Permits BNC male to be used with equipment having banana jacks. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: BNC female.
INSULATION: ABS, black
LOWER: Double banana plug, body, brass. Spring, one piece heat treated beryllium copper. Nickel plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

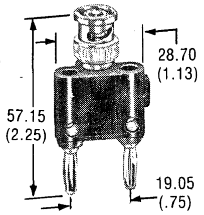


Model No.
1269

NET 4.95

BNC MALE TO DOUBLE BANANA PLUG

Permits BNC female to be used with equipment having banana jacks. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: BNC male.
LOWER: Double banana plug, body, brass. Spring, one piece heat treated beryllium copper. Nickel plated.
INSULATION: ABS, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

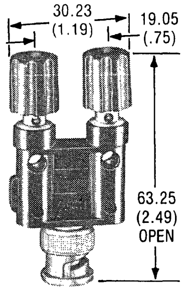


Model No.
1270

NET 7.50

STANDARD DOUBLE BINDING POSTS TO BNC MALE

Permits single or double banana plugs to be used with equipment having a BNC female.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: BNC male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

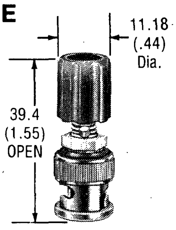


Model No.
1296

NET 9.25

SINGLE BINDING POST TO BNC MALE

Permits single banana plug to be used with equipment having a BNC female.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs.
INSULATION: Polycarbonate.
LOWER: BNC Male.
RATING: 500 VRMS, +115°C. (+239°F.) Max.



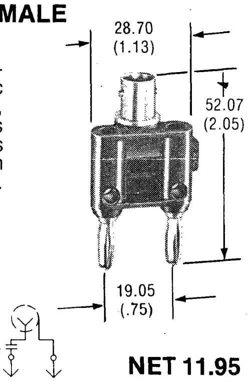
Model No.	Color
3430-0	Black
3430-2	Red

NET 4.50

SIGNAL ISOLATOR — BNC FEMALE TO DOUBLE BANANA PLUG

Permits BNC male connector to be used with equipment having banana jacks. General purpose ceramic capacitor molded internally. Rated @ .01 uf ± 20%, 200 W VDC. Insulation resistance 10,000 megohms min. Ideal for isolating DC signals from VTVM inputs and signal generator outputs. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.

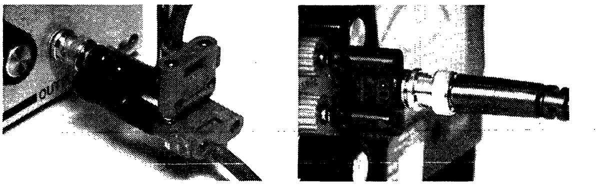
UPPER: BNC female.
INSULATION: ABS, blue.
LOWER: Double banana plug. Nickel plated.
RATING: 200 WVDC, +50°C. (+122°F.) Max.



Model No.
1868

Note: Can not pass continuity test due to capacitor.

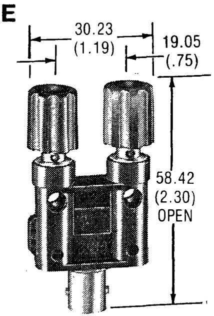
NET 11.95



Now! Increase the flexibility of your laboratory with the use of POMONA ELECTRONICS test accessories. Minimize the necessity of stocking a large quantity and variety of coaxial cables by using POMONA ELECTRONICS molded adapters. Tough thermoplastic material molded to plug body or connectors insures maximum strength, moisture resistance and excellent insulative properties.

BINDING POSTS TO BNC FEMALE

Permits single or double banana plugs to be used with equipment having a BNC male.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: BNC female.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

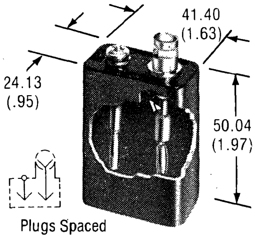


Model No.
1452

NET 7.50

BNC FEMALE TO SHIELDED DOUBLE BANANA PLUG

Permits BNC male to be used with equipment having banana jack binding posts. Black anodized aluminum shield.
UPPER: BNC female.
LOWER: Double banana plug body, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Shielded can, aluminum, black anodized.
RATING: 500 VRMS, +125°C. (+257°F.) Max.

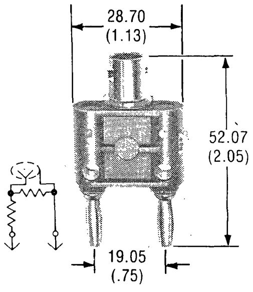


Model No.
1645

NET 11.95

BNC MATCHING PAD

Adapts 600 Ohm sources to 50 or 75 Ohm cables. Molded in deposited carbon resistors 1%, ¼W. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: BNC female.
INSULATION: ABS.
LOWER: Double banana plug, centers. Nickel plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

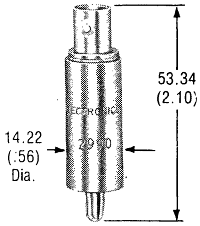


Model No.	Color	Match in Ohms
1656-1	Yellow	600 to 50
1656-2	Red	600 to 75

NET 15.95

BNC FEMALE TO SHIELDED BANANA PLUG

Permits BNC male to be used with equipment having banana jacks or binding posts. All metal construction for proper shielding.
UPPER: BNC female
LOWER: Shielded banana plug. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Shield, brass, nickel plated.
RATING: 500 VRMS, +125°C. (+257°F.) Max.



Model No.
2990

NET 6.50

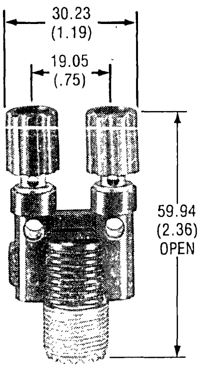
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

UHF & TYPE N ADAPTERS

BINDING POSTS TO UHF FEMALE

Permits single or double banana plugs to be used with equipment having UHF male. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: UHF female.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

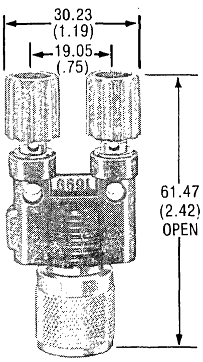


Model No.
1792

NET 18.95

BINDING POSTS TO UHF MALE

Permits single or double banana plugs to be used with equipment having a UHF female. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: UHF male.
RATING: 500 VRMS, +55°C. (+122°F.) Max.

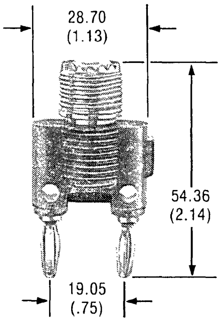


Model No.
1699

NET 12.95

UHF FEMALE TO DOUBLE BANANA PLUG

Permits UHF male to be used with equipment having banana jacks. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: UHF female.
LOWER: Double banana plug. Spring, one piece heat treated beryllium copper, Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
INSULATION: ABS, black,
RATING: 500 VRMS, +50°C. (+122°F.) Max.

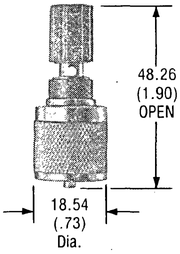


Model No.
1707

NET 14.80

BINDING POST TO UHF MALE

Permits single banana plug to be used with equipment having a UHF female.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Accepts standard banana plugs. Polycarbonate insulation, red.
LOWER: UHF male.
RATING: 500 VRMS, +115°C. (+239°F.) Max.

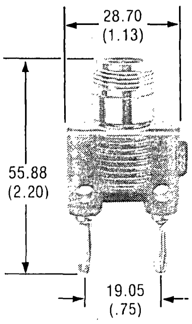


Model No.
1698

NET 18.95

TYPE "N" FEMALE TO DOUBLE BANANA PLUG

Permits type "N" male to be used with equipment having banana jacks. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Type "N" female.
LOWER: Double banana plug. Nickel plated. Fits standard banana jack.
INSULATION: ABS, black.
RATING: 1000 VRMS, +50°C. (+122°F.) Max.

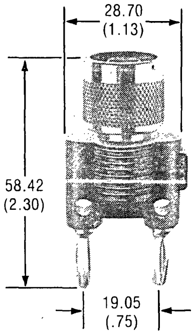


Model No.
1740

NET 15.95

TYPE "N" MALE TO DOUBLE BANANA PLUG

Permits type "N" female plugs to be used with equipment having banana jacks. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Type "N" male.
LOWER: Double banana plug. Nickel plated. Fits standard banana jack.
INSULATION: ABS, black.
RATING: 1000 VRMS, +50°C. (+122°F.) Max.

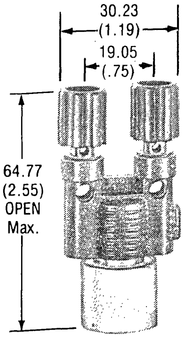


Model No.
1770

NET 13.95

BINDING POSTS TO TYPE "N" MALE

Permits single or double banana plugs to be used with equipment having type "N" female. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Type "N" male.
RATING: 1000 VRMS, +50°C. (+122°F.) Max.

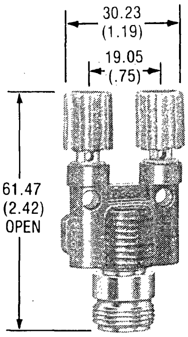


Model No.
1796

NET 16.75

BINDING POSTS TO TYPE "N" FEMALE

Permits single or double banana plugs to be used with equipment having type "N" males. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Binding post body and captive thumb nut, brass nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Type "N" female.
RATING: 1000 VRMS, +50°C. (+122°F.) Max.



Model No.
1992

NET 19.25

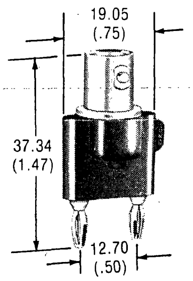
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

COAXIAL ADAPTERS

BNC FEMALE TO MINIATURE DOUBLE BANANA PLUG

Allows a BNC male to be used with equipment having 12.70 mm (.500) spaced miniature 2.64 mm (.104) dia. banana jacks. Excellent for adapting tests equipment to standard coaxial cables.
UPPER: BNC female.
INSULATION: ABS, black.
LOWER: Miniature double banana plug body, brass. Spring, one piece heat treated beryllium copper, Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

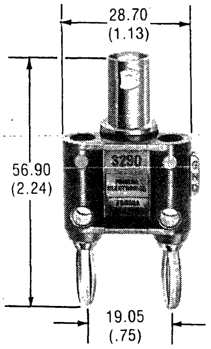


Model No.
3269

NET 6.95

MHV FEMALE TO DOUBLE BANANA PLUG

This adapter allows an MHV male to be used with equipment having 19.05 mm (.750) spaced banana jacks. Cross holes 4.22 mm (.166) dia. provide side stackup connections.
UPPER: MHV female.
INSULATION: ABS, black.
LOWER: Double banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated.
RATING: 5000 V peak, +50°C. (+122°F.) Max.

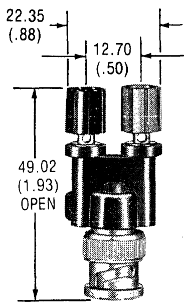


Model No.
3290

NET 19.95

MINIATURE BINDING POSTS TO BNC MALE

Converts a BNC female to miniature 12.70 mm (.500) spaced binding posts.
UPPER: Miniature binding post body and captive thumb nut, brass, gold plated. Accepts miniature banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: BNC male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

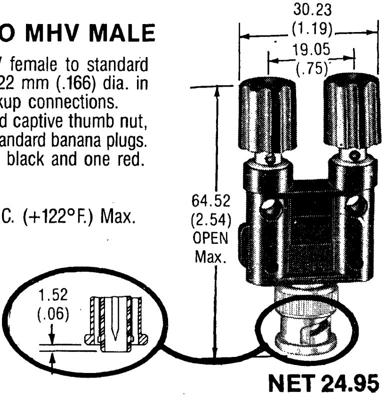


Model No.
3296

NET 12.95

BINDING POSTS TO MHV MALE

This adapter converts a MHV female to standard binding posts. Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: MHV male.
RATING: 5000 V peak, +50°C. (+122°F.) Max.

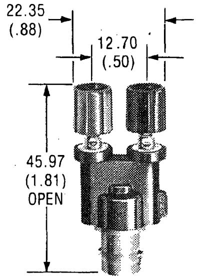


Model No.
3291

NET 24.95

MINIATURE BINDING POSTS TO BNC FEMALE

This adapter converts a BNC male to miniature 12.70 mm (.500) spaced binding posts.
UPPER: Miniature binding post body and captive thumb nut, brass, gold plated. Accepts miniature banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: BNC female.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

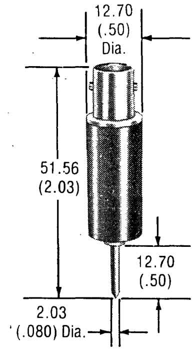


Model No.
4730

NET 10.95

BNC FEMALE TO SINGLE PIN TIP PLUG

Permits BNC male to be used with equipment having 2.03 mm (.080) dia. pin tip jacks. Inner conductor connected only. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables.
UPPER: BNC female.
INSULATION: ABS, black.
LOWER: Single pin tip plug, brass, nickel plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

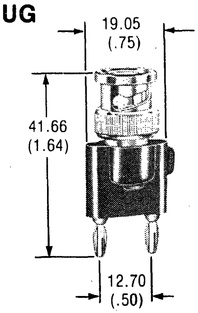


Model No.
3415

NET 4.25

BNC MALE TO MINIATURE DOUBLE BANANA PLUG

Allows a BNC female to be used on equipment having 12.70 mm (.500) spaced 2.64 mm (.104) dia. banana jacks.
UPPER: BNC male.
INSULATION: ABS, black.
LOWER: Miniature double banana plug body, brass. Spring, one piece heat treated beryllium copper, Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

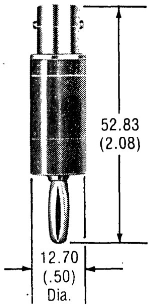


Model No.
3270

NET 8.95

BNC FEMALE TO SINGLE STANDARD BANANA PLUG

Permits BNC male to be used with equipment having banana jacks. Inner conductor connected only. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables.
UPPER: BNC female.
LOWER: Single banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard banana jack.
INSULATION: ABS, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.



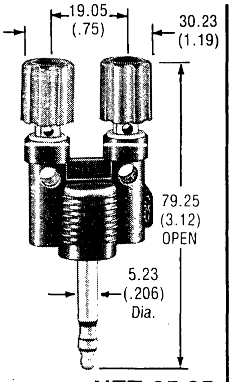
Model No.
1894

NET 4.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHONE ADAPTERS

BINDING POSTS TO PJ-068/WE-309 PHONE PLUG

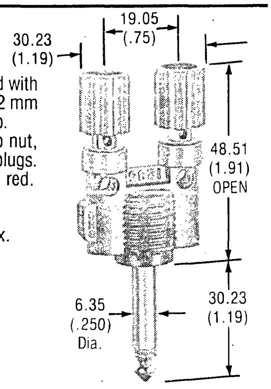


Permits single or double banana plug to be used with equipment having three circuit phone jacks. Tip connected to red post, ring to black. Sleeve, no connection. Cross holes 4.22 mm (.166) dia. in plug body provide side stackup.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Phone plug, PJ-068 (equivalent to WE-309).
RATING: 500 V peak, +50°C. (+122°F.) Max.

Model No.
3365

NET 25.95

BINDING POSTS TO PHONE PLUG

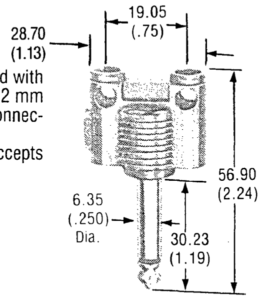


Permits single or double banana plug to be used with equipment having phone jacks. Cross holes 4.22 mm (.166) dia. in plug body provide side stackup.
UPPER: Binding post body and captive thumb nut, brass, gold plated. Accepts miniature banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Standard phone plug.
RATING: 500 WVDC, +50°C. (+122°F.) Max.

Model No.
1285

NET 9.95

BANANA JACKS TO PHONE PLUG

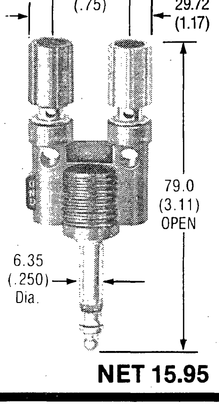


Permits single or double banana plug to be used with equipment having phone jacks. Cross holes 4.22 mm (.166) dia. in plug body provide side stackup connection.
UPPER: Banana jack, brass, nickel plated. Accepts standard banana plugs.
INSULATION: ABS, black.
LOWER: Standard phone plug.
RATING: 500 WVDC, +50°C. (+122°F.) Max.

Model No.
1980

NET 8.75

BINDING POSTS TO PJ-051/WE-310 PHONE PLUG

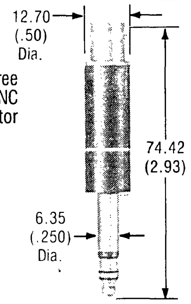


Permits single or double banana plug to be used with equipment having three circuit phone jacks. Tip connected to hot side of adapter and ring connected to ground side. Sleeve, no connection. Cross holes 4.22 mm (.166) dia. in plug body provide side stackup.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Phone plug, PJ-051 (equivalent to WE-310).
RATING: 500 V peak, +50°C. (+122°F.) Max.

Model No.
2112

NET 15.95

BNC FEMALE TO PJ-051/WE-310 PHONE PLUG

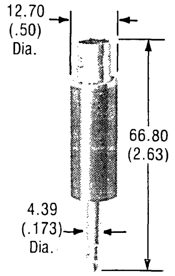


Permits BNC male to be used with equipment having three circuit phone jacks. Readily adapts equipment to available BNC coaxial cables. Tip connected to inner contact of connector and ring connected to shell. Sleeve, no connection.
UPPER: BNC female.
INSULATION: ABS, black.
LOWER: Phone plug, PJ-051 (equivalent to WE-310).
RATING: 500 V peak, +50°C. (+122°F.) Max.

Model No.
2798

NET 15.50

BNC FEMALE TO MINIATURE (BANTAM) PLUG

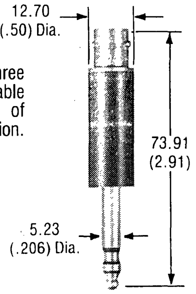


Permits BNC male to be used with equipment having miniature (bantam) jacks. Readily adapts equipment with BNC jacks through the use of BNC coaxial cables. Tip is connected to inner contact of connector and the ring is connected to the shell. The sleeve is not connected.
UPPER: BNC female.
INSULATION: ABS, black.
LOWER: Miniature (Bantam) phone plug.
RATING: 500 V peak, +50°C. (+122°F.) Max.

Model No.
4719

NET 14.50

BNC FEMALE TO PJ-068/WE-309 PHONE PLUG

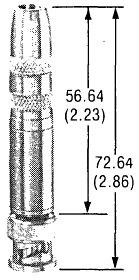


Permits BNC male to be used with equipment having three circuit phone jacks. Readily adapts equipment to available BNC coaxial cable. Tip connected to inner contact of connector and ring connected to shell. Sleeve, no connection.
UPPER: BNC female.
INSULATION: ABS, black.
LOWER: Phone plug, PJ-068 (equivalent to WE-309).
RATING: 500 V peak, +50°C. (+122°F.) Max.

Model No.
1794

NET 24.95

PHONE JACK TO BNC MALE

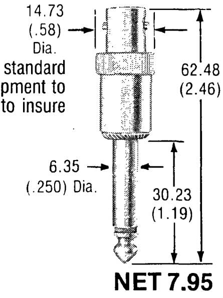


Permits a standard 2 conductor 6.35 mm (.250) dia. phone plug to be used with equipment having BNC female. All metal construction to insure proper shielding.
UPPER: Phone plug jack, accepts standard 6.35 mm (.250) dia. phone plug, 30.23 mm (1.190) long.
LOWER: BNC male.
RATING: 500 VRMS

Model No.
4043

NET 15.95

BNC FEMALE TO PHONE PLUG



Permits BNC male to be used with equipment having standard 6.35 mm (.250) dia. phone jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: Standard phone plug.
RATING: 500 VRMS.

Model No.
1297

NET 7.95

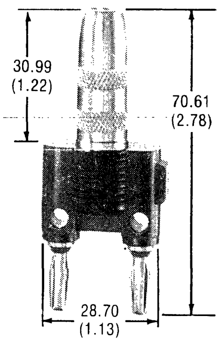
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PHONE/PHONO ADAPTERS

PHONE JACK TO DOUBLE BANANA PLUG

Permits a standard 2 conductor 6.35 mm (.250) dia. phone plug to be used with equipment having banana jacks or binding posts. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections.
UPPER: Phone jack, accepts standard 6.35 mm (.250) dia. phone plug.
INSULATION: ABS.
LOWER: Banana plug body. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

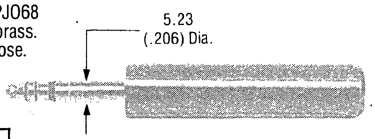


Model No.
4044

NET 11.25

PHONE PLUG PJ068 (WE309)

MATERIAL: Phone plug, PJ068 (equivalent to WE 310), brass.
INSULATION: Ethyl cellulose.
RATING: 500 V peak.

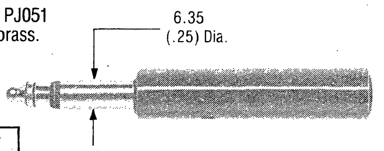


Model No.	Handle Color
4798-0	Black
4798-2	Red

NET 13.95

PHONE PLUG PJ051 (WE310)

MATERIAL: Phone plug, PJ051 (equivalent to WE310), brass.
INSULATION: Phenolic.
RATING: 500 V peak.

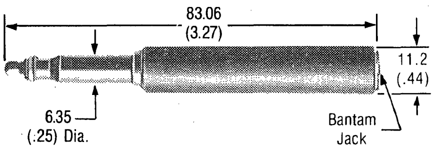


Model No.	Handle Color
4797-0	Black
4797-2	Red

NET 10.25

MINIATURE (BANTAM) JACK TO PJ-051 (WE-310) PLUG

This adapter allows the use of miniature (Bantam) plug patch cords to be used in equipment fitted with PJ-051 jacks.
UPPER: Miniature (Bantam) 4.39 mm (.173) dia. phone jack.
INSULATION: Nylon.
LOWER: PJ-051 plug.
RATING: 500 V peak.

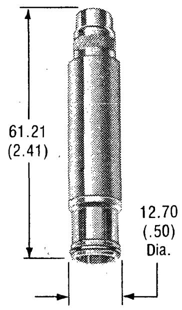


Model No.
4993

NET 15.95

PHONO JACK TO TYPE "F" MALE PUSH-ON

This adapter is a must for the home computer user. It allows a phono cable to be plugged into the type "F" female connector in the rear of TV sets.
UPPER: Phono jack, brass, nickel plated.
LOWER: Type "F" male push-on.
RATING: +50°C. (+122°F.) Max.

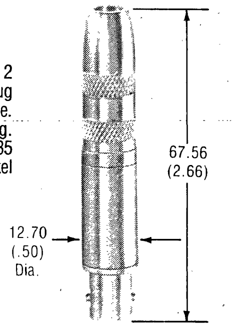


Model No.
4984

NET 8.95

PHONE JACK TO BNC FEMALE

This adapter allows a cable with a 2 conductor 6.35 mm (.250) dia. phone plug to be attached to a cable with a BNC male. All metal construction for proper shielding.
UPPER: Phone jack, accepts standard 6.35 mm (.250) dia. phone plug. Brass, nickel plated.
LOWER: BNC female.
RATING: 500 VRMS, +85°C. (+185°F.) Max.

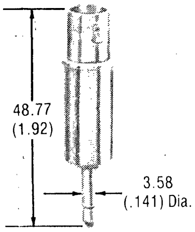


Model No.
4026

NET 11.95

BNC FEMALE TO TINI PLUG

Permits BNC males to be used with equipment having Tini Jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: 2 conductor Tini Plug.
RATING: 500 VRMS, +125°C. (+257°F.) Max.

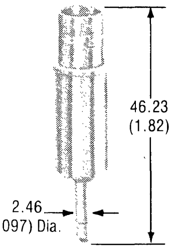


Model No.
3837

NET 8.25

BNC FEMALE TO MICRO PLUG

Permits BNC males to be used with equipment having micro jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: 2 conductor micro plug.
RATING: 500 VRMS

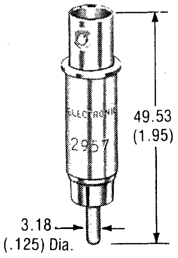


Model No.
4267

NET 8.95

BNC FEMALE TO PHONO PLUG

Permits BNC male to be used with equipment having phono jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: Phone plug, brass, nickel plated.
RATING: 500 VRMS, +102°C. (+216°F.) Max.

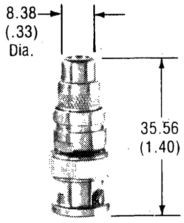


Model No.
2957

NET 6.95

PHONO JACK TO BNC MALE

Permits phono plug to be used with equipment having BNC females. Quickly converts a cable with a phono plug to a BNC male. All metal construction to insure proper shielding.
UPPER: Phono jack, brass, nickel plated.
LOWER: BNC male.
RATING: 500 VRMS, +125°C. (+257°F.) Max.



Model No.
4054

NET 11.95

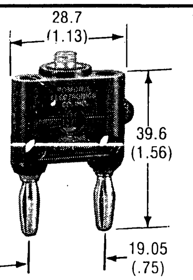
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MISCELLANEOUS ADAPTERS

MICRODOT RECEPTACLE TO DOUBLE BANANA PLUG

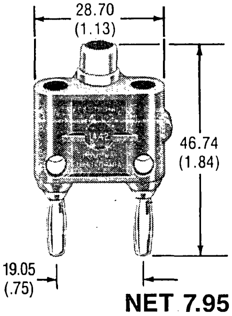
Permits Microdot miniature coaxial plug to be used with equipment having banana jacks. Cross holes in body provide side stackup connections.
UPPER: Microdot receptacle, 50 Ohms.
INSULATION: ABS.
LOWER: Banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 750 VRMS, +50°C. (+122°F.) Max.



Model No.	Color	Receptacle Type	Net.
1275	Green	10-32 thread	22.95
1276	Black	Slide-on	20.95

PHONO JACK TO DOUBLE BANANA PLUG

Permits phono plug to be used with equipment having banana jacks or binding posts. Cross holes 4.22 (.166) dia. in body provides side stackup connections.
UPPER: Phono jack.
INSULATION: Polystyrene, black.
LOWER: Banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated.
RATING: 500 WVDC, +50°C. (+122°F.) Max.

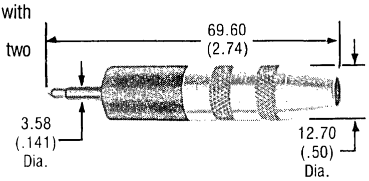


Model No.
1442

NET 7.95

STANDARD PHONE JACK TO TINI PLUG

This adapter allows a standard two conductor phone plug to be used with equipment having a tini jack.
UPPER: Standard 6.35 mm (.250) two conductor phone jack.
INSULATION: ABS.
LOWER: Tini plug.
RATING: 500 WVDC, +50°C. (+122°F.) Max.

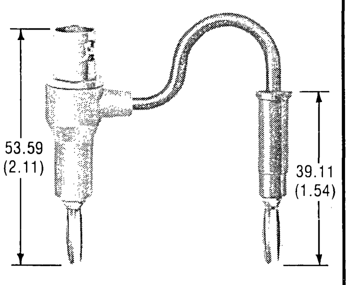


Model No.
4989

NET 12.75

BNC FEMALE TO SINGLE BANANA PLUG WITH GROUND LEAD

Permits BNC male to be used with equipment using standard banana jacks. Allows the ground jack to be located up to 63.50 mm (2.50) away from the output/input jack.
UPPER: BNC female.
INSULATION: Polypropylene, red.
LOWER: Banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Ground, 18 AWG wire with single banana plug. Polypropylene insulation, black.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

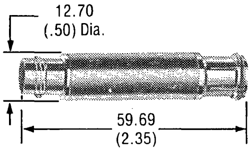


Model No.
4684

NET 8.50

BNC FEMALE TO TYPE "F" MALE PUSH-ON

This adapter allows equipment, such as TVs, computers, etc., using type "F" females to be used with equipment with BNC connectors.
UPPER: BNC female.
LOWER: Type "F" male push-on.
RATING: 500 VRMS, +85°C. (+185°F.) Max.

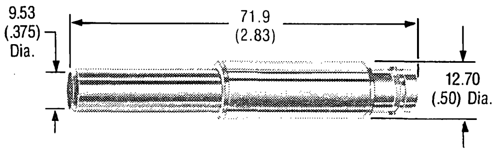


Model No.
4941

NET 10.50

BNC FEMALE TO .090 VIDEO PLUG

Permits BNC male to be used with equipment having Western Electric 2.29 mm (.090) video plugs.
UPPER: BNC female.
LOWER: Video plug (equivalent to WE-090).
RATING: 500 VRMS

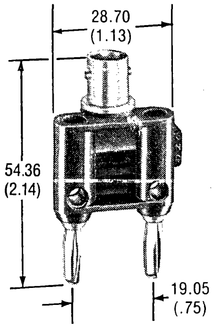


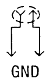
Model No.
5008

NET 27.50

TWINAX FEMALE TO DOUBLE BANANA PLUG

This adapter allows a twinax male to be used with equipment having 19.05 mm (.750) spaced banana jacks.
UPPER: Twinax female.
INSULATION: ABS, black.
LOWER: Banana plug body, brass. Spring, one piece heat treated beryllium copper, nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 500 VRMS, +50°C. (+122°F.) Max.



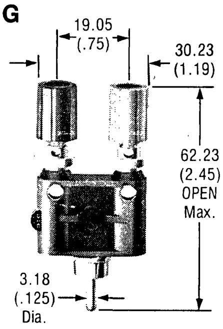


Model No.
4930

NET 19.95

BINDING POSTS TO PHONO PLUG

Permits single or double banana plugs to be used with equipment having a phono jack. Ideal for banana plug stackups or patch cords.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: RCA phono plug.
RATING: +50°C. (+122°F.) Max.

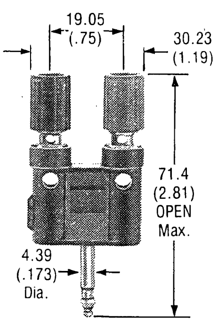


Model No.
4729

NET 9.75

BINDING POSTS TO MINIATURE (BANTAM) PLUG

Permits single or double banana plug to be used with equipment having three-circuit phone jacks. Tip connected to hot side of adapter and ring connected to ground side. Sleeve, no connection.
UPPER: Binding post body and captive thumb nut, brass, nickel plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
INSULATION: ABS, black.
LOWER: Miniature (bantam) phone plug.
RATING: 500 V Peak, +50°C. (+122°F.) Max.



Model No.
5001

NET 13.95

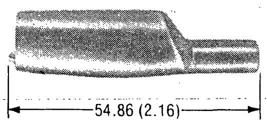
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MISCELLANEOUS ADAPTERS

INSULATED ALLIGATOR CLIP TO BANANA JACK

MATERIAL: Alligator clip, steel. Accepts standard banana plug.
FINISH: Nickel plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



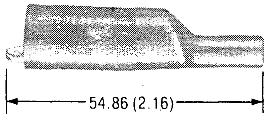
Model No.	Color
2240-0	Black
2240-2	Red

Unassembled.
10 clips
and 10 insulators per pkg.
(Pkg. Ten Per Color)

NET .50 EA.

GOLD PLATED INSULATED ALLIGATOR CLIP TO BANANA JACK

MATERIAL: Alligator clip, copper. Accepts standard banana plug.
FINISH: Gold plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



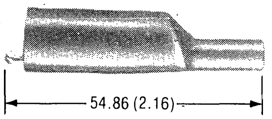
Model No.	Color
3289-0	Black
3289-2	Red

1 clip and 1 insulator per pkg.

NET 1.65

INSULATED ALLIGATOR CLIP TO PIN TIP JACK

MATERIAL: Alligator clip, steel. Pin jack body, brass. Spring, beryllium copper. Accepts 2.03 mm (.080) dia. pin.
FINISH: Alligator clip, nickel plated. Pin jack, gold plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



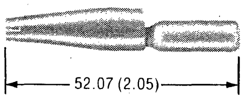
Model No.	Color
1437-0	Black
1437-2	Red

Unassembled.
10 clips and 10 insulators per pkg.
(Pkg. Ten Per Color)

NET 1.35 EA.

INSULATED MINIGATOR CLIP TO BANANA JACK

MATERIAL: Minigator clip, steel. Banana jack, brass. Accepts standard banana plugs.
FINISH: Minigator clip, cadmium plated. Banana jack, nickel plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



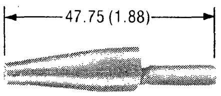
Model No.	Color
3448-0	Black
3448-2	Red

Unassembled.
1 clip and 1 insulator per pkg.

NET 1.75

INSULATED MINIGATOR CLIP TO PIN TIP JACK

MATERIAL: Minigator clip, steel. Pin jack body, brass. Spring, beryllium copper. Accepts 2.03 mm (.080) dia. pin.
FINISH: Minigator clip, cadmium plated. Pin jack, gold plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



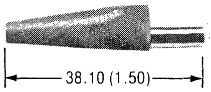
Model No.	Color
3491-0	Black
3491-2	Red

Unassembled.
1 clip and 1 insulator per pkg.

NET 1.85

MINIGATOR CLIP WITH 6-32 THREAD

This minigator can be used with oscilloscopes and leads equipped with 6-32 screw on tip.
MATERIAL: Minigator clip, steel. Bushing, brass. Accepts 6-32 screw.
FINISH: Cadmium plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



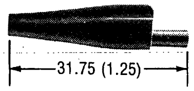
Model No.	Color
4517-0	Black
4517-2	Red

Unassembled.
1 clip and 1 insulator per pkg.

NET 2.45

MINIGATOR TO MINIATURE BANANA JACK

MATERIAL: Minigator clip, steel.
FINISH: Cadmium plated.
INSULATION: Vinyl, red or black.
RATING: +50°C. (+122°F.) Max.



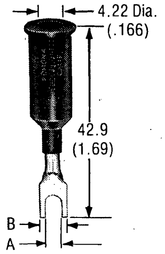
Model No.	Color
3217-0	Black
3217-2	Red

Unassembled.
10 clips and 10 insulators per pkg.
(Pkg. Ten Per Color)

NET .60 EA.

INSULATED BARRIER STRIP SPADE LUG TO BANANA JACK

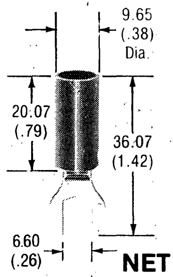
Permits single banana plug to be used with equipment having barrier strips. Lugs fit a No. 4, 5, 6, 8 or 10 screw (see listing).
UPPER: Banana jack, 4.22 (.166) dia., brass, nickel plated.
LOWER: 0.76 mm (.03) thick. Spade lug, (see listing). Copper, electro-tin plated.
INSULATION: ABS.
RATING: +50°C. (+122°F.) Max.



Model No.	Color	Lug Size	Dim. A	Dim. B	Net.
3744-0	Black	4, 5 & 6	3.81 (.15)	6.10 (.24)	1.95
3744-2	Red	4, 5 & 6	3.81 (.15)	6.10 (.24)	1.95
3777-0	Black	8 & 10	4.83 (.19)	7.62 (.30)	1.95
3777-2	Red	8 & 10	4.83 (.19)	7.62 (.30)	1.95

INSULATED SPADE LUG TO PIN TIP JACK

Permits single pin tip plug to be used with equipment having binding posts.
UPPER: Pin jack. Spring, beryllium copper, gold plated.
INSULATION: ABS
LOWER: 1.52 mm (.060) thick spade lug, brass, nickel plated.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

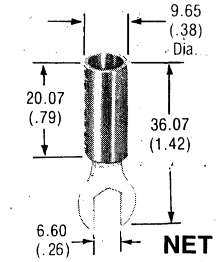


Model No.	Color
4769-0	Black
4769-2	Red

NET 2.25

INSULATED SPADE LUG TO BANANA JACK

Permits single banana plug to be used with equipment having binding posts.
UPPER: Banana jack, brass, nickel plated. Accepts standard banana plug.
INSULATION: ABS.
LOWER: 1.52 mm (.060) thick spade lug, brass, nickel plated.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.

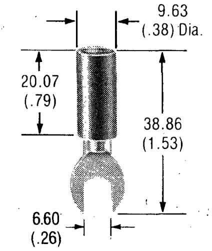


Model No.	Color
1614-0	Black
1614-2	Red

NET 1.50

LOW THERMAL EMF TELLURIUM COPPER INSULATED SPADE LUG TO BANANA JACK

Provides precision measurement when attaching banana plug to equipment with binding posts.
UPPER: Banana jack, tellurium copper, gold plated. Accepts standard banana plug.
INSULATION: ABS, one black and one red.
LOWER: 2.03 mm (.080) thick spade lug, tellurium copper, gold plated.
RATING: 5000 WVDC, 15 Amps, +50°C. (+122°F.) Max.



Model No.
2305

(Kit contains 1 Red & 1 Black)

NET 8.50 KIT

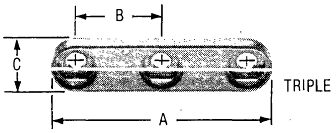
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

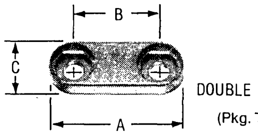
ITT POMONA ELECTRONICS

MISCELLANEOUS ACCESSORIES

DOUBLE AND TRIPLE MOUNTING BASES

MATERIAL: Polycarbonate
RATING: +115°C. (+239°F.) Max.





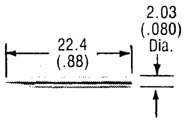
(Pkg. Ten Per Color)

Model No.	Color	Type	A	B	C	Used On	Net
3862-0 3862-2	Black Red	Double	30.2 (1.19)	19.1 (.750)	11.2 (.44)	3750, 3760, 3770 4098	.40 EA
3863-0 3863-2	Black Red	Triple	49.3 (1.94)	19.1 (.750)	11.2 (.44)	3750, 3760, 3770 4098	.95 EA
4619-0 4619-2	Black Red	Double	22.1 (.87)	12.7 (.500)	9.6 (.38)	2141, 2382, 2439, 4022, 4773, 3542	.35 EA
4614-0 4614-2	Black Red	Triple	35.1 (1.38)	12.7 (.500)	9.6 (.38)	2142, 2382, 2439, 4022, 4773, 3542	.60 EA
4654-0 4654-2	Black Red	Double	35.1 (1.38)	19.1 (.750)	16.0 (.63)	1581, 2854, 4005	.35 EA
4590-0 4590-2	Black Red	Triple	54.1 (2.13)	19.1 (.750)	16.0 (.63)	1581, 2854, 4005	.80 EA

REPLACEMENT TIPS FOR TEST PROBES • Fits all models with replaceable tips

2.03 mm (.080) NEEDLE TIP

- Stainless steel.
- Sharp point to pierce varnish, conformal coatings for good contact.



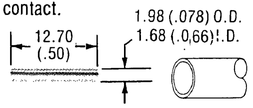
(Ten Per Pkg.)

Model No.
4174

NET 2.95 PKG.

TUBE TIP

- Brass, nickel plated.
- Excellent for measuring PC board solder joints. Reduces possibility of slipping off contact.



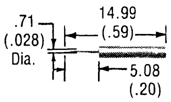
(Ten Per Pkg.)

Model No.
4574

NET 2.50 PKG.

0.71 mm (.028) NEEDLE TIP

- Stainless steel.
- Sharp point to pierce varnish, conformal coatings for good contact.



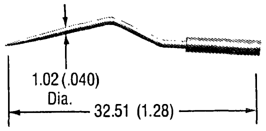
(Ten Per Pkg.)

Model No.
4988

NET 10.50 PKG.

MICRO TIP

- Stainless steel.
- Sharp semi-flexible tip.



(Five Per Pkg.)

Model No.
5133

NET 4.75 PKG.

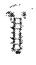
REPLACEMENT SCREWS

4914
Setscrew, 8-32 × .210
headless, slotted, steel,
zinc plated.

4863
Binding head, Phillips
4-40 NC-2A x .250
carbon steel, cadmium plated.

4862
Flathead, Phillips
4-40 NC-2A x .250
carbon steel, cadmium plated.

4861
Panhead, Phillips
2-56 NC-2A x .187
carbon steel, cadmium plated.



4864
Self-tapping, panhead, 2-32 x .250,
carbon steel, cadmium plated.

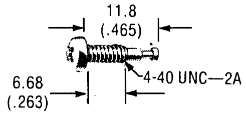
(100 Per Pkg.)

NET 10.00 PKG.

Model No.	Used on
4914	MDP, 1325, 1825, 1858, 2970, 4892, 4897, 4898, 4899, 4966, 5230
4861	1177, 1943, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2224, 2259, 2262, 3724, 3725
4862	3301, 3302, 3303, 3306, 3307, 3311, 3312, 3316, 3742, 3743, 4720, 4739
4863	2901, 2902, 2903, 2904, 2906, 3601, 3602, 3603, 3606, 4226, 4641, 5186
4864	2390, 2391, 2392, 2393, 2395, 2397, 2398, 2399, 2400, 2401, 2410, 2411, 2413, 2417, 2418, 2419, 2420, 2428, 3230, 3231, 3232, 3233, 3234, 3239, 3751, 3752, 3753, 3754, 3850, 4050, 4057, 4109, 4384, 4607, 4655, 4656, 4745, 4902, 4903, 5255, 5203

SOLDER TURRET TERMINAL SCREW

Excellent for mounting of panel receptacles. Turret on end of screw for soldering. #4-40, Phillips head, steel, cadmium plated.



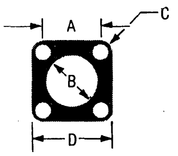
Model No.
2352

(100 Per Pkg.)

NET 40.00 PKG.

RFI/EMC CONNECTOR FLANGE GASKET

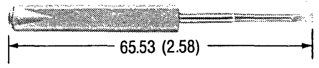
This RFI/EMC connector flange gasket has an adhesive back for simple installation. Monel metal fibers imbedded in this silicone rubber gasket suppresses RFI/EMC radiation. Model 4780 fits standard BN/BNC flanges and Model 4795 fits standard type "N" and UHF flanges.



Model No.	A (Sq.)	B Dia.	C Dia.	D (Sq.)	Net
4780	12.70 (.50)	11.10 (.437)	2.77 (.109)	17.53 (.69)	4.75
4795	18.30 (.72)	15.88 (.625)	4.37 (.172)	25.40 (1.00)	3.50

MINIATURE SCREWDRIVER FOR SETSCREWS

A specially designed screwdriver with slender tip for tightening of setscrews on miniature plugs.
MATERIAL: Steel
INSULATION: Polycarbonate



Model No.
3736

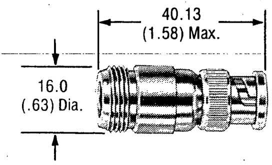
NET 2.15

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

COAXIAL ACCESSORIES

TYPE "N" FEMALE TO BNC MALE

Allows the use of a Type "N" male on equipment having a BNC female.
SHELL: Brass, tarnish resistant plating.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohms impedance, 500 VRMS.

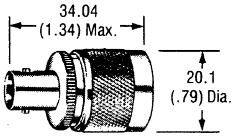


Model No.
3535

NET 9.75

BNC FEMALE TO TYPE "N" MALE

Allows the use of a BNC male on equipment having a Type "N" female.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohms impedance, 500 VRMS.

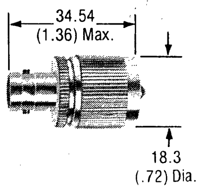


Model No.
3288

NET 6.95

BNC FEMALE TO UHF MALE

Allows the use of a BNC male on equipment having a UHF female.
SHELL: Brass, tarnish resistant plated.
INSULATION: Rexolite.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.

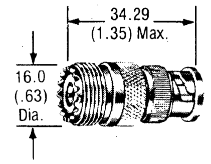


Model No.
3286

NET 6.50

UHF FEMALE TO BNC MALE

Allows the use of a UHF male on equipment having a BNC female.
SHELL: Brass, tarnish resistant plated.
INSULATION: Rexolite.
CENTER CONTACT: Phosphor bronze, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.

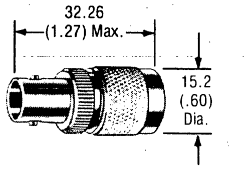


Model No.
3287

NET 9.95

BNC FEMALE TO TNC MALE

Allows the use of a BNC male on equipment having a TNC female.
SHELL: Brass, tarnish resistant plating.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohms impedance, 500 VRMS.

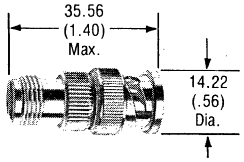


Model No.
3844

NET 9.95

TNC FEMALE TO BNC MALE

Allows the use of a TNC male on equipment having a BNC female.
SHELL: Brass, tarnish resistant plating.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohms impedance, 500 VRMS.

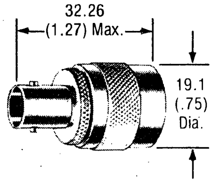


Model No.
5086

NET 7.85

BNC FEMALE TO TYPE "C" MALE

Allows the use of a BNC male on equipment having a Type "C" female.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohms impedance, 500 VRMS.

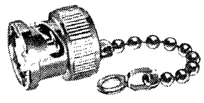


Model No.
3845

NET 12.95

BNC SHORTING PLUG

Use this BNC shorting plug to protect sensitive instrument inputs or to provide a necessary reference short.
SHELL: Brass, tarnish resistant plated.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.



Model No.
5085

NET 5.50

Teflon is a trademark of DuPont.

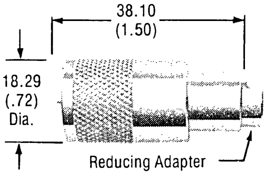
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

COAXIAL ACCESSORIES

UHF MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Phenolic.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS
CABLE TYPES: RG, 8, 9, 11, 13, 58C, 141, 149, 213, 214 and 216.

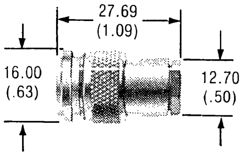

38.10
(1.50)
18.29
(.72)
Dia.
Reducing Adapter

Model No.
4893

NET 5.95

TNC MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.
CABLE TYPES: 55, 58, 141, 142 and 223.

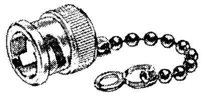

27.69
(1.09)
16.00
(.63)
12.70
(.50)

Model No.
4960

NET 7.75

BNC CAP FOR FEMALES WITH BEAD CHAIN

Male dust cap for protection of BNC females from dirt and accidental shorting.
SHELL: Brass, tarnish resistant plated.
RATING: 500 VRMS.

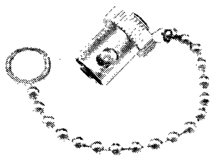


Model No.
3839

NET 2.15

BNC CAP FOR MALES WITH BEAD CHAIN

Female dust cap for protection of BNC males from dirt and accidental shorting.
SHELL: Brass, tarnish resistant plated.
RATING: 500 VRMS.



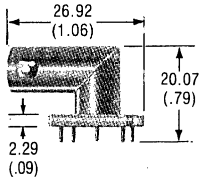
Model No.
4157

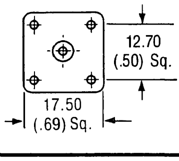
NET 2.95

COAXIAL PC MOUNTS

RIGHT ANGLE BNC FEMALE PC MOUNT

Permits the installation of a right angle BNC female directly to a printed circuit board.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
PC PINS: Brass, silver plated.
RATING: 50 Ohm impedance, 500 VRMS.


26.92
(1.06)
20.07
(.79)
2.29
(.09)

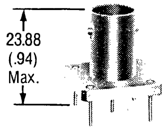

12.70
(.50) Sq.
17.50
(.69) Sq.

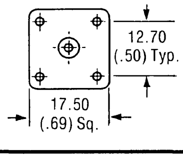
Model No.
4788

NET 19.95

BNC FEMALE PC MOUNT

Permits BNC male to be used with printed circuit boards.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
PC PINS: Brass, silver plated.
RATING: 50 Ohm impedance, 500 VRMS.



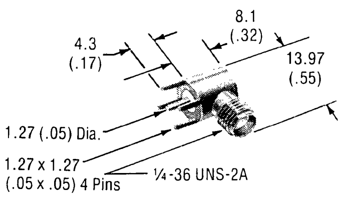

12.70
(.50) Typ.
17.50
(.69) Sq.

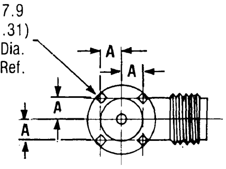
Model No.
4578

NET 8.25

SMA RIGHT ANGLE FEMALE PC MOUNT

Permits the installation of a right angle SMA female directly to a printed circuit board.
SHELL: Beryllium copper, gold plated per requirements of MIL-C-39012.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.


8.1
(.32)
4.3
(.17)
13.97
(.55)
1.27 (.05) Dia.
1.27 x 1.27
(.05 x .05) 4 Pins
¼-36 UNS-2A


7.9
(.31)
Dia.
Ref.
A
A
A
A

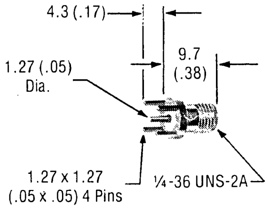
A = 2.5 (.10) Ref.

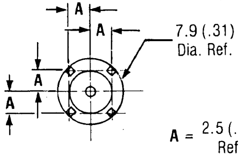
Model No.
4991

NET 29.95

SMA FEMALE PC MOUNT

Permits SMA male to be used with printed circuit boards.
SHELL: Beryllium copper, gold plated per requirements of MIL-C-39012.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.


4.3 (.17)
9.7
(.38)
1.27 (.05)
Dia.
1.27 x 1.27
(.05 x .05) 4 Pins
¼-36 UNS-2A


A
A
7.9 (.31)
Dia. Ref.
A
A

A = 2.5 (.10) Ref.

Model No.
4959

NET 27.95

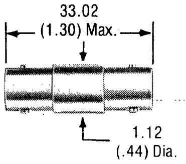
Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

COAXIAL ACCESSORIES

BNC FEMALE TO FEMALE

Allows the interconnection of two coaxial cables with BNC males.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

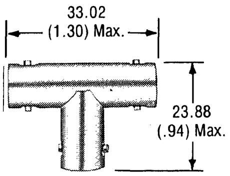


Model No.
3283

NET 3.95

BNC "T" — 3 FEMALES

Allows the interconnection of three coaxial cables with BNC males.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

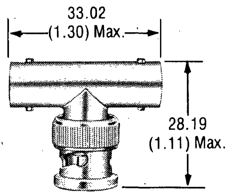


Model No.
3284

NET 11.50

BNC "T" — FEMALE, MALE, FEMALE

With this adapter, equipment or coaxial cables having a single BNC female are changed to two BNC Females.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

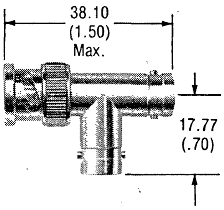


Model No.
3285

NET 10.50

BNC "T" — MALE, FEMALE, FEMALE

Equipment with several side-by-side BNC connectors can easily be adapted for two cables with this novel adapter.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

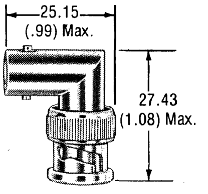


Model No.
4896

NET 15.95

RIGHT ANGLE BNC FEMALE TO BNC MALE

Adapts straight BNC male to right angle BNC male.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

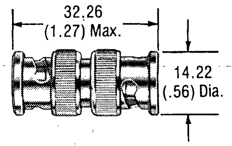


Model No.
3534

NET 8.95

BNC MALE TO MALE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon,.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

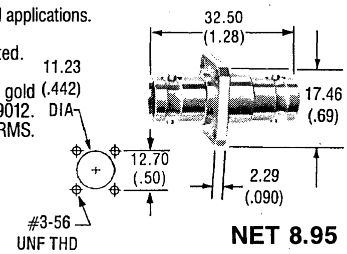


Model No.
3533

NET 7.25

BNC FEMALE TO FEMALE FLANGE MOUNT

Standard BNC feed through for normal applications. See panel layout.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

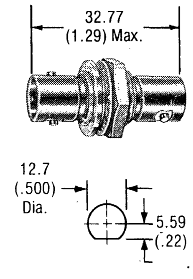


Model No.
4895

NET 8.95

ISOLATED GROUND BNC FEMALE TO FEMALE

Outer conductor is isolated from the panel. Excellent for feeding through panels which require a floating shield. Mounts in panels up to 4.57 mm (.18) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

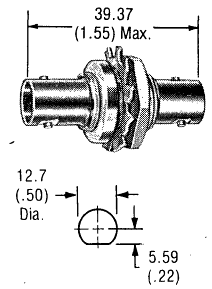


Model No.
3846

NET 12.75

HERMETICALLY SEALED BNC FEMALE TO FEMALE

Excellent for use with equipment which requires a hermetic seal for pressure differences. Silicone rubber 0 ring. Mounts in panels up to 7.11 mm (.28) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

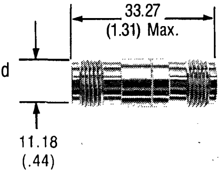


Model No.
3847

NET 9.95

TNC FEMALE TO FEMALE ADAPTER

Allows the interconnection of two cables with TNC males.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.



Model No.
4940

NET 6.95

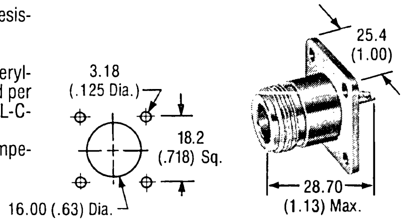
Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PANEL / BULKHEAD RECEPTACLES

TYPE "N" FEMALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

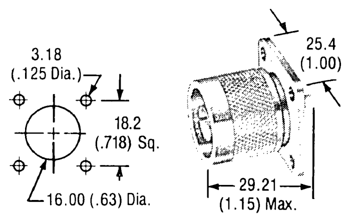

3.18
(.125 Dia.)
18.2
(.718) Sq.
16.00 (.63) Dia.
25.4
(1.00)
28.70
(1.13) Max.

Model No. 2455

NET 6.30

TYPE "N" MALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

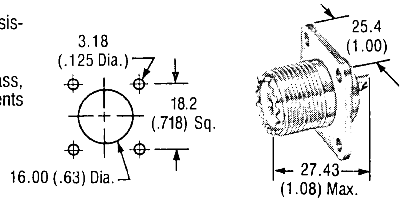

3.18
(.125 Dia.)
18.2
(.718) Sq.
16.00 (.63) Dia.
25.4
(1.00)
29.21
(1.15) Max.

Model No. 2454

NET 16.95

UHF FEMALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.

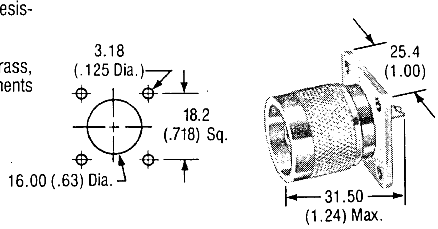

3.18
(.125 Dia.)
18.2
(.718) Sq.
16.00 (.63) Dia.
25.4
(1.00)
27.43
(1.08) Max.

Model No. 2449

NET 7.50

UHF MALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.

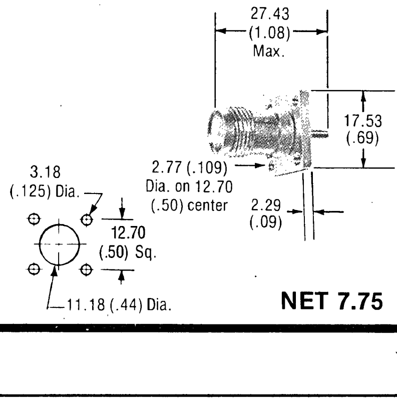

3.18
(.125 Dia.)
18.2
(.718) Sq.
16.00 (.63) Dia.
25.4
(1.00)
31.50
(1.24) Max.

Model No. 2450

NET 12.95

TNC FEMALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance 500 VRMS.

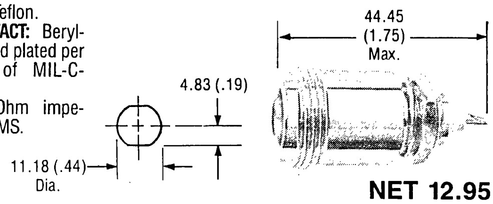

27.43
(1.08)
Max.
17.53
(.69)
2.77 (.109)
Dia. on 12.70
(.50) center
2.29
(.09)
3.18
(.125) Dia.
12.70
(.50) Sq.
11.18 (.44) Dia.

Model No. 4962

NET 7.75

TYPE "N" FEMALE BULKHEAD RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

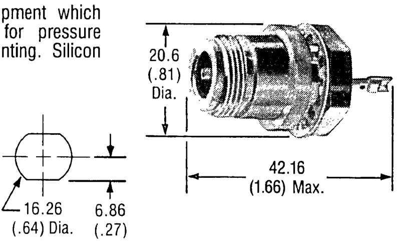

44.45
(1.75)
Max.
4.83 (.19)
11.18 (.44)
Dia.

Model No. 4889

NET 12.95

TYPE "N" HERMETICALLY SEALED FEMALE BULKHEAD RECEPTACLE

Excellent for use with equipment which requires a hermetic seal for pressure differences. Front hole mounting. Silicon rubber 0 ring, withstands 50 psi. Mounts in panels up to 5.08 mm (.20) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

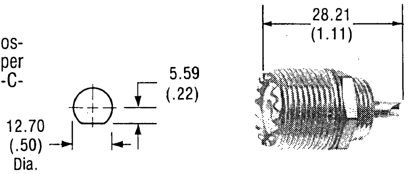

20.6
(.81)
Dia.
42.16
(1.66) Max.
16.26
(.64) Dia.
6.86
(.27)

Model No. 4955

NET 12.95

UHF FEMALE BULKHEAD RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Phosphor bronze, gold plated per requirements of Mil-C-39012.
RATING: 500 VRMS.

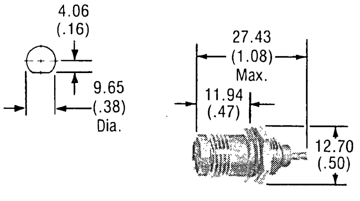

28.21
(1.11)
5.59
(.22)
12.70
(.50)
Dia.

Model No. 4891

NET 8.50

TNC FEMALE BULKHEAD RECEPTACLE

Mounts in panels up to 3.35 mm (.132) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

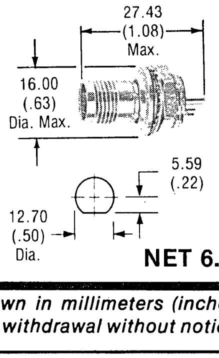

4.06
(.16)
9.65
(.38)
Dia.
27.43
(1.08)
Max.
11.94
(.47)
12.70
(.50)

Model No. 4961

NET 5.95

TNC ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground. Mounts in panels up to 4.32 mm (.17) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.


27.43
(1.08)
Max.
16.00
(.63)
Dia. Max.
5.59
(.22)
12.70
(.50)
Dia.

Model No. 5084

NET 6.95

Teflon is a trademark of DuPont.

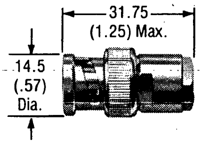
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

COAXIAL CABLE PLUGS/JACKS

BNC MALE CABLE PLUG

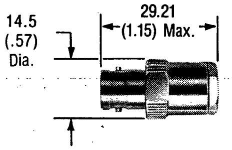
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.



Model No.	Fits Cable Types	Net.
4488	RG 55, 58, 141 142, 223	3.50
4786	RG 59, 62, 71, 210	3.95

BNC FEMALE CABLE JACK

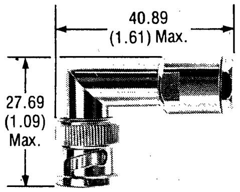
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.



Model No.	Fits Cable Types	Net.
4978	RG 55, 58, 141 142, 223	3.50
5061	RG 59, 62, 71, 210	5.50

BNC RIGHT ANGLE MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.
CABLE TYPES: RG 55, 58, 141, 142 and 223.

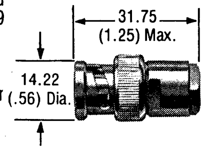


Model No.
4977

NET 13.95

BNC MALE CABLE PLUG, 75 OHMS

Maintains impedance continuity for CATV and other 75 Ohm applications. For use on RG 59 type cables. Standard BNC interface.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 75 Ohm impedance, 500 VRMS.
CABLE TYPES: RG 59 type.



Model No.
5079

NET 11.95

STRESS RELIEF BOOTS

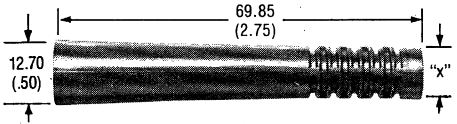
Pomona Electronics offers stress relief boots, molded in PVC to protect cables from wear, fatigue and weathering. Ten colors provide a convenient key for cable identification. These unique boots are available in three styles.

STRESS RELIEF BOOT

For use with crimp-on type connectors.
MATERIAL: PVC.
RATING: +50°C. (+122°F.) Max.

(Pkg. Ten Per Color)

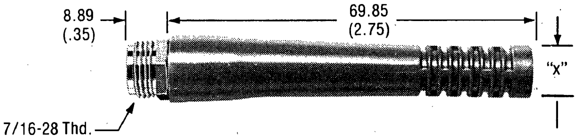
Model No.	Fits Cable Types	Cable O.D.	"X" Dim.	Net
5155-*	RG 58, 141	4.70 (.185)-5.08 (.200)	9.91 (.39)	.45 EA.
5156-*	RG 59, 62, 210	6.02 (.237)-6.27 (.247)	9.91 (.39)	.45 EA.
5157-*	RG 174, 187, 188	2.29 (.090)-2.79 (.110)	6.60 (.26)	.45 EA.



Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

STRESS RELIEF BOOT WITH CLAMP NUT

For use with connectors using a 7/16-28 clamp nut. Simply replace the supplied clamp nut with one on the stress relief boot.
CLAMP NUT: Brass, nickel plated.
BOOT: PVC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

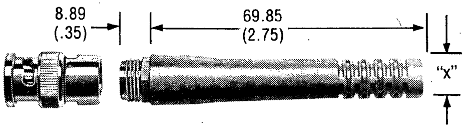


Model No.	Fits Cable Types	Cable O.D.	"X" Dim.	Net
5076-*	RG 58, 141	4.70 (.185)-5.08 (.200)	9.91 (.39)	1.95
5077-*	RG 59, 62, 210	6.02 (.237)-6.27 (.247)	9.91 (.39)	1.95
5078-*	RG 174, 187, 188	2.29 (.090)-2.79 (.110)	6.60 (.26)	1.95

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

BNC CONNECTOR WITH STRESS RELIEF BOOT

Makes your own stress relieved cable. This model attaches to the end of a cable in the same way as an ordinary BNC connector.
BOOT: PVC.
BNC MALE: Body, brass, tarnish resistant finish. Brass contact, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, +50°C. (+122°F.) Max.



Model No.	Fits Cable Types	Cable O.D.	"X" Dim.	Net
5066-*	RG 58, 141	4.70 (.185)-5.08 (.200)	9.91 (.39)	4.95
5067-*	RG 59, 62, 210	6.02 (.237)-6.27 (.247)	9.91 (.39)	4.95
5068-*	RG 174, 187, 188	2.29 (.090)-2.79 (.110)	6.60 (.26)	8.95

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

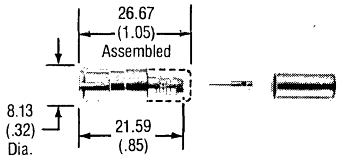
ITT POMONA ELECTRONICS

PANEL/BULKHEAD RECEPTACLES

CRIMP TYPE PUSH-ON BNC MALE

NEW

This push-on male BNC connector is ideal for rapid interconnection of equipment using coaxial cables. Crimp style sleeve, provided for use with cable types RG 58 & 141.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.



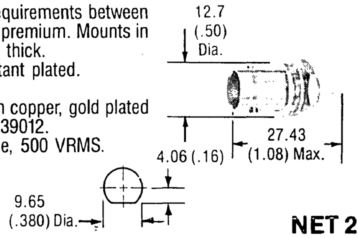
Model No.
5152

NET 3.95

CABLING INSTRUCTIONS FURNISHED ON REQUEST.

BNC FEMALE BULKHEAD RECEPTACLE

Ideal for use where space requirements between adjacent connectors are at a premium. Mounts in panels up to 3.40 mm (.13) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

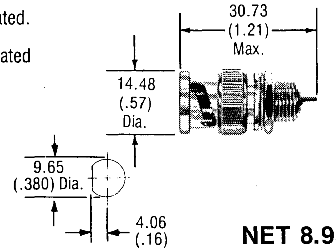


Model No.
4160

NET 2.95

BNC MALE BULKHEAD RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

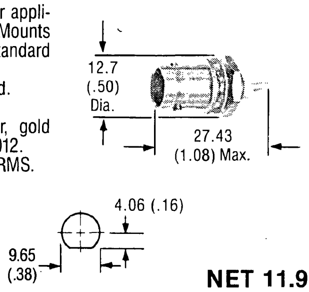


Model No.
4979

NET 8.95

BNC FEMALE BULKHEAD RECEPTACLE 75 OHMS

Use this connector for CATV and other applications requiring 75 Ohm impedance. Mounts in panels up to 3.40 mm (.13) thick. Standard BNC interface.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 75 Ohm impedance, 500 VRMS.

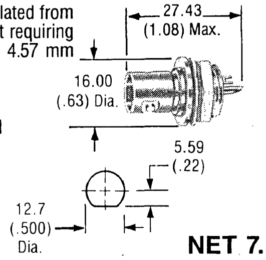


Model No.
5081

NET 11.95

BNC ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE (.50) DIA MTG HOLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground. Mounts in panels up to 4.57 mm (.18) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

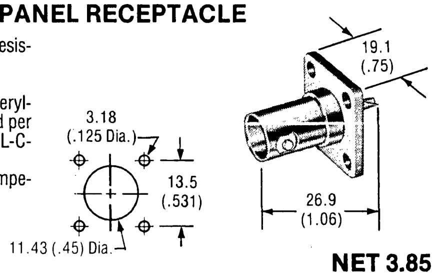


Model No.
3778

NET 7.50

BNC FEMALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

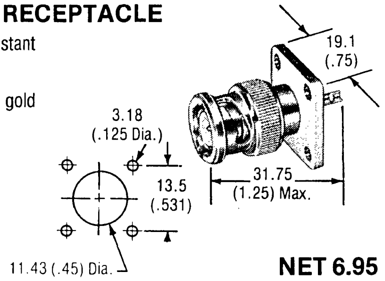


Model No.
2451

NET 3.85

BNC MALE PANEL RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

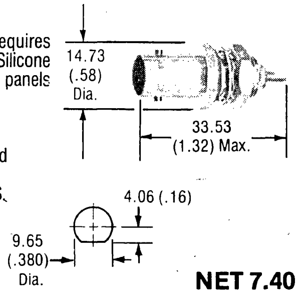


Model No.
2447

NET 6.95

BNC FEMALE PRESSURIZED BULKHEAD RECEPTACLE

Excellent for use with equipment which requires pressure differences. Front hole mounting. Silicone rubber O ring, withstands 50 psi. Mounts in panels up to 6.15 mm (.24) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

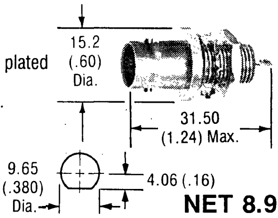


Model No.
4158

NET 7.40

BNC HERMETICALLY SEALED FEMALE BULKHEAD RECEPTACLE

Excellent for use with equipment which requires a hermetic seal for pressure differences. Front hole mounting. Silicone rubber O ring, withstands 50 psi. Mounts in panels up to 9.37 mm (.37) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.

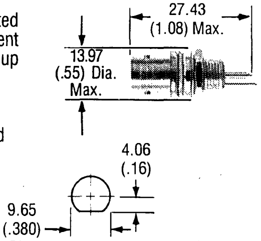


Model No.
4159

NET 8.95

BNC ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE (.38) DIA MTG HOLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground. Mounts in panels up to 4.44 mm (.18) thick.
SHELL: Brass, tarnish resistant plated.
INSULATION: Valox*
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS.



NEW

Model No.
5148

NET 7.50

Teflon is a trademark of DuPont.
*Valox is a trademark of General Electric

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

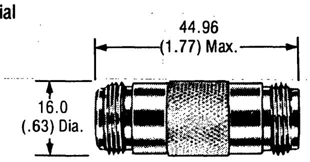
ITT POMONA ELECTRONICS

TYPE "N" ADAPTERS / ACCESSORIES

TYPE "N" FEMALE TO FEMALE

Allows the interconnection of two coaxial cables with Type "N" males.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



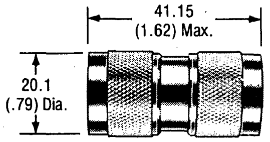
Model No.
3841

NET 7.95

TYPE "N" MALE TO MALE

Allows the interconnection of two coaxial cables with Type "N" females.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



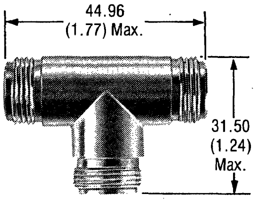
Model No.
3842

NET 8.95

TYPE "N" TEE — 3 FEMALES

Allows the interconnection of three coaxial cables with Type "N" males.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



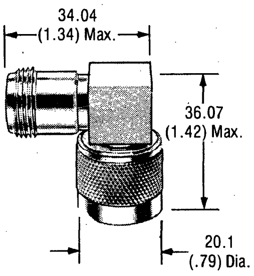
Model No.
5089

NET 15.95

RIGHT ANGLE TYPE "N" FEMALE TO TYPE "N" MALE

Adapts straight Type "N" male to right angle Type "N" male.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

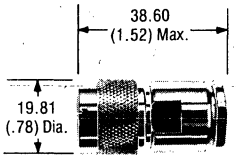


Model No.
3843

NET 13.95

TYPE "N" MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.
CABLE TYPES: RG 8, 9, 11, 13, 213, 214, 216 and 225.

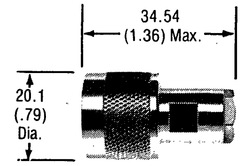


Model No.
4980

NET 6.25

TYPE "N" MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.
CABLE TYPES: RG 55, 58, 141, 142, 223 and 400.

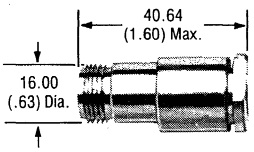


Model No.
4787

NET 5.95

TYPE "N" FEMALE CABLE JACK

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.
CABLE TYPES: RG 8, 9, 11, 13, 213, 214, 216 and 225.



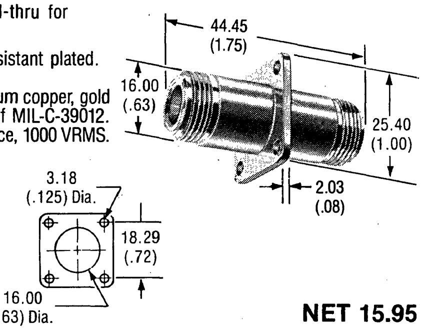
Model No.
4981

NET 5.95

TYPE "N" FEMALE TO FEMALE FLANGE MOUNT

Standard type "N" feed-thru for normal applications.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



Model No.
4956

NET 15.95

TYPE "N" OR UHF CAP FOR FEMALES WITH BEAD CHAIN

Male dust cap for protection of Type "N" or UHF females from dirt and accidental shorting. 63.50mm (2.50) bead chain; 3.56mm (.14) dia. hole in lug.

SHELL: Brass, tarnish resistant plated.

Model No.
4890

NET 4.95

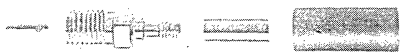
Teflon is a trademark of DuPont.

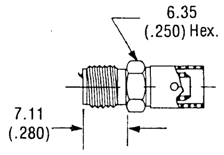
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SMA COAXIAL ACCESSORIES

CRIMP CABLE PLUG, FEMALE




6.35
(.250) Hex.
7.11
(.280)

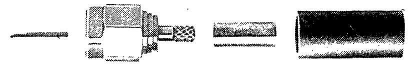
SHELL: Passivated steel.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

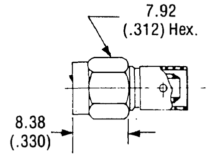
Note: Cabling instructions furnished on request.

Model No.	Fits Cables RG-
4860	55, 58, 142, 223
4805	174, 179, 187, 188, 316

NET 15.25

CRIMP CABLE PLUG, MALE




7.92
(.312) Hex.
8.38
(.330)

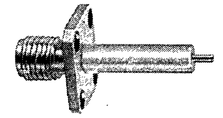
SHELL: Passivated steel.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

Note: Cabling instructions furnished on request.

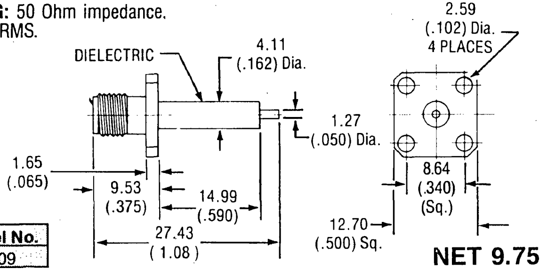
Model No.	Fits Cables RG-
4859	55, 58, 142, 223
4804	174, 179, 187, 188, 316

NET 10.55

PANEL RECEPTACLE, FEMALE



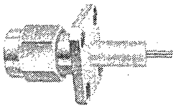
SHELL: Passivated steel.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance. 1000 VRMS.


DIELECTRIC
4.11
(.162) Dia.
2.59
(.102) Dia.
4 PLACES
1.27
(.050) Dia.
1.65
(.065)
9.53
(.375)
14.99
(.590)
27.43
(1.08)
8.64
(.340)
(Sq.)
12.70
(.500) Sq.

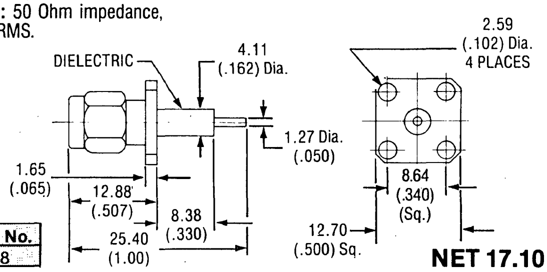
Model No.
4809

NET 9.75

PANEL RECEPTACLE, MALE



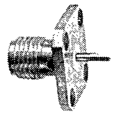
SHELL: Passivated steel.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.


2.59
(.102) Dia.
4 PLACES
DIELECTRIC
4.11
(.162) Dia.
1.27 Dia.
(.050)
1.65
(.065)
12.88
(.507)
8.38
(.330)
25.40
(1.00)
8.64
(.340)
(Sq.)
12.70
(.500) Sq.

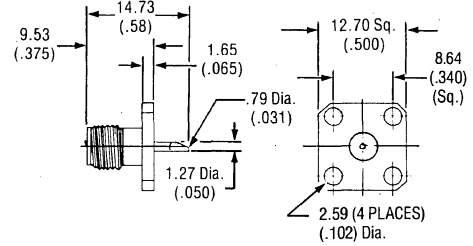
Model No.
4808

NET 17.10

PANEL RECEPTACLE, FEMALE



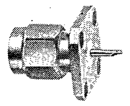
SHELL: Stainless steel, gold plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.


14.73
(.58)
9.53
(.375)
1.65
(.065)
12.70 Sq.
(.500)
8.64
(.340)
(Sq.)
.79 Dia.
(.031)
1.27 Dia.
(.050)
2.59 (4 PLACES)
(.102) Dia.

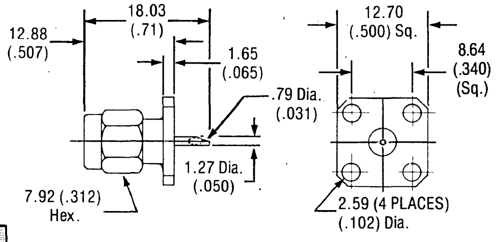
Model No.
4850

NET 14.75

PANEL RECEPTACLE, MALE



SHELL: Stainless steel, gold plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

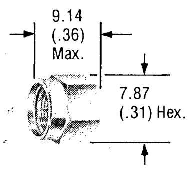

18.03
(.71)
12.88
(.507)
1.65
(.065)
.79 Dia.
(.031)
1.27 Dia.
(.050)
7.92 (.312)
Hex.
12.70
(.500) Sq.
8.64
(.340)
(Sq.)
2.59 (4 PLACES)
(.102) Dia.

Model No.
4849

NET 32.95

SMA SHORTING PLUG

Use this SMA shorting plug to protect sensitive instrument inputs or to provide a necessary reference short.
SHELL: Steel, gold plated.
INSULATION: Teflon.
CENTER CONTACT: Steel, gold plated per requirements of MIL-C-39012.

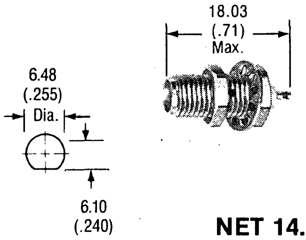

9.14
(.36)
Max.
7.87
(.31) Hex.

Model No.
5088

NET 14.95

SMA FEMALE BULKHEAD RECEPTACLE

SHELL: Beryllium copper, gold plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.


18.03
(.71)
Max.
6.48
(.255)
Dia.
6.10
(.240)

Model No.
4888

NET 14.95

Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

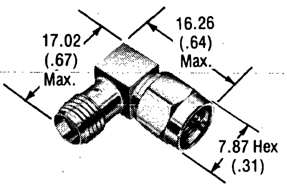
ITT POMONA ELECTRONICS

SMA ADAPTERS / TERMINATIONS

WITHIN SERIES

FEMALE TO MALE RIGHT ANGLE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

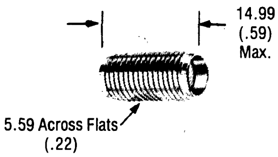


Model No. 4282

NET 37.85

FEED-THRU FEMALE TO FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

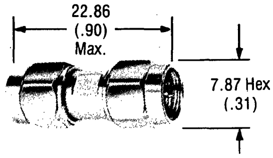


Model No. 4284

NET 25.95

FEED-THRU MALE TO MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Brass.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

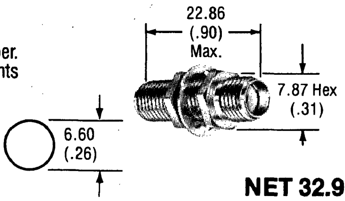


Model No. 4283

NET 25.95

BULKHEAD FEED-THRU FEMALE TO FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

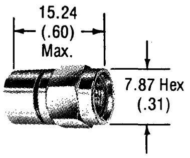


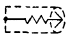
Model No. 4285

NET 32.95

MALE TERMINATION

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Brass.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS. VSWR: 1.25 Max to 18 GHz, ½ Watt Temperature: —54°C. (—65.2°F.) to +125°C. (+257°F.)



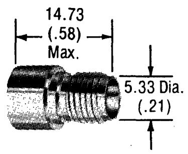


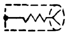
Model No. 4286

NET 66.50

FEMALE TERMINATION

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS. VSWR: 1.25 Max to 18 GHz, ½ Watt Temperature: —54°C. (—65.2°F.) +125°C. (+257°F.)





Model No. 4287

NET 73.95

These SMA adapters are manufactured in accordance with MIL-A-55339. The 50 Ohm miniature series R.F. connectors are especially adaptable to microwave component applications such as couplers, dividers and mixers.

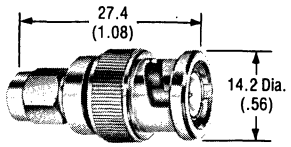
SPECIFICATIONS:

- Thread SMA Male: ¼-36 UNS-2B, SMA Female: ¼-36 UNS-2A.
- Frequency range:0-12.4 GHz.
- R.F. leakage: 90 dB min. between 2-3 GHz.
- Temperature range: —65°C. (—85°F.) to +165°C. (+329°F.) unless otherwise indicated.

SMA TO BNC

SMA MALE TO BNC MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Brass.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

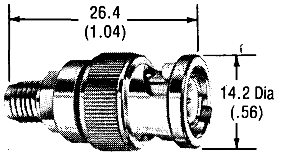


Model No. 4288

NET 23.95

SMA FEMALE TO BNC MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

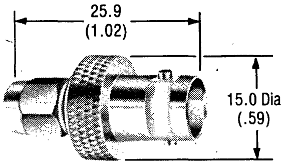


Model No. 4289

NET 24.95

SMA MALE TO BNC FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

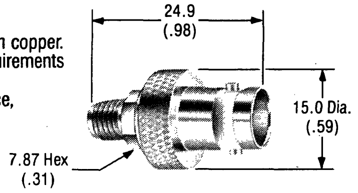


Model No. 4290

NET 18.95

SMA FEMALE TO BNC FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



Model No. 4291

NET 18.75

Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SMA ADAPTERS

These SMA adapters are manufactured in accordance with MIL-A-55339. The 50 Ohm subminiature series R.F. connectors are especially adaptable to microwave component applications such as couplers, dividers and mixers.

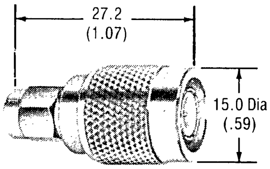
SPECIFICATIONS:

- Thread SMA Male: ¼-36 UNS-2B, SMA Female: ¼-36 UNS-2A.
- Frequency range:0-12.4 GHz.
- R.F. leakage: 90 dB min. between 2-3 GHz.
- Temperature range: −65°C. (−85°F.) to +165°C. (+329°F.)

SMA TO TNC

SMA MALE TO TNC MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Brass.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

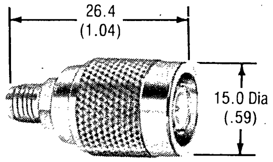


Model No.
4292

NET 30.75

SMA FEMALE TO TNC MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

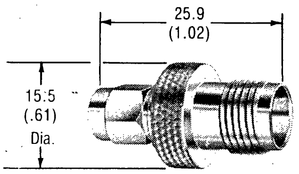


Model No.
4293

NET 26.95

SMA MALE TO TNC FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

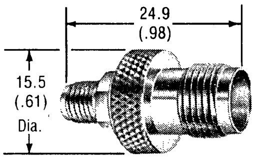


Model No.
4294

NET 23.75

SMA FEMALE TO TNC FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



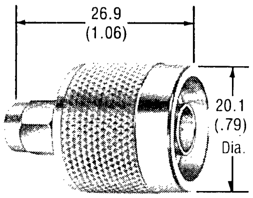
Model No.
4295

NET 23.95

SMA TO N

SMA MALE TO N MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Brass.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

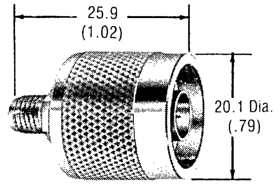


Model No.
4296

NET 29.95

SMA FEMALE TO N MALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

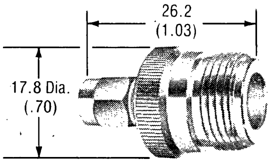


Model No.
4297

NET 27.95

SMA MALE TO N FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.

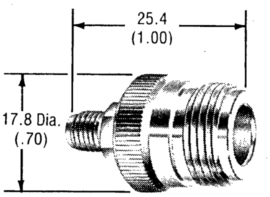


Model No.
4298

NET 24.95

SMA FEMALE TO N FEMALE

SHELL: Beryllium copper.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper.
FINISH: Gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 1000 VRMS.



Model No.
4299

NET 21.50

Teflon is a trademark of DuPont.

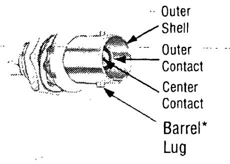
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

TRIAXIAL CONNECTORS

TRIAXIAL CONNECTORS

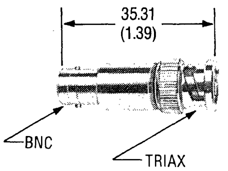
Triaxial connectors accommodate the need for low level signal patching and balanced line applications. Designed for use with single conductor, double shielded cable. These connectors feature a concentric design with center contact, outer contact and outer shell (see photo). This concentric design does not require matching of halves such as the polarized stepped insulator connectors.



*Two lug model is shown. On units having three lugs, the spacing is 120°

BNC FEMALE TO TRIAXIAL MALE (2 LUG)

Allows the use of a BNC male on equipment having a triaxial female with two lugs.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.

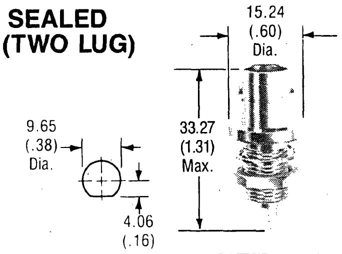


Model No.
5090

NET 13.95

TRIAXIAL HERMETIC SEALED BULKHEAD FEMALE (TWO LUG)

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.

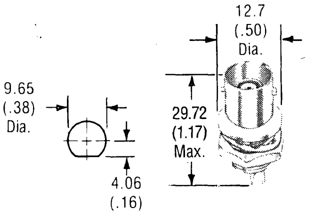


Model No.
4388

NET 56.95

TRIAXIAL BULKHEAD FEMALE (TWO LUG)

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



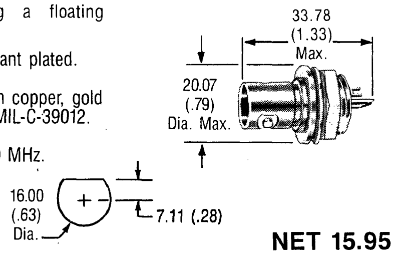
Model No.
3580

NET 11.95

TRIAXIAL ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE (TWO LUG)

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground.

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS,
Frequency range: DC to 500 MHz.

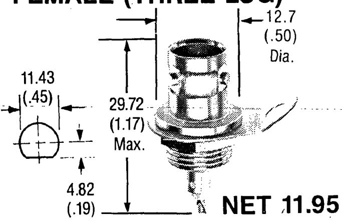


Model No.
5091

NET 15.95

TRIAXIAL BULKHEAD FEMALE (THREE LUG)

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



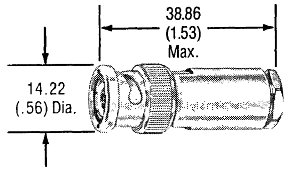
NEW

Model No.
5219

NET 11.95

TRIAXIAL MALE CABLE PLUG (FOR TRIAX CABLE)

For use with Belden 9222 triax cable. Jacket O.D. 6.15 mm (.242) 50 Ohm impedance.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



NEW

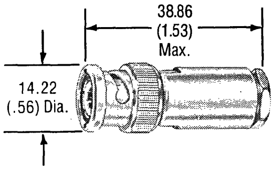
Model No.	
5056	2 Lug
5218	3 Lug

Cabling instruction furnished on request.

NET 29.95

TRIAXIAL MALE CABLE (FOR TWINAX CABLE) (TWO LUG)

For use with Belden 9272 twinax cable. Jacket O.D. 6.15 mm (.242), 78 Ohms impedance.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



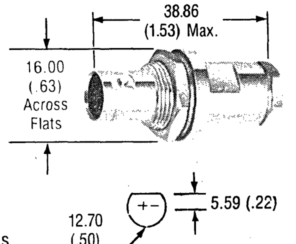
Model No.
3600

Cabling instruction furnished on request.

NET 13.50

TRIAXIAL BULKHEAD FEMALE (TWO LUG)

For use with Microdot cable 293-3930. Jacket O.D., 4.45 mm (.175). Includes mounting hardware.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



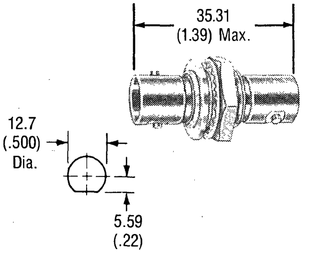
Model No.
4661

Cabling instructions furnished on request.

NET 30.95

FEMALE TO FEMALE TRIAXIAL BULKHEAD FEED THRU (TWO LUG)

Ideal for triaxial interconnect requirements at bulkheads. Silicone rubber O ring.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Beryllium copper, Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz.



NEW

Model No.
5178

NET 13.95 EA.

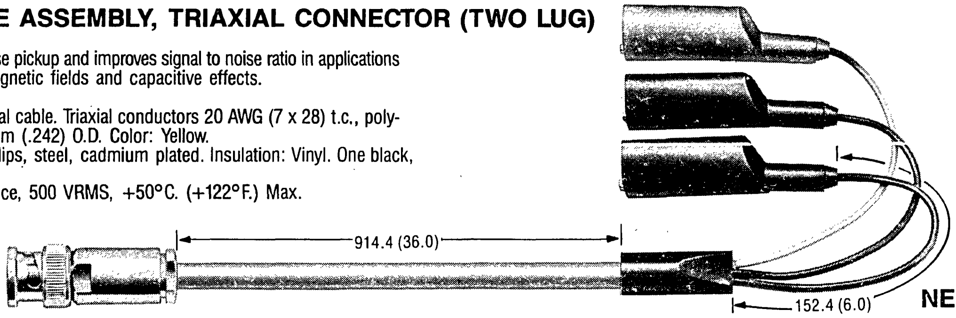
Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

TRIAXIAL CABLES

TRIAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTOR (TWO LUG)

Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects.
1ST END: Triaxial Male.
CABLE: Belden 9222, triaxial cable. Triaxial conductors 20 AWG (7 x 28) t.c., polyethylene insulation, 6.15 mm (.242) O.D. Color: Yellow.
2ND END: Three alligator clips, steel, cadmium plated. Insulation: Vinyl. One black, one red and one green.
RATING: 50 Ohm impedance, 500 VRMS, +50°C. (+122°F.) Max.



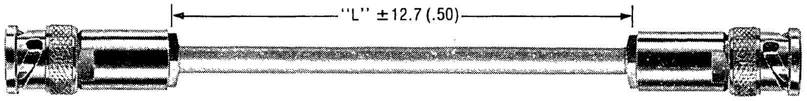
Model No.
4725

NET 74.95

TRIAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTORS (THREE LUG)

Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects.
1ST END: Triaxial Male (Model 5218).
CABLE: Belden 9222, triaxial cable. Triaxial conductors 20 AWG (7 x 28) t.c., polyethylene insulation, 6.15 mm (.242) O.D. Color: Yellow.
2ND END: Same as first end.
RATING: 50 Ohm impedance, 500 VRMS.

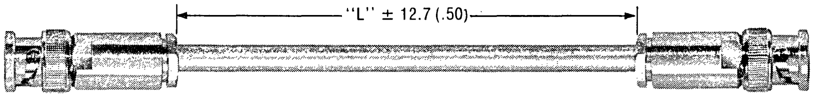
NEW



Model No.	Length	Net
5223-36	914.4 (36.0)	61.95
5223-60	1524.0 (60.0)	66.95

TWINAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTORS (TWO LUG)

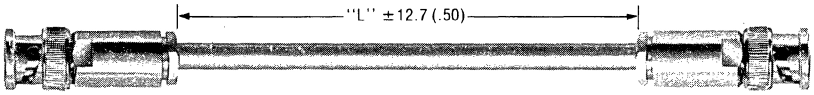
Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects.
1ST END: Triaxial Male.
CABLE: Belden 9272, twinaxial cable. Two conductor shielded, 20 AWG (7 x 28) t.c., polyethylene insulation, 6.15 mm (.242) O.D. Color: Blue.
2ND END: Same as first end.
RATING: 78 Ohm impedance, 500 VRMS.



Model No.	Length "L"	Net
3581-CC-18	457.2 (18.0)	44.50
3581-CC-24	609.6 (24.0)	44.50
3581-CC-36	914.4 (36.0)	44.50
3581-CC-48	1219.2 (48.0)	45.10
3581-CC-60	1524.0 (60.0)	45.70

TRIAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTORS (TWO LUG)

Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects.
1ST END: Triaxial Male (Model 5056)
CABLE: Belden 9222, triaxial cable. Conductors, 20 AWG (7 x 28) t.c. polyethylene insulation, 6.15 mm (.242) O.D. Color: Yellow.
2ND END: Same as first end.
RATING: 50 Ohm impedance, 500 VRMs.

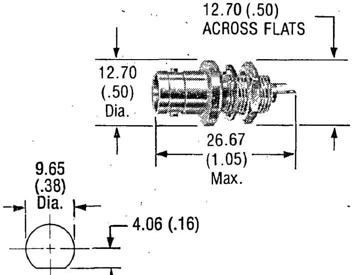


Model No.	Length	Net
5054-36	914.4 (36.0)	85.95
5054-60	1524.0 (60.0)	90.95

TWINAXIAL CONNECTORS

TWINAX BULKHEAD RECEPTACLE

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT; Beryllium copper, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.

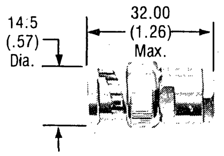


Model No.
4958

NET 16.95

TWINAX MALE CABLE PLUG

SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS.
CABLE TYPES: RG 108 and Belden 9222.



Model No.
4957

NET 28.25

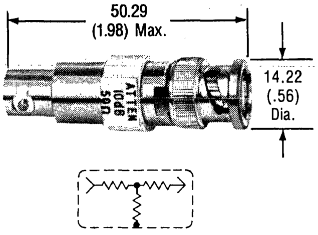
Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

COAXIAL ACCESSORIES/TERMINATIONS

BNC 50 OHM ATTENUATORS

For use with pulse, microwave, or UHF instruments.
50 Ohm, metal film resistor, deposited nichrome over ceramic core, 2 watt T-Pad network. White nylon anti-roll sleeve.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, +102°C. (+216°F.) Max.



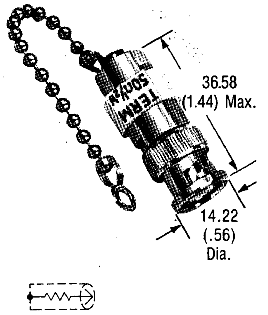
NET 53.75

Model No.	Attenuation
4108-3dB	3 dB
4108-6dB	6 dB
4108-10dB	10 dB
4108-14dB	14 dB
4108-20dB	20 dB

VSWR	Attenuation Tolerance
1.1 to 1 GHz	±0.4 dB to 1 GHz
1.2 to 2 GHz	±0.45 dB to 2 GHz
1.35 to 4 GHz	±0.65 dB to 4 GHz
1.45 to 6 GHz	±0.75 dB to 6 GHz
1.65 to 8 GHz	±0.9 dB to 8 GHz

BNC RESISTOR TERMINATED MALE PLUG

Ideal for terminating coaxial lines. 1%, ½ watt, deposited carbon resistor. 88.9 mm (3.5) bead chain with 3.56 mm (.14) dia. hole in lug. Resistance value marked on white nylon anti-roll sleeve.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency range: DC to 500 MHz, +102°C. (+216°F.) Max.

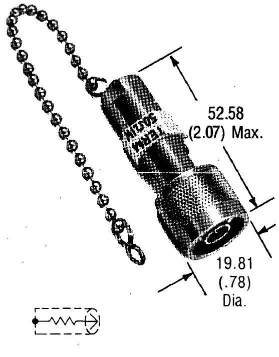


Model No.	Resist. in Ohms
3840-50	50
3840-75	75
3840-93	93
3840-100	100
3840-600	600

NET 8.50

TYPE "N" RESISTOR TERMINATED MALE PLUG

Ideal for terminating coaxial lines. 1%, 1 watt, deposited carbon resistor. 127 mm (5.0) bead chain with 3.56 mm (.14) dia. hole in lug. Resistance value marked on white nylon anti-roll sleeve.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 1000 VRMS, Frequency range: DC to 500 MHz, +102°C. (+216°F.) Max.

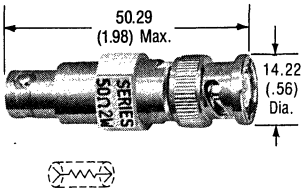


Model No.	Resist. in Ohms
4240-50	50
4240-75	75
4240-600	600

NET 16.95

BNC FEED-THRU SERIES RESISTOR

Ideal for adding in series resistance to coaxial lines with BNC connectors. 1%, 2 watt, non-inductive film resistor. Resistance value marked on white nylon anti-roll sleeve.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency Range: DC to 500 MHz, VSWR: 1.2 to 500 MHz, +102°C. (+216°F.) Max.

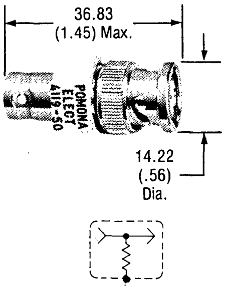


Model No.	Resist. in Ohms
4391-25	25
4391-50	50
4391-75	75
4391-93	93
4391-600	600

NET 24.95

BNC FEED-THRU TERMINATION

Ideal for terminating pulse, microwave or UHF instruments in their characteristic impedance. Termination metal film resistor, deposited nichrome over ceramic core, 2W. Resistance value marked on white nylon anti-roll sleeve.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Male, brass. Female, beryllium copper. Gold plated per requirements of MIL-C-39012.
RATING: 500 VRMS, Frequency Range: DC to 500 MHZ, VSWR: 1.2 to 500 MHz, +102°C. (+216°F.) Max.

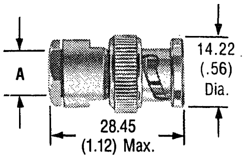


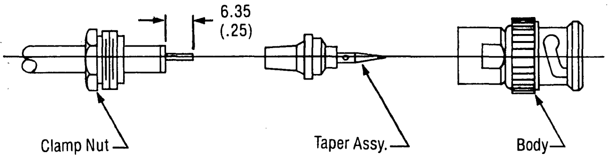
Model No.	Resist. in Ohms
4119-50	50
4119-75	75
4119-93	93
4119-600	600

NET 39.95

BNC MALE CABLE PLUGS FIELD SERVICEABLE

These connectors make it a snap to change or install connectors in the field. Just strip the cable end as shown in the illustration. Push the taper assembly under the braid and solder. Then thread the clamp nut into the body and you've created a fine connection.
SHELL: Brass, tarnish resistant plated.
INSULATION: Teflon.
CENTER CONTACT: Brass, gold plated per requirements of MIL-C-39012.
RATING: 50 Ohm impedance, 500 VRMS, Frequency range: DC to 500 MHz.





Model No.	Fits Cable	Dim. 'A'	Net
4997	RG58	5.59 (.22)	5.95
4998	RG59	6.60 (.26)	6.50
4999	RG174	2.79 (.11)	10.75

Teflon is a trademark of DuPont.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

AUDIO CONNECTORS GENERAL INFORMATION

ITT Pomona audio connectors are rugged, quick disconnect devices designed for use in audio systems and other applications where reliability and quiet operation are the password. Three different series are provided, each with a solid, metal latching mechanism to assure positive, yet quick connect/disconnect. Some of the salient features of the three series are as follows:

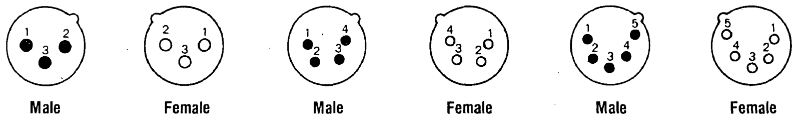
XLA SERIES (MODELS 5098, 5099)
- Body, same as XLR.
- Insulator, glass filled thermoplastic.
- Contact sockets stamped nickel silver.
- Contact pins silver plated copper alloy UL recognized materials.

XLR PROFESSIONAL SERIES (MODELS 5109-5113, 5117-5131)
- Body, satin finish, nickel plated zinc or aluminum shell.
- Resilient socket insulator for excellent low noise/vibration performance.
- Contacts, silver plated, solid machined copper alloy.
- Nickel plated steel barrel.
- Nickel silver latch and stainless steel latch spring.
- UL recognized.

XLB SERIES (MODELS 5100-5103)
- Insulator, thermoplastic (glass filled nylon).
- Internal cable clamping mechanism.
- Three contacts with separate ground lug.
- UL recognized materials.

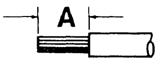
CONTACT ARRANGEMENT AND GENERAL PERFORMANCE

CONTACT ARRANGEMENT


1
2
3
Male
2
1
3
Female
1
4
2
3
Male
4
1
3
2
Female
1
5
2
4
3
Male
5
1
4
2
3
Female

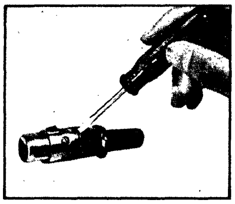
Number of Contacts	3	4	5
Current Rating	15 A	10 A	7.5 A
Test Voltage	1400 V	1400 V	1400 V
Operating Voltage	133 V	133 V	133 V
Contact Resistance	21 mV max. @ 25 ADC	25 mV max. @ 20 ADC	25 mV max. @ 10 ADC
Insulation Resistance	1 GΩ min. @ 500 VDC	1 GΩ min. @ 500 VDC	1 GΩ min. @ 500 VDC
Temperature Range	−55°C to +125°C (−67°F to +257°F)	−55°C to +125°C (−67°F to +257°F)	−55°C to +125°C (−67°F to +257°F)

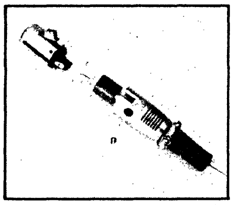
ASSEMBLY

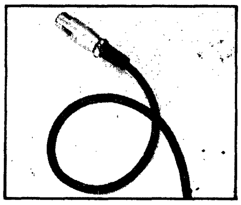


No. of Contacts	A Dimension (strip length)
3	6.40 (.250)
4	5.60 (.220)
5	5.10 (.200)

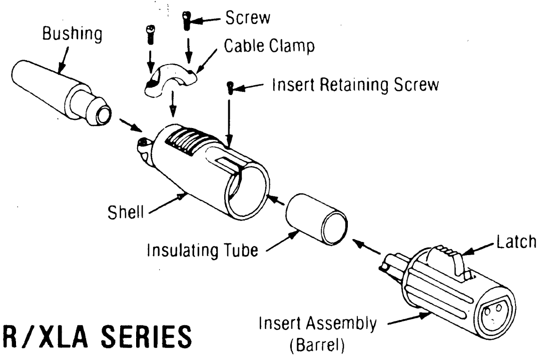
Strip Wire


Disassemble

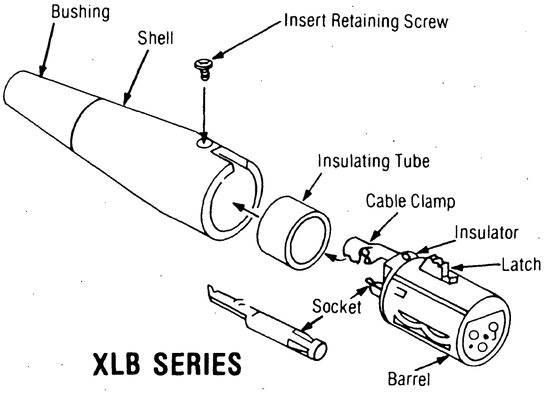

Insert Cable and Solder


Reassemble

General Construction


Screw
Bushing
Cable Clamp
Insert Retaining Screw
Shell
Insulating Tube
Latch
Insert Assembly (Barrel)

XLR/XLA SERIES


Bushing
Shell
Insert Retaining Screw
Insulating Tube
Cable Clamp
Insulator
Latch
Socket
Barrel

XLB SERIES

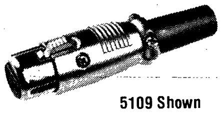
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

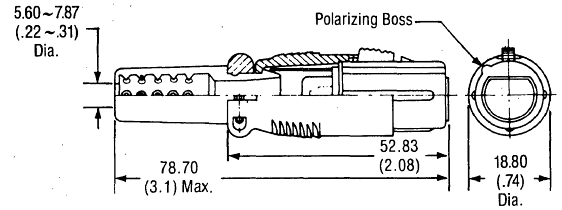
AUDIO CONNECTORS — XLR PROFESSIONAL SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with the same pin count as well as the male cord plug. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



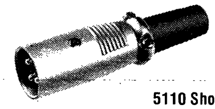
5109 Shown


5.60~7.87
(.22~.31)
Dia.
Polarizing Boss
52.83
(2.08)
78.70
(3.1) Max.
18.80
(.74)
Dia.

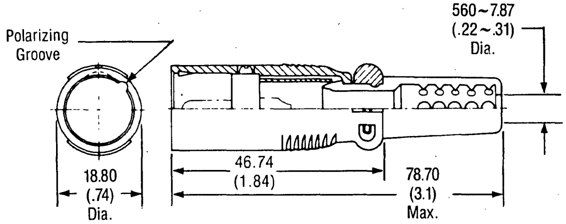
Model No.	Sockets	XL Style	Net
5109	3	XLR-3-11C	3.25
5118	4	XLR-4-11C	4.55
5125	5	XLR-5-11C	5.95

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with the same pin count as well as the female cord plug. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



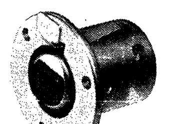
5110 Shown


560~7.87
(.22~.31)
Dia.
Polarizing
Groove
46.74
(1.84)
18.80
(.74)
Dia.
78.70
(3.1)
Max.

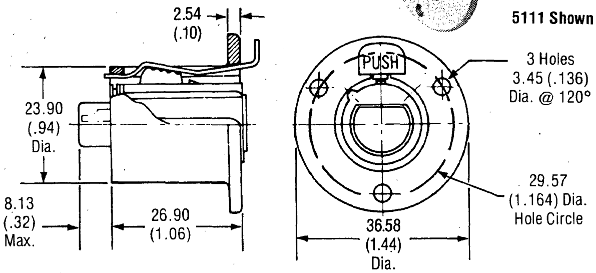
Model No.	Pins	XL Style	Net
5110	3	XLR-3-12C	2.35
5119	4	XLR-4-12C	3.00
5126	5	XLR-5-12C	3.15

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



5111 Shown

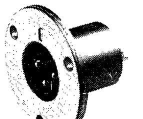

2.54
(.10)
PUSH
3 Holes
3.45 (.136)
Dia. @ 120°
23.90
(.94)
Dia.
8.13
(.32)
Max.
26.90
(1.06)
29.57
(1.164) Dia.
Hole Circle
36.58
(1.44)
Dia.

Model No.	Sockets	XL Style	Net
5111	3	XLR-3-13	4.65
5121	4	XLR-4-13	5.30
5127	5	XLR-5-13	6.30

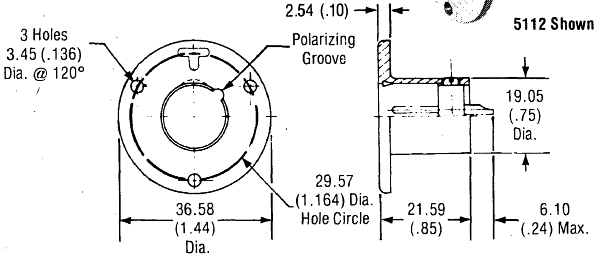
Note: Requires 24.31 mm (.957) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



5112 Shown

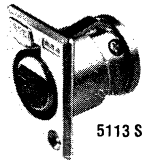

2.54 (.10)
3 Holes
3.45 (.136)
Dia. @ 120°
Polarizing
Groove
19.05
(.75)
Dia.
29.57
(1.164) Dia.
Hole Circle
36.58
(1.44)
Dia.
21.59
(.85)
6.10
(.24) Max.

Model No.	Pins	XL Style	Net
5112	3	XLR-3-14	2.20
5122	4	XLR-4-14	2.65
5128	5	XLR-5-14	2.80

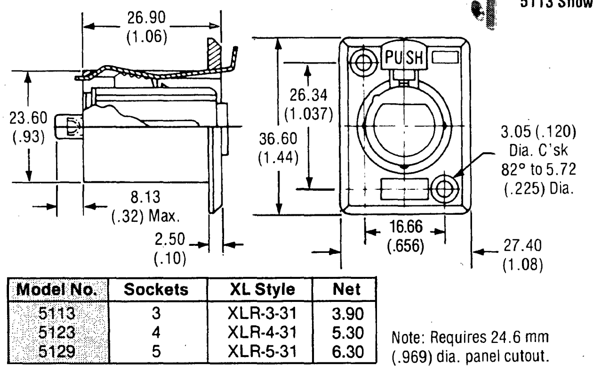
Note: Requires 19.8 mm (.780) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



5113 Shown

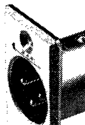

26.90
(1.06)
PUSH
23.60
(.93)
26.34
(1.037)
36.60
(1.44)
3.05 (.120)
Dia. C'sk
82° to 5.72
(.225) Dia.
8.13
(.32) Max.
2.50
(.10)
16.66
(.656)
27.40
(1.08)

Model No.	Sockets	XL Style	Net
5113	3	XLR-3-31	3.90
5123	4	XLR-4-31	5.30
5129	5	XLR-5-31	6.30

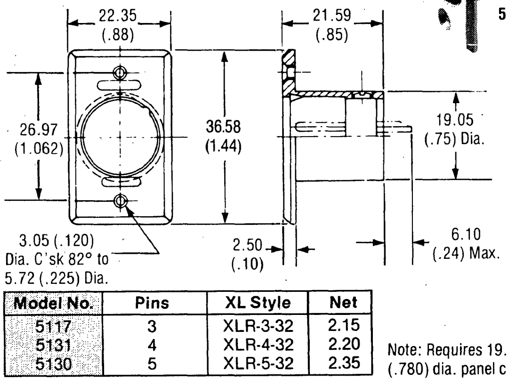
Note: Requires 24.6 mm (.969) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.
(See page 51 for details.)



5117 Shown


22.35
(.88)
21.59
(.85)
26.97
(1.062)
36.58
(1.44)
19.05
(.75) Dia.
3.05 (.120)
Dia. C'sk 82° to
5.72 (.225) Dia.
2.50
(.10)
6.10
(.24) Max.

Model No.	Pins	XL Style	Net
5117	3	XLR-3-32	2.15
5131	4	XLR-4-32	2.20
5130	5	XLR-5-32	2.35

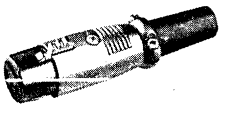
Note: Requires 19.8 mm (.780) dia. panel cutout.

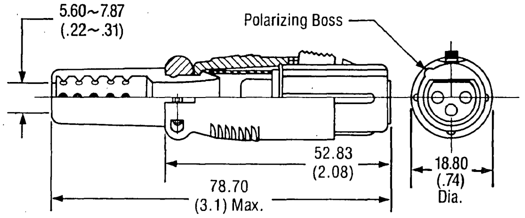
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

AUDIO CONNECTORS — XLA SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with three pins as well as the male cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)



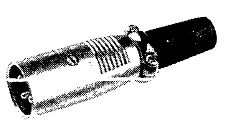

5.60~7.87
(.22~.31)
Polarizing Boss
52.83
(2.08)
78.70
(3.1) Max.
18.80
(.74)
Dia.

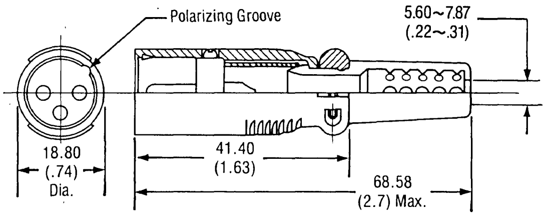
Model No.	Sockets	XL Style
5098	3	XLA-3-11C

NET 2.80

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with as well as female cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)




Polarizing Groove
5.60~7.87
(.22~.31)
18.80
(.74)
Dia.
41.40
(1.63)
68.58
(2.7) Max.

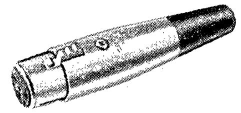
Model No.	Pins	XL Style
5099	3	XLA-3-12C

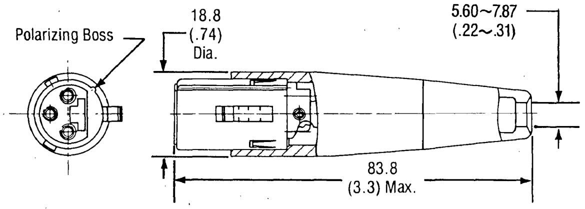
NET 2.10

AUDIO CONNECTORS — XLB SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with three pins as well as the male cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)



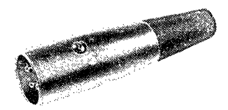

Polarizing Boss
18.8
(.74)
Dia.
5.60~7.87
(.22~.31)
83.8
(3.3) Max.

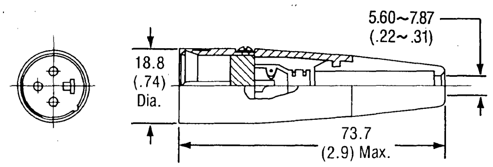
Model No.	Sockets	XL Style
5100	3	XLB-3-11C

NET 2.65

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with three sockets as well as the female cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)



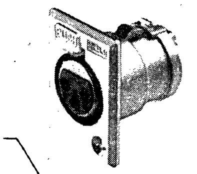

5.60~7.87
(.22~.31)
18.8
(.74)
Dia.
73.7
(2.9) Max.

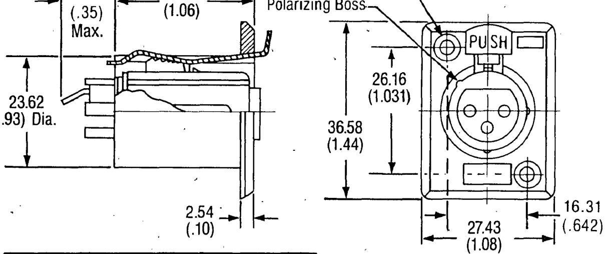
Model No.	Pins	XL Style
5101	3	XLB-3-12C

NET 2.00

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with three pins. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)




3.05 (.120)·Dia. C'sk 82° to 5.72 (.225) Dia.
8.89
(.35)
Max.
26.92
(1.06)
Polarizing Boss
PUSH
23.62
(.93) Dia.
26.16
(1.031)
36.58
(1.44)
2.54
(.10)
27.43
(1.08)
16.31
(.642)

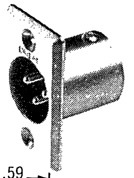
Model No.	Sockets	XL Style
5102	3	XLB-3-31

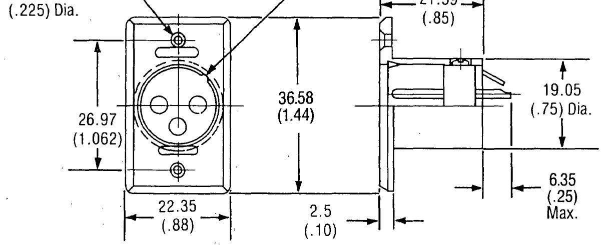
Note: Requires 24.6 mm (.969) dia. panel cutout.

NET 3.05

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with three sockets. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.
(See page 51 for details.)




3.05 (.120)
Dia. C'sk 82°
to 5.72
(.225) Dia.
Polarizing Groove
21.59
(.85)
26.97
(1.062)
36.58
(1.44)
19.05
(.75) Dia.
6.35
(.25)
Max.
22.35
(.88)
2.5
(.10)

Model No.	Pins	XL Style
5103	3	XLB-3-32

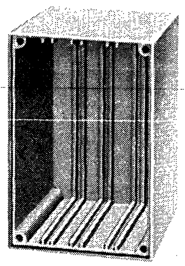
Note: Requires 19.8 mm (.780) dia. panel cutout.

NET 1.70

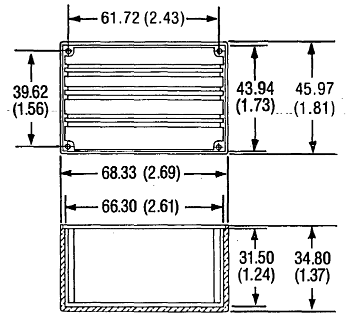
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

THERMOPLASTIC/PHENOLIC "BLACK BOXES"

MOLDED THERMOPLASTIC BOX WITH CARD GUIDES



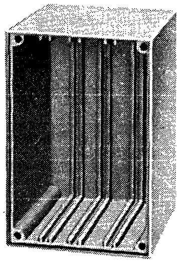
The box and cover are molded of glass filled nylon which is almost unbreakable under normal use. Box and cover are easily machined. Three slots are provided for 1.57 mm (.062) circuit boards.
HOUSING: Glass filled nylon.
COVER: Glass filled nylon. Includes 4 self-tapping #2-32 cover screws.
RATING: +102°C. (+216°F.) Max., Insulation resistance: 5000 Megohms Min.


61.72 (2.43)
39.62 (1.56)
43.94 (1.73)
45.97 (1.81)
68.33 (2.69)
66.30 (2.61)
31.50 (1.24)
34.80 (1.37)

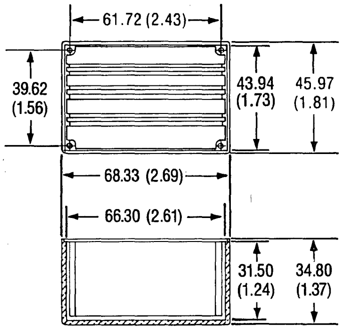
Model No.	Color
3850-0	Black
3850-6	Blue
3850-9	White

NET 3.30

MOLDED ANTISTATIC THERMOPLASTIC BOX WITH CARD GUIDES



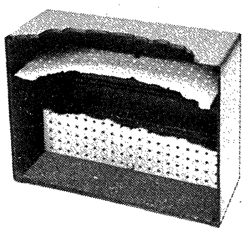
The box and cover are molded of Noryl* thermoplastic which prevents electrostatic buildup. Three slots are provided for 1.57 mm (.062) circuit boards.
HOUSING: Noryl*, black.
COVER: Noryl*, black. Includes 4 self-tapping #2-32 cover screws.
RATING: +104°C. (+219°F.) Max.


61.72 (2.43)
39.62 (1.56)
43.94 (1.73)
45.97 (1.81)
68.33 (2.69)
66.30 (2.61)
31.50 (1.24)
34.80 (1.37)

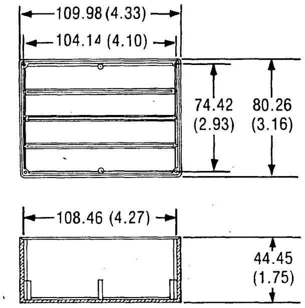
Model No.
4902

NET 3.45

MOLDED THERMOPLASTIC BOX WITH CARD GUIDES



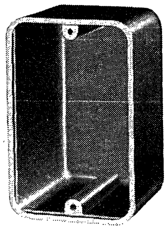
Box and cover are molded of glass filled nylon which is almost unbreakable. Three slots are provided to permit lengthwise mounting of 1.57 mm (.062) thick circuit boards. Circuit boards may also be mounted horizontally.
HOUSING: Glass filled nylon.
COVER: Glass filled nylon. Includes 4 self-tapping #2-32 cover screws.
RATING: +102°C. (+216°F.) Max.


109.98 (4.33)
104.14 (4.10)
74.42 (2.93)
80.26 (3.16)
108.46 (4.27)
44.45 (1.75)

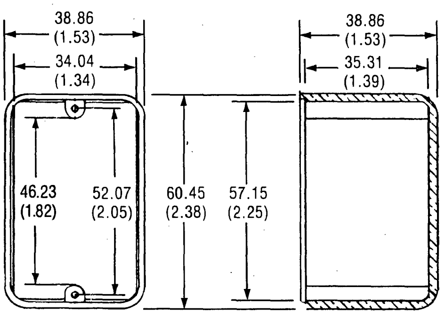
Model No.	Color
4384-0	Black
4384-6	Blue

NET 4.50

BLACK BOX — KING SIZE



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-32 cover screws.
RATING: +150°C. (+302°F.) Max.


38.86 (1.53)
34.04 (1.34)
46.23 (1.82)
52.07 (2.05)
60.45 (2.38)
57.15 (2.25)
38.86 (1.53)
35.31 (1.39)

Model No.	Color
2104	Black
3724	Red
3725	Green

NET 1.90

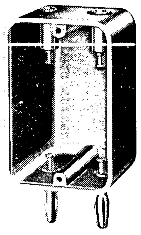
*Noryl is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHENOLIC "BLACK BOXES" — KING SIZE

Create passive and active networks, voltage dividers, isolation networks or attenuators with these units. Solder turret terminals for permanent noise-free connection of components, etc. Entire unit may be potted or encapsulated.

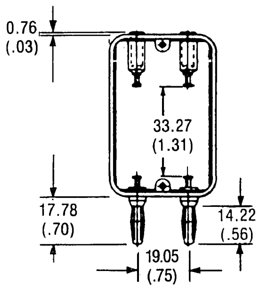
COMPONENT MOUNTING — BANANA JACKS TO DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2104, page 54, for dimensions.

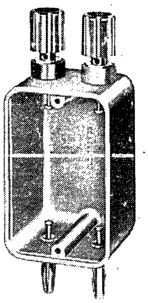
1ST END: Banana jacks, 4.22 mm (.166) dia. and solder turret terminals on 19.05 mm (.750) centers. Brass, bright tin plated. Red polarity indicator on top.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
2224

NET 6.95

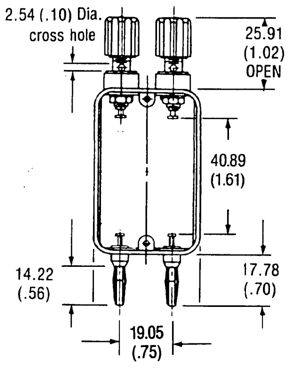
COMPONENT MOUNTING — BINDING POSTS TO DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2104, page 54, for dimensions.

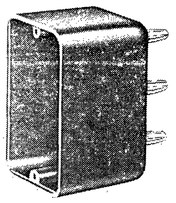
1ST END: Binding posts with solder turret terminal on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (1.66) dia. banana jacks.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



Model No.
2262

NET 10.95

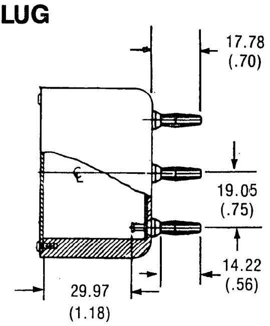
COMPONENT MOUNTING—THREE 19.05 mm (.750) SPACED BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2104, page 54, for dimensions.

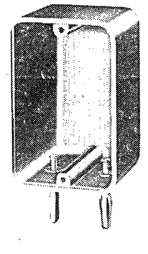
CENTER: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (1.66) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
1943

NET 7.25

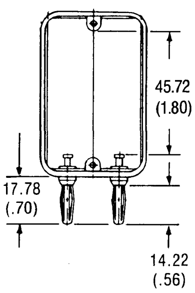
COMPONENT MOUNTING — DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2104, page 54, for dimensions.

1ST END: None.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
1177

NET 4.95

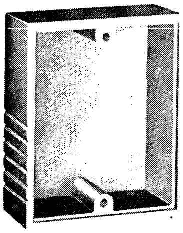
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

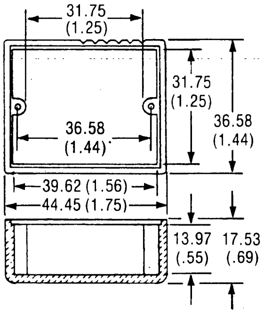
PHENOLIC "BLACK BOXES"

Create passive and active networks, voltage dividers, isolation networks or attenuators with these units. Solder turret terminals for permanent noise-free connection of components, etc. Entire unit may be potted or encapsulated.

BLACK BOX — JUNIOR SIZE



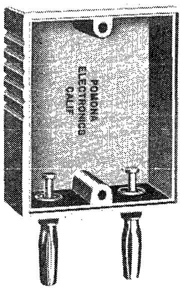
HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.
RATING: +150°C. (+302°F.) Max.



Model No.
2105

NET 1.95

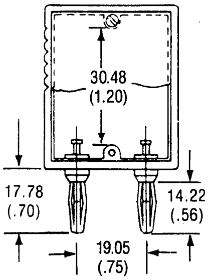
COMPONENT MOUNTING — ACROSS BANANA PLUGS



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2105 (above) for dimensions.

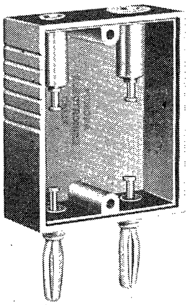
1ST END: None.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
2096

NET 4.50

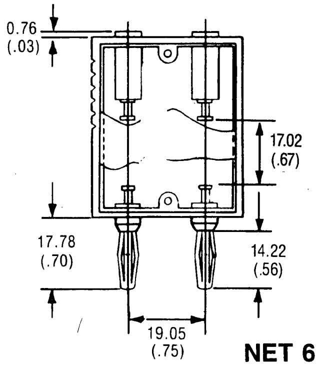
COMPONENT MOUNTING — BANANA JACKS TO DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2105 (above) for dimensions.

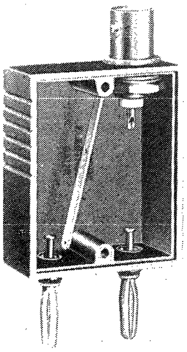
1ST END: Banana jacks, 4.22 mm (.166) dia. and solder turret terminals on 19.05 mm (.750) centers. Brass, bright tin plated. Red polarity indicator on top.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
2098

NET 6.95

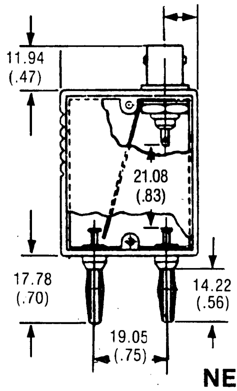
COMPONENT MOUNTING — BNC FEMALE TO DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2105 above for dimensions.

1ST END: BNC Female with extra long solder tab for ground connection.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 500VRMS,+115°C. (+239°F.) Max.



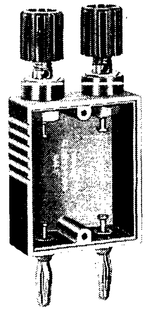
Model No.
2097

NET 11.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHENOLIC "BLACK BOXES"

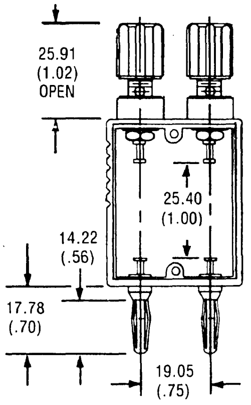
COMPONENT MOUNTING — BINDING POSTS TO DOUBLE BANANA PLUG



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2105 (page 56) for dimensions.

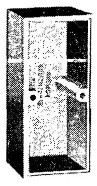
1ST END: Binding posts with solder turret terminal on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
2ND END: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.



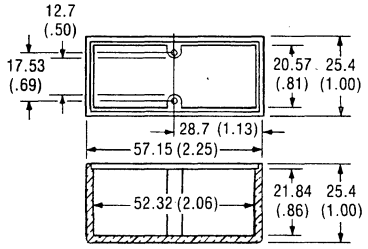
Model No.
2259

NET 10.95

BLACK BOX — QUEEN SIZE



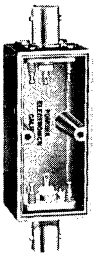
HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.
RATING: +150°C. (+302°F.) Max.



Model No.
2103

NET 1.95

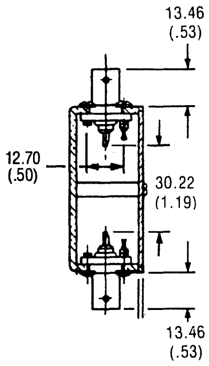
COMPONENT MOUNTING — BNC FEMALE BOTH ENDS



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2103 (above) for dimensions.

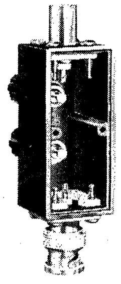
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No.
2101

NET 17.95

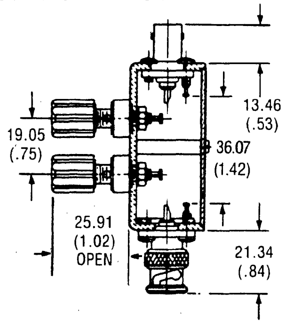
COMPONENT MOUNTING — BNC RECEPTACLE TO BNC PLUG WITH BINDING POSTS



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2103 for dimensions.

1ST END: BNC Female with solder turret terminal screws.
CENTER: Binding posts with solder turret terminal on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +115°C. (+239°F.) Max.



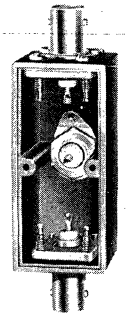
Model No.
2100

NET 27.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHENOLIC "BLACK BOXES"

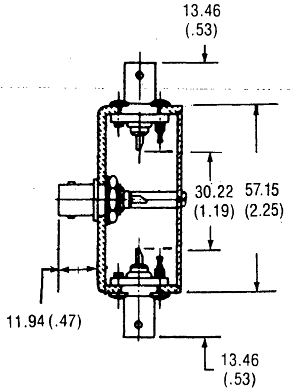
COMPONENT MOUNTING — BNC FEMALE "T"



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2103 (page 57) for dimensions.

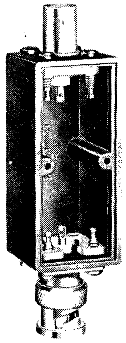
1ST END: BNC Female with solder turret terminal screws.
CENTER: BNC Female with solder lug.
2ND END: BNC Female with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No.
2102

NET 23.95

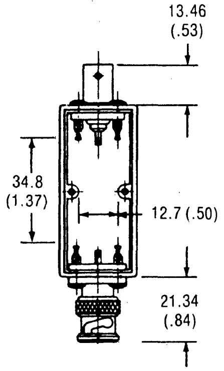
COMPONENT MOUNTING — BNC MALE TO BNC FEMALE



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2103 (page 57) for dimensions.

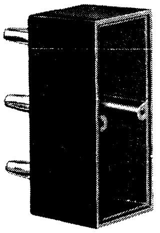
1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No.
2099

NET 23.95

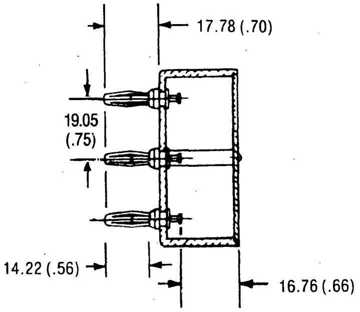
COMPONENT MOUNTING — THREE 19.05 mm (.750) SPACED BANANA PLUGS



HOUSING: Phenolic.
COVER: XP laminated paper base phenolic, black. Includes 2 #2-56 cover screws.

See Model 2103 (page 57) for dimensions.

CENTER: Banana plugs and solder turret terminals on 19.05 mm (.750) centers. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 15 Amps, +150°C. (+302°F.) Max.



Model No.
2095

NET 6.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

DIE CAST SHIELDED "BLACK BOXES"

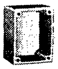
Pomona Electronics, shielded "Black Boxes" that fulfill the requirement for RF applications are manufactured in a variety of sizes.
Ideal for compact packaging (voltage dividers, isolation networks, impedance matching networks), and other varied uses.
Cover and screws included.

(See page 71 for accessories and replacement parts)

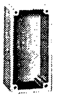
These photos are not to scale, for visual purposes only, see pages 59,60,64,66,67 and 68 for actual dimensions.

FEATURES:

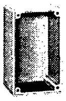
- Shielded housing, Die cast aluminum, Alloy A380 or A384.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Cover: Aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Completely enclosed box provides proper shielding.
- Draft Angle on side walls approximately 2°



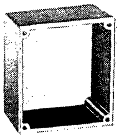
MINIATURE
(1.50) x (1.13)
x (.88) Deep
Ref. Model 3753
See pg. 59



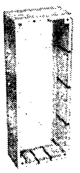
SIZE A
(2.25) x (1.13)
x (.88) Deep
Ref. Model 2397
See pg. 60



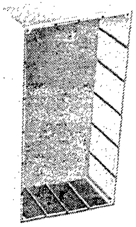
SIZE B
(2.25) x (1.38)
x (1.13) Deep
Ref. Model 2417
See pg. 64



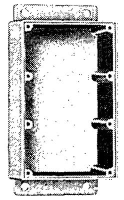
SIZE D
(3.00) x (2.63)
x (1.65) Deep
Ref. Model 3601
See pg. 67



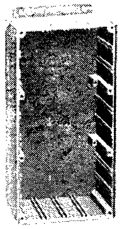
SIZE J
(4.25) x (1.50)
x (1.06) Deep
Ref. Model 4655
See pg. 68



SIZE L
(6.00) x (3.00)
x (1.67) Deep
Ref. Model 4903
See pg. 68



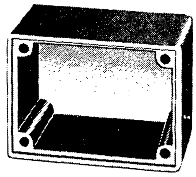
SIZE C
(2.64) x (4.25)
Excluding flanges
x (1.71) Deep
Ref. Model 2901
See pg. 66



SIZE E
(4.22) x (8.32)
Excluding flanges
x (1.74) Deep
Ref. Model 4226
See pg. 67

SHIELDED "BLACK BOXES" MINIATURE SIZE

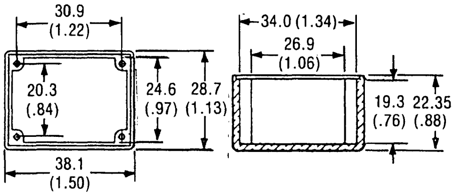
SHIELDED "BLACK BOX"



Model No.	Net
3753	4.95
3754	4.55

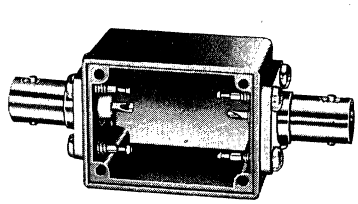
MODEL 3753
HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C.(+302°F.) Max.

MODEL 3754
HOUSING: Miniature die cast aluminum. Finish: None.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C.(+302°F.) Max.



See page 71 for replacement cover 4742 and mounting cover 3729.

COMPONENT MOUNTING — BNC FEMALE BOTH ENDS

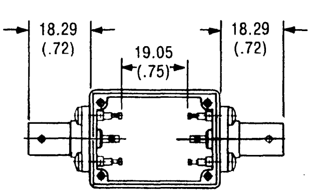


Model No.
3751

HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.

See Model 3753 (above) for dimensions.

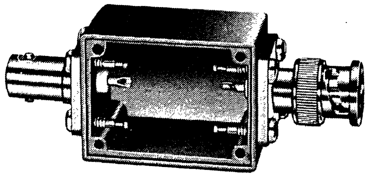
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4742 and mounting cover 3729.

NET 18.50

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

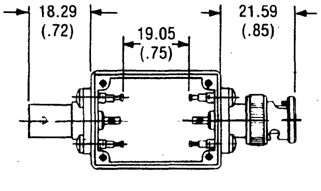


Model No.
3752

HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.

See Model 3753 (above) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4742 and mounting cover 3729.

NET 18.75

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

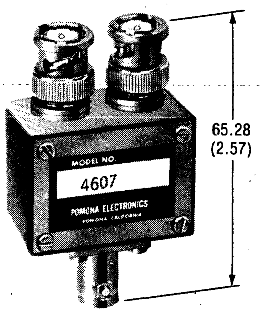
SHIELDED "BLACK BOXES" — MINIATURE SIZE

TWO BNC MALES TO BNC FEMALE

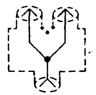
HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.

See Model 3753 (page 59) for dimensions.

1ST END: BNC Males on 17.0 mm (.68) centers.
2ND END: BNC Female.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No. 4607



See page 71 for replacement cover 4742 and mounting cover 3729.

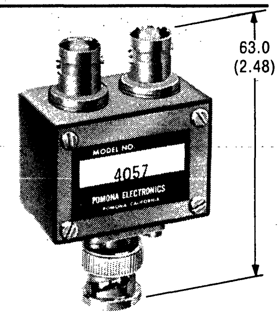
NET 36.75

TWO BNC FEMALES TO BNC MALE — "IN-LINE T"

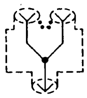
HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.

See Model 3753 (page 59) for dimensions.

1ST END: BNC Females on 17.0 mm (.68) centers.
2ND END: BNC Male.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No. 4057

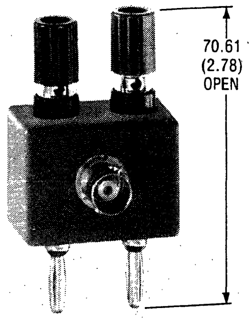


See page 71 for replacement cover 4742 and mounting cover 3729.

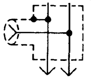
NET 27.95

BINDING POSTS TO DOUBLE BANANA PLUG WITH BNC FEMALE

HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.
See Model 3753 (page 59) for dimensions.
1ST END: Binding posts on 19.05 mm (.750) centers, brass, bright tin plated. Accepts standard banana plugs. One black and one red.
CENTER: BNC Female.
2ND END: Banana Plugs on 19.05 mm (.750) centers, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks.
RATING: 500 VRMS, +115°C. (+239°F.) Max.



Model No. 4050



See page 71 for replacement cover 4742 and mounting cover 3729.

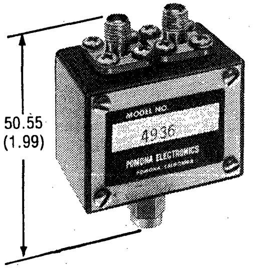
NET 29.95

TWO SMA FEMALES TO SMA MALE — "IN-LINE T"

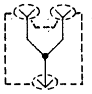
HOUSING: Miniature die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized. Includes 4 #2-32 self-tapping cover screws.

See Model 3753 (page 59) for dimensions.

1ST END: SMA Females on 14.23 mm (.56) centers: gold plated, with solder turret terminal screws.
2ND END: SMA Male: gold plated with solder turret terminal screw.
RATING: 1000 VRMS, +150°C. (+302°) Max.



Model No. 4936

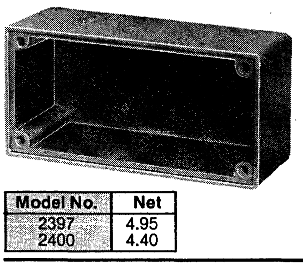


See page 71 for replacement cover 4742 and mounting cover 3729.

NET 84.95

SHIELDED "BLACK BOXES" — SIZE "A"

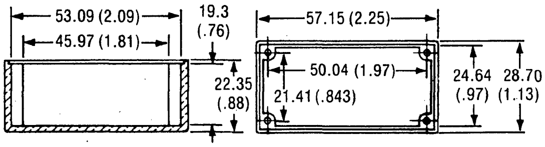
SHIELDED "BLACK BOX"



Model No.	Net
2397	4.95
2400	4.40

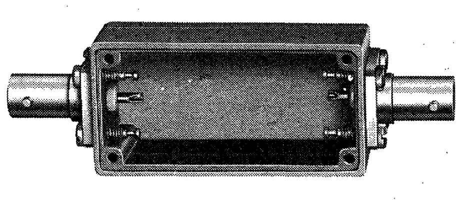
MODEL 2397
HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°) Max.

MODEL 2400
HOUSING: Size "A" die cast aluminum. Finish: None.
COVER: 1.02 (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°) Max.



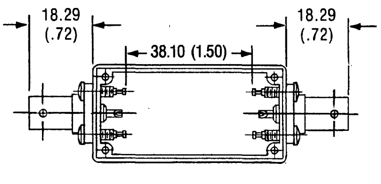
See page 71 for replacement cover 4245 and mounting cover 3728.

COMPONENT MOUNTING — BNC FEMALES BOTH ENDS



Model No. 2390

HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
See Model 2397 (above) for dimensions.
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°) Max.



See page 71 for replacement cover 4245 and mounting cover 3728.

NET 15.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES"— SIZE "A"

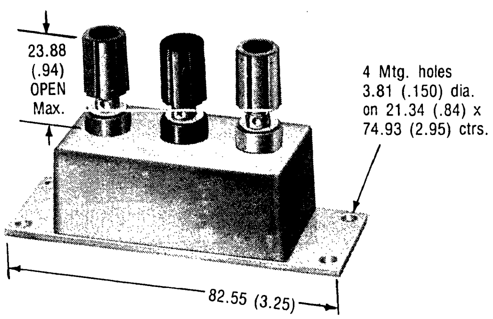
SHIELDED COMPONENT MOUNTING BOX WITH BANANA JACK BINDING POSTS ("A" SIZE)

Ideal for packaging (voltage dividers, isolation networks, impedance matching networks), and other varied uses.
HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: (with mounting flanges): 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

CENTER: Binding posts with solder turret terminal on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
RATING: 2500 WVDC, 15 Amps, +115°C. (+239°F.) Max.

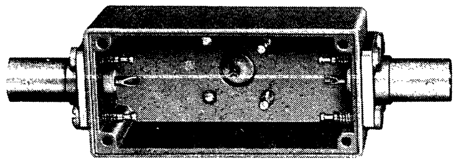
Model No.
4745



See page 71 for replacement cover 4245 and mounting cover 3728.

NET 16.95

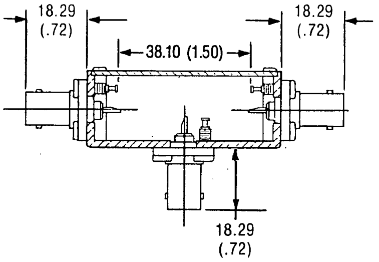
COMPONENT MOUNTING — BNC FEMALE "T"



HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
CENTER: BNC Female with solder turret terminal screws.
2ND END: BNC Female with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

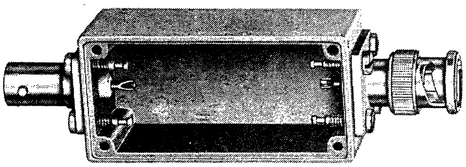


Model No.
2392

See page 71 for replacement cover 4245 and mounting cover 3728.

NET 22.95

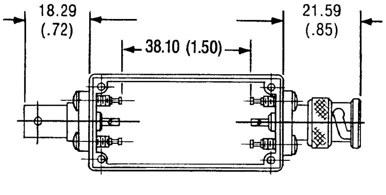
COMPONENT MOUNTING — BNC FEMALE TO BNC MALE



HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

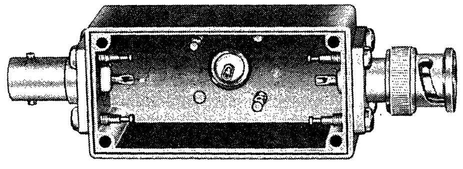


Model No.
2391

See page 71 for replacement cover 4245 and mounting cover 3728.

NET 18.75

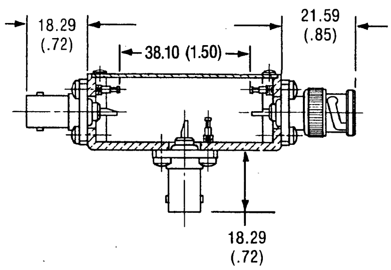
COMPONENT MOUNTING — "T" TWO BNC FEMALES TO BNC MALE



HOUSING: Size "A" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
CENTER: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No.
2401

See page 71 for replacement cover 4245 and mounting cover 3728.

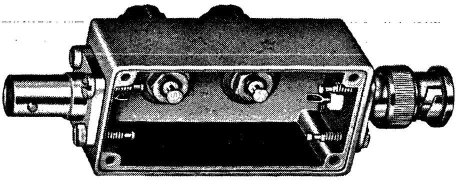
NET 24.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "A"

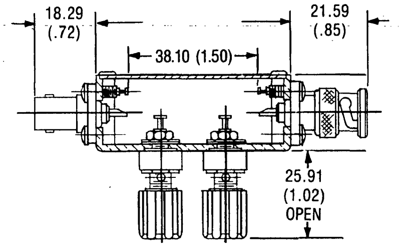
COMPONENT MOUNTING — BNC FEMALE TO BNC MALE WITH BINDING POSTS



HOUSING: Size "A" die cast aluminum, blue baked enamel finish. **COVER:** 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: BNC Female with solder turret terminal screws. **CENTER:** Binding posts with solder turret terminal on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red. **2ND END:** BNC Male with solder turret terminal screws. **RATING:** 500 VRMS, +115°C. (+239°F.) Max.

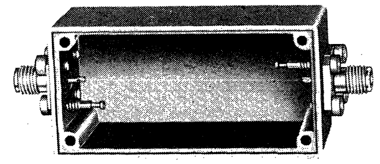


Model No. 2393

See page 71 for replacement cover 4245 and mounting cover 3728.

NET 25.75

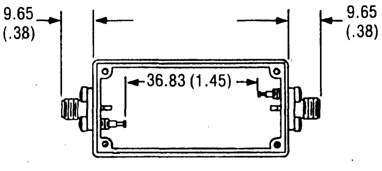
COMPONENT MOUNTING — SMA FEMALES BOTH ENDS



HOUSING: Size "A" die cast aluminum, blue baked enamel finish. **COVER:** 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: SMA Female with solder turret terminal screw. Gold plated per requirements of MIL-C-39012. **2ND END:** Same as first end. **RATING:** 1000 VRMS, +150°C. (+302°F.) Max.

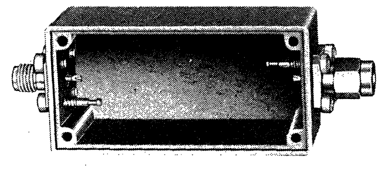


Model No. 2399

See page 71 for replacement cover 4245 and mounting cover 3728.

NET 36.95

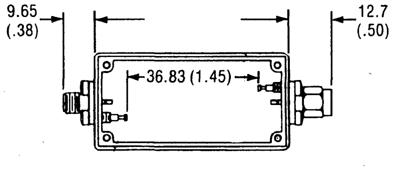
COMPONENT MOUNTING — SMA FEMALE TO SMA MALE



HOUSING: Size "A" die cast aluminum, blue baked enamel finish. **COVER:** 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: SMA Female with solder turret terminal screw. Gold plated per requirements of MIL-C-39012. **2ND END:** SMA Male with solder turret terminal screw. Gold plated per requirements of MIL-C-39012. **RATING:** 1000 VRMS, +150°C. (+302°F.) Max.

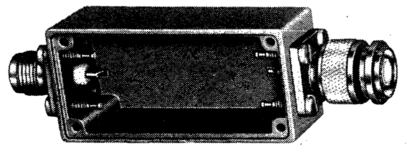


Model No. 2398

See page 71 for replacement cover 4245 and mounting cover 3728.

NET 59.95

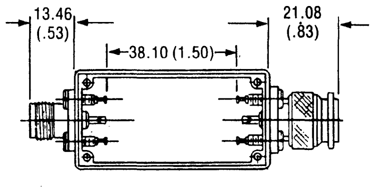
COMPONENT MOUNTING — TNC FEMALE TO TNC MALE



HOUSING: Size 'A' die cast aluminum, blue baked enamel finish. **COVER:** 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2397 (page 60) for dimensions.

1ST END: TNC Female with solder turret terminal screws. **2ND END:** TNC Male with solder turret terminal screws. **RATING:** 500 VRMS, +150°C. (+302°F.) Max.



Model No. 2395

See page 71 for replacement cover 4245 and mounting cover 3728.

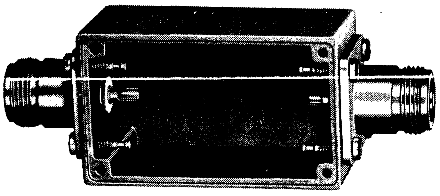
NET 36.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "B"

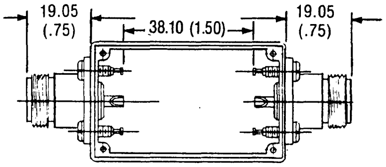
COMPONENT MOUNTING — TYPE "N" FEMALE BOTH ENDS



HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

1ST END: Type "N" Female with solder turret terminal screws.
2ND END: Type "N" Female with solder turret terminal screws.
RATING: 1000 VRMS, +150°C. (+302°F.) Max.

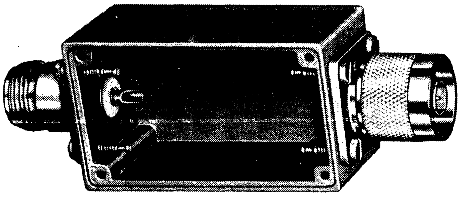


Model No. 2410

See page 71 for replacement cover 4246 and mounting cover 3719.

NET 22.95

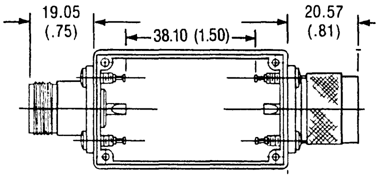
COMPONENT MOUNTING — TYPE "N" FEMALE TO TYPE "N" MALE



HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

1ST END: Type "N" Female with solder turret terminal screws.
2ND END: Type "N" Male with solder turret terminal screws.
RATING: 1000 VRMS, +150°C. (+302°F.) Max.

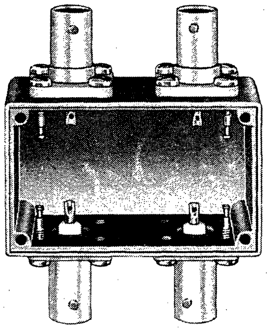


Model No. 2411

See page 71 for replacement cover 4246 and mounting cover 3719.

NET 29.95

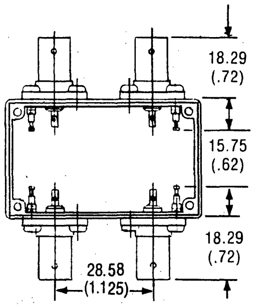
COMPONENT MOUNTING — CROSS CONNECTIONS



HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

1ST END: BNC Females on 28.58 mm (1.125) centers with solder turret terminals.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

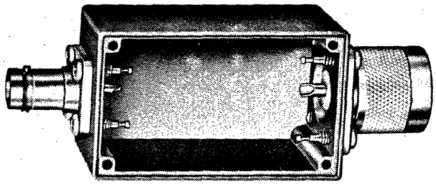


Model No. 3234

See page 71 for replacement cover 4246 and mounting cover 3719.

NET 26.95

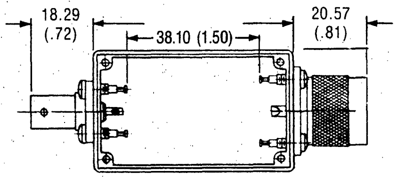
COMPONENT MOUNTING — BNC FEMALE TO TYPE "N" MALE



HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
2ND END: Type "N" Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No. 2420

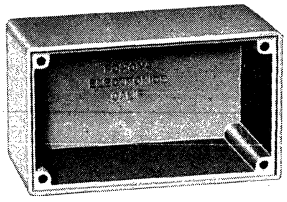
See page 71 for replacement cover 4246 and mounting cover 3719.

NET 29.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — SIZE "B"

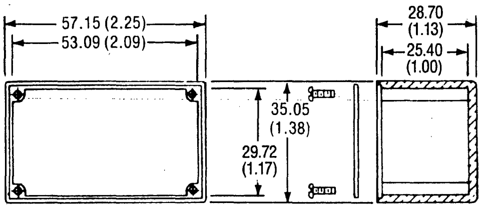
SHIELDED "BLACK BOX"



Model No.	Net
2417	5.25
2428	4.95

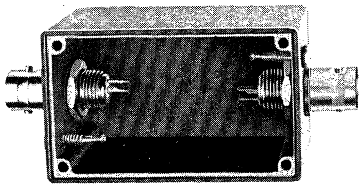
MODEL 2417
HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 2428
HOUSING: Size "B" die cast aluminum. Finish: None.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

COMPONENT MOUNTING — TRIAXIAL FEMALE TO TRIAXIAL FEMALE

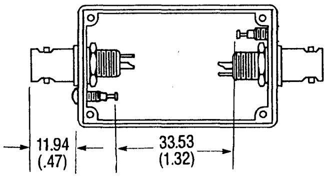


Model No.
5166

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 for dimensions.

1ST END: Triaxial Female, two lug, with solder turret terminal screw.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

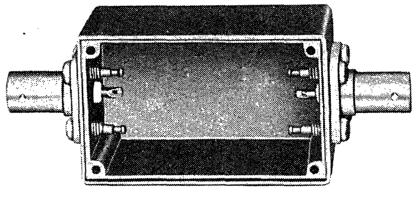


NEW

See page 71 for replacement cover 4246 and mounting cover 3719.

NET 31.95

COMPONENT MOUNTING — BNC FEMALE BOTH ENDS

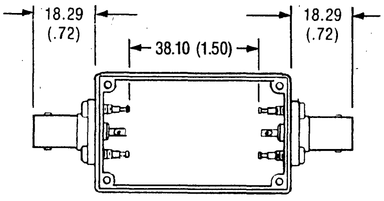


Model No.
3230

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (above) for dimensions.

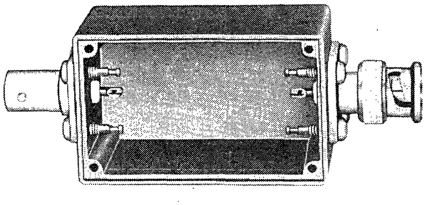
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

NET 15.95

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

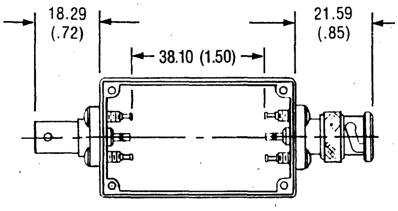


Model No.
3231

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 for dimensions.

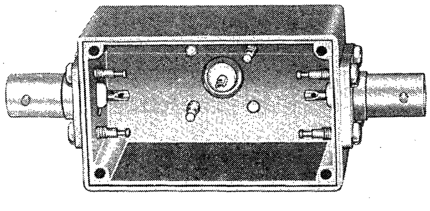
1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

NET 19.25

COMPONENT MOUNTING — BNC FEMALE "T"

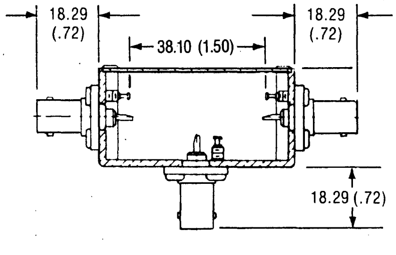


Model No.
3232

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 for dimensions.

1ST END: BNC Female with solder turret terminal screws.
CENTER: Same as first end.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

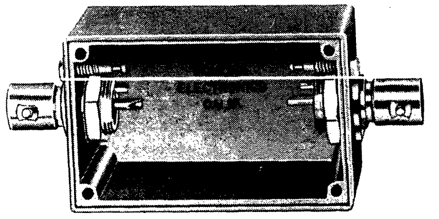
NET 23.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "B"

COMPONENT MOUNTING — ISOLATED BNC FEMALE BOTH ENDS

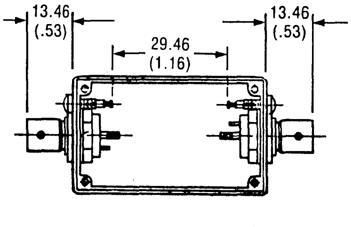


Model No.
3239

Ideal for application when it is desirable to isolate signal ground from chassis ground.
HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

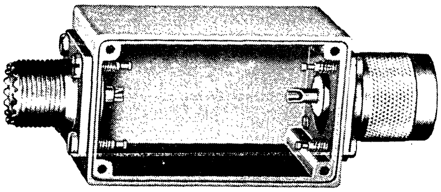
1ST END: Isolated BNC Female with solder turret terminal screw.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

NET 24.95

COMPONENT MOUNTING — UHF FEMALE TO UHF MALE

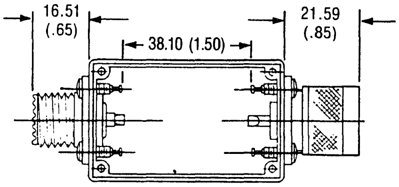


Model No.
2413

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

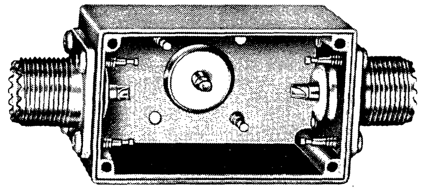
1ST END: UHF Female with solder turret terminal screws.
2ND END: UHF Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

NET 31.95

COMPONENT MOUNTING — UHF OR TYPE "N" FEMALE "T"



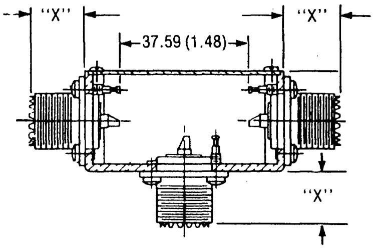
MODEL 2418 SHOWN

Model No.	Connectors	"X" Dim.	Net
2418	(3) UHF females	16.51 (.65)	32.95
2419	(3) Type "N" females	19.05 (.75)	30.95

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

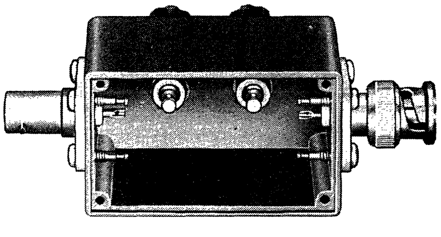
See Model 2417 (page 64) for dimensions.

1ST END: UHF Female or Type "N" Female with solder turret terminal screws.
CENTER: Same as first end.
2ND END: Same as first end.
RATING: UHF: 500 VRMS Type "N": 1000 VRMS +150°C. (+302°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE WITH BINDING POSTS

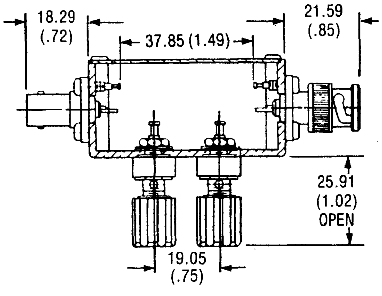


Model No.
3233

HOUSING: Size "B" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 2417 (page 64) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
CENTER: Binding posts with solder turret terminals on 19.05 mm (.750) centers. Brass, bright tin plated. Accepts standard banana plugs. Polycarbonate insulation. One black and one red.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +115°C. (+239°F.) Max.



See page 71 for replacement cover 4246 and mounting cover 3719.

NET 27.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "C"

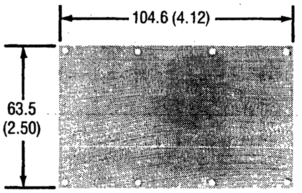
RFI/EMC COVER GASKET FOR SIZE "F," "G," "H," & "K" BOXES

This cover gasket greatly improves electromagnetic shielding effectiveness of POMONA boxes. Fine monel wires embedded in silicone provide an effective shield against radio frequency interference greatly improving electromagnetic compatibility. Adhesive back allows simple installation.

Gasket fits Models 3301, 3302, 3303, 3306, 3307, 3311, 3312, 3316, 3742, 3743, 4720 and 4739.

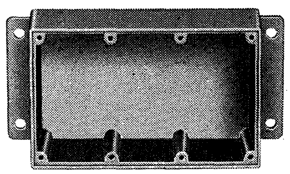
(Gasket attaches directly to cover.)

Model No.	Net
4775	14.95



NET 14.95

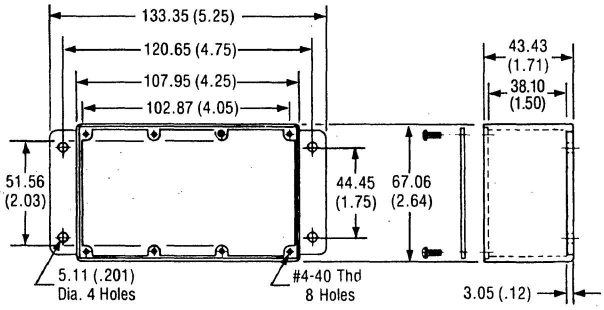
SHIELDED "BLACK BOX"



MODEL 2901
HOUSING: Size "C" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 8 cover screws.
RATING: +150°C. (+302°F.) Max.

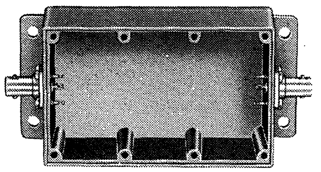
MODEL 2906
HOUSING: Size "C" die cast aluminum. Finish: None.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 8 cover screws.
RATING: +150°C. (+302°F.) Max.

Model No.	Net
2901	11.95
2906	10.95



See page 71 for replacement cover 4248.

COMPONENT MOUNTING — BNC FEMALES

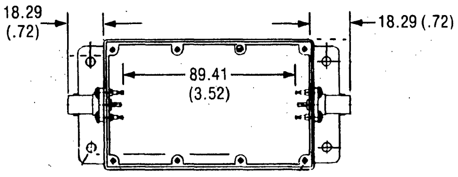


HOUSING: Size "C" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 8 cover screws.

See Model 2901 (above) for dimensions

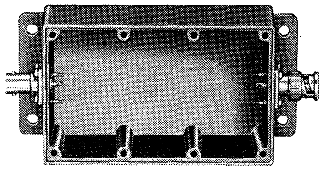
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

Model No.
2902



See page 71 for replacement cover 4248. **NET 23.95**

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

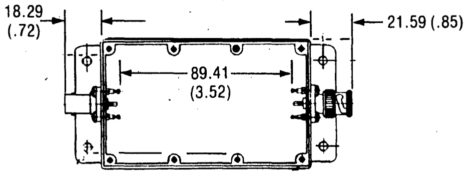


HOUSING: Size "C" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 8 cover screws.

See Model 2901 (above) for dimensions.

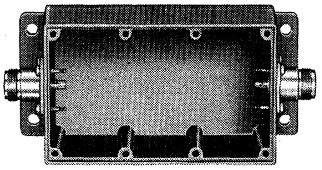
1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

Model No.
2903



See page 71 for replacement cover 4248. **NET 26.25**

COMPONENT MOUNTING — TYPE "N" FEMALES

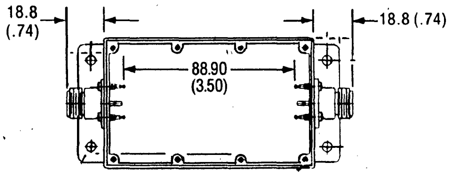


HOUSING: Size "C" die cast aluminum, blue baked enamel finish.
COVER: 1.02 mm (.040) thick aluminum, clear anodized finish. Includes 8 cover screws.

See Model 2901 for dimensions

1ST END: Type "N" Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 1000 VRMS, +150°C. (+302°F.) Max.

Model No.
2904



See page 71 for replacement cover 4248. **NET 29.75**

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "D"

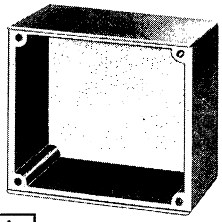
Another series of shielded "Black Boxes." These boxes fill the need between the size "B" and "C" boxes and are excellent for compact packaging of voltage dividers, isolation networks and many other applications. Cover and screws included.

FEATURES:

- Shielded housing: Die cast aluminum, alloy 380A or equivalent.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Cover: Aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Solder turret terminals for permanent noise free connection of components.

(See page 71 for accessories and replacement parts.)

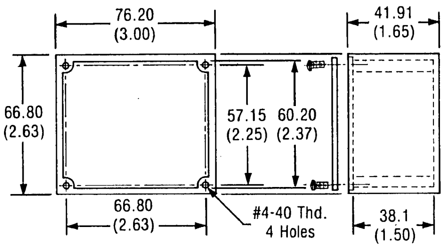
SHIELDED "BLACK BOX"



Model No.	Net
3601	9.25
3606	8.95

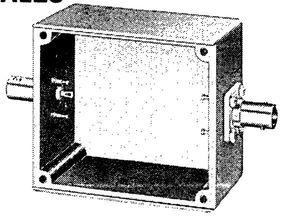
MODEL 3601
HOUSING: Size "D" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 3606
HOUSING: Size "D" die cast aluminum. Finish: None.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 cover screws.
RATING: +150°C. (+302°F.) Max.


76.20
(3.00)
41.91
(1.65)
66.80
(2.63)
57.15
(2.25)
60.20
(2.37)
66.80
(2.63)
#4-40 Thd.
4 Holes
38.1
(1.50)

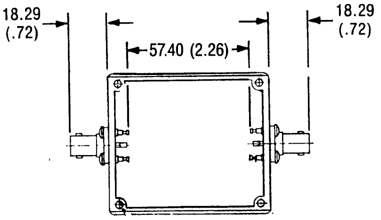
See page 71 for replacement cover 4726 and mounting cover 3958.

COMPONENT MOUNTING — BNC FEMALES



Model No.
3602

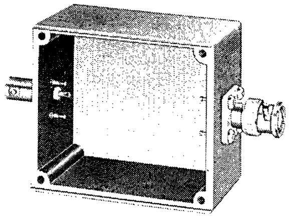
HOUSING: Size "D" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 cover screws.
See Model 3601 (above) for dimensions.
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.


18.29
(.72)
57.40 (2.26)
18.29
(.72)

See page 71 for replacement cover 4726 and mounting cover 3958.

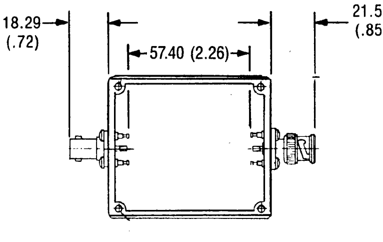
NET 19.95

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE



Model No.
3603

HOUSING: Size "D" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 cover screws.
See Model 3601 (above) for dimensions.
1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

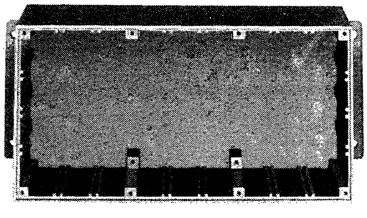

18.29
(.72)
57.40 (2.26)
21.59
(.85)

See page 71 for replacement cover 4726 and mounting cover 3958.

NET 22.95

SHIELDED "BLACK BOX" — SIZE "E"

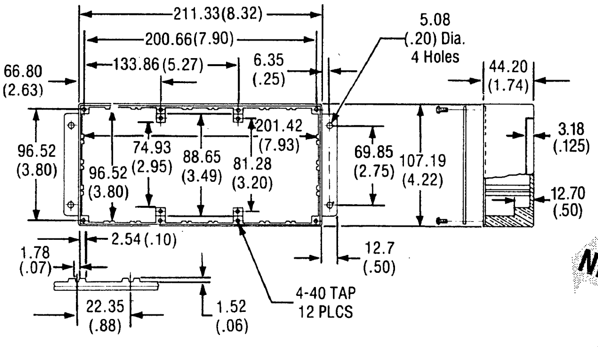
DIE CAST ALUMINUM BOX WITH CARD GUIDES



Model No.	Net
4226	32.95
5186	30.95

MODEL 4226
HOUSING: Size "E" die cast aluminum, blue baked enamel finish.
COVER: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 12 cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 5186
HOUSING: Size "E" die cast aluminum. Finish: None.
COVER: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 12 cover screws.
RATING: +150°C. (+302°F.) Max.


211.33(8.32)
200.66(7.90)
133.86(5.27)
6.35
(.25)
5.08
(.20) Dia.
4 Holes
44.20
(1.74)
66.80
(2.63)
96.52
(3.80)
96.52
(3.80)
74.93
(2.95)
88.65
(3.49)
201.42
(7.93)
81.28
(3.20)
69.85
(2.75)
107.19
(4.22)
3.18
(.125)
12.70
(.50)
2.54 (.10)
1.78
(.07)
12.7
(.50)
22.35
(.88)
1.52
(.06)
4-40 TAP
12 PLCS

NEW

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — SIZE "J"

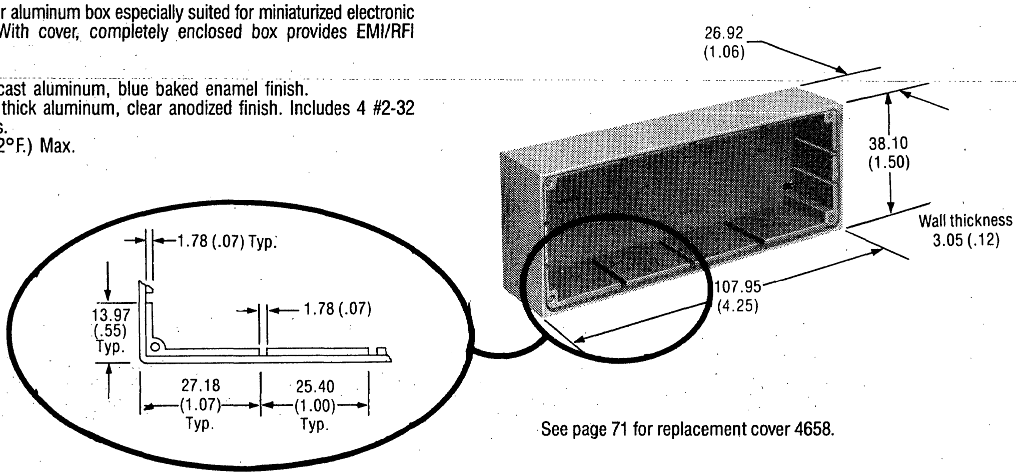
DIE CAST ALUMINUM BOX WITH CARD GUIDES, SIZE "J"

A compact size rectangular aluminum box especially suited for miniaturized electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.

MODEL 4655
HOUSING: Size "J" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 5255
HOUSING: Size "J" die cast aluminum. Finish: None.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.

Model No.	Net
4655	14.95
5255	13.50



NEW

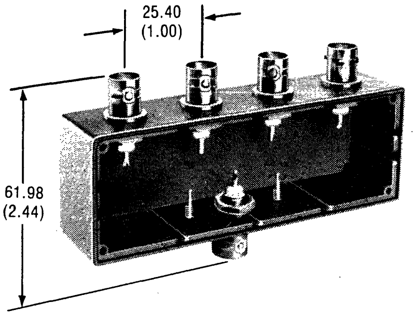
See page 71 for replacement cover 4658.

COMPONENT HOUSING — FIVE BNC FEMALES

Four female BNCs on 25.4mm (1.0) centers can be paralleled into one female BNC. All metal construction insures EMI/RFI shielding. Two solder-turret terminal screws provided for grounding.
HOUSING: Size "J" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.

See Model 4655 (above) for dimensions.

1ST END: BNC Females on 25.4 mm (1.0) centers.
2ND END: BNC Female with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



Model No.
4656

See page 71 for replacement cover 4658.

NET 34.95

SHIELDED "BLACK BOXES" — SIZE "L"

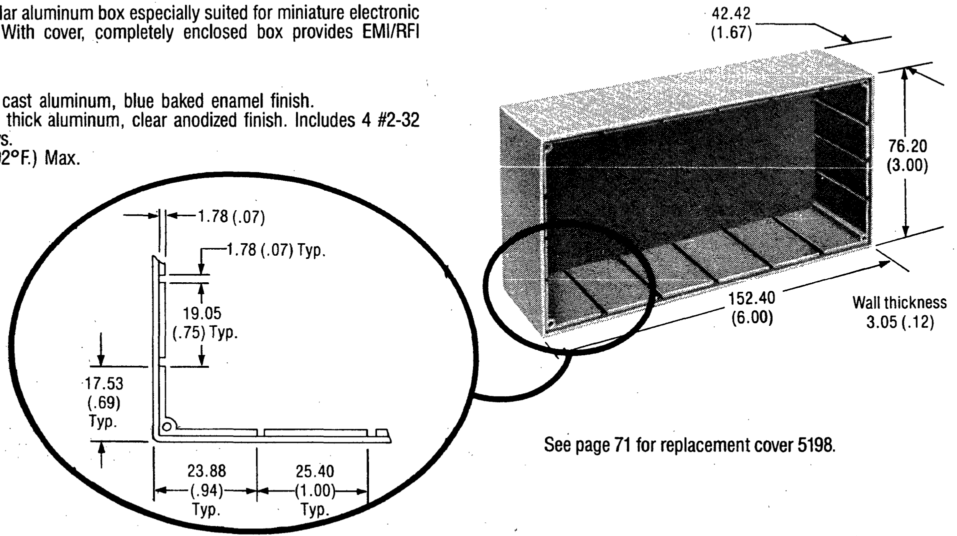
DIE CAST ALUMINUM BOX WITH CARD GUIDES, SIZE "L"

A compact size rectangular aluminum box especially suited for miniature electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.

MODEL 4903
HOUSING: Size "L" die cast aluminum, blue baked enamel finish.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 5203
HOUSING: Size "L" die cast aluminum. Finish: None.
COVER: 1.60 mm (.063) thick aluminum, clear anodized finish. Includes 4 #2-32 self-tapping cover screws.
RATING: +150°C. (+302°F.) Max.

Model No.	Net
4903	18.95
5203	17.50



NEW

See page 71 for replacement cover 5198.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

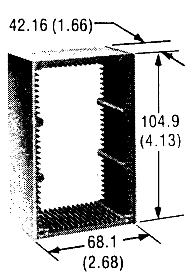
EXTRUDED SHIELDED "BLACK BOXES"

Aluminum boxes, slotted to accept 1.57 mm (.062) circuit boards and shielding dividers. Excellent for packaging electronic circuitry. Boxes have removable top and bottom covers.

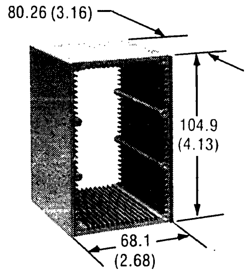
(See page 71 for accessories and replacement parts.)

FEATURES:

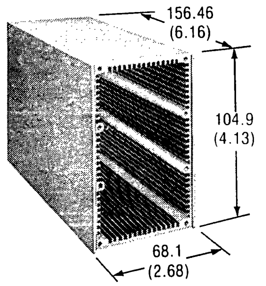
- Shielded housing: Extruded aluminum alloy 6063-T5 or equivalent.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Covers: Top and bottom, aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Completely enclosed box provides EMI/RFI shielding.
- Solder turret terminals for permanent noise free connection of components.



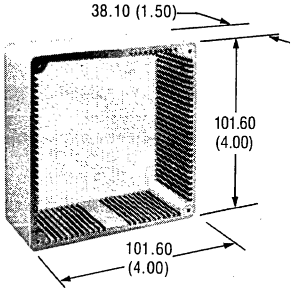
SIZE F
Ref. Model 3301
See page 70



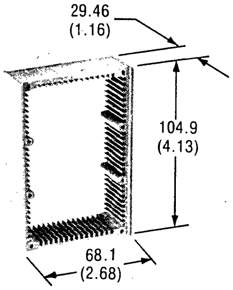
SIZE G
Ref. Model 3311
See page 70



SIZE H
Ref. Model 3742
See page 70

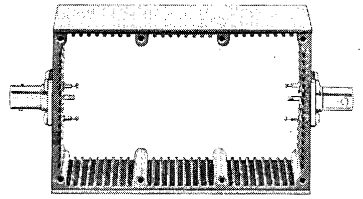


SIZE I
Ref. Model 4641
See page 70



SIZE K
Ref. Model 4720
See page 70

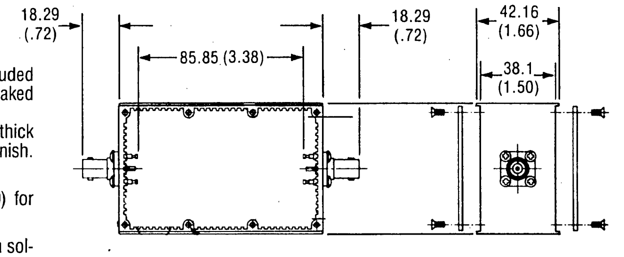
COMPONENT MOUNTING — SIZE "F" BNC FEMALES



HOUSING: Size "F" extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.

See Model 3301 (page 70) for dimensions.

1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.

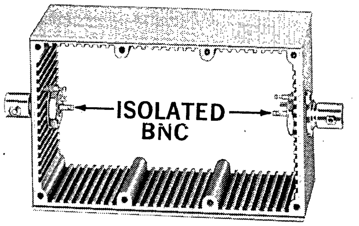


See page 71 for replacement cover 4274 and mounting cover 3328.

Model No.
3302

NET 31.95

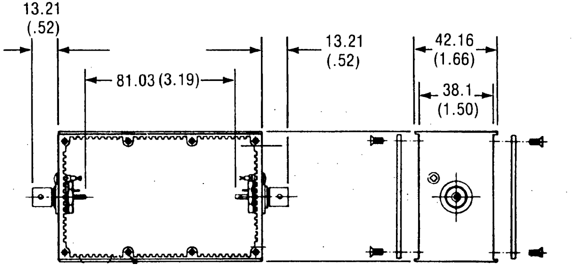
COMPONENT MOUNTING — SIZE "F" ISOLATED BNC FEMALES



Ideal for applicatins when it is desirable to islate signal ground from chassis ground.
HOUSING: Size "F" extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.

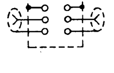
See Model 3301 (page 70) for dimensions.

1ST END: Isolated BNC Female with solder turret terminal screw.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4247 and mounting cover 3328.

Model No.
3307

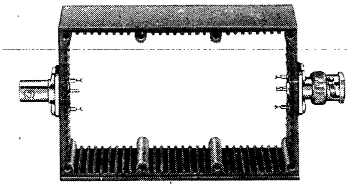


NET 39.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

EXTRUDED SHIELDED "BLACK BOXES"

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

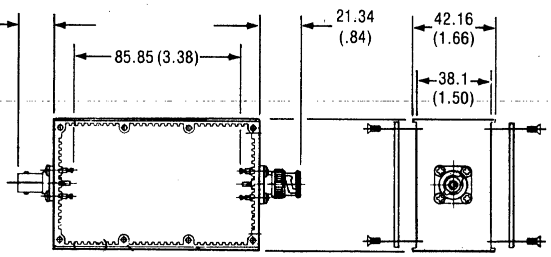


Model No. 3303

HOUSING: Size "F" extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.

See Model 3311 (below) for dimensions.

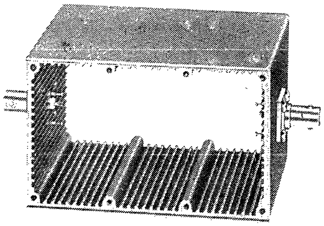
1ST END: BNC Female with solder turret terminal screws.
2ND END: BNC Male with solder turret terminal screws.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4247 and mounting cover 3328.

NET 33.95

COMPONENT MOUNTING — BNC FEMALES

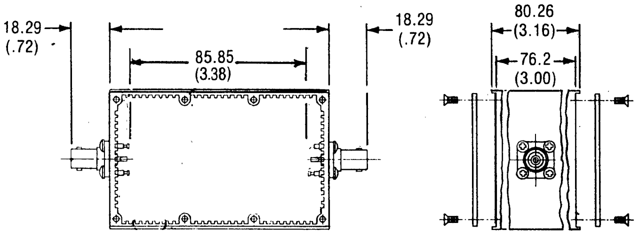


Model No. 3312

HOUSING: Size "F" extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.

See Model 3311 (below) for dimensions.

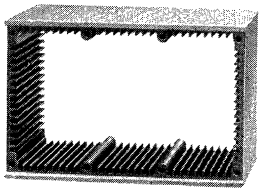
1ST END: BNC Female with solder turret terminal screws.
2ND END: Same as first end.
RATING: 500 VRMS, +150°C. (+302°F.) Max.



See page 71 for replacement cover 4247 and mounting cover 3328.

NET 34.25

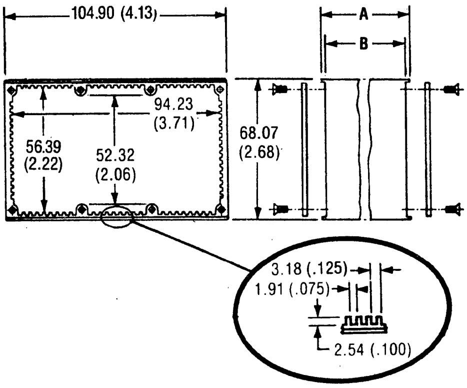
EXTRUDED "BLACK BOXES"



MODEL 4720, 3301, 3311 and 3742
HOUSING: Extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.
RATING: +150°C. (+302°F.) Max.

MODEL 4739, 3306, 3316 and 3743
HOUSING: Extruded aluminum alloy. Finish: None.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 16 cover screws.
RATING: +150°C. (+302°F.) Max.

Model No.	Box Size	Dim. A	Dim. B	Net
4720	K	29.46 (1.16)	25.4 (1.00)	19.95
4739	K	29.46 (1.16)	25.4 (1.00)	17.95
3301	F	42.16 (1.66)	38.1 (1.50)	19.95
3306	F	42.16 (1.66)	38.1 (1.50)	17.95
3311	G	80.26 (3.16)	76.2 (3.00)	23.95
3316	G	80.26 (3.16)	76.2 (3.00)	21.25
3742	H	156.46 (6.16)	152.4 (6.00)	28.95
3743	H	156.46 (6.16)	152.4 (6.00)	25.50



See page 71 for replacement cover 4247 and mounting cover 3328.

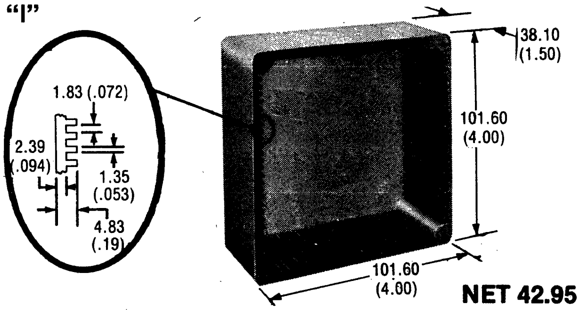
EXTRUDED ALUMINUM BOX WITH CARD GUIDES, SIZE "I"

A convenient size square aluminum box for electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.

HOUSING: Size "I" extruded aluminum alloy, blue baked enamel finish.
COVERS: 2.03 mm (.080) thick aluminum, clear anodized finish. Includes 8 #4-40 cover screws.
RATING: +150°C. (+302°F.) Max.

See page 71 for replacement cover 4631 and mounting cover 4642.

Model No. 4641



NET 42.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

REPLACEMENT COVER/MOUNTING COVER

REPLACEMENT COVER

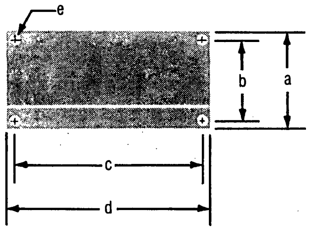


FIGURE 1

MOUNTING COVER

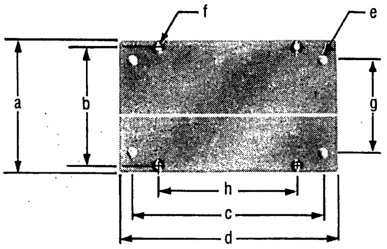


FIGURE 2

REPLACEMENT COVER

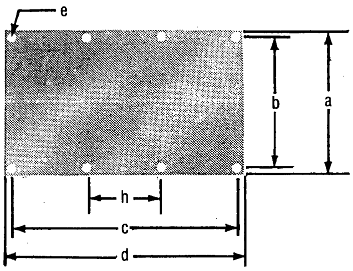


FIGURE 3

MOUNTING COVER

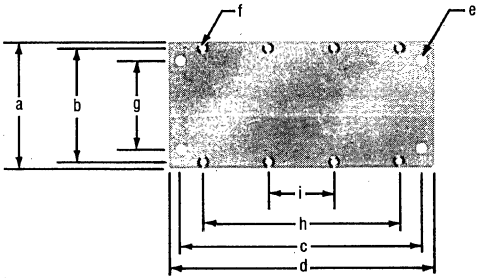


FIGURE 4

P/N	Box Size	Fig.	Material See Note 10	Material Thickness	a	b	c	d	e See Note	f See Note	g	h	i	Net
3328	F, G, H & K	4	6061-T6	2.03 (.080)	63.50 (2.50)	57.15 (2.250)	120.65 (4.750)	133.35 (5.25)	6	9	44.45 (1.750)	98.43 (3.875)	32.79 (1.291)	6.50
3719	B	2	6061-T6	2.03 (.080)	35.56 (1.40)	27.76 (1.093)	74.78 (2.944)	82.55 (3.25)	3	7	27.76 (1.093)	49.99 (1.968)	–	2.75
3728	A	2	6061-T6	2.03 (.080)	29.21 (1.15)	21.41 (.843)	74.78 (2.944)	82.55 (3.25)	3	7	21.41 (.843)	49.99 (1.968)	–	2.50
3729	Miniature	2	6061-T6	2.03 (.080)	29.21 (1.15)	21.41 (.843)	55.73 (2.194)	63.50 (2.50)	3	7	21.41 (.843)	30.94 (1.218)	–	2.50
3958	D	2	1100-H14	2.03 (.080)	63.50 (2.50)	57.15 (2.250)	91.90 (3.618)	104.65 (4.12)	6	8	44.45 (1.750)	66.67 (2.625)	–	5.95
4245	A	1	1100-H14	1.02 (.040)	26.16 (1.03)	21.41 (.843)	49.99 (1.968)	54.86 (2.16)	1	–	–	–	–	1.50
4246	B	1	1100-H14	1.02 (.040)	32.51 (1.28)	27.76 (1.093)	49.99 (1.968)	54.86 (2.16)	1	–	–	–	–	1.50
4247	F, G, H, & K	3	1100-H14	2.03 (.080)	63.47 (2.50)	57.15 (2.250)	98.43 (3.875)	104.65 (4.12)	9	–	–	32.82 (1.292)	–	3.95
4248	C	3	1100-H14	2.03 (.080)	63.47 (2.50)	57.15 (2.250)	98.43 (3.875)	104.65 (4.12)	2	–	–	32.82 (1.292)	–	3.10
4416	E	3	1100-H14	2.03 (.080)	102.11 (4.02)	96.52 (3.800)	200.66 (7.900)	206.25 (8.12)	2	–	–	66.88 (2.633)	–	6.50
4631	I	1	1100-H14	2.03 (.080)	101.60 (4.00)	91.44 (3.600)	91.44 (3.600)	101.60 (4.00)	5	–	–	–	–	4.95
4642	I	2	1100-H14	2.03 (.080)	101.60 (4.00)	91.44 (3.600)	114.30 (4.500)	127.00 (5.00)	6	5	66.68 (2.625)	91.44 (3.600)	–	4.85
4658	J	1	1100-H14	1.60 (.063)	34.80 (1.37)	30.48 (1.200)	100.33 (3.950)	104.65 (4.12)	1	–	–	–	–	3.75
4726	D	1	1100-H14	1.60 (.063)	62.99 (2.48)	57.15 (2.250)	66.68 (2.625)	75.95 (2.99)	4	–	–	–	–	2.75
4742	Miniature	1	1100-H14	1.02 (.040)	26.42 (1.04)	21.41 (.843)	30.94 (1.218)	35.81 (1.41)	1	–	–	–	–	.95
5198	L	1	1100-H14	1.60 (.063)	72.90 (2.87)	68.58 (2.700)	144.76 (5.700)	149.10 (5.871)	1	–	–	–	–	4.95

NOTES:

1) 2.44 (.096) 4 MTG Holes
2) 3.56 (.140) 8 MTG Holes
3) 3.81 (.150) 4 MTG Holes
4) 3.18 (.125) 4 MTG Holes
5) 3.56 (.140) 4 MTG Holes
6) 5.11 (.201) 4 MTG Holes
7) 2.44 (.096) with 1.40 (.055) Deep x 4.22 (.166) counterbore
8) 3.18 (.125) with 5.94 (.234) Dia x 82° countersink.
9) 3.56 (.140) Dia with 5.94 (.234) Dia x 82° countersink.
10) All covers clear anodized per MIL-A-8625

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

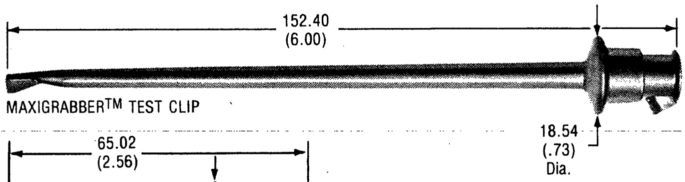
ITT POMONA ELECTRONICS

GRABBER™ TEST CLIPS

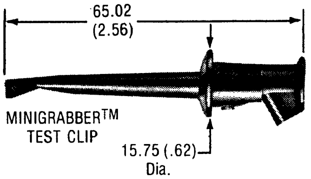
These plunger type action test clips are called Grabber™ test clips. The gold plated contact hook attaches rapidly to component leads and terminals. The specially designed tip (see illustration) slides easily on the 0.64 mm (.025) square wrapped wire terminals. The do-it-yourself Grabber™ test clips can be assembled quickly and easily by the user (see simplified instructions below) or the Grabber™ test clips can be purchased as completed patch cords that are firmly molded together to provide a strong, reliable and integral unit.

FEATURES:

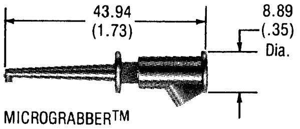
- Plunger type action between thumb and two fingers.
- Comfortable finger grip operation.
- Positive connection that won't pop off.
- No sharp teeth to damage or nick wires.
- Beryllium copper conductor berylco 165 per QQ-C-533; gold plated per MIL-G-45204 Type I.
- Stainless steel spring.
- Glass-filled nylon, +102°C. (+216°F.) Max.



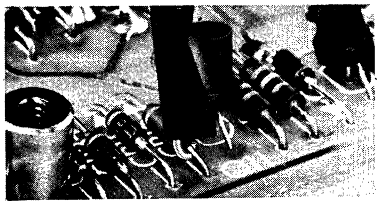
MAXIGRABBER™ TEST CLIP

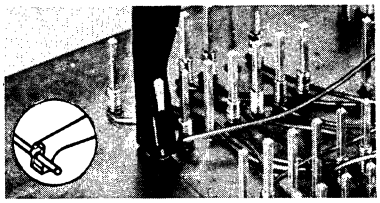


MINIGRABBER™ TEST CLIP



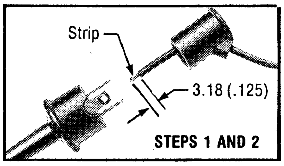
MICROGRABBER™ TEST CLIP

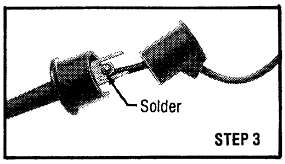


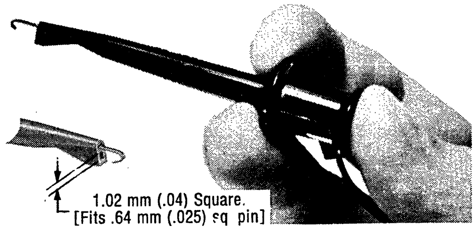


SIMPLIFIED ASSEMBLY PROCEDURE FOR DO-IT-YOURSELF GRABBER™ TEST CLIPS

1. Pull off thumb cap to expose contact connection.
2. Thread wire through thumb cap and strip 3.18 mm (.125).
3. Insert stripped end through tapered hole on contact, and solder.
   NOTE: Stripped end should be placed into the large opening of the tapered hole.
4. Slide thumb cap back onto contact.



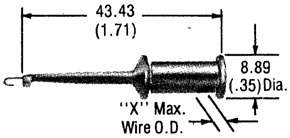




DO-IT-YOURSELF MICROGRABBER™ TEST CLIP

RATING: 1000 VDC, 3 Amps.

"X" Dia. 2.29 (.090) Model No.	Color
4233-0	Black
4233-1	Brown
4233-2	Red
4233-3	Orange
4233-4	Yellow
4233-5	Green
4233-6	Blue
4233-7	Violet
4233-8	Gray
4233-9	White



This do-it-yourself Grabber™ test clip is designed for testing of high density packaging. Lightweight and small size permits multiple usage of units in confined areas. (See assembly details above.)

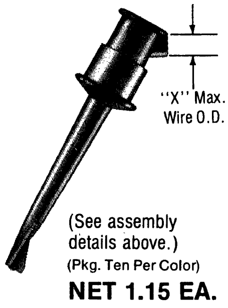
(Pkg. Ten Per Color)

NET 1.20 EA.

DO-IT-YOURSELF MINIGRABBER™ TEST CLIP

RATING: 3000 VDC, 12 Amps.

"X" Dia. 2.29 (.090) Model No.	"X" Dia. 3.66 (.144) Model No.	Color
3925-0	4555-0	Black
3925-1	4555-1	Brown
3925-2	4555-2	Red
3925-3	4555-3	Orange
3925-4	4555-4	Yellow
3925-5	4555-5	Green
3925-6	4555-6	Blue
3925-7	4555-7	Violet
3925-8	4555-8	Gray
3925-9	4555-9	White



(See assembly details above.)

(Pkg. Ten Per Color)

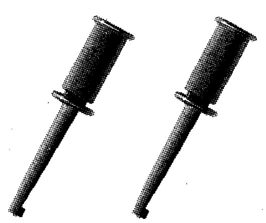
NET 1.15 EA.

DO-IT-YOURSELF MICROGRABBER™ TEST CLIP KIT

RATING: 1000 VDC, 3 Amps.

Kit contains 2 pcs. of Model 4233.

Model No.	Color	
4743-02	Black	Red
4743-00	Black	Black
4743-11	Brown	Brown
4743-22	Red	Red
4743-33	Orange	Orange
4743-44	Yellow	Yellow
4743-55	Green	Green
4743-66	Blue	Blue
4743-77	Violet	Violet
4743-88	Gray	Gray
4743-99	White	White



(See assembly details above.)

NET 2.65 KIT

DO-IT-YOURSELF MINIGRABBER™ TEST CLIP KIT

RATING: 3000 VDC, 12 Amps.

Kit contains 2 pcs. of Model 3925.

Model No.	Color	
4176-02	Black	Red
4176-00	Black	Black
4176-11	Brown	Brown
4176-22	Red	Red
4176-33	Orange	Orange
4176-44	Yellow	Yellow
4176-55	Green	Green
4176-66	Blue	Blue
4176-77	Violet	Violet
4176-88	Gray	Gray
4176-99	White	White

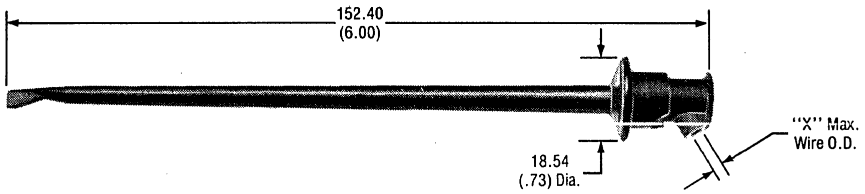
(See assembly details above.)

NET 2.50 KIT

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

GRABBER™ TEST CLIPS

DO-IT-YOURSELF MAXIGRABBER™ TEST CLIP

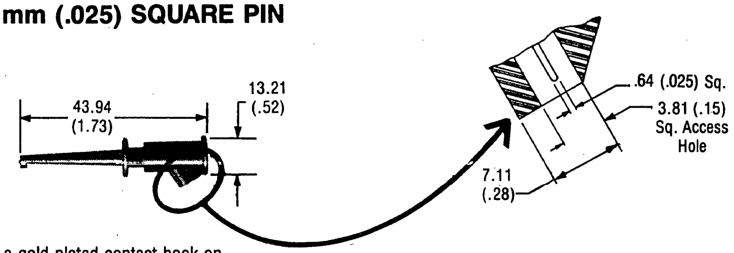


"X" Dia. 2.29 (.090)	"X" Dia. 3.66 (.144)	
Model No.	Model No.	Color
4225-0	4565-0	Black
4225-1	4565-1	Brown
4225-2	4565-2	Red
4225-3	4565-3	Orange
4225-4	4565-4	Yellow
4225-5	4565-5	Green
4225-6	4565-6	Blue
4225-7	4565-7	Violet
4225-8	4565-8	Gray
4225-9	4565-9	White

The Maxigrabber™ test clip is an extended length do-it-yourself Grabber™ test clip designed specifically for high-rise packaging of electronic components where depth of testing point is a key factor. The Maxigrabber™ test clip will fit entry holes as small as 6.35 mm (.250) dia. and the unit is completely field serviceable.
MATERIAL: Contact, beryllium copper. Spring, stainless steel.
FINISH: Contact, gold plated.
INSULATION: Glass filled nylon.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.
(See top of page 72 for assembly details.)

NET 2.95

MICROGRABBER™ TEST CLIP WITH 0.64 mm (.025) SQUARE PIN

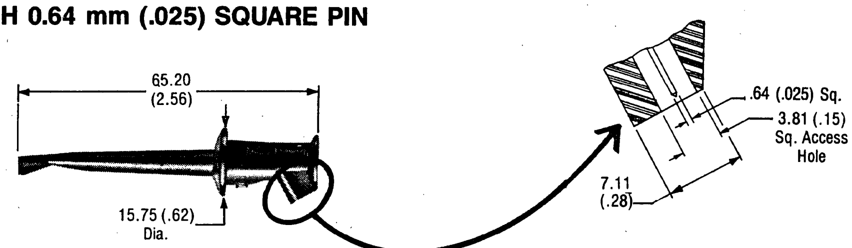


Model No.	Color
4521-0	Black
4521-1	Brown
4521-2	Red
4521-3	Orange
4521-4	Yellow
4521-5	Green
4521-6	Blue
4521-7	Violet
4521-8	Gray
4521-9	White

This Micrograbber™ test clip has a gold plated contact hook on one end and a 0.64 mm (.025) beryllium copper square pin on the other end. See model 4741 for mating receptacle.
MATERIAL: Contact, beryllium copper. Spring, stainless steel.
FINISH: Contact, gold plated.
INSULATION: Glass filled nylon.
RATING: 1000 WVDC, 3 Amps, +102°C. (+216°F.) Max.

NET 2.15

MINIGRABBER™ TEST CLIP WITH 0.64 mm (.025) SQUARE PIN



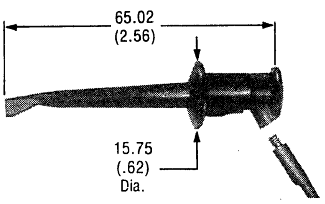
Model No.	Color
4587-0	Black
4587-1	Brown
4587-2	Red
4587-3	Orange
4587-4	Yellow
4587-5	Green
4587-6	Blue
4587-7	Violet
4587-8	Gray
4587-9	White

This Minigrabber™ test clip has a gold plated contact hook on one end and a 0.64 mm (.025) beryllium copper square pin on the other end. See model 4741 for mating receptacle.
MATERIAL: Contact, beryllium copper. Spring, stainless steel.
FINISH: Contact, gold plated.
INSULATION: Glass filled nylon.
RATING: 3000 WVDC, 3 Amps, +102°C. (+216°F.) Max.

NET 3.15

MINIGRABBER™ TEST CLIP WITH 6-32 THREAD

This Grabber™ test clip can be used with oscilloscope leads equipped with a 6-32 screw.
MATERIAL: Contact, beryllium copper. Spring, stainless steel. Threaded insert, brass.
FINISH: Contact, gold plated.
INSULATION: Glass filled nylon.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

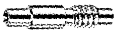


Model No.	Color
4011-0	Black
4011-2	Red

NET 2.75

6-32 SCREW-ON TIP

Can be crimped or soldered to wire. Supplied with shrink sleeving. Mates with 4011.
MATERIAL: Brass.
FINISH: Nickel plated.
INSULATION: Shrink sleeving, Rayclad type RNF.



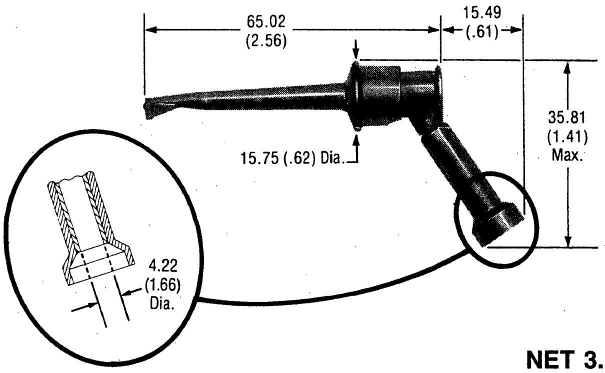
Model No.
4311

NET 1.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

GRABBER™ TEST CLIPS

MINIGRABBER™ TEST CLIP WITH BANANA JACK

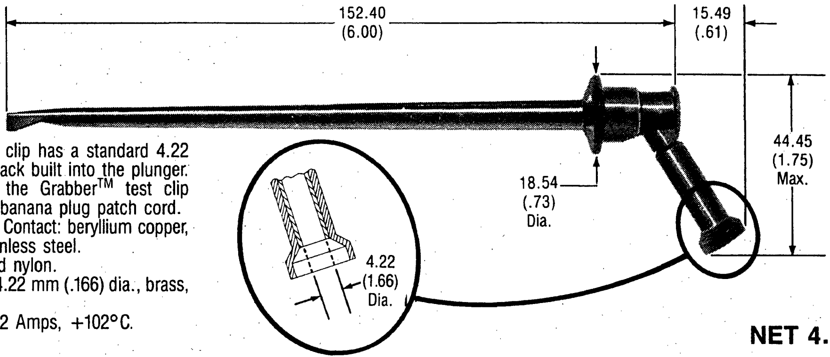


Model No.	Color
4723-0	Black
4723-1	Brown
4723-2	Red
4723-3	Orange
4723-4	Yellow
4723-5	Green
4723-6	Blue
4723-7	Violet
4723-8	Gray
4723-9	White

This Minigrabber™ test clip has a standard 4.22 mm (.166) dia. banana jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a banana plug patch cord.
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel.
INSULATION: Glass filled nylon.
2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

NET 3.50

MAXIGRABBER™ TEST CLIP WITH BANANA JACK

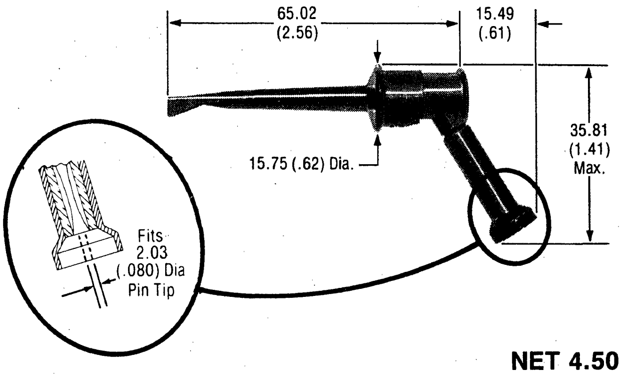


Model No.	Color
4724-0	Black
4724-1	Brown
4724-2	Red
4724-3	Orange
4724-4	Yellow
4724-5	Green
4724-6	Blue
4724-7	Violet
4724-8	Gray
4724-9	White

This Maxigrabber™ test clip has a standard 4.22 mm (.166) dia. banana jack built into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a banana plug patch cord.
1ST END: Maxigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel.
INSULATION: Glass filled nylon.
2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

NET 4.95

MINIGRABBER™ TEST CLIP WITH PIN TIP JACK

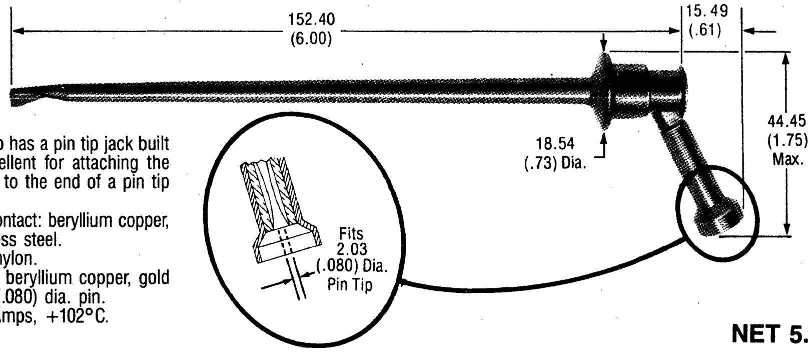


This Minigrabber™ test clip has a pin tip jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a pin tip patch cord.
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel.
INSULATION: Glass filled nylon.
2ND END: Pin jack spring, beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

Model No.	Color
4826-0	Black
4826-2	Red

NET 4.50

MAXIGRABBER™ TEST CLIP WITH PIN TIP JACK



This Maxigrabber™ test clip has a pin tip jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a pin tip patch cord.
1ST END: Maxigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel.
INSULATION: Glass filled nylon.
2ND END: Pin jack spring: beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
RATING 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

Model No.	Color
4827-0	Black
4827-2	Red

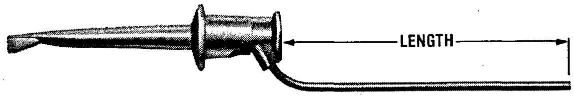
NET 5.75

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PATCH CORDS

MINIGRABBER™ TEST CLIP ONE END ONLY



Model No.	Length	Net
3780-8-*	203.2 (8.0)	1.80
3780-12-*	304.8 (12.0)	1.80
3780-24-*	609.6 (24.0)	1.80
3780-36-*	914.4 (36.0)	1.80
3780-48-*	1219.2 (48.0)	2.00
3780-60-*	1524.0 (60.0)	2.20

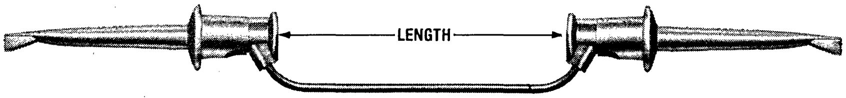
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: None

RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIP EACH END



Model No.	Length	Net
3781-8-*	203.2 (8.0)	2.95
3781-12-*	304.8 (12.0)	2.95
3781-18-*	457.2 (18.0)	2.95
3781-24-*	609.6 (24.0)	2.95
3781-36-*	914.4 (36.0)	2.95
3781-48-*	1219.2 (48.0)	3.15
3781-60-*	1524.0 (60.0)	3.35

1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.

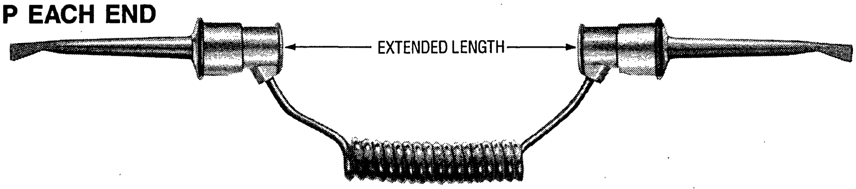
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIP EACH END WITH RETRACTILE (COILED) CORD.

NEW



Model	Length	Net
5201-36-*	914.4 (36.0)	7.95
5201-48-*	1219.2 (48.0)	8.85
5201-60-*	1524.0 (60.0)	9.75

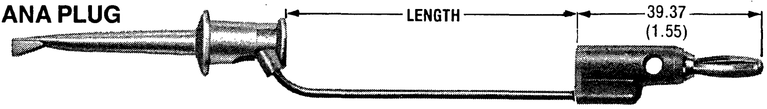
Permits the use of one size patch cord in place of many various lengths. (Replaces Model 5161.)
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Nylon.
WIRE: 26 AWG, 10 x 36 non-tinned copper, polyurethane insulated, 2.24 mm (.088) O.D.

2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +80°C. (+176°F.) Max.

*

Color Code
0 - Black
2 - Red

MINIGRABBER™ TEST CLIP TO STACKING STANDARD BANANA PLUG



Model No.	Length	Net
3782-12-*	304.8 (12.0)	2.95
3782-24-*	609.6 (24.0)	2.95
3782-36-*	914.4 (36.0)	2.95
3782-48-*	1219.2 (48.0)	3.15
3782-60-*	1524.0 (60.0)	3.35

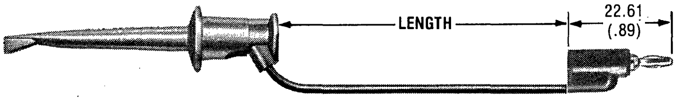
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup banana plug; body, brass. Spring; one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.

RATING: 3000 WVDC, 12 Amps, +55°C. (+131°F.) Max.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIP TO STACKING MINIATURE BANANA PLUG



Model No.	Length	Net
3784-12-*	304.8 (12.0)	3.45
3784-24-*	609.6 (24.0)	3.45
3784-36-*	914.4 (36.0)	3.45
3784-48-*	1219.2 (48.0)	3.65
3784-60-*	1524.0 (60.0)	3.85

1ST END: Minigrabber™ Contact, beryllium copper, gold plated. Spring, stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup miniature banana plug, body, brass. Spring, one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Banana jack accepts miniature banana plugs.

Insulation: Polypropylene.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.

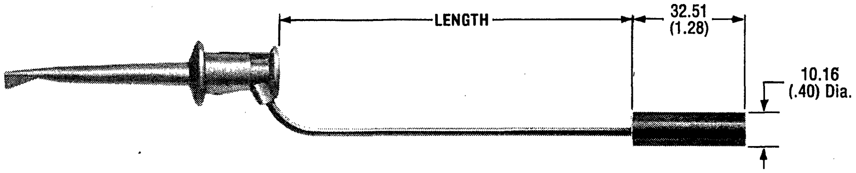
*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

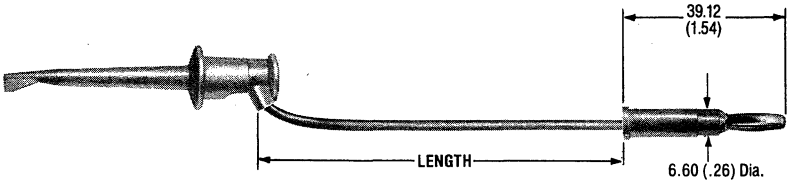
MINIGRABBER™ TEST CLIP TO IN-LINE BANANA JACK



Model	Length	Net
4649-12-*	304.8 (12.0)	4.15
4649-24-*	609.6 (24.0)	4.15
4649-36-*	914.4 (36.0)	4.15
4649-48-*	1219.2 (48.0)	4.35
4649-60-*	1524.0 (60.0)	4.55

1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. **WIRE:** 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. **2ND END:** In-line banana jack, 4.22 mm (.166) dia., brass, nickel plated. Insulation: Polypropylene. Accepts standard banana plugs. **RATING:** 3000 WVDC, 12 Amps, +55°C. (+131°F.) Max. ***COLORS AVAILABLE:** -0 Black, -2 Red.

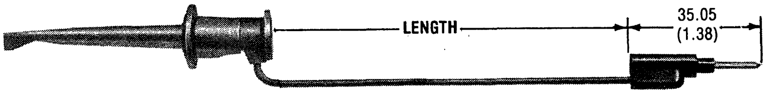
MINIGRABBER™ TEST CLIP TO IN-LINE BANANA PLUG



Model No.	Length	Net
4650-12-*	304.8 (12.0)	3.30
4650-24-*	609.6 (24.0)	3.30
4650-36-*	914.4 (36.0)	3.30
4650-48-*	1219.2 (48.0)	3.50
4650-60-*	1524.0 (60.0)	3.70

1ST END: Minnigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. **WIRE:** 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. **2ND END:** In-line banana plug, body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks. **RATING:** 3000 WVDC, 12 Amps, +55°C. (+131°F.) Max. ***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGRABBER™ TEST CLIP TO STACKING PIN TIP PLUG

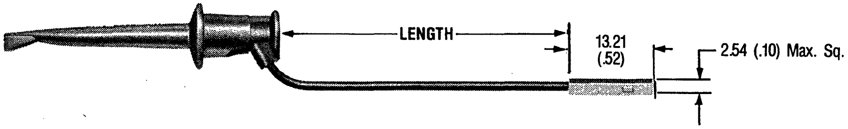


Model No.	Length	Net
3785-12-*	304.8 (12.0)	3.75
3785-24-*	609.6 (24.0)	3.75
3785-36-*	914.4 (36.0)	3.75
3785-48-*	1219.2 (48.0)	3.95
3785-60-*	1524.0 (60.0)	4.15

1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGRABBER™ TEST CLIP TO 0.64 mm (.025) SQUARE PIN RECEPTACLE

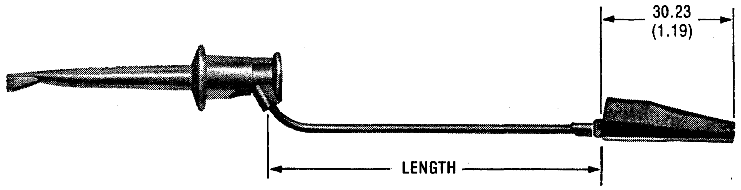
NEW



Model	Length	Net
3783-12-*	304.8 (12.0)	3.15
3783-24-*	609.6 (24.0)	3.15
3783-36-*	914.4 (36.0)	3.15

1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.
2ND END: 0.64 mm (.025) square pin receptacle, phosphor bronze, gold plated. Insulation: ABS.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGRABBER™ TEST CLIP TO MINIGATOR*



Model No.	Length	Net
4652-12-*	304.8 (12.0)	3.95
4652-24-*	609.6 (24.0)	3.95
4652-36-*	914.4 (36.0)	3.95
4652-48-*	1219.2 (48.0)	4.15
4652-60-*	1524.0 (60.0)	4.35

1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon, **WIRE:** 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. **2ND END:** Minigator,* steel, cadmium plated. Insulation: Vinyl. **RATING:** 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max. ***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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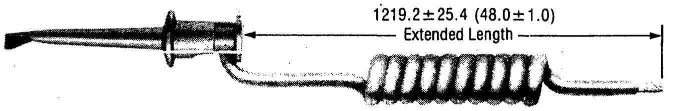
* Minigator is a trademark of Mueller Electric Co.

PATCH CORDS

MINIGRABBER™ TEST CLIP ONE END ONLY WITH RETRACTILE (COILED) CORD



Model No.	Color	Extended Length
4536-48-0	Black	1219.2 (48.0)
4536-48-2	Red	1219.2 (48.0)

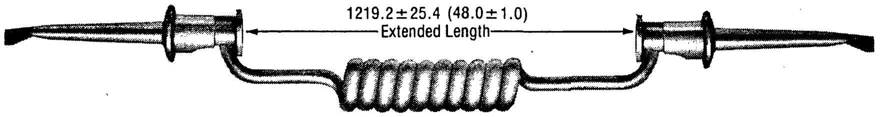
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.

WIRE: 20 AWG, 42 x 36 t.c., rubber insulated, 3.68 mm (.145) O.D.

2ND END: None.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

NET 6.95

MINIGRABBER™ TEST CLIP EACH END WITH RETRACTILE (COILED) CORD



Model No.	Color	Extended Length
4537-48-0	Black	1219.2 (48.0)
4537-48-2	Red	1219.2 (48.0)

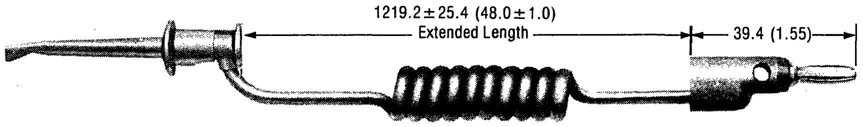
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.

WIRE: 20 AWG, 42 x 36 t.c., rubber insulated, 3.68 mm (.145) O.D.

2ND END: Same as first end.
RATING: 3000 WVDC, 12 Amps, +102°C. (+216°F.) Max.

NET 8.75

MINIGRABBER™ TEST CLIP TO STACKUP BANANA PLUG WITH RETRACTILE (COILED) CORD



Model No.	Color	Extended Length
4538-48-0	Black	1219.2 (48.0)
4538-48-2	Red	1219.2 (48.0)

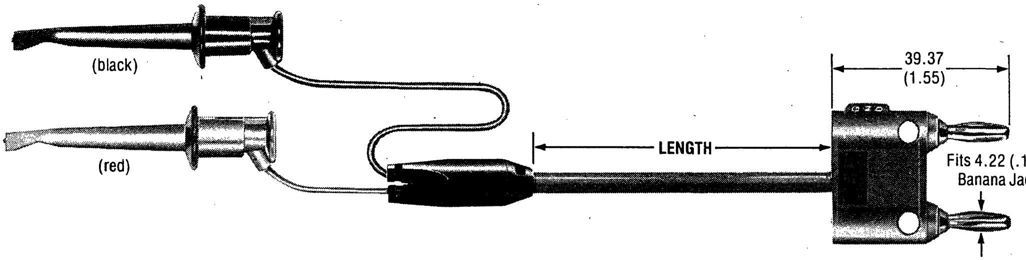
1ST END: Minigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.

WIRE: 20 AWG, 42 x 36 t.c., rubber insulated, 3.68 mm (.145) O.D.

2ND END: Banana plug body, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 3000 WVDC, 12 Amps, +55°C. (+131°F.) Max.

NET 8.25

MINIGRABBER™ TEST CLIPS TO DOUBLE BANANA PLUG



Model	Length	Net
3786-C-18	457.2 (18.0)	11.65
3786-C-24	609.6 (24.0)	11.65
3786-C-36	914.4 (36.0)	11.65
3786-C-48	1219.2 (48.0)	12.25
3786-C-60	1524.0 (60.0)	12.85

For use with equipment having standard binding posts or banana jacks.
1ST END: Minigrabber™ Contacts: beryllium copper, gold plated. Springs: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D., nom. cap. 30.8 pF/ft. Y-Mold Insulation: PVC. Color: Black.

2ND END: Double banana plug on 19.05 mm (.750) center. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
RATING: 3000 WVDC, 12 Amps, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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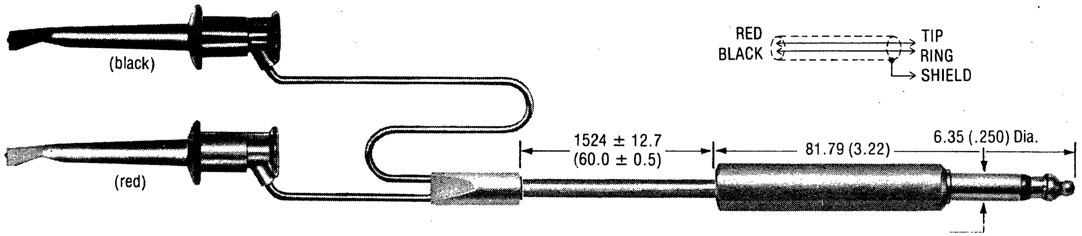
PATCH CORDS

MINIGRABBER™ TEST CLIPS TO PJ-051 (WE310) PHONE PLUG



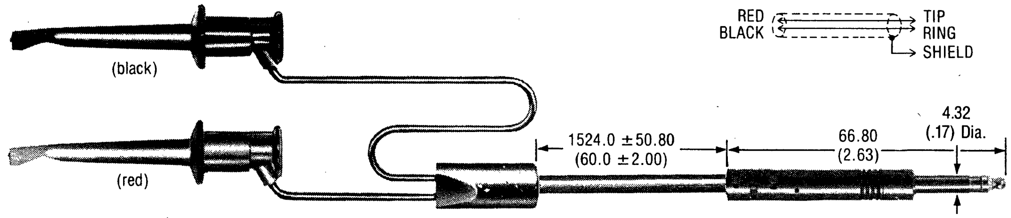
Model No.
4812-J-60

1ST END: Minigrabber™ Contacts: beryllium copper, gold plated. Springs: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.

CABLE: Two conductor shielded microphone, 22 AWG, 5.87 mm (.231) O.D. Y-Mold Insulation: PVC. Color: Gray.

2ND END: PJ-051 Phone plug, brass. Insulation: Phenolic, red.
RATING: 500 WVDC, +50°C. (+122°F.) Max. **NET 27.95**

MINIGRABBER™ TEST CLIPS TO BANTAM PLUG



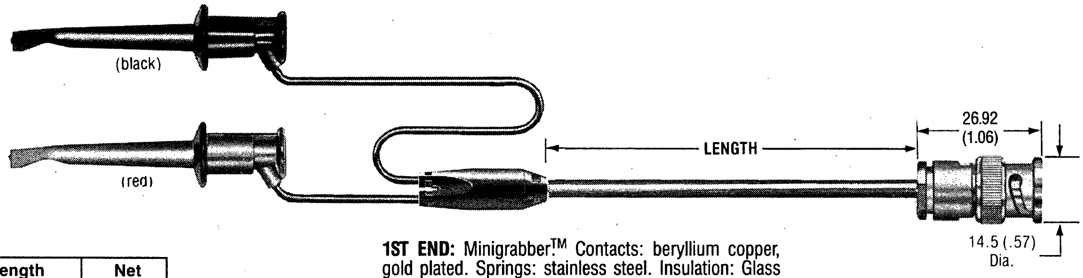
Model No.
5019-60

1ST END: Minigrabber™ Contacts: beryllium copper, gold plated. Springs: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.

CABLE: Two conductor shielded microphone. Gray vinyl jacket.

2ND END: Bantam plug. Three conductor, brass. Insulation: PVC, black.
RATING: 500 V Peak, +50°C. (+122°F.) Max. **NET 19.95**

MINIGRABBER™ TEST CLIPS TO BNC MALE



Model	Length	Net
3787-C-18	457.2 (18.0)	11.95
3787-C-24	609.6 (24.0)	11.95
3787-C-36	914.4 (36.0)	11.95
3787-C-48	1219.2 (48.0)	12.55
3787-C-60	1524.0 (60.0)	13.15

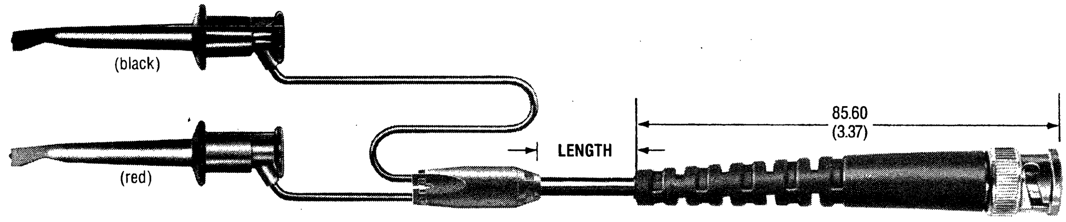
1ST END: Minigrabber™ Contacts: beryllium copper, gold plated. Springs: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D., nom. cap. 30.8 pF/ft. Y-Mold Insulation: PVC. Color, black.

2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated.

RATING: 500 VRMS, +50°C. (+122°F.) Max.

MINIGRABBER™ TEST CLIPS TO BNC MALE



RG58C/U	Net	RG174/U	Length	Net
5187-C-24	11.95	5187-K-24	609.6 (24.0)	16.95
5187-C-36	11.95	5187-K-36	914.4 (36.0)	16.95
5187-C-48	12.55	5187-K-48	1219.2 (48.0)	17.55
5187-C-60	13.15	5187-K-60	1524.0 (60.0)	18.15

1ST END: Minigrabber™ Contacts: beryllium copper, gold plated. Springs: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.

CABLE: Type C, shielded coax., RG 58C/U, 4.95 mm (.195) O.D.: Type K, shielded coax., RG 174/U, 2.54 mm (.100) O.D. Y-Mold Insulation: PVC. Color, black.

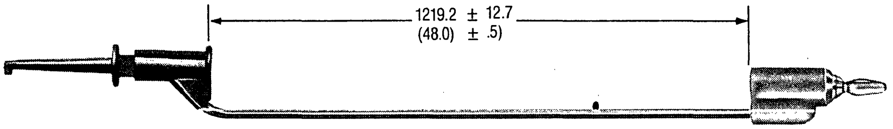
2ND END: BNC Male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated. Boot: PVC, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PATCH CORDS

MICROGRABBER™ TEST CLIP TO MINIATURE BANANA PLUG

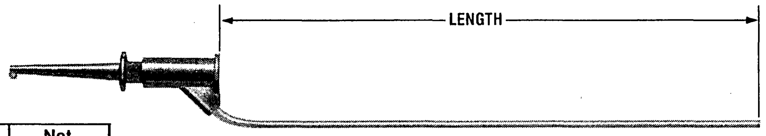


Model No.	Color	Net
4762-48-0	Black	4.50
4762-48-2	Red	4.50

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Miniature banana plug body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Insulation: Polypropylene. Fits miniature 2.64 mm (1.04) dia. banana jacks.
RATING: 1000 WVDC, 3 Amps, +55°C. (+131°F.) Max.

MICROGRABBER™ TEST CLIP ONE END ONLY

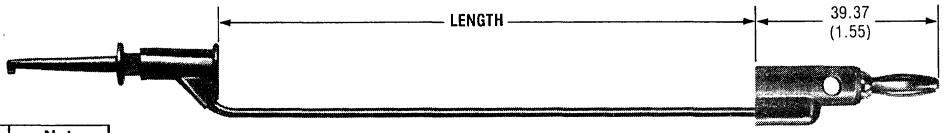


Model No.	Length	Net
5043-8-*	203.2 (8.0)	3.15
5043-12-*	304.8 (12.0)	3.15
5043-24-*	609.6 (24.0)	3.15
5043-36-*	914.4 (36.0)	3.15
5043-48-*	1219.2 (48.0)	3.35
5043-60-*	1524.0 (60.0)	3.55

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: None.
RATING: 1000 WVDC, 3 Amps, +102°C. (+216°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO STACKING BANANA PLUG

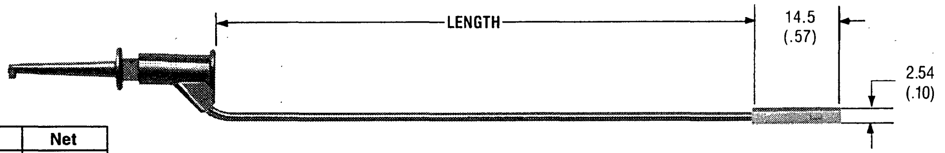


Model No.	Length	Net
5053-12-*	304.8 (12.0)	4.50
5053-24-*	609.6 (24.0)	4.50
5053-36-*	914.4 (36.0)	4.50
5053-48-*	1219.2 (48.0)	4.70
5053-60-*	1524.0 (60.0)	4.90

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup banana plug. Body, brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jacks accepts standard banana plugs. Insulation: Polypropylene.
RATING: 1000 WVDC, 3 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO 0.64 mm (.025) SQUARE PIN RECEPTACLE

NEW



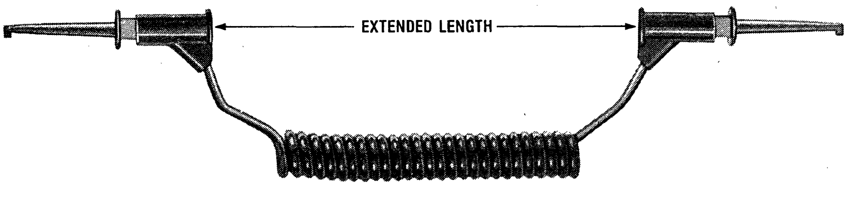
Model	Length	Net
4919-12-*	304.8 (12.0)	3.75
4919-24-*	609.6 (24.0)	3.75
4919-36-*	914.4 (36.0)	3.75
4919-48-*	1219.2 (48.0)	3.95
4919-60-*	1524.0 (60.0)	4.15

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.
2ND END: 0.64 mm (.025) square pin receptable, phosphor bronze, gold plated. Insulation: ABS.

RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP EACH END WITH RETRACTILE (COILED) CORD

NEW



Model	Length	Net
5200-36-*	914.4 (36.0)	7.95
5200-48-*	1219.2 (48.0)	8.85
5200-60-*	1524.0 (60.0)	9.75

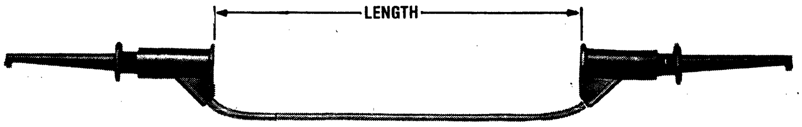
Permits the use of one size patch cord in place of many various lengths. (Replaces Model 5160).
1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Nylon.
WIRE: 26 AWG, 10 x 36 non-tinned copper, polyurethane insulated, 2.24 mm (.088) O.D.

2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps. +80°C. (+176°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

MICROGRABBER™ TEST CLIP EACH END

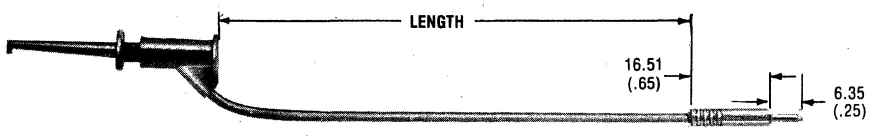


Model No.	Length	Net
4613-12-*	304.8 (12.0)	4.75
4613-24-*	609.6 (24.0)	4.75
4613-36-*	914.4 (36.0)	4.75
4613-48-*	1219.2 (48.0)	4.95
4613-60-*	1524.0 (60.0)	5.15

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. **WIRE:** 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +102°C. (+216°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO 2.03 mm (.080) DIA. PIN TIP PATCH CORD

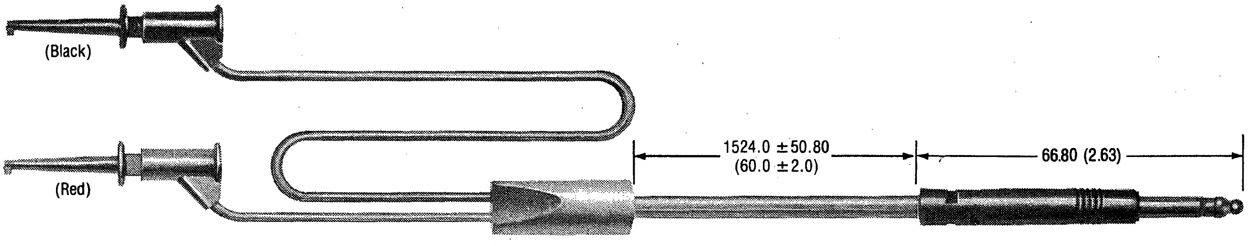


Model No.	Length	Net
4716-12-*	304.8 (12.0)	3.95
4716-24-*	609.6 (24.0)	3.95
4716-36-*	914.4 (36.0)	3.95
4716-48-*	1219.2 (48.0)	4.15
4716-60-*	1524.0 (60.0)	4.35

1ST END: Micrograbber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. **WIRE:** 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Pin tip plug: brass, gold plated. Fits 2.03 mm (.080) dia. pin jack. Insulation: Polypropylene
RATING: 1000 WDC, 3 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIPS TO BANTAM PLUG

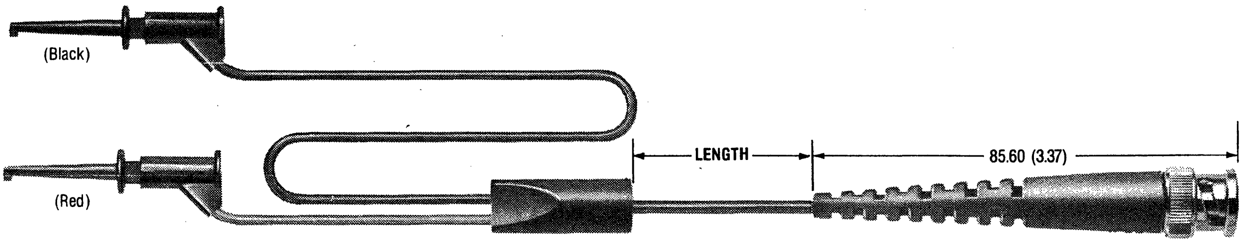


1ST END: Micrograbber™ Contacts: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
CABLE: Two conductor stranded copper, 26 AWG, 4.70 mm (.185) O.D. Y-Mold Insulation: PVC. Color: Gray.

2ND END: Bantam plug. Three conductor, brass. Insulation: PVC, black.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

Model No.	Net
4778-60	29.75

MICROGRABBER™ TEST CLIPS TO BNC MALE



Model No.	Length	Net
4777-K-24	609.6 (24.0)	18.75
4777-K-36	914.4 (36.0)	18.75
4777-K-48	1219.2 (48.0)	19.35
4777-K-60	1524.0 (60.0)	19.95

1ST END: Micrograbber™ Contacts: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
CABLE: Shielded coax., RG 174/U 2.54 mm (.100) O.D. Y-Mold Insulation: PVC. Color: black.

2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated. Boot: PVC, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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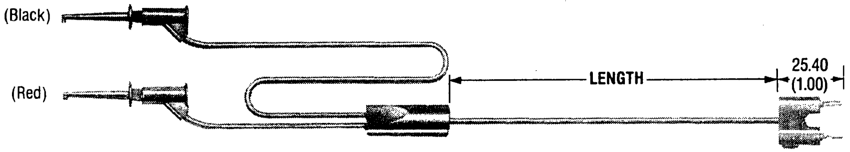
PATCH CORDS

MICROGRABBER™ TEST CLIPS TO MINIATURE DOUBLE BANANA PLUG

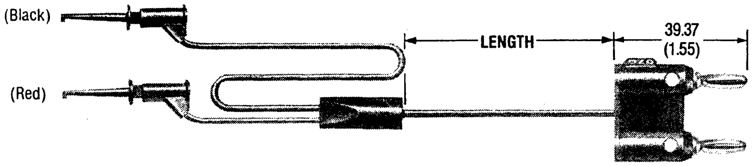


Model No.	Length	Net
4776-K-24	609.6 (24.0)	14.50
4776-K-36	914.4 (36.0)	14.50
4776-K-48	1219.2 (48.0)	15.10
4776-K-60	1524.0 (60.0)	15.70

1ST END: Micrograbber™ Contacts: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
CABLE: Shielded coax., RG 174/U 2.54 mm (.100) O.D. Y-Mold Insulation: PVC. Color: black.

2ND END: Miniature double banana plug on 12.870 mm (.500) center. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Double banana jack accepts miniature banana plugs. Insulation: Polyethylene, black.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.

MICROGRABBER™ TEST CLIPS TO DOUBLE BANANA PLUG

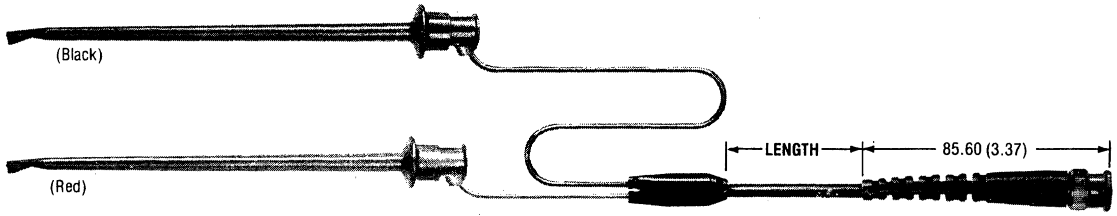


Model No.	Length	Net
4768-K-24	609.6 (24.0)	13.95
4768-K-36	914.4 (36.0)	13.95
4768-K-48	1219.2 (48.0)	14.55
4768-K-60	1524.0 (60.0)	15.15

1ST END: Micrograbber™ Contacts: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
CABLE: Shielded coax., RG 174/U 2.54 mm (.100) O.D. Y-Mold Insulation: PVC. Color: black.

2ND END: Double banana plug on 19.05 mm (.750) center. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.

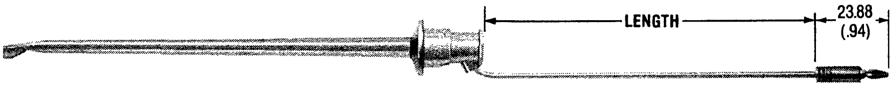
MAXIGRABBER™ TEST CLIPS TO BNC MALE



Model No.	Length	Net
4648-C-18	457.2 (18.0)	15.95
4648-C-24	609.6 (24.0)	15.95
4648-C-36	914.4 (36.0)	15.95
4648-C-48	1219.2 (48.0)	16.55
4648-C-60	1524.0 (60.0)	17.15

1ST END: Maxigrabber™ Contacts: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
CABLE: Shielded coax., RG 58C/U 4.95 mm (.195) O.D. Y-Mold Insulation: PVC. Color: black.
2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated. Boot: PVC, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

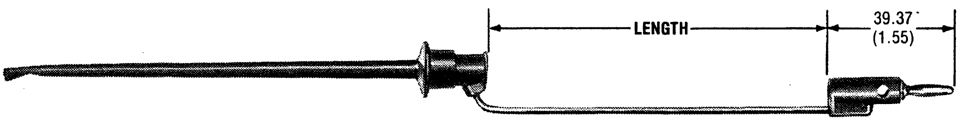
MAXIGRABBER™ TEST CLIP TO MINIATURE BANANA PLUG



Model No.	Color	Length
4557-48-0	Black	1219.2 (48.0)
4557-48-2	Red	1219.2 (48.0)

1ST END: Maxigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Insulation: Polypropylene. Fits miniature 2.64 mm (.104) dia. banana jacks.
RATING: 2500 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red. **NET 6.75**

MAXIGRABBER™ TEST CLIP TO STACKING BANANA PLUG



Model No.	Length	Net
4996-12-*	304.8 (12.0)	6.25
4996-24-*	609.6 (24.0)	6.25
4996-36-*	914.4 (36.0)	6.25
4996-48-*	1219.2 (48.0)	6.45
4996-60-*	1524.0 (60.0)	6.65

1ST END: Maxigrabber™ Contact: beryllium copper, gold plated. Spring: stainless steel. Insulation: Glass filled nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
RATING: 3000 WVDC, 12 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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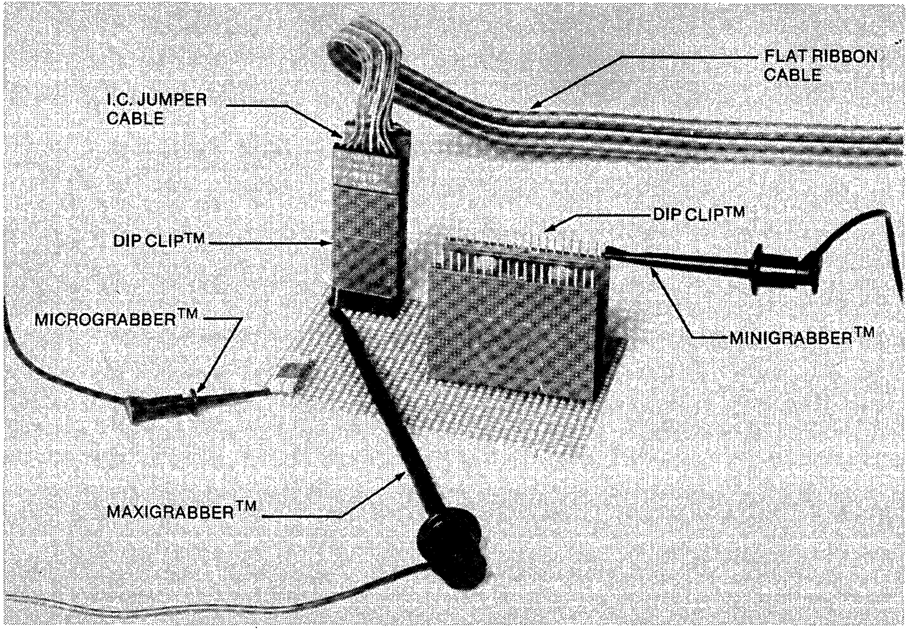
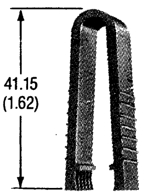
I.C. ACCESSORIES



ANTISTATIC DIP REMOVER

The dip remover is an excellent tool for the removal of dual in-line I.C. chips. With this tool accidental bending of the contacts is at a minimum.
MATERIAL: Antistatic Noryl,* black.
RATING: Heat distortion temperature @ 265 psi +93°C. (+200°F.) Max.
For I.C. dips: 8, 10, 14, 16, 18, & 20 pins.

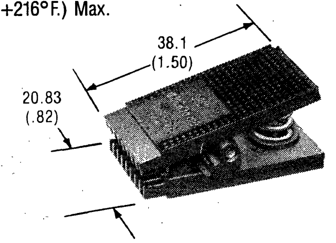


Model No.
4904

NET 1.50

14/16 PIN DUAL IN-LINE DIP REMOVER

The dip remover is an excellent tool for removal of 14/16 pin dual in-line I.C. chips. With this tool accidental bending of the contacts is at a minimum.
MATERIAL: Spring: stainless steel.
INSULATION: Glass filled nylon, red.
RATING: +102°C. (+216°F.) Max.

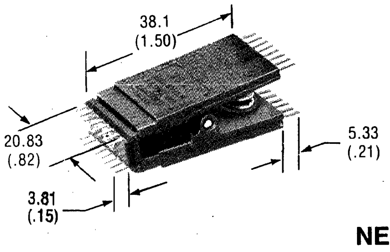


Model No.
4386

NET 4.75

14/16 PIN DUAL IN-LINE TEST CLIP WITH ATTACHED HEADER

The Dip Clip™ with attached header is an excellent tool for plugging into 14/16 pin IC sockets to test circuits. You can either solder wires directly to the top pins of the Dip Clip,™ or more convenient, you can attach the Pomona Electronics I.C. Jumper Cable 4185.
MATERIAL: Dip Clip contacts, nickel silver.
Header contacts: brass. Spring: stainless steel.
FINISH: Header contact, gold plated.
INSULATION: Dip Clip, glass filled nylon. Color, red.
RATING: 1000 VRMS, 1 Amp, +102°C. (+216°F.) Max.

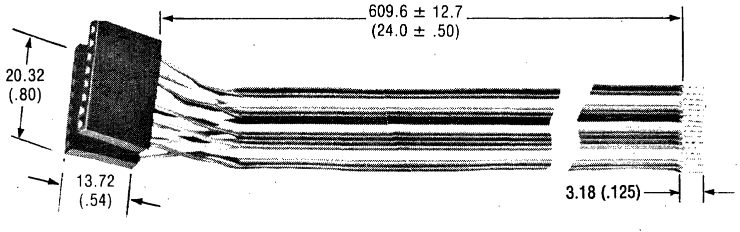


Model No.
4566

NET 14.95

I.C. JUMPER CABLE (CONNECTORS, ONE END ONLY)

1ST END: Two 8 pin I.C. sockets: beryllium copper, gold plated. Insulation: Thermoplastic, black.
WIRE: 26 AWG, 7 x 34, 16 conductor flat ribbon cable, color coded.
2ND END: None. Wires individually stripped and tinned.



Model No.	Used On	No. of Sockets	Net
4185	4566, 3916A, 4236A, 5116, 5216	16 (2 x 8)	34.50

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*Noryl is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

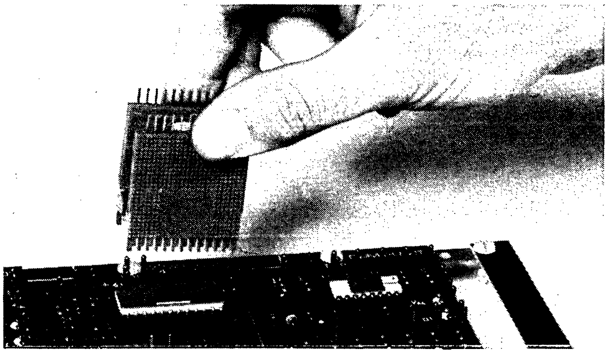
DIP CLIP™ IC TEST CLIPS

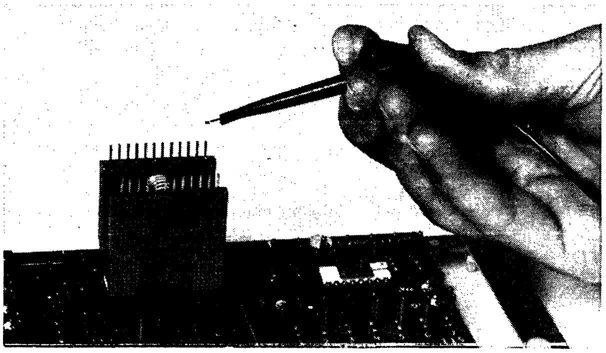
Pomona Electronics' DIP CLIP™ test clips are designed especially for testing Dual-In-Line I.C. Packages on high-density P.C. boards. The DIP CLIP™ has many built-in features that assure a positive electrical connection and at the same time provides hands-free testing. The DIP CLIP™ test clips with reduced thickness (across the contacts) are used for ultra-dense packaged clips located adjacent to each other at only 2.54 mm (.100) spacing.

DIP CLIP™ test clips are obtainable either with tarnish resistant nickel silver contacts or gold plated beryllium copper contacts. The gold plated beryllium copper contacts feature longer life and lower contact resistance.

FEATURES

- Solid tarnish resistant nickel silver contacts or beryllium copper contacts, gold plated per MIL-G-45204, Type II.
- Contacts 1.02 mm (.040) wide on lower end are serrated for good electrical connection.
- 0.64 mm (.025) square serrated test points on upper end will accept wire wraps on mini test clips.
- Molded barrier between each contact allows connections to be made on live boards without accidental shorting of adjacent contacts.
- Can be used as an insertion and removal tool for DIPS.
- Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.



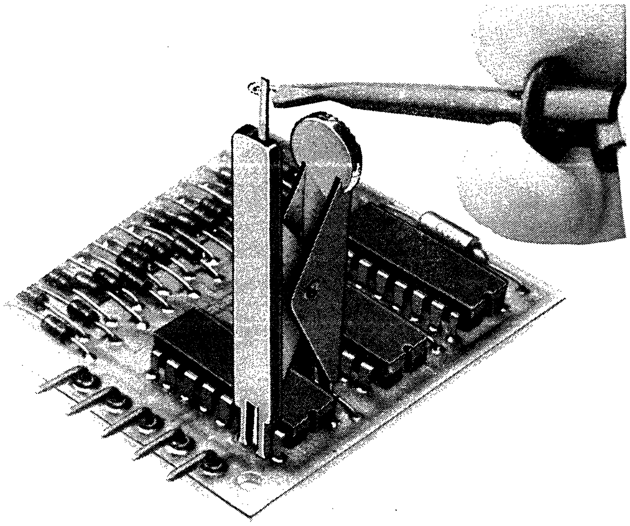


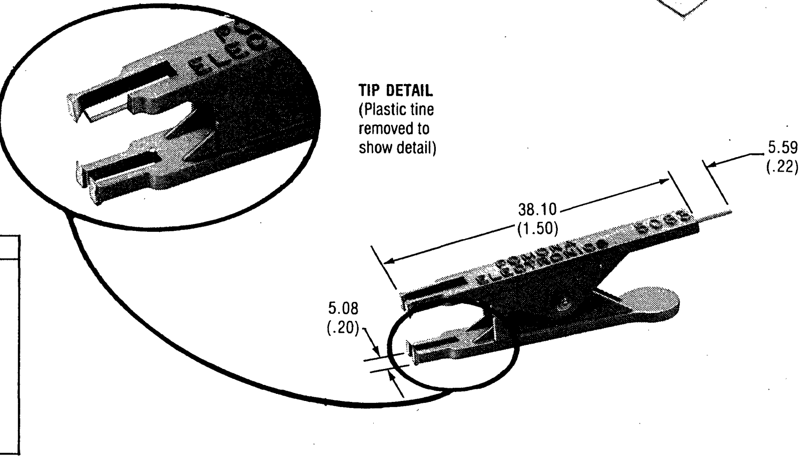
DIP GRIP™ IC TEST CLIP

Pomona Electronics DIP GRIP™ test clip is designed especially for testing single contacts on Dual-In-Line Package (DIP) Integrated Circuits on 2.54 mm (.100) spacing. The DIP GRIP™ assures positive electrical contact on one leg of the DIP across its 7.62 mm (.300) width and provides hands free testing.

Contact 1.02 mm (.040) wide on lower end is serrated for good electrical connection. 0.64 mm (.025) square serrated test point on upper end will accept square pin receptable patch cords such as Pomona Models: 4741, 4771, 4772, 4910, 4945, 4974, 4992, 5069 and 5070.

MATERIAL: Contact: beryllium copper. Spring: music wire.
FINISH: Contact: Gold plated.
INSULATION: Glass filled nylon,
RATING: +102°C. (+216°F.) Max.





TIP DETAIL (Plastic tine removed to show detail)

Model No.	Color
5083-0	Black
5083-1	Brown
5083-2	Red
5083-3	Orange
5083-4	Yellow
5083-5	Green
5083-6	Blue
5083-7	Violet
5083-8	Gray
5083-9	White

NET 3.40

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

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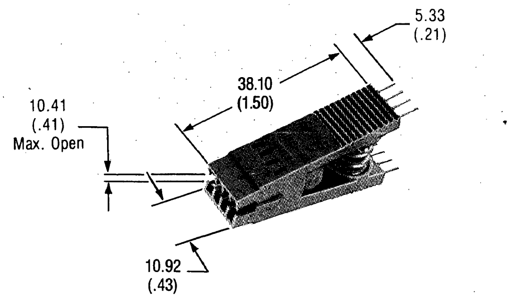
DIP CLIP™ IC TEST CLIPS

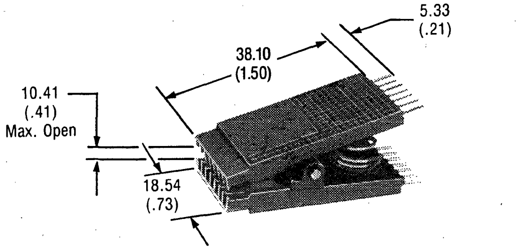
8 PIN DUAL IN-LINE TEST CLIP

NEW


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
10.92
(.43)

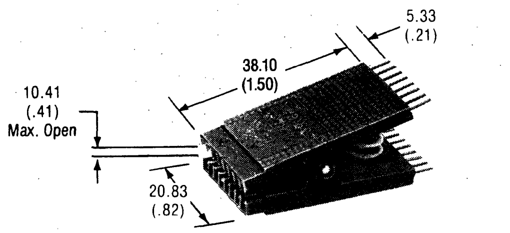
Model No.	Contact Material	Net Price
5108	Gold Plated Beryllium Copper	6.50

14 PIN DUAL IN-LINE TEST CLIP


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
18.54
(.73)

Model No.	Contact Material	Net Price
5014	Tarnish Resistant Nickel Silver	5.75
5214	Gold Plated Beryllium Copper	7.25

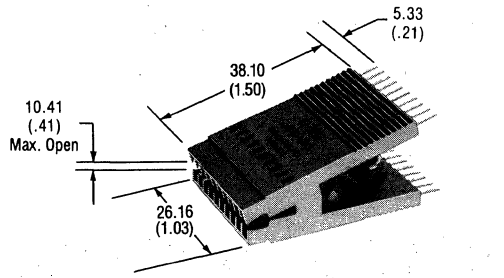
16 PIN DUAL IN-LINE TEST CLIP


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
20.83
(.82)

Model No.	Contact Material	Net Price
3916A	Tarnish Resistant Nickel Silver	5.95
5116	Gold Plated Beryllium Copper	7.95

20 PIN DUAL IN-LINE TEST CLIP

NEW

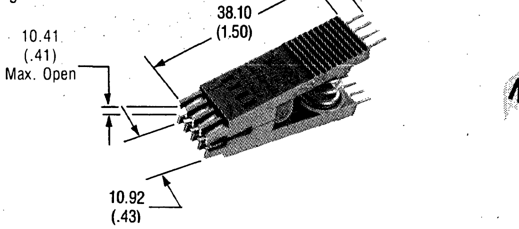

5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
26.16
(1.03)

Model No.	Contact Material	Net Price
5120	Gold Plated Beryllium Copper	9.50

HIGH DENSITY 8 PIN DUAL IN-LINE TEST CLIP

NEW

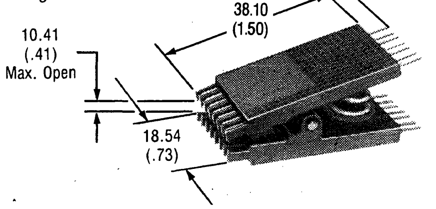
Reduced thickness for testing ultra-dense packages.


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
10.92
(.43)

Model No.	Contact Material	Net Price
5208	Gold Plated Beryllium Copper	6.50

HIGH DENSITY 14 PIN DUAL IN-LINE TEST CLIP

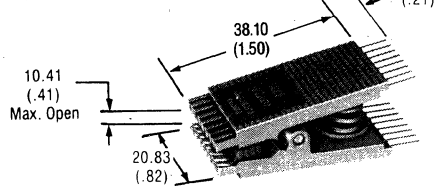
Reduced thickness for testing ultra-dense packages.


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
18.54
(.73)

Model No.	Contact Material	Net Price
5114	Tarnish Resistant Nickel Silver	5.75
5314	Gold Plated Beryllium Copper	7.25

HIGH DENSITY 16 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.

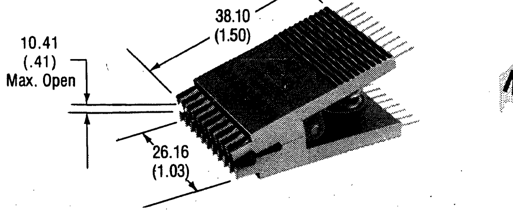

5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
20.83
(.82)

Model No.	Contact Material	Net Price
4236A	Tarnish Resistant Nickel Silver	5.95
5216	Gold Plated Beryllium Copper	7.95

HIGH DENSITY 20 PIN DUAL IN-LINE TEST CLIP

NEW

Reduced thickness for testing ultra-dense packages.


5.33
(.21)
38.10
(1.50)
10.41
(.41)
Max. Open
26.16
(1.03)

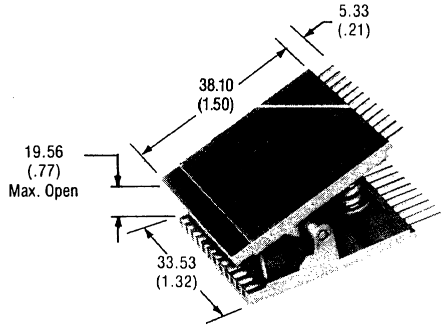
Model No.	Contact Material	Net Price
5220	Gold Plated Beryllium Copper	9.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

DIP CLIP™ IC TEST CLIPS

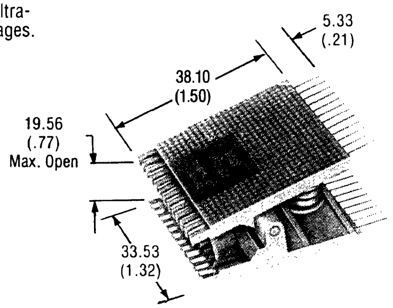
24 PIN DUAL IN-LINE TEST CLIP


5.33
(.21)
38.10
(1.50)
19.56
(.77)
Max. Open
33.53
(1.32)

Model No.	Contact Material	Net Price
4124A	Tarnish Resistant Nickel Silver	12.85
5124	Gold Plated Beryllium Copper	15.85

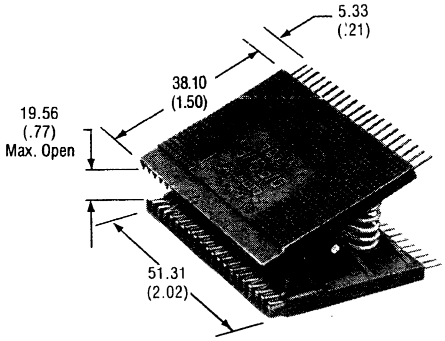
HIGH DENSITY 24 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.


5.33
(.21)
38.10
(1.50)
19.56
(.77)
Max. Open
33.53
(1.32)

Model No.	Contact Material	Net Price
4324A	Tarnish Resistant Nickel Silver	12.85
5224	Gold Plated Beryllium Copper	15.85

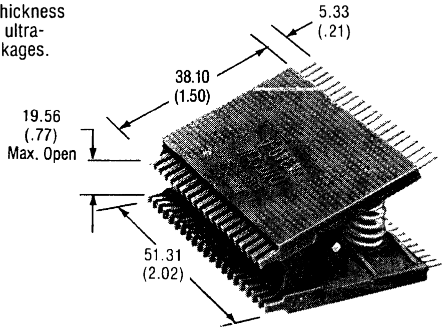
40 PIN DUAL IN-LINE TEST CLIP


5.33
(.21)
38.10
(1.50)
19.56
(.77)
Max. Open
51.31
(2.02)

Model No.	Contact Material	Net Price
4140A	Tarnish Resistant Nickel Silver	18.85
5140	Gold Plated Beryllium Copper	21.85

HIGH DENSITY 40 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.


5.33
(.21)
38.10
(1.50)
19.56
(.77)
Max. Open
51.31
(2.02)

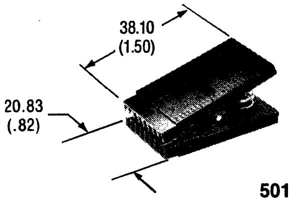
Model No.	Contact Material	Net Price
4340A	Tarnish Resistant Nickel Silver	18.85
5240	Gold Plated Beryllium Copper	21.85

ANTISTATIC DIP REMOVERS

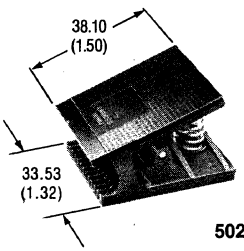
These DIP removers are built of a special plastic that not only has the strength to pull the most stubborn DIP, but actually prevents electrostatic buildup. The surface resistivity controls surface charges and protects even the most sensitive of electronic circuits. This excellent design also minimizes accidental bending of contacts.

FEATURES

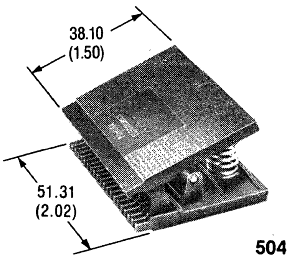
- **MATERIAL:** Antistatic Noryl.*
- **TEMPERATURE:** Heat distortion temperature @ 265 psi greater than +93°C. (+200°F.).


38.10
(1.50)
20.83
(.82)

5016


38.10
(1.50)
33.53
(1.32)

5024


38.10
(1.50)
51.31
(2.02)

5040

Model	Size		Removes Dips	Accepts Dips	Net Price
5016	16	8 Notches Per Side	8-20 Pins	To 8.89 (.35)	4.75
5024	24	12 Notches Per Side	22-36 Pins	To 16.51 (.65)	5.30
5040	40	20 Notches Per Side	40-60 Pins	To 16.51 (.65)	6.50

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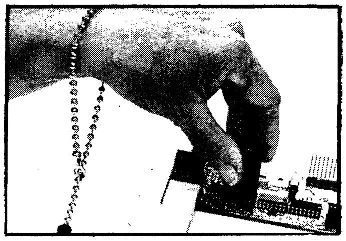
* Noryl is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

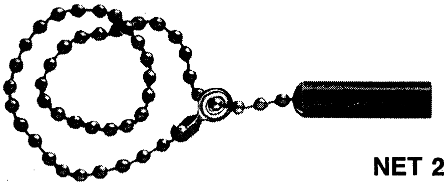
ANTISTATIC WRIST STRAP

These personnel grounding wrist straps protect even the most sensitive I.C. from accidental damage due to static electricity. The self-adjusting wrist strap (see insert) allows freedom of movement, yet is attractive and comfortable to wear. All units feature a built-in 1 megohm resistor.



REPLACEMENT WRIST STRAP

Leave the antistatic cord permanently attached to the bench and give each of your assemblers their own wrist strap. You can also use this model to replace those straps that were lost without purchasing an entire assembly. Fits Models 5027 and 5028.



Model No. 5074

NET 2.95

LARGE TEST CLIP TO BANANA JACK

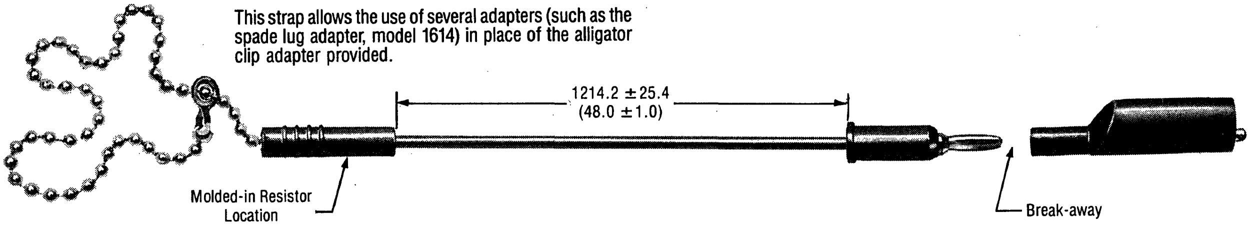
This large test clip accepts a standard banana plug.
MATERIAL: Clip: steel. Banana jack: brass.
FINISH: Clip, cadmium plated. Banana jack, nickel plated.
INSULATION: Vinyl, black.

Model No. 5059 (Unassembled)

NET 2.15

ANTISTATIC WRIST STRAP WITH ALLIGATOR CLIP

This strap allows the use of several adapters (such as the spade lug adapter, model 1614) in place of the alligator clip adapter provided.

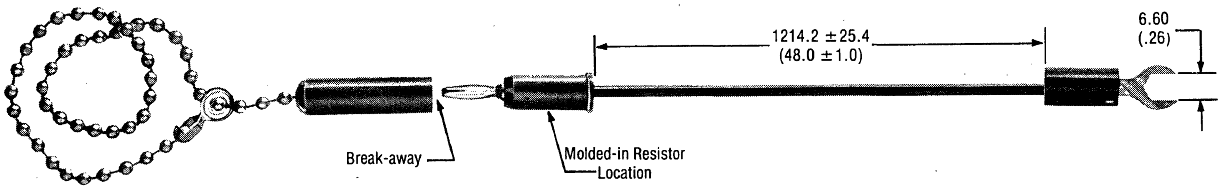


Model No. 4918-48

1ST END: Bead chain: brass, nickel plated. Resistor, fixed carbon film, 1 megohm, 1/2 watt, 5%.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (1.66) dia. banana jacks. Insulation, polypropylene, black. Alligator clip, steel, nickel plated. Insulation: Vinyl, black.
RATING: +55°C. (+133°F.) Max.

NET 7.50

ANTISTATIC WRIST STRAP WITH SPADE LUG

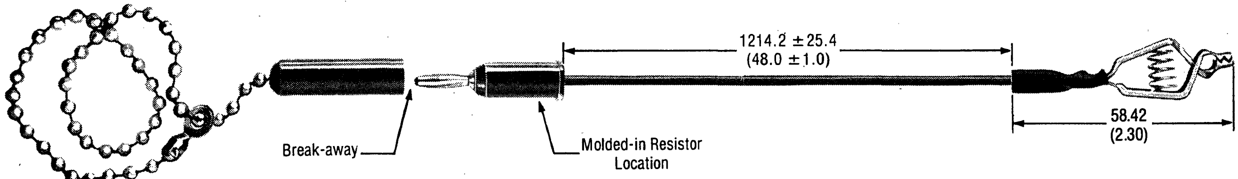


Model No. 5027-48

1ST END: Bead chain, brass, nickel plated. Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Insulation: Polypropylene, black. Resistor, fixed carbon film, 1 megohm, 1/2 watt, 5%
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Spade lug: brass, nickel plated. Insulation: Polypropylene, black.
RATING: +50°C. (+122°F.) Max.

NET 7.95

ANTISTATIC WRIST STRAP WITH LARGE TEST CLIP



Model No. 5028-48

1ST END: Bead chain: brass, nickel plated. Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (1.66) dia. banana jacks. Insulation: Polypropylene, black. Resistor, fixed carbon film, 1 megohm, 1/2 watt, 5%.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Large test clip, steel, cadmium plated.
RATING: +50°C. (+122°F.) Max.

NET 7.50

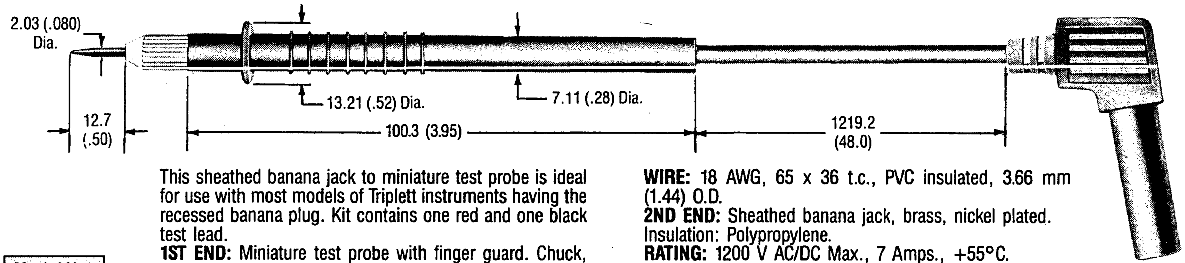
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MULTIMETER REPLACEMENT TEST LEADS

MULTIMETER REPLACEMENT TEST LEAD KIT FOR TRIPLETT METERS

NEW



This sheathed banana jack to miniature test probe is ideal for use with most models of Triplett instruments having the recessed banana plug. Kit contains one red and one black test lead.

1ST END: Miniature test probe with finger guard. Chuck, brass. Replaceable needle tip, stainless steel. Insulation: Nylon. Chuck nut: nylon, white.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D.

2ND END: Sheathed banana jack, brass, nickel plated. Insulation: Polypropylene.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

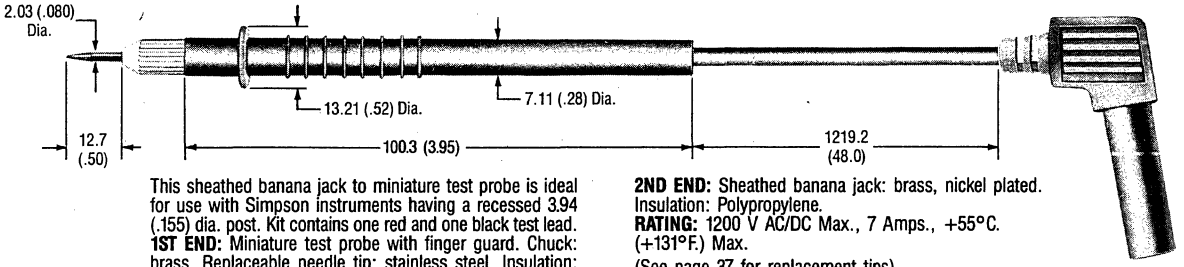
(See page 37 for replacement tips).

Model No.
5241-48

NET 12.95 KIT

MULTIMETER REPLACEMENT TEST LEAD KIT FOR SIMPSON METERS

NEW



This sheathed banana jack to miniature test probe is ideal for use with Simpson instruments having a recessed 3.94 (.155) dia. post. Kit contains one red and one black test lead.

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D.

2ND END: Sheathed banana jack: brass, nickel plated. Insulation: Polypropylene.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

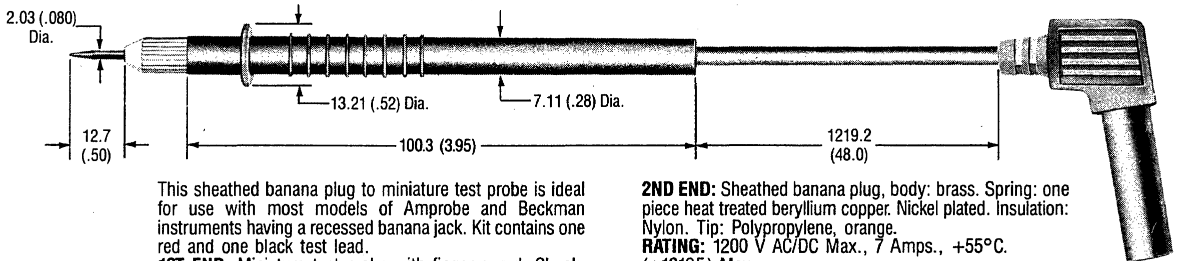
(See page 37 for replacement tips).

Model No.
5238-48

NET 12.95 KIT

MULTIMETER REPLACEMENT TEST LEAD KIT FOR AMPROBE AND BECKMAN METERS

NEW



This sheathed banana plug to miniature test probe is ideal for use with most models of Amprobe and Beckman instruments having a recessed banana jack. Kit contains one red and one black test lead.

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Sheathed banana plug, body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

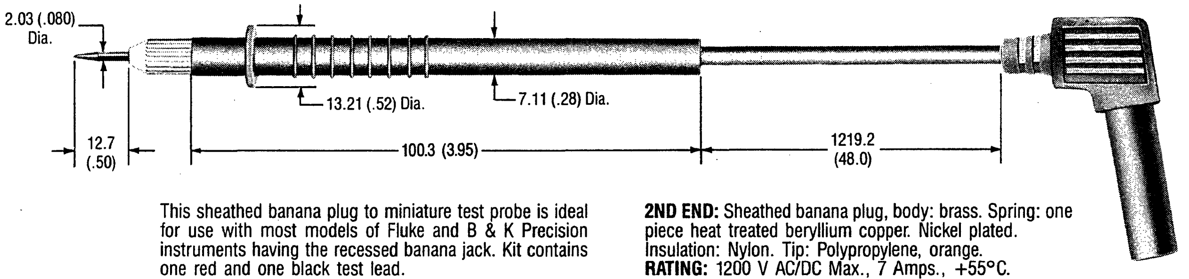
(See page 37 for replacement tips).

Model No.
5227-48

NET 12.95 KIT

MULTIMETER REPLACEMENT TEST LEAD KIT FOR FLUKE AND B & K PRECISION METERS

NEW



This sheathed banana plug to miniature test probe is ideal for use with most models of Fluke and B & K Precision instruments having the recessed banana jack. Kit contains one red and one black test lead.

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D.

2ND END: Sheathed banana plug, body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

(See page 37 for replacement tips).

Model No.
5244-48

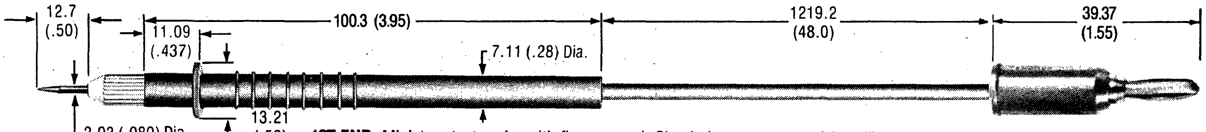
NET 12.95 KIT

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE SIZE TEST PROBES

These slim miniature test probes feature a sharp replaceable needle tip. The tip easily pierces varnish or plating to give a good electrical reading. The probe also has a variety of optional replaceable tips (See page 37).

MINIATURE PROBE TO BANANA PLUG

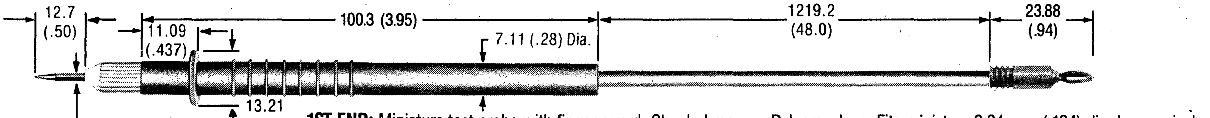


Model No.	Color	Length
4410-48-0	Black	1219.2 (48.0)
4410-48-2	Red	1219.2 (48.0)

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon, Chuck nut: nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).

NET 6.50

MINIATURE PROBE TO MINIATURE BANANA PLUG

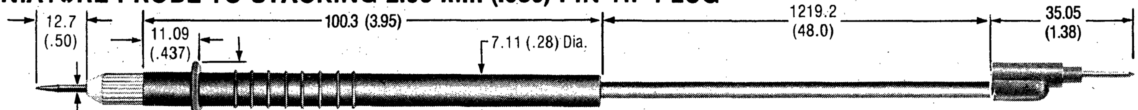


Model No.	Color	Length
4847-48-0	Black	1219.2 (48.0)
4847-48-2	Red	1219.2 (48.0)

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Insulation: Polypropylene. Fits miniature 2.64 mm (.104) dia. banana jacks.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).
NOTE: This model supersedes model 4071.

NET 6.75

MINIATURE PROBE TO STACKING 2.03 mm (.080) PIN TIP PLUG

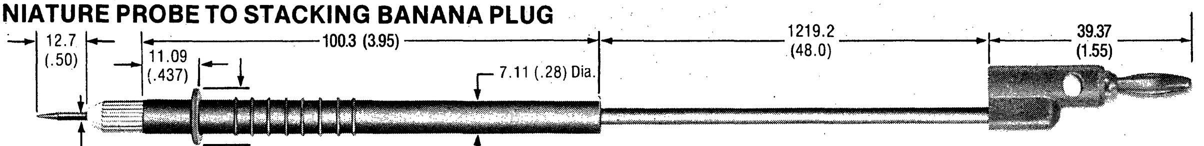


Model No.	Color	Length
4848-48-0	Black	1219.2 (48.0)
4848-48-2	Red	1219.2 (48.0)

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).
NOTE: This model supersedes model 3860.

NET 6.75

MINIATURE PROBE TO STACKING BANANA PLUG

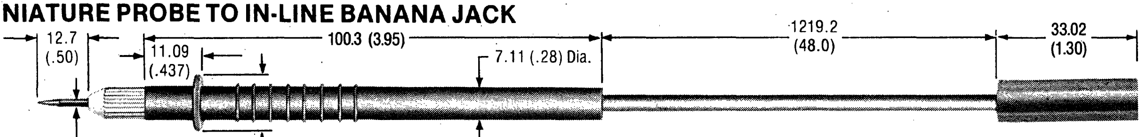


Model No.	Color	Length
4851-48-0	Black	1219.2 (48.0)
4851-48-2	Red	1219.2 (48.0)

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut, nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).
NOTE: This model supersedes model 3861.

NET 5.95

MINIATURE PROBE TO IN-LINE BANANA JACK



Model No.	Color	Length
4852-48-0	Black	1219.2 (48.0)
4852-48-2	Red	1219.2 (48.0)

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: In-line banana jack, 4.22 mm (.166) dia., brass, nickel plated. Insulation: Polypropylene. Accepts standard banana plugs.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).
NOTE: This model supersedes model 4540.

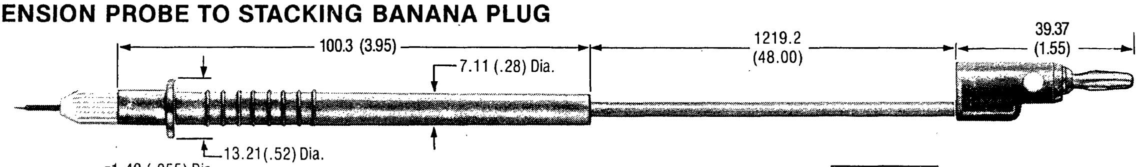
NET 6.75

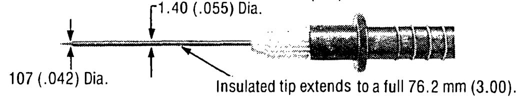
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

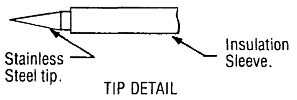
ITT POMONA ELECTRONICS

MINIATURE SIZE TEST PROBES

EXTENSION PROBE TO STACKING BANANA PLUG


100.3 (3.95)
7.11 (.28) Dia.
1219.2
(48.00)
39.37
(1.55)
13.21 (.52) Dia.


1.40 (.055) Dia.
107 (.042) Dia.
Insulated tip extends to a full 76.2 mm (3.00).


Stainless
Steel tip.
Insulation
Sleeve.
TIP DETAIL

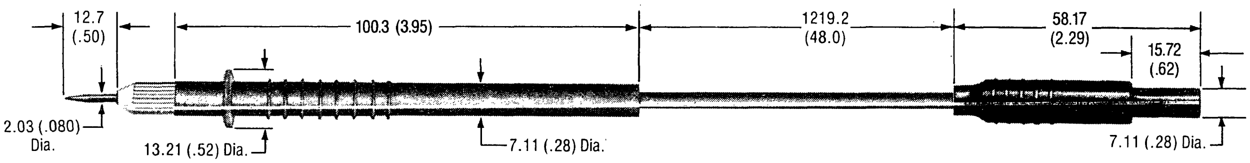
Now you can 'reach out' to get at those hard-to-reach test points with this miniature extendable test probe. The steel tip is very sharp, allowing penetration of contaminants or conformal coatings. The tip is insulated up to the point, providing protection from accidental shorting to adjacent components.

Model No.	Color
5044-48-0	Black
5044-48-2	Red

1ST END: Extension probe. Tip: stainless steel. Chuck: brass, nickel plated. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

NET 8.95

MINIATURE PROBE TO RETRACTABLE SHEATH BANANA PLUG


12.7
(.50)
100.3 (3.95)
1219.2
(48.0)
58.17
(2.29)
15.72
(.62)
2.03 (.080)
Dia.
13.21 (.52) Dia.
7.11 (.28) Dia.
7.11 (.28) Dia.

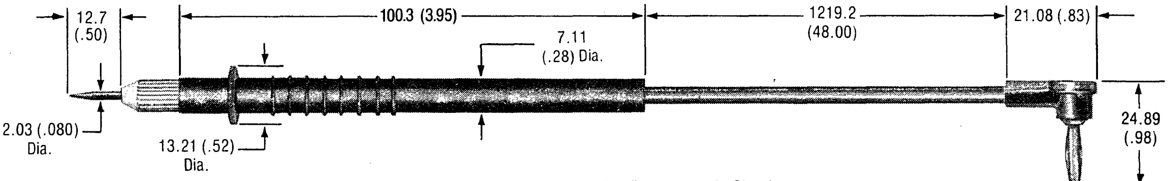
Spring loaded plastic sheath retracts into the plug body to expose the banana plug.

Model No.	Color
5048-48-0	Black
5048-48-2	Red

1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).

NET 7.50

MINIATURE PROBE TO RIGHT ANGLE BANANA PLUG

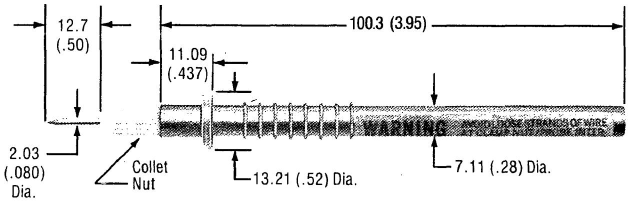

12.7
(.50)
100.3 (3.95)
7.11
(.28) Dia.
1219.2
(48.00)
21.08 (.83)
24.89
(.98)
2.03 (.080)
Dia.
13.21 (.52)
Dia.

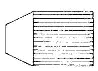
Model No.	Color	Length
4800-48-0	Black	1219.2 (48.0)
4800-48-2	Red	1219.2 (48.0)

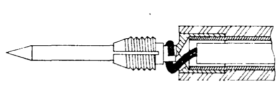
1ST END: Miniature test probe with finger guard. Chuck: brass. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
(See page 37 for replacement tips).

NET 6.75

MINIATURE DO-IT-YOURSELF TEST PROBE


12.7
(.50)
100.3 (3.95)
11.09
(.437)
WARNING
2.03
(.080)
Dia.
Collet
Nut
13.21 (.52) Dia.
7.11 (.28) Dia.





Install this miniature probe on the end of any test lead having a maximum O.D. of 3.81 mm (.150) dia. and wire gauge of 22 to 18 AWG. Simply remove the collet nut, strip wire 1" and lightly tin tip, insert wire through probe body into the angled hole, wrap wire clockwise around chuck and replace and tighten collet nut.

Model No.	Color
5065-0	Black
5065-2	Red

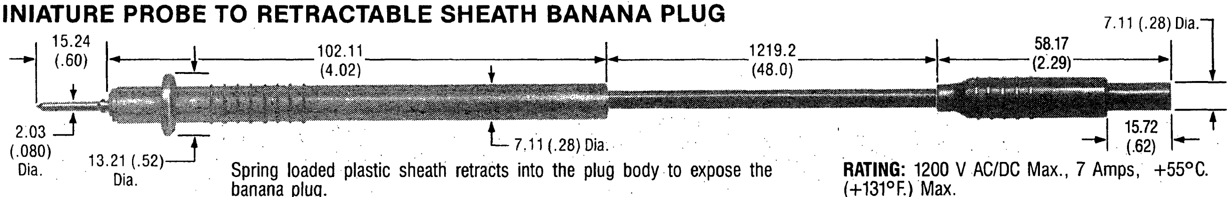
MATERIAL: Chuck: brass. Replaceable needle tip: stainless steel.
FINISH: Chuck, nickel plated. Chuck nut, nylon, white.
INSULATION: Nylon.
RATING: 1200 V AC/DC Max., +80°C. (+176°F.) Max.

NET 5.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE SIZE TEST PROBES

MINIATURE PROBE TO RETRACTABLE SHEATH BANANA PLUG


15.24
(.60)
102.11
(4.02)
1219.2
(48.0)
58.17
(2.29)
7.11 (.28) Dia.
2.03
(.080)
Dia.
13.21 (.52)
Dia.
7.11 (.28) Dia.
15.72
(.62)

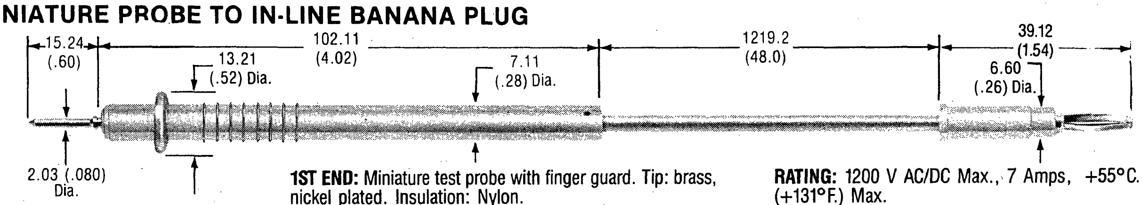
Spring loaded plastic sheath retracts into the plug body to expose the banana plug.
1ST END: Miniature test probe with finger guard. Tip: brass, nickel plated. Insulation: Nylon.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.

RATING: 1200 V AC/DC Max., 7 Amps, +55°C. (+131°F.) Max.

Model No.	Color
5049-48-0	Black
5049-48-2	Red

NET 6.95

MINIATURE PROBE TO IN-LINE BANANA PLUG


15.24
(.60)
102.11
(4.02)
13.21
(.52) Dia.
7.11
(.28) Dia.
1219.2
(48.0)
39.12
(1.54)
6.60
(.26) Dia.
2.03 (.080)
Dia.

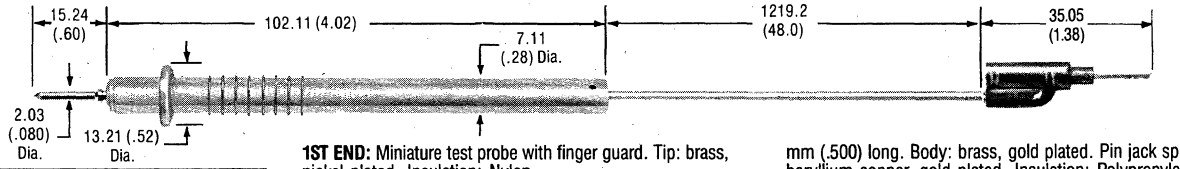
1ST END: Miniature test probe with finger guard. Tip: brass, nickel plated. Insulation: Nylon.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: In-line banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

RATING: 1200 V AC/DC Max., 7 Amps, +55°C. (+131°F.) Max.

Model No.	Color	Length
4602-48-0	Black	1219.2 (48.0)
4602-48-2	Red	1219.2 (48.0)

NET 6.50

MINIATURE PROBE TO STACKING 2.03mm (.080) PIN TIP PLUG

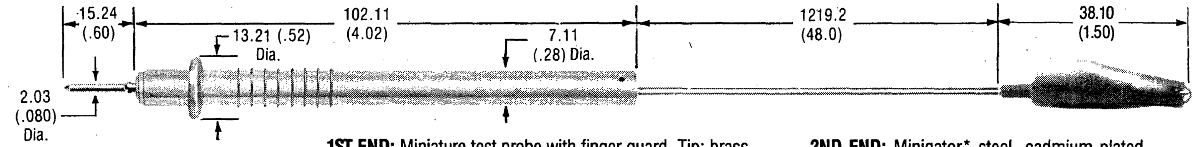

15.24
(.60)
102.11 (4.02)
7.11
(.28) Dia.
1219.2
(48.0)
35.05
(1.38)
2.03
(.080)
Dia.
13.21 (.52)
Dia.

1ST END: Miniature test probe with finger guard. Tip: brass, nickel plated. Insulation: Nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene.
RATING: 1200 V AC/DC Max., 5 Amps, +55°C. (+131°F.) Max.

Model No.	Color	Length
4731-48-0	Black	1219.2 (48.0)
4731-48-2	Red	1219.2 (48.0)

NET 6.50

MINIATURE PROBE TO IN-LINE MINIGATOR* CLIP


15.24
(.60)
102.11
(4.02)
13.21 (.52)
Dia.
7.11
(.28) Dia.
1219.2
(48.0)
38.10
(1.50)
2.03
(.080)
Dia.

1ST END: Miniature test probe with finger guard. Tip: brass, nickel plated. Insulation: Nylon.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

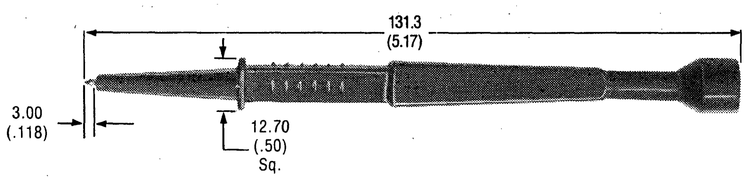
2ND END: Minigator,* steel, cadmium plated. Insulation: Vinyl.
RATING: 1200 V AC/DC Max., 5 Amps, +55°C. (+131°F.) Max.

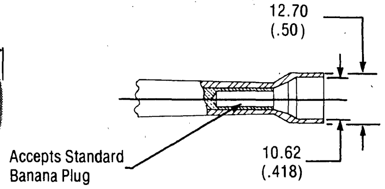
Model No.	Color	Length
4717-48-0	Black	1219.2 (48.0)
4717-48-2	Red	1219.2 (48.0)

NET 5.75

MEDIUM SIZE TEST PROBES

MEDIUM SIZE TEST PROBE TO BANANA JACK


131.3
(5.17)
3.00
(.118)
12.70
(.50)
Sq.


12.70
(.50)
Accepts Standard
Banana Plug
10.62
(.418)

Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip.
1ST END: Medium test probe. Tip: brass, nickel plated. Insulation: Nylon.

2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated. Accepts standard banana plugs.
RATING: 1200 V AC/DC Max., 7 Amps, +80°C. (+176°F.) Max.

Model No.	Color
5002-0	Black
5002-2	Red

NET 3.95

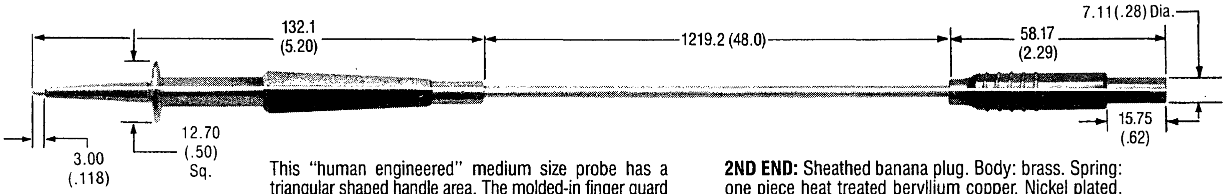
*Minigator is a trademark of Mueller Electric Co.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MEDIUM SIZE TEST PROBES

MEDIUM SIZE TEST PROBE TO RETRACTABLE SHEATH BANANA PLUG



This "human engineered" medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.

1ST END: Medium test probe. Tip: brass, nickel plated. Insulation: Nylon.

WIRE: 18 AWG, 65 x 36 tc., PVC insulated, 3.66 mm (.144) O.D.

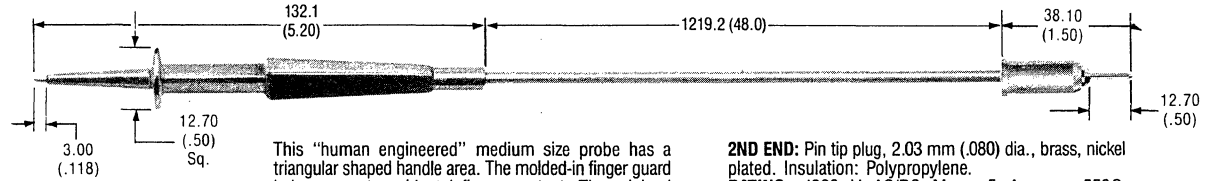
2ND END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

Model No.	Color
4909-48-0	Black
4909-48-2	Red

NET 5.95

MEDIUM SIZE TEST PROBE TO PIN TIP PLUG



This "human engineered" medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.

1ST END: Medium test probe. Tip: brass, nickel plated. Insulation: Nylon.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

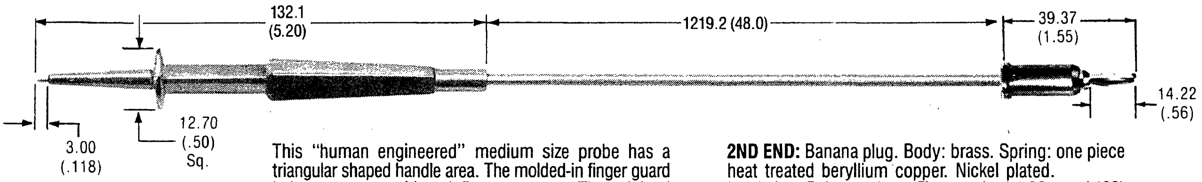
2ND END: Pin tip plug, 2.03 mm (.080) dia., brass, nickel plated. Insulation: Polypropylene.

RATING: 1200 V AC/DC Max., 5 Amps, +55°C. (+131°F.) Max.

Model No.	Color
4923-48-0	Black
4923-48-2	Red

NET 4.75

MEDIUM SIZE TEST PROBE TO BANANA PLUG



This "human engineered" medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.

1ST END: Medium test probe. Tip: brass, nickel plated. Insulation: Nylon.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

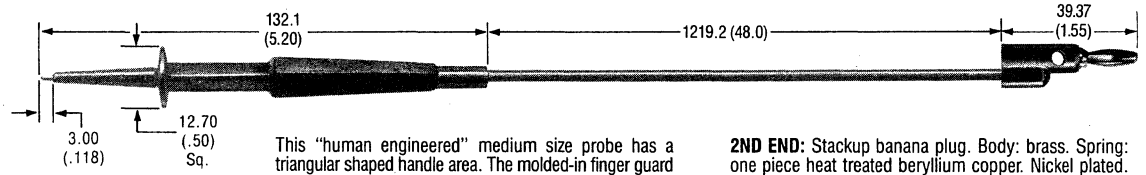
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

Model No.	Color
4924-48-0	Black
4924-48-2	Red

NET 4.95

MEDIUM SIZE TEST PROBE TO STACKING BANANA PLUG



This "human engineered" medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.

1ST END: Medium test probe. Tip: brass, nickel plated. Insulation: Nylon.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

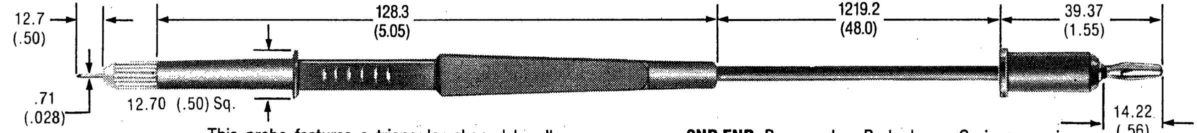
Model No.	Color
4982-48-0	Black
4982-48-2	Red

NET 5.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MEDIUM SIZE TEST PROBES

MEDIUM SIZE TEST PROBE 0.71 mm (.028) NEEDLE TIP TO BANANA PLUG



This probe features a triangular shaped handle area. Sharp 0.71 mm (.028) dia. replaceable needle tip allows testing of encapsulated circuits. The molded in finger guard helps prevent accidental finger contact.

1ST END: Medium test probe, Body: brass, nickel plated. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut, nylon, white.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

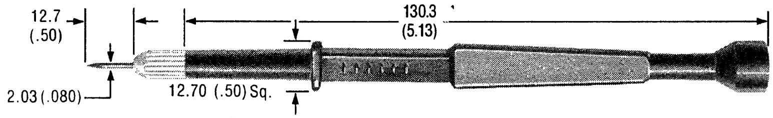
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

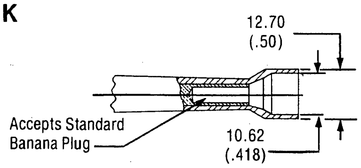
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

Model No.	Color
4951-48-0	Black
4951-48-2	Red

NET 6.95

MEDIUM SIZE TEST PROBE 2.03 mm (.080) NEEDLE TIP TO BANANA JACK





Sharp 2.03 mm (.080) dia. replaceable needle tip allows testing of encapsulated circuits. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip.

1ST END: Medium test probe. Body: brass, nickel plated. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut: nylon, white.

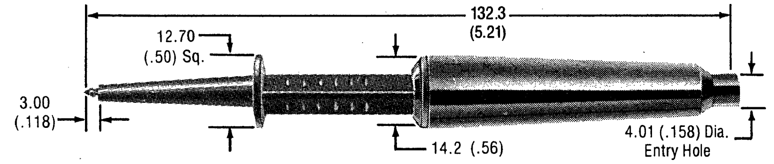
2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated. Accepts standard banana plugs.

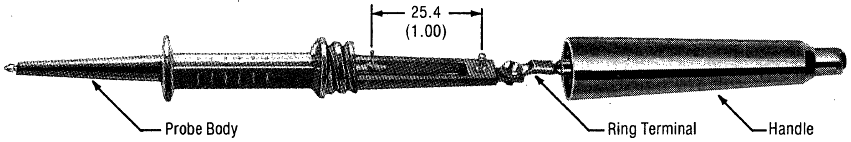
RATING: 1200 V AC/DC Max., 7 Amps, +80°C. (+176°F.) Max.

Model No.	Color
5005-0	Black
5005-2	Red

NET 4.95

DO-IT-YOURSELF COMPONENT MOUNTING TEST PROBE





SIMPLIFIED COMPONENT INSTALLATION

- Unscrew handle from probe body.
- Thread wire through hole in handle and crimp or solder to ring terminal.
- Attach and solder component to turret terminals.
- Slip handle over component and thread handle to probe assembly.

This do-it-yourself component mounting test probe enables the user to create his own compensated probe. Discrete components, such as resistors, capacitors, filters, etc., can be soldered between the two gold plated brass solder turrets. The probe features a triangular shaped finger grip with molded finger guard and threaded handle. Nylon.

MATERIAL: Test probe tip and solder lugs, brass.
FINISH: Test probe tip, nickel plated. Solder lugs, gold plated.

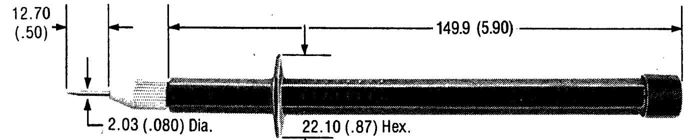
INSULATION: Nylon.
RATING: 1200 V AC/DC Max., +80°C. (+176°F.) Max.

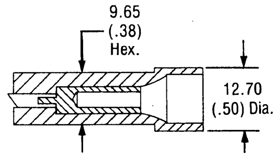
Model No.	Color
4971-0	Black
4971-2	Red

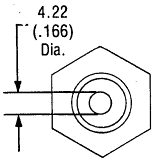
NET 4.95

LARGE SIZE TEST PROBES

TEST PROBE (NEEDLE TIP) TO BANANA JACK







Sharp replaceable needle tip allows testing of encapsulated circuits. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip.

NOTE: This model supersedes Models 1705, 4545 and 4854.

1ST END: Large test probe. Body: brass, nickel plated. Replaceable needle tip: stainless steel. Chuck nut: nylon, white. Insulation: Nylon.

2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated. Accepts standard banana plugs.

RATING: 1200 V AC/DC Max., 7 Amps, +80°C. (+176°F.) Max.

Model No.	Color
5075-0	Black
5075-2	Red

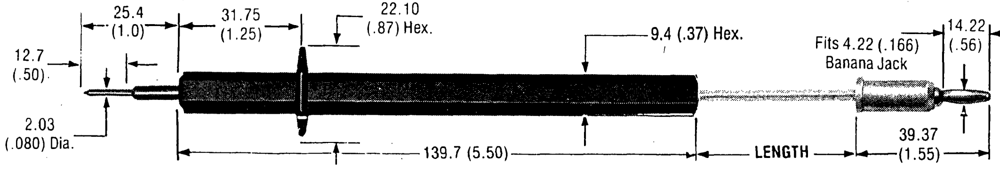
NET 4.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

LARGE SIZE TEST PROBES

TEST PROBE TO BANANA PLUG


25.4 (1.0)
31.75 (1.25)
22.10 (.87) Hex.
9.4 (.37) Hex.
Fits 4.22 (.166) Banana Jack
14.22 (.56)
12.7 (.50)
2.03 (.080) Dia.
139.7 (5.50)
LENGTH
39.37 (1.55)

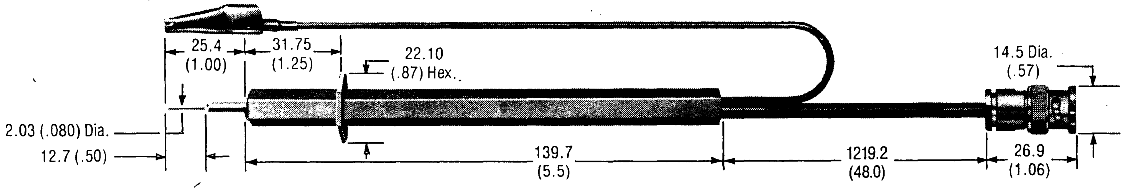
Insulated handle with finger guard molded to probe tip and wire lead.
1ST END: Large test probe. Body: brass, nickel plated. Insulation: Nylon.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -Red.
NOTE: This model supersedes Models 1986 and 4546.

Model No.	Length
4853-36*	914.4 (36.0)
4853-48*	1219.2 (48.0)

NET 5.95

SHIELDED TEST PROBE TO BNC MALE


25.4 (1.00)
31.75 (1.25)
22.10 (.87) Hex.
14.5 Dia. (.57)
2.03 (.080) Dia.
12.7 (.50)
139.7 (5.5)
1219.2 (48.0)
26.9 (1.06)

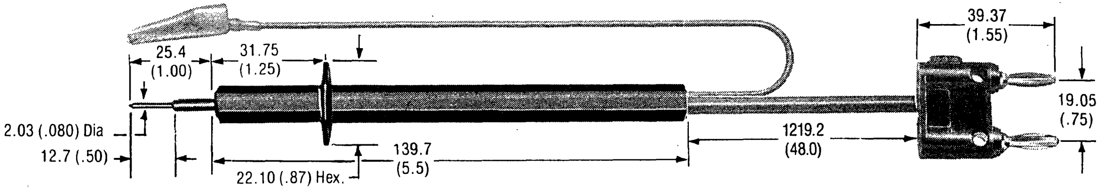
A shielded test probe with the shield extending to within 38.1 mm (1.50) of the probe tip end. Insulated minigator clip connected to shield lead.
1ST END: Large test probe. Brass, nickel plated. Insulation: Nylon, red. Lead wire, 20 AWG, 41 x 36, t.c., PVC insulated, 2.21 mm (.087) O.D. Minigator*, steel, cadmium plated. Insulation: Vinyl. Color: Black.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D.
2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.
NOTE: This model supersedes Model 2739.

Model No.
4857-C-48

NET 15.95

SHIELDED TEST PROBE TO DOUBLE BANANA PLUG


25.4 (1.00)
31.75 (1.25)
39.37 (1.55)
19.05 (.75)
2.03 (.080) Dia
12.7 (.50)
139.7 (5.5)
22.10 (.87) Hex.
1219.2 (48.0)

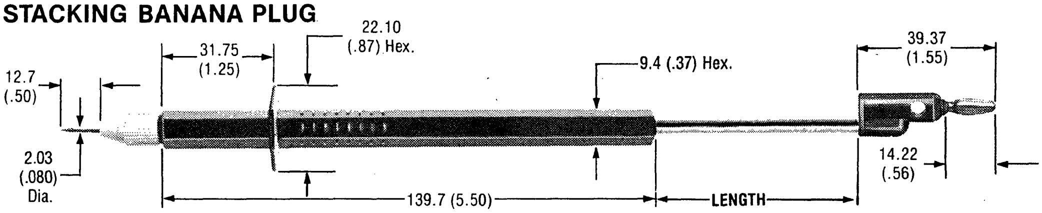
A shielded test probe with the shield extending to within 38.1 mm (1.50) of the probe tip end. Insulated minigator clip connected to shield lead.
1ST END: Large test probe. Brass, nickel plated. Insulation: Nylon, red. Lead wire, 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. Minigator*, steel, cadmium plated. Insulation: Vinyl. Color: Black.
CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D.

2ND END: Double banana plug on 19.05 mm (.750) center. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
RATING: 1400 VRMS, +50°C. (+122°F.) Max.
NOTE: This model supercedes Model 1569.

Model No.
4858-C-48

NET 15.95

TEST PROBE TO STACKING BANANA PLUG


22.10 (.87) Hex.
31.75 (1.25)
9.4 (.37) Hex.
39.37 (1.55)
12.7 (.50)
2.03 (.080) Dia.
14.22 (.56)
139.7 (5.50)
LENGTH

1ST END: Large test probe. Body: brass, nickel plated. Replaceable needle tip: stainless steel. Insulation: Nylon. Chuck nut, nylon, white.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

Model No.	Length	Net
4948-36-*	914.4 (36.0)	6.95
4948-48-*	1219.2 (48.0)	7.15

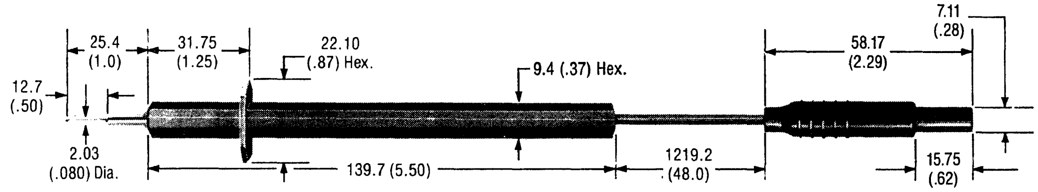
*Minigator is a trademark of Mueller Electric Co.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

LARGE SIZE TEST PROBES

TEST PROBE TO RETRACTABLE SHEATH BANANA PLUG


25.4
(1.0)
31.75
(1.25)
22.10
(.87) Hex.
9.4 (.37) Hex.
12.7
(.50)
2.03
(.080) Dia.
139.7 (5.50)
1219.2
(48.0)
58.17
(2.29)
7.11
(.28)
15.75
(.62)

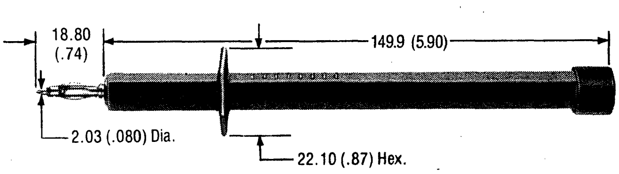
Spring loaded plastic sheath retracts into the plug body to expose the banana plug.
1ST END: Large test probe. Body: brass, nickel plated. Insulation: Nylon.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Nylon. Tip: Polypropylene, orange.

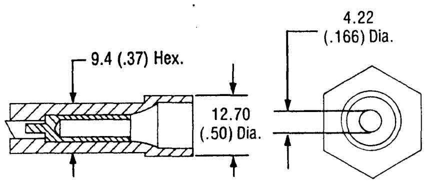
RATING: 1200 V AC/DC Max., 7 Amps., +55°C. (+131°F.) Max.

Model No.	Color
5017-48-0	Black
5017-48-2	Red

NET 7.95

TEST PROBE (PILLOW SPRING) TO BANANA JACK


18.80
(.74)
149.9 (5.90)
2.03 (.080) Dia.
22.10 (.87) Hex.


4.22
(.166) Dia.
9.4 (.37) Hex.
12.70
(.50) Dia.

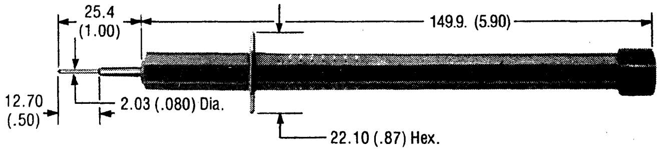
This novel design allows the probe tip to be plugged directly into a 4.22 mm (.166) dia. banana jack. Extra useful when measuring voltages/currents from various banana jacks. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip.

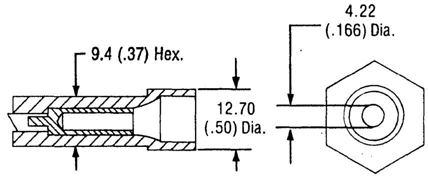
1ST END: 2.03 mm (.080) dia., tip with pillow spring. Tip: brass. Spring: beryllium copper. Nickel plated. Fits 4.22 mm (.166) dia. banana jacks. Insulation: Nylon.
2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated. Accepts standard banana plugs.
RATING: 1200 V AC/DC Max., +80°C. (+176°F.) Max.

Model No.	Color
5063-0	Black
5063-2	Red

NET 4.25

TEST PROBE TO BANANA JACK


25.4
(1.00)
149.9. (5.90)
12.70
(.50)
2.03 (.080) Dia.
22.10 (.87) Hex.


4.22
(.166) Dia.
9.4 (.37) Hex.
12.70
(.50) Dia.

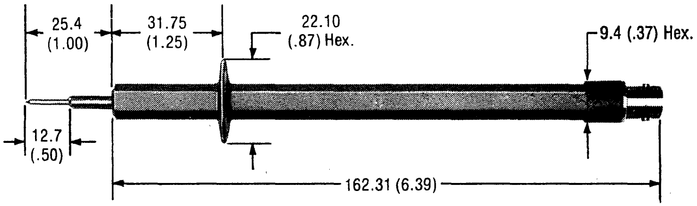
Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip.

1ST END: Probe tip: 2.03 mm (.080) dia., brass, nickel plated. Insulation: Nylon.
2ND END: Banana jack, 4.22 mm (.166) dia., brass, nickel plated. Accepts standard banana plugs.
RATING: 1200 V AC/DC Max., +80°C. (+176°F.) Max.

Model No.	Color
5072-0	Black
5072-2	Red

NET 4.75

TEST PROBE TO BNC FEMALE


25.4
(1.00)
31.75
(1.25)
22.10
(.87) Hex.
9.4 (.37) Hex.
12.7
(.50)
162.31 (6.39)

Center contact of BNC female in handle connected to tip. Shield extends to within 38.10 mm (1.50) of the probe tip end.
1ST END: Probe tip: 2.03 mm (.080) dia., brass, nickel plated. Insulation: Nylon.

2ND END: BNC female. Body: brass, tarnish resistant plated. Center contact: beryllium copper, gold plated.
RATING: 500 VRMS, +80°C. (176°F.) Max.
NOTE: This model supersedes Models 1748 and 4548.

Model No.	Color
4856-0	Black
4856-2	Red

NET 8.25

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

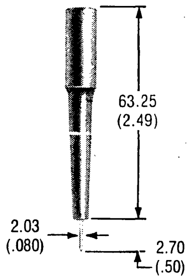
TEST PROBE ACCESSORIES

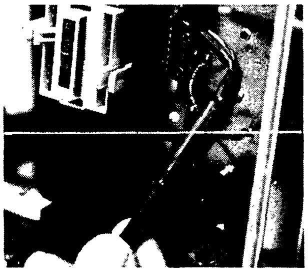
FLEXIBLE PIN TIP PROBE

This flexible tip easily attaches to the end of the Pomona line of test probes allowing access to those hard to get at places that are ''around the corner'' or just too far to reach with regular probes.

Model No.	Fits Test Probe Model Nos.	Net
4906-0	4948, 5075	2.25
4906-2		2.25
4907-0	4951, 5005, 5048, 5065, 5227, 5238, 5241, 5244	2.55
4907-2		2.55
4908-0	4602, 4717, 4731, 5049	2.50
4908-2		2.50

UPPER: Brass, tin plated.
INSULATION: PVC.
LOWER: Pin tip plug, 2.03 mm (.080) dia., brass, gold plated.
RATING: 2500 WVDC, 5 Amps, +50°C. (+122°F.) Max.



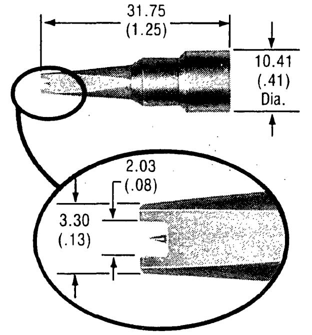


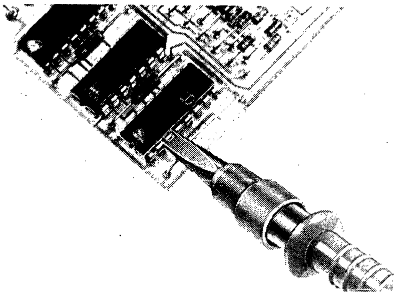
IC TEST TIP ADAPTER

Miniature I.C. Test Tip fits on all Pomona replaceable needle tip probes. Unthread and remove nut and needle tip, then thread the adapter on. The small size and recessed contact allows the I.C. Adapter to probe one leg of a dip chip without shorting an adjacent leg. Plastic projections on either side of the contact tip slide between the dip legs to hold adapter in place and prevent slipping.

UPPER; Brass, nickel plated.
INSULATION: Nylon, white.
LOWER: Tip, stainless steel.
RATING: +80°C. (+176°F.) Max.

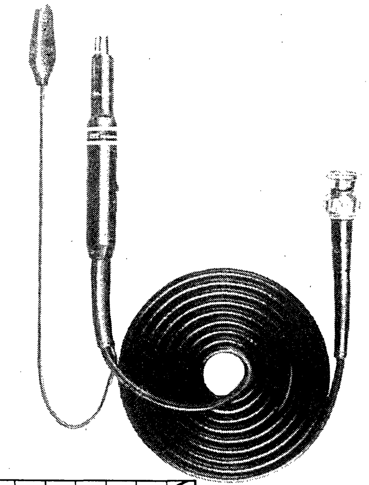
Model No.
5046





NET 1.95

OSCILLOSCOPE PROBE KIT



SPECIFICATIONS (3 POSITION):

Position x 1

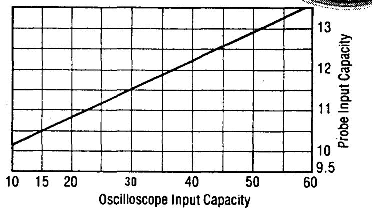
Bandwidth:	DC to 10MHz
Input Resistance:	1MΩ (oscilloscope input)
Input Capacity:	40pF. Plus oscilloscope capacity
Working Voltage:	600 Volts DC (including Peak AC)
Cable Length:	1.5 meters (4.92 ft.)

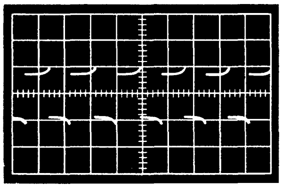
Position Ref.
Probe tip grounded via 9MΩ resistor, oscilloscope input grounded

Position x 10

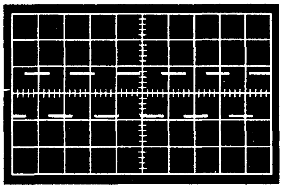
Bandwidth:	DC to 100 MHz
Risetime:	3.5 nanoseconds
Input Resistance:	10MΩ when used with oscilloscopes which have 1MΩ input. (Probe resistance 9MΩ ± 1%)
Input Capacity:	11.5pF when used with oscilloscopes which have a 30pF input capacity. For other values see graph.
Compensation Range:	10-60pF
Working Voltage:	600 Volts DC (including Peak AC)

SEE BELOW FOR ACCESSORIES SUPPLIED WITH KIT.

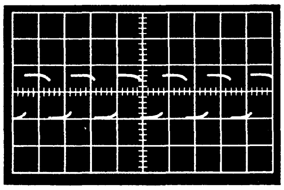




Undercompensated



Correct



Overcompensated

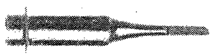
Model No.
4550

NET 49.50

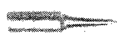
REPLACEMENT ACCESSORIES FOR OSCILLOSCOPE PROBES (SUPPLIED WITH 4550 KIT)

Model No.	Description	Net
4560	Insulating Tip	1.15
4561	Sprung Hook	8.85
4562	Trimmer Tool	1.40
4563	BNC Adaptor	2.55
4564	I.C. Tip	1.65

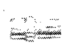
4560



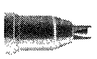
4561



4562



4563



4564

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

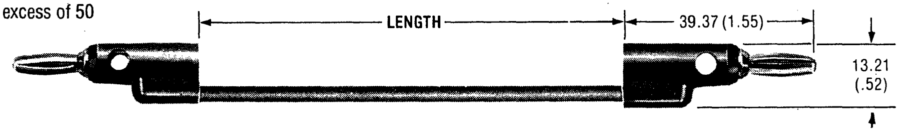
ITT POMONA ELECTRONICS

STANDARD BANANA PLUG PATCH CORDS

STACKUP STANDARD BANANA PLUG PATCH CORD

Multiple stacking feature accommodates the most complex stacking; keeps circuitry neater. Greatly simplifies circuit connections and changes. Reliable solder-bonded connections withstand pull test in excess of 50 lbs.

Model	Length	Net
B-4 *	101.6 (4.0)	2.95
B-8 *	203.2 (8.0)	2.95
B-12*	304.8 (12.0)	2.95
B-18*	457.2 (18.0)	2.95
B-24*	609.6 (24.0)	2.95
B-36*	914.4 (36.0)	2.95
B-48*	1219.2 (48.0)	3.15
B-60*	1524.0 (60.0)	3.35
B-72*	1829.0 (72.0)	3.55



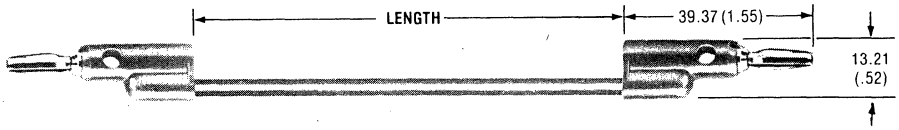
1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.

*COLOR CODE				
0-Black 1-Brown	2-Red 3-Orange	4-Yellow 5-Green	6-Blue 7-Violet	8-Gray 9-White

HIGH TEMPERATURE STACKING BANANA PLUG PATCH CORD

NEW



For use in environmental chambers and medical application where high temperature and/or sterilization is required.

Model	Length	Net
5206-24-*	609.6 (24.0)	5.95
5206-48-*	1219.2 (48.0)	6.55
5206-60-*	1524.0 (60.0)	7.15

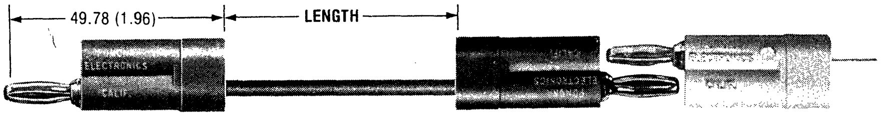
1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Banana jack accepts standard banana plugs. Insulation: Polyphenylene sulfide, UL 94V-0.
WIRE: 18 AWG, 65 x 36 t.c., silicone rubber insulated, 3.61 mm (.142) O.D. Color: White.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +220°C. (+428°F.) Max.

***COLORS AVAILABLE** (Plug insulation only): -0 Black, -6 Blue.

EXTENSION STACKING BANANA PLUG PATCH CORD

Dual purpose. Insulates all hot leads when used as an extension cord. Endless extension couplings possible with any banana plug patch cord.



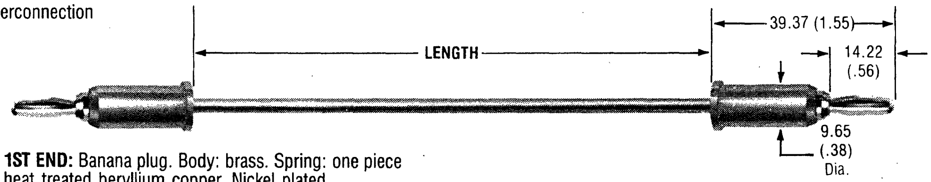
Model	Length	Net
HB-4 *	101.6 (4.0)	4.95
HB-8 *	203.2 (8.0)	4.95
HB-12*	304.8 (12.0)	4.95
HB-18*	457.2 (18.0)	4.95
HB-24*	609.6 (24.0)	4.95
HB-36*	914.4 (36.0)	4.95
HB-48*	1219.2 (48.0)	5.15
HB-60*	1524.0 (60.0)	5.35

1ST END: Extension stacking banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia., banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.

COLOR CODE				
0-Black 1-Brown	2-Red 3-Orange	4-Yellow 5-Green	6-Blue 7-Violet	8-Gray 9-White

BANANA PLUG PATCH CORD

Excellent for general lab work. Permits interconnection between test instruments, etc.



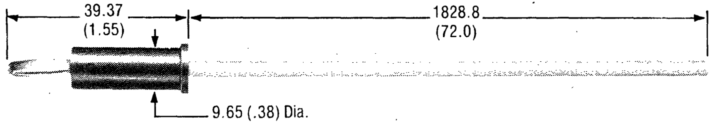
Model	Length	Net
1985-4 *	101.6 (4.0)	3.95
1985-8 *	203.2 (8.0)	3.95
1985-12*	304.8 (12.0)	3.95
1985-18*	457.2 (18.0)	3.95
1985-24*	609.6 (24.0)	3.95
1985-36*	914.4 (36.0)	3.95
1985-48*	1219.2 (48.0)	4.15
1985-60*	1524.0 (60.0)	4.35

1ST END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MEDICAL APPLICATION BANANA PLUG, ONE END ONLY

For use in medical laboratories or other uses where high temperature and/or sterilization is required.



1ST END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia., banana jacks. Insulation: Polysulfone, red.
WIRE: 18 AWG, 65 x 36 t.c., silicone rubber insulated, 3.61 mm (.142) O.D. Color: White.

2ND END: None.
RATING: Breakdown voltage, 1500 VRMS Min.; 0.5 Amps; Withstanding +121°C. (+250°F.) for one hr. @ 20-30 psi, 100% humidity.

Model No.
4791-72

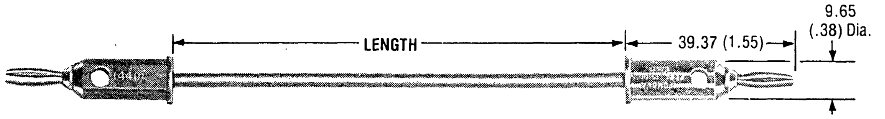
NET 4.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD BANANA PLUGS/JACKS PATCH CORDS

HORIZONTAL STACKING BANANA PLUG PATCH CORD

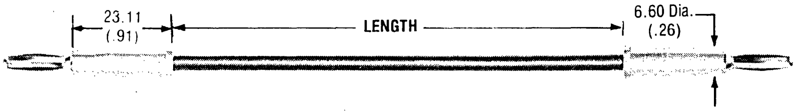


Model	Length	Net
1440-8 *	203.2 (8.0)	4.25
1440-12*	304.8 (12.0)	4.25
1440-18*	457.2 (18.0)	4.25
1440-24*	609.6 (24.0)	4.25
1440-36*	914.4 (36.0)	4.25
1440-48*	1219.2 (48.0)	4.45
1440-60*	1524.0 (60.0)	4.65

Ideal as an interconnecting lead between power supplies, test equipment, etc. Horizontal stacking feature.
1ST END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

IN-LINE BANANA PLUG EXTENSION PATCH CORD

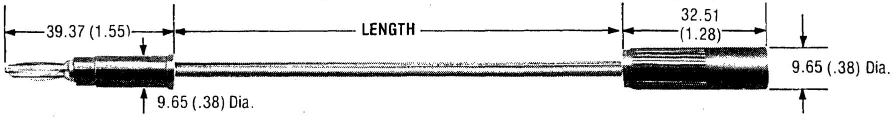


Model No.	Length	Net
4585-4 *	101.6 (4.0)	3.95
4585-8 *	203.2 (8.0)	3.95
4585-12*	304.8 (12.0)	3.95
4585-18*	457.2 (18.0)	3.95
4585-24*	609.6 (24.0)	3.95
4585-36*	914.4 (36.0)	3.95
4585-48*	1219.2 (48.0)	4.15
4585-60*	1524.0 (60.0)	4.35

Designed for recessed banana jacks with access hole 6.91 mm (.272) dia.
1ST END: In-line banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

IN-LINE BANANA PLUG EXTENSION PATCH CORD



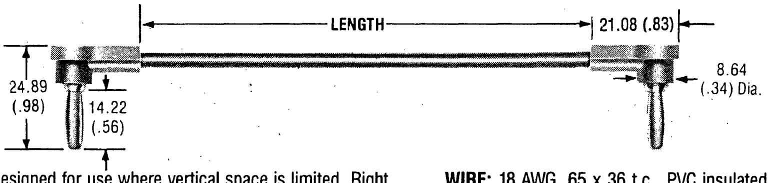
Model No.	Length	Net
4702-12*	304.8 (12.0)	4.25
4702-18*	457.2 (18.0)	4.25
4702-24*	609.6 (24.0)	4.25
4702-36*	914.4 (36.0)	4.25
4702-48*	1219.2 (48.0)	4.45
4702-60*	1524.0 (60.0)	4.65

Dual purpose. Insulates all hot leads when used as an extension cord. Endless extension couplings possible with any banana plug patch cord.
1ST END: In-line banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: In-line banana jack, 4.22 mm (.166) dia., brass, nickel plated.
Insulation: Polypropylene. Accepts standard banana plugs.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

RIGHT ANGLE BANANA PLUG PATCH CORDS

RIGHT ANGLE BANANA PLUG PATCH CORD

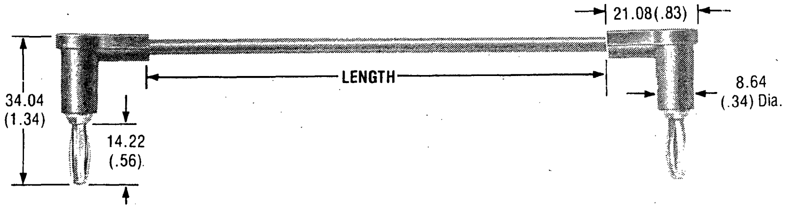


Model	Length	Net
4567-4 *	101.6 (4.0)	5.25
4567-8 *	203.2 (8.0)	5.25
4567-12*	304.8 (12.0)	5.25
4567-18*	457.2 (18.0)	5.25
4567-24*	609.6 (24.0)	5.25

Designed for use where vertical space is limited. Right angle plug features concave ribbed top and oversize shoulder for ease of connect and disconnect in tight places.
1ST END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

STACK-UP RIGHT ANGLE BANANA PLUG PATCH CORD



Model	Length	Net
2864-4 *	101.6 (4.0)	5.25
2864-8 *	203.2 (8.0)	5.25
2864-12*	304.8 (12.0)	5.25
2864-18*	457.2 (18.0)	5.25
2864-24*	609.6 (24.0)	5.25
2864-36*	914.4 (36.0)	5.25
2864-48*	1219.2 (48.0)	5.45
2864-60*	1524.0 (60.0)	5.65

Vertical stacking feature allows endless circuit connections and the right angle design keeps wires close to the chassis. An oversized shoulder allows easy connect and disconnect.
1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.

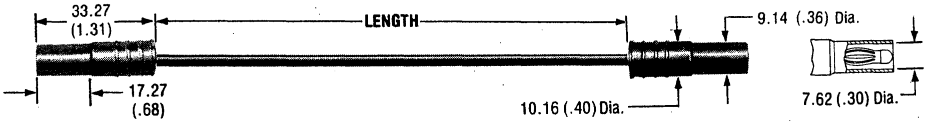
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

STANDARD BANANA PLUGS/JACKS PATCH CORDS

FIXED SHEATHED BANANA PLUG PATCH CORD

Model No.	Length	Net
4913-4 *	101.6 (4.0)	3.85
4913-8 *	203.2 (8.0)	3.85
4913-12*	304.8 (12.0)	3.85
4913-18*	457.2 (18.0)	3.85
4913-24*	609.6 (24.0)	3.85
4913-36*	914.4 (36.0)	3.85
4913-48*	1219.2 (48.0)	4.05
4913-60*	1524.0 (60.0)	4.25



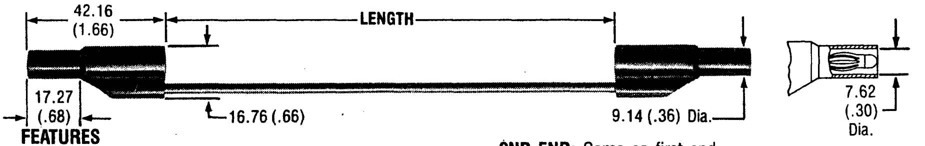
FEATURES
- No exposed metal.
- Fits models 4921, 4922, 4934 and 4987.
- Will not short out when dropped.

1ST END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation:Polypropylene. Tip: Polypropylene, orange.

WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 1200 V AC/DC Max., 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

FIXED SHEATHED STACKUP BANANA PLUG PATCH CORD

Model	Length	Net
4912-4 *	101.6 (4.0)	4.25
4912-8 *	203.2 (8.0)	4.25
4912-12*	304.8 (12.0)	4.25
4912-18*	457.2 (18.0)	4.25
4912-24*	609.6 (24.0)	4.25
4912-36*	914.4 (36.0)	4.25
4912-48*	1219.2 (48.0)	4.45
4912-60*	1524.0 (60.0)	4.65
4912-72*	1829.0 (72.0)	4.85



FEATURES
- No exposed metal.
- Fits models 4921, 4922, 4934 and 4987.
- Will not short out when dropped.

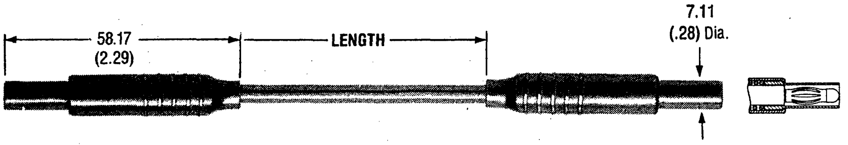
1ST END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Tip: Polypropylene, orange.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Same as first end.
RATING: 1200 V AC/DC Max., 7 Amps, +55°C. (+131°F.) Max.

*COLOR CODE				
0-Black	2-Red	4-Yellow	6-Blue	8-Gray
1-Brown	3-Orange	5-Green	7-Violet	9-White

RETRACTABLE SHEATH BANANA PLUG PATCH CORD

Model	Length	Net
4911-4 *	101.6 (4.0)	5.75
4911-8 *	203.2 (8.0)	5.75
4911-12*	304.8 (12.0)	5.75
4911-18*	457.2 (18.0)	5.75
4911-24*	609.6 (24.0)	5.75
4911-36*	914.4 (36.0)	5.75
4911-48*	1219.2 (48.0)	5.95
4911-60*	1524.0 (60.0)	6.15



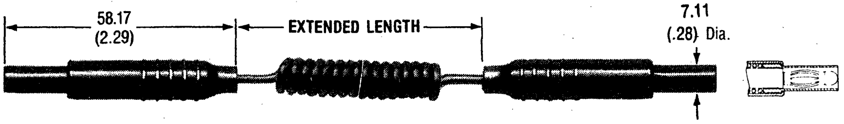
FEATURES
- No exposed metal.
- Fits all standard banana jacks.
- Will not short out when dropped.

1ST END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated.

Insulation: Nylon. Tip: Polypropylene, orange.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 1200 V AC/DC Max., 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

RETRACTABLE SHEATH BANANA PLUG PATCH CORD

Model	Extended Length	Net
5036-36*	914.4 (36.0)	9.50
5036-48*	1219.2 (48.0)	10.40
5036-60*	1524.0 (60.0)	11.30



FEATURES
- No exposed metal.
- Fits all standard banana jacks.
- Will not short out when dropped.

1ST END: Sheathed banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated.

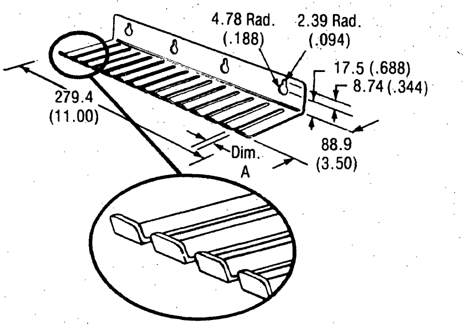
Insulation: Nylon. Tip: Polypropylene, orange.
WIRE: 20 AWG, 42 x 36 t.c., rubber insulated, 3.68 mm (.145) O.D.
2ND END: Same as first end.
RATING: 1200 V AC/DC Max., 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

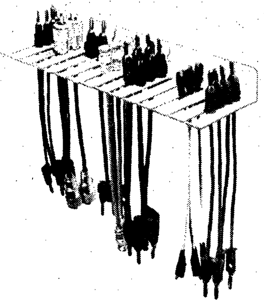
TEST LEAD HOLDER

TEST LEAD HOLDER

No need to spend time searching for a particular test lead. With these new racks, all of your patch cords and cable assemblies can be conveniently filed for instant selection — within easy reach. Holder mounts quickly on any vertical surface. Test leads are easy to store, easy to remove. Three models to choose from for different size cables.
MATERIAL: Cold rolled steel.
FINISH: Baked enamel.

Model No.	Color	Max. Cable Dia. (Dim. A)
1508	Orange	5.33 (.210)
4408	Black	8.13 (.320)
2708	Blue	11.4 (.450)





NET 5.95

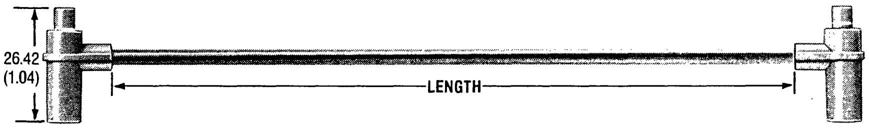
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

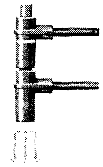
ITT POMONA ELECTRONICS

"PUSH-ON" STACKING BNC

"PUSH ON" STACKING BNC MALE BOTH ENDS

This multiple stacking patch cord connects the center conductor of only BNC jacks. Excellent for use with instruments such as oscilloscopes. Stacking feature enables a multiple number of connections to the same point.





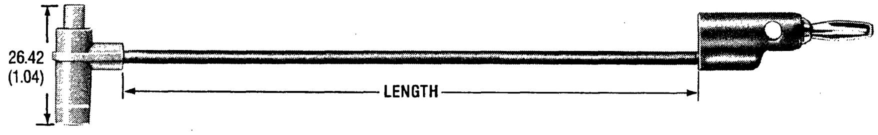
Model No.	Length	Net
3201-4 *	101.6 (4.0)	7.50
3201-12*	304.8 (12.0)	7.50
3201-36*	914.4 (36.0)	7.50
3201-60*	1524.0 (60.0)	7.90

1ST END: Push-on stacking BNC male. Contact, one piece heat treated beryllium copper, gold plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

***COLORS AVAILABLE:** -0 Black, -2 Red.

"PUSH ON" STACKING BNC MALE TO STACKING BANANA PLUG

This multiple stacking patch cord connects the center conductor of only BNC jacks. Excellent for use with instruments such as oscilloscopes. Stacking feature enables a multiple number of connections to the same point.



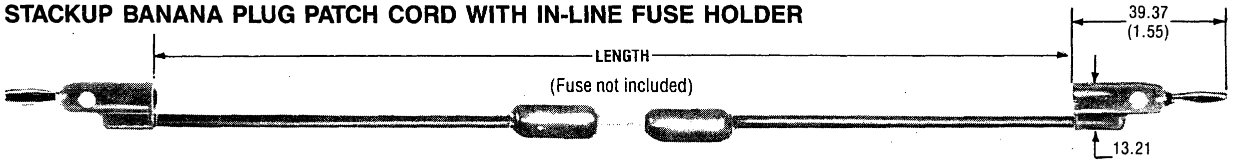
Model No.	Length	Net
3202-18*	457.2 (18.0)	5.50
3202-36*	914.4 (36.0)	5.50
3202-60*	1524.0 (60.0)	5.90

1ST END: Push-on stacking BNC male. Contact, one piece heat treated beryllium copper, gold plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

***COLORS AVAILABLE:** -0 Black, -2 Red.

TEST LEADS & PATCH CORDS

STACKUP BANANA PLUG PATCH CORD WITH IN-LINE FUSE HOLDER



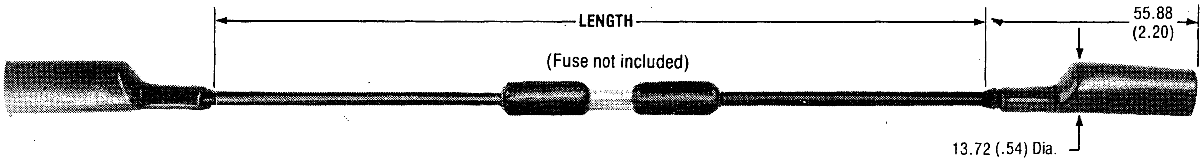
This molded in-line fuse holder patch cord is used as an added safety feature for your electronic test equipment. Fuse holder will accept 6.35 mm (.25) dia. SFE and AGC fuses (fuse not included.)

Model No.	Length	Net
4274-12*	304.8 (12.0)	5.50
4274-24*	609.6 (24.0)	5.50
4274-36*	914.4 (36.0)	5.50
4274-60*	1524.0 (60.0)	5.90

1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. Fuse holder: brass, tin plated. Insulation: PVC. Accepts 6.35 mm (.250) dia. fuse.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

INSULATED ALLIGATOR CLIP LEAD WITH IN-LINE FUSE HOLDER



This molded in-line fuse holder patch cord is used as an added safety feature for your electronic test equipment. Fuse holder will accept 6.35 mm (.25) dia. SFE and AGC fuses (fuse not included.)

Model No.	Length
4354-12*	304.8 (12.0)
4354-24*	609.6 (24.0)

1ST END: Alligator clip. Steel, nickel plated. Insulation: Vinyl.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. Fuse holder: brass, tin plated. Insulation: PVC. Accepts 6.35 mm (.250) dia. fuse.

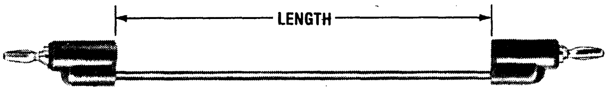
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

NET 6.85

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE BANANA PLUG PATCH CORDS

MINIATURE BANANA PLUG STACKUP PATCH CORD



Model No.	Length	Net
1081-4 *	101.6 (4.0)	3.95
1081-8 *	203.2 (8.0)	3.95
1081-12*	304.8 (12.0)	3.95
1081-18*	457.2 (18.0)	3.95
1081-24*	609.6 (24.0)	3.95
1081-36*	914.4 (36.0)	3.95
1081-48*	1219.2 (48.0)	4.15
1081-60*	1524.0 (60.0)	4.35

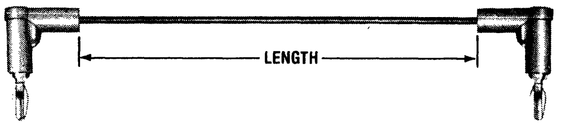
1ST END: Stack up miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Banana jack accepts miniature banana plugs. Insulation: Polypropylene.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIATURE RIGHT ANGLE BANANA PLUG PATCH CORD STACKUP

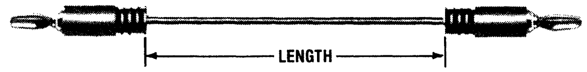


Model No.	Length	Net
2860-4- *	101.6 (4.0)	3.25
2860-8- *	203.2 (8.0)	3.25
2860-12-*	304.8 (12.0)	3.25
2860-18-*	457.2 (18.0)	3.25
2860-24-*	609.6 (24.0)	3.25

1ST END: Miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Insulation: Polypropylene. Fits miniature 2.64 mm (.104) dia. banana jacks.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

MINIATURE BANANA PLUG PATCH CORD

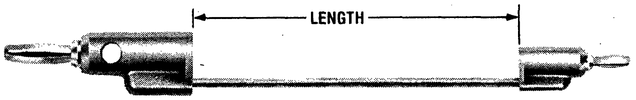


Model No.	Length	Net
2842-4 *	101.6 (4.0)	4.25
2842-8 *	203.2 (8.0)	4.25
2842-12*	304.8 (12.0)	4.25
2842-18*	457.2 (18.0)	4.25
2842-24*	609.6 (24.0)	4.25
2842-36*	914.4 (36.0)	4.25
2842-48*	1219.2 (48.0)	4.45
2842-60*	1524.0 (60.0)	4.65

1ST END: Miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Insulation: Polypropylene. Fits miniature 2.64 mm (.104) dia. banana jacks.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

STANDARD BANANA PLUG TO MINIATURE BANANA PLUG PATCH CORD

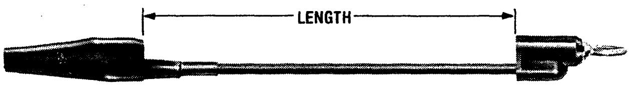


Model No.	Length	Net
3014-12-*	304.8 (12.0)	3.25
3014-18-*	457.2 (18.0)	3.25
3014-24-*	609.6 (24.0)	3.25
3014-36-*	914.4 (36.0)	3.25
3014-48-*	1219.2 (48.0)	3.45
3014-60-*	1524.0 (60.0)	3.65

1ST END: Stackup standard banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Stackup miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Banana jack accepts miniature banana plugs. Insulation: Polypropylene.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

INSULATED MINIGATOR CLIP TO MINIATURE BANANA PLUG



Model No.	Length	Net
3222-12*	304.8 (12.0)	3.50
3222-24*	609.6 (24.0)	3.50
3222-36*	914.4 (36.0)	3.50
3222-48*	1219.2 (48.0)	3.70
3222-60*	1524.0 (60.0)	3.90

1ST END: Minigator.* Steel, cadmium plated. Insulation: Vinyl.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Banana jack accepts miniature banana plugs. Insulation: Polypropylene.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

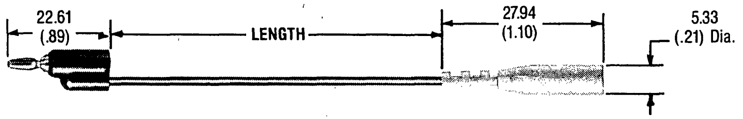
*Minigator is a trademark of Mueller Electric Co.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

12.70 (.500) SPACED MINIATURE DOUBLE BANANA PLUG PATCH CORDS

MINIATURE BANANA PLUG TO MINIATURE BANANA JACK WITH STRESS RELIEF.



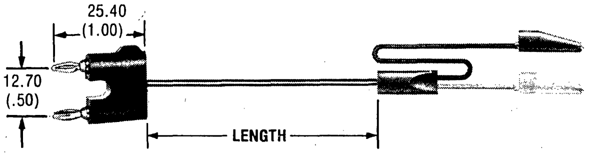
NEW

Model No.	Length	Net
5149-4 *	101.6 (4.0)	4.95
5149-8 *	203.2 (8.0)	4.95
5149-12*	304.8 (12.0)	4.95
5149-24*	609.6 (24.0)	4.95
5149-36*	914.4 (36.0)	4.95
5149-48*	1219.2 (48.0)	5.15

1ST END: Stackup miniature banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Banana jack accepts miniature banana plugs. Insulation: Polypropylene.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Miniature banana jack. 2.64 mm (.104) dia., brass, gold plated. Insulation: PVC. Accepts miniature banana plugs.
RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

MINIATURE DOUBLE BANANA PLUG TO MINIGATOR CLIPS



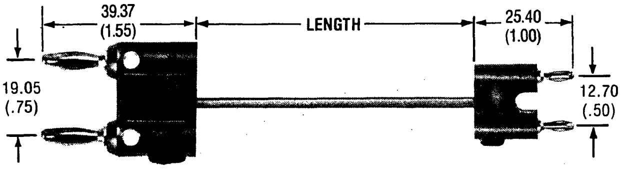
Model No.	Length
3027-K-24	609.6 (24.0)

1ST END: Miniature double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Double banana jack accepts miniature banana plugs. Insulation: Polyethylene, black.
CABLE: Shielded coax., RG 174/U 2.54 mm (.100) O.D. Y-mold insulation: PVC. Color: Black.

2ND END: Minigator* clips. Steel, cadmium plated. Insulation: Vinyl. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
RATING: 1400 VRMS, +50°C. (+122°F.) Max.

NET 12.95

DOUBLE BANANA PLUG TO MINIATURE DOUBLE BANANA PLUG

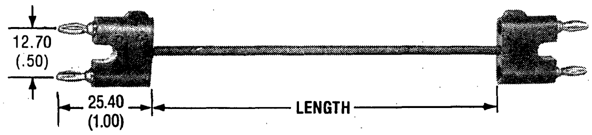


Model No.	Length	Net
2443-K-24	609.6 (24.0)	9.95
2443-K-36	914.4 (36.0)	9.95
2443-K-48	1219.2 (48.0)	10.55
2443-K-60	1524.0 (60.0)	11.15

1ST END: Double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
CABLE: Shielded coax., RG 174/U. 2.54 mm (.100) O.D.

2ND END: Miniature double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Double banana jack accepts miniature banana plugs. Insulation: Polyethylene, black.
RATING: 1400 VRMS, +80°C. (+176°F.) Max.

MINIATURE DOUBLE BANANA PLUG BOTH ENDS

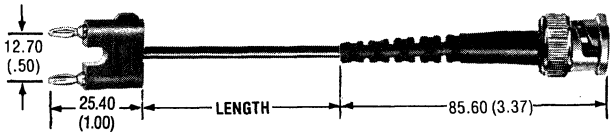


Model No.	Length	Net
2247-K-12	304.8 (12.0)	9.95
2247-K-24	609.6 (24.0)	9.95
2247-K-36	914.4 (36.0)	9.95
2247-K-60	1524.0 (60.0)	11.15

1ST END: Double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
CABLE: Shielded coax., RG 174/U. 2.54 mm (.100) O.D.

2ND END: Miniature double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Double banana jack accepts miniature banana plugs. Insulation: Polyethylene, black.
RATING: 1400 VRMS, +80°C. (+176°F.) Max.

MINIATURE DOUBLE BANANA PLUG TO BNC MALE



Model No.	Length	Net
2248-K-24	609.6 (24.0)	14.95
2248-K-36	914.4 (36.0)	14.95
2248-K-48	1219.2 (48.0)	15.55
2248-K-60	1524.0 (60.0)	16.15

1ST END: Miniature double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. Double banana jack accepts miniature banana plugs. Insulation: Polyethylene, black.

CABLE: Shielded coax., RG 174/U, 2.54 mm (.100) O.D.
2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated. Boot: PVC, black.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

*Minigator is a trademark of Mueller Electric Co.

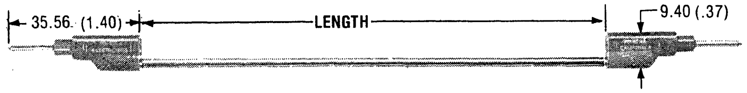
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

2.03 mm (.080) PIN TIP PATCH CORDS

PIN TIP VERTICAL STACKING PATCH CORD

A must in circuit designing and testing, with instruments that utilize tip jacks.



Model No.	Length	Net
P-4*	101.6 (4.0)	3.75
P-8*	203.2 (8.0)	3.75
P-12*	304.8 (12.0)	3.75
P-18*	457.2 (18.0)	3.75
P-24*	609.6 (24.0)	3.75
P-36*	914.4 (36.0)	3.75
P-48*	1219.2 (48.0)	3.95
P-60*	1524.0 (60.0)	4.15

1ST END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.

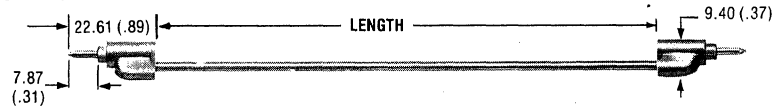
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.

*

Color Codes				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

LOW PROFILE PIN TIP VERTICAL STACKING PATCH CORD

Excellent for low profile applications where space is at a premium.



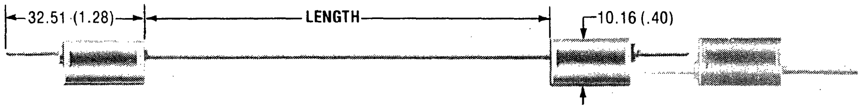
Model No.	Length	Net
4740-4*	101.6 (4.0)	4.25
4740-8*	203.2 (8.0)	4.25
4740-12*	304.8 (12.0)	4.25
4740-18*	457.2 (18.0)	4.25
4740-24*	609.6 (24.0)	4.25
4740-36*	914.4 (36.0)	4.25
4740-48*	1219.2 (48.0)	4.45
4740-60*	1524.0 (60.0)	4.65

1ST END: Stackup pin tip plug. 2.03 mm (.080) dia., 7.87 mm (.31) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

PIN TIP EXTENSION STACKING PATCH CORD

Dual purpose, insulates exposed leads when used as an extension cord. Endless extension coupling possible. Also provides stacking from 2.03 mm (.080) jack.



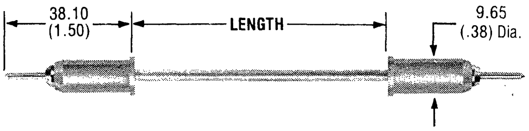
Model No.	Length	Net
1727-4*	101.6 (4.0)	5.95
1727-8*	203.2 (8.0)	5.95
1727-12*	304.8 (12.0)	5.95
1727-18*	457.2 (18.0)	5.95
1727-24*	609.6 (24.0)	5.95
1727-36*	914.4 (36.0)	5.95
1727-48*	1219.2 (48.0)	6.15
1727-60*	1524.0 (60.0)	6.35

1ST END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.

WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

PIN TIP PATCH CORD

Heavy duty patch cord. Excellent for general lab work. Permits interconnection between test instruments that utilize tip jacks.



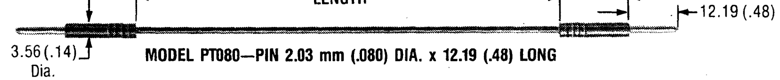
Model No.	Length	Net
1990-8*	203.2 (8.0)	3.95
1990-12*	304.8 (12.0)	3.95
1990-18*	457.2 (18.0)	3.95
1990-24*	609.6 (24.0)	3.95
1990-36*	914.4 (36.0)	3.95
1990-48*	1219.2 (48.0)	4.15
1990-60*	1524.0 (60.0)	4.35

1ST END: Pin tip plug. 2.03 mm (.080) dia., brass, nickel plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

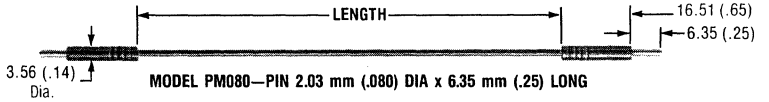
2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

HIGH DENSITY PIN TIP PATCH CORDS

Small body style permits usage in equipment having receptacles spaced closely together.



MODEL PT080—PIN 2.03 mm (.080) DIA. x 12.19 (.48) LONG



MODEL PM080—PIN 2.03 mm (.080) DIA x 6.35 mm (.25) LONG

Model No.	Net	Model No.	Length	Net
PT080-4*	2.85	PM080-4*	101.6 (4.0)	2.75
PT080-8*	2.85	PM080-8*	203.2 (8.0)	2.75
PT080-12*	2.85	PM080-12*	304.8 (12.0)	2.75
PT080-18*	2.85	PM080-18*	457.2 (18.0)	2.75
PT080-24*	2.85		609.6 (24.0)	
PT080-36*	2.85		914.4 (36.0)	
PT080-48*	3.05		1219.2 (48.0)	
PT080-60*	3.25		1524.0 (60.0)	

1ST END: Pin tip plug. 2.03 mm (.080) dia., brass, gold plated. Insulation: Polypropylene.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

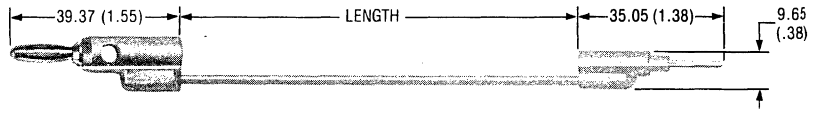
2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +55°C (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

2.03 mm (.080) PIN TIP PATCH CORDS

BANANA PLUG TO PIN TIP PLUG STACKUP PATCH CORD

Adapts to equipment using banana jacks and pin jacks. Banana plug and pin tip allow vertical stackup.



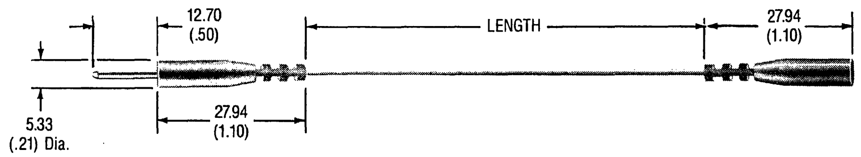
Model No.	Length	Net
1126-4 *	101.6 (4.0)	3.50
1126-8 *	203.2 (8.0)	3.50
1126-12*	304.8 (12.0)	3.50
1126-18*	457.2 (18.0)	3.50
1126-24*	609.6 (24.0)	3.50
1126-36*	914.4 (36.0)	3.50
1126-48*	1219.2 (48.0)	3.70
1126-60*	1524.0 (60.0)	3.90

1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Stackup pin tip plug. 2.03 mm (.080) dia., 12.70 mm (.500) long. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Insulation: Polypropylene. Accepts 2.03 mm (.080) dia. pin.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

IN LINE PIN TIP PLUG TO PIN JACK WITH STRESS RELIEF

NEW



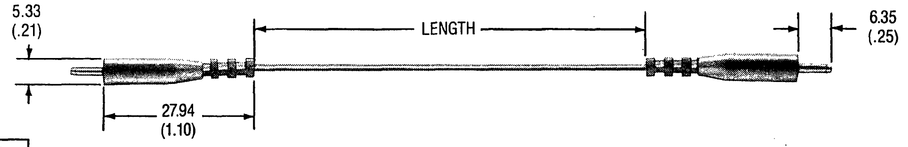
Model No.	Length	Net
5150-12*	304.8 (12.0)	4.95
5150-24*	609.6 (24.0)	4.95
5150-36*	914.4 (36.0)	4.95
5150-48*	1219.2 (48.0)	5.15
5150-60*	1524.0 (60.0)	5.35

1ST END: Pin tip plug. 2.03 mm (.080) dia., brass, gold plated. Insulation: PVC.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.
2ND END: Pin jack body: brass, nickel plated. Spring: beryllium copper, gold plated. Insulation: PVC. Accepts 2.03 mm (.080) dia. pin.

RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
COLORS: -0 Black, -2 Red.

6.35 mm (.25) PIN TIP PLUG PATCH CORD WITH STRESS RELIEF

NEW



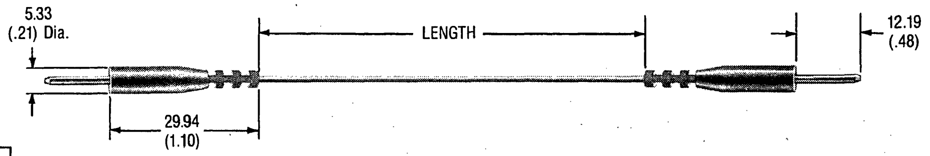
Model No.	Length	Net
5154-4 *	101.6 (4.0)	4.95
5154-8 *	203.2 (8.0)	4.95
5154-12*	304.8 (12.0)	4.95
5154-18*	457.2 (18.0)	4.95
5154-24*	609.6 (24.0)	4.95
5154-36*	914.4 (36.0)	4.95
5154-48*	1219.2 (48.0)	5.15
5154-60*	1524.0 (60.0)	5.35

1ST END: Pin tip plug. 2.03 mm (.080) dia., brass, gold plated. Insulation: PVC.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
COLORS: -0 Black, -2 Red.

PIN TIP PLUG PATCH CORD WITH STRESS RELIEF

NEW



Model No.	Length	Net
5153-4 *	101.6 (4.0)	4.95
5153-8 *	203.2 (8.0)	4.95
5153-12*	304.8 (12.0)	4.95
5153-18*	457.2 (18.0)	4.95
5153-24*	609.6 (24.0)	4.95
5153-36*	914.4 (36.0)	4.95
5153-48*	1219.2 (48.0)	5.15
5153-60*	1524.0 (60.0)	5.35

1ST END: Pin tip plug. 2.03 mm (.080) dia., brass, gold plated. Insulation: PVC.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Same as first end.
RATING: 3000 WVDC , 5 Amps, +50°C. (+122°F.) Max.
COLORS: -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

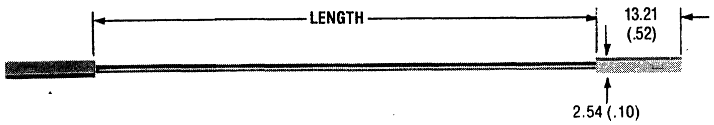
ITT POMONA ELECTRONICS

0.64 mm (.025) SQ. PIN/RECEPTACLE ACCESSORIES

SQUARE PIN RECEPTACLE BOTH ENDS

NEW

This patch cord is excellent for use as a jumper circuit for P.C. boards with 0.64 mm (.025) sq. pins. The improved molded design and contact insures longer life and a more positive connection.



Model No.	Length	Net
4741-6*	152.4 (6.0)	2.95
4741-12*	304.8 (12.0)	2.95
4741-24*	609.6 (24.0)	2.95
4741-36*	914.4 (36.0)	2.95
4741-48*	1219.2 (48.0)	3.15
4741-60*	1524.0 (60.0)	3.35

1ST END: 0.64 mm (.025) square pin receptacle. Phosphor bronze, gold plated. Insulation: ABS.
WIRE: 22 AWG, 19 x 36 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.

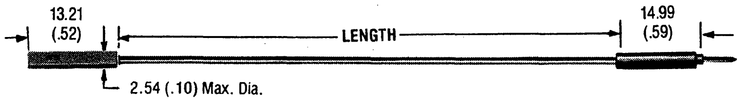
*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

SQUARE PIN RECEPTACLE TO SQUARE PIN

NEW

This patch cord can be used as a jumper circuit or as an extension patch cord with any of the other models on this and the next page having 0.64 mm (.025) sq. receptacles or pins.



Model No.	Length	Net
4992-6*	152.4 (6.0)	3.25
4992-12*	304.8 (12.0)	3.25
4992-24*	609.6 (24.0)	3.25
4992-36*	914.4 (36.0)	3.25
4992-48*	1219.2 (48.0)	3.45

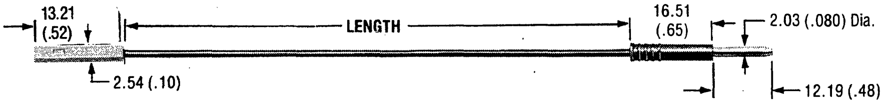
1ST END: 0.64 mm (.025) square pin receptacle. Phosphor bronze, gold plated. Insulation: ABS.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: 0.64 mm (.025) square pin. Copper, gold plated. Insulation: Polypropylene.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

SQUARE PIN RECEPTACLE TO 2.03 mm (.080) PIN TIP PLUG

NEW

This patch cord is used as a jumper between 0.64 mm (.025) sq. pins and equipment with 2.03 mm (.080) dia. pin jacks.



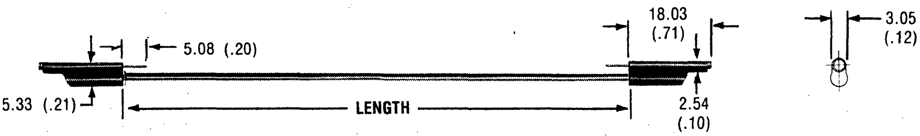
Model No.	Length	Net
4772-12*	304.8 (12.0)	3.15
4772-24*	609.6 (24.0)	3.15
4772-36*	914.4 (36.0)	3.15
4772-48*	1219.2 (48.0)	3.35
4772-60*	1524.0 (60.0)	3.55

1ST END: 0.64 mm (.025) square pin receptacle. Phosphor bronze, gold plated. Insulation: ABS.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Pin tip plug, 2.03 mm (.080) dia., brass, gold plated. Insulation: Polypropylene.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

STACKUP SQUARE PIN RECEPTACLE BOTH ENDS

This patch cord is used as a jumper for cards with 0.64 mm (.025) sq. pins. The novel stackup feature allows continuous daisy chains or multiple pin connections.



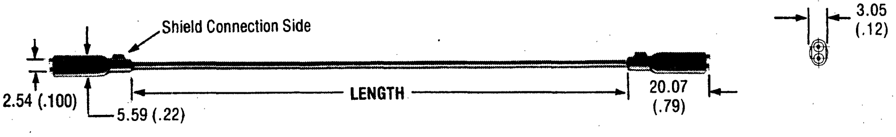
Model No.	Length	Net
4910-6*	152.4 (6.0)	5.50
4910-12*	304.8 (12.0)	5.50
4910-24*	609.6 (24.0)	5.50
4910-36*	914.4 (36.0)	5.50
4910-48*	1219.2 (48.0)	5.70

1ST END: Stackup 0.64 mm (.025) square pin. Phosphor bronze, gold plated. Receptacle body: brass. Spring: beryllium copper. Gold plated. Insulation: Polypropylene. Accepts 0.64 mm (.025) square pin.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.

2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

DUAL SQUARE PIN RECEPTACLE BOTH ENDS

This patch cord is used as a jumper circuit for P.C. boards with 0.64 mm (.025) sq. pins on 2.54 mm (.100) centers.



Model No.	Length	Net
4929-K-12	304.8 (12.0)	11.95
4929-K-24	609.6 (24.0)	11.95
4929-K-36	914.4 (36.0)	11.95
4929-K-48	1219.2 (48.0)	12.55

1ST END: Dual 0.64 mm (.025) square pin receptacle. Body: brass. Spring: beryllium copper. Gold plated. Insulation: PVC.

CABLE: Shielded coax., RG 174/U, 2.54 mm (.100) O.D.
2ND END: Same as first end.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.

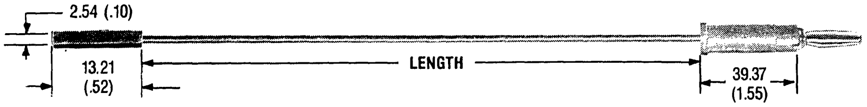
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

0.64 mm (.025) SQ. PIN RECEPTACLE ACCESSORIES

SQUARE PIN RECEPTACLE TO STANDARD BANANA PLUG

This patch cord is excellent for use as a jumper for circuit cards with 0.64 mm (.025) square pins and equipment with 4.22 mm (.166) banana jacks.



NEW

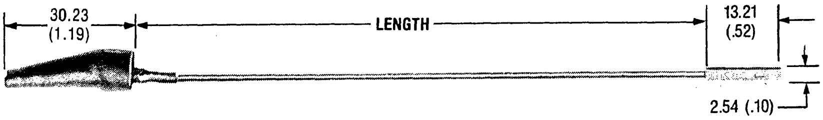
Model No.	Length	Net
4771-12*	304.8 (12.0)	3.50
4771-24*	609.6 (24.0)	3.50
4771-36*	914.4 (36.0)	3.50
4771-48*	1219.2 (48.0)	3.70
4771-60*	1524.0 (60.0)	3.90

1ST END: 0.64 mm (.025) square pin receptacle. Phosphor bronze, gold plated. Insulation: ABS.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.
2ND END: In-line banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.

RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGATOR CLIP TO SQUARE PIN RECEPTACLE

This patch cord is used as a jumper for circuit cards with 0.64 mm (.025) square pins.



NEW

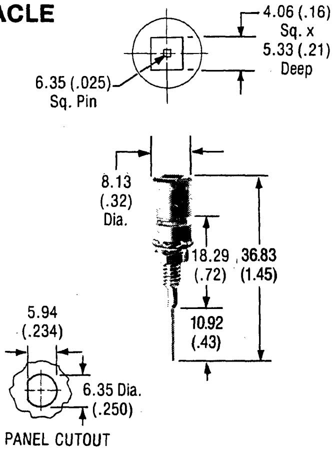
Model No.	Length	Net
4974-12*	304.8 (12.0)	3.50
4974-24*	609.6 (24.0)	3.50
4974-36*	914.4 (36.0)	3.50
4974-48*	1219.2 (48.0)	3.70
4974-60*	1524.0 (60.0)	3.90

1ST END: Minigator. Steel, cadmium plated. Insulation: Vinyl.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D.
2ND END: 0.64 mm (.025) square pin receptable. Phosphor bronze, gold plated. Insulation: ABS.

RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

SQUARE PIN RECEPTACLE PANEL MOUNT

UPPER: 0.64 mm (.025) square pin. Beryllium copper, gold plated. Threaded body: brass, nickel plated.
INSULATION: Polycarbonate molded to body. Polycarbonate panel insulator.
LOWER: 0.64 mm (.025) square pin. Beryllium copper, gold plated.
RATING: 1000 WVDC, 3 Amps, +115°C. (+239°F.) Max.

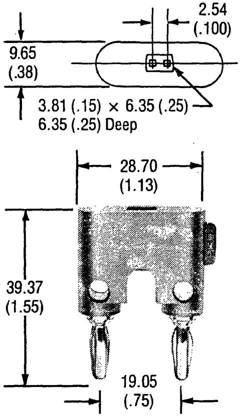


Model No.	Color
4972-0	Black
4972-2	Red

(Ten Per Pkg., unassembled) **NET 1.50 EA.**

DOUBLE 0.64 mm (.025) SQUARE PIN TO DOUBLE BANANA PLUG.

This adapter accepts either a dual 0.64 mm (.025) square pin receptacle on 2.54 mm (.100) spaced centers or a single 0.64 mm (.025) square pin receptacle and adapts them to a double banana plug. Mates with square pin receptacle types 4771, 4929.
UPPER: Dual 0.64 mm (.025) square pins on 2.54 (.100) center. Beryllium copper, gold plated.
INSULATION: ABS, black.
LOWER: Double banana plug. Body: brass. Spring: one heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia., banana jacks.
RATING: 1000 WVDC, 3 Amps, +50°C. (+122°F.) Max.



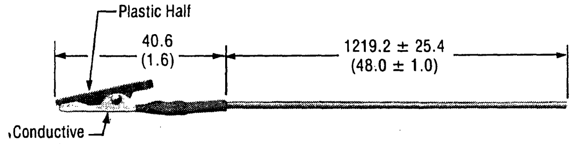
NEW

Model No.
5229

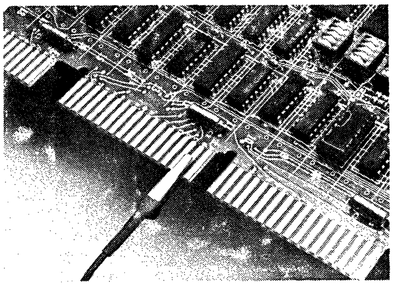
NET 5.95

P.C. BOARD TEST CLIP PATCH CORD

P.C. BOARD TEST CLIP PATCH CORD



(APPLICATION PHOTO)



This novel patch cord is conductive only on the lower half of this minigator clip. The upper half is insulated to keep the clip from contacting circuitry on the opposite side of the board. The patch cord is supplied with 1219.2 mm (48.0) of 20 AWG wire which can be cut to the desired length or be terminated with the desired plug or jack.
1ST END: Test clip. Upper half, polycarbonate. Lower half, steel, cadmium plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: None.
RATING: +105°C. (+221°F.) Max.

Model No.	Color
4931-48-0	Black
4931-48-2	Red

NET 4.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

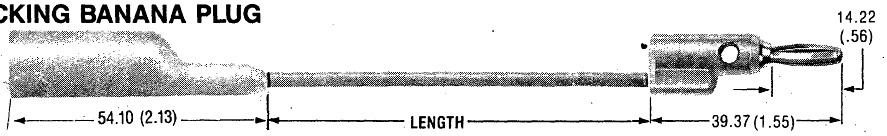
ITT POMONA ELECTRONICS

TEST LEADS & PATCH CORDS

ALLIGATOR CLIP TO STACKING BANANA PLUG

Adapts to equipment using standard banana jacks.

Model No.	Length	Net
1166-4 *	101.6 (4.0)	3.50
1166-8 *	203.2 (8.0)	3.50
1166-12*	304.8 (12.0)	3.50
1166-24*	609.6 (24.0)	3.50
1166-36*	914.4 (36.0)	3.50
1166-48*	1219.2 (48.0)	3.70
1166-60*	1524.0 (60.0)	3.90

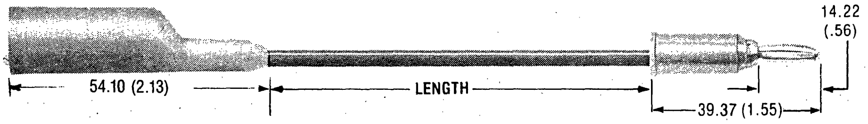


1ST END: Alligator clip. Steel, nickel plated. Insulation: Vinyl.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.,
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

ALLIGATOR CLIP LEAD TO BANANA PLUG

Adapts to equipment using standard banana jacks.

Model No.	Length	Net
1959-4 *	101.6 (4.0)	4.50
1959-8 *	203.2 (8.0)	4.50
1959-12*	304.8 (12.0)	4.50
1959-24*	609.6 (24.0)	4.50
1959-36*	914.4 (36.0)	4.50
1959-48*	1219.2 (48.0)	4.70
1959-60*	1524.0 (60.0)	4.90

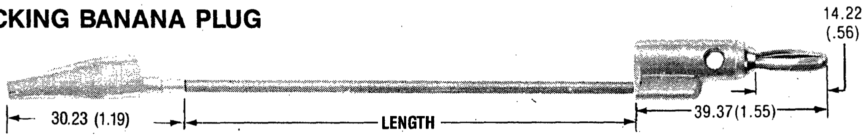


1ST END: Alligator clip. Steel, nickel plated. Insulation: Vinyl.
WIRE:s 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGATOR CLIP TO STACKING BANANA PLUG

Adapts to equipment using standard banana jacks.

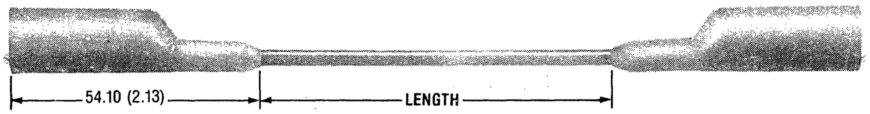
Model No.	Length	Net
3220-4 *	101.6 (4.0)	2.95
3220-8 *	203.2 (8.0)	2.95
3220-12*	304.8 (12.0)	2.95
3220-24*	609.6 (24.0)	2.95
3220-36*	914.4 (36.0)	2.95
3220-48*	1219.2 (48.0)	3.15
3220-60*	1524.0 (60.0)	3.35



1ST END: Minigator.* Steel, cadmium plated. Insulation: Vinyl.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jacks accepts standard banana plugs. Insulation: Polypropylene.
RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED ALLIGATOR CLIP LEAD

Model No.	Length	Net
AL-B-4 *	101.6 (4.0)	3.50
AL-B-8 *	203.2 (8.0)	3.50
AL-B-12*	304.8 (12.0)	3.50
AL-B-24*	609.6 (24.0)	3.50
AL-B-36*	914.4 (36.0)	3.50
AL-B-48*	1219.2 (48.0)	3.70
AL-B-60*	1524.0 (60.0)	3.90

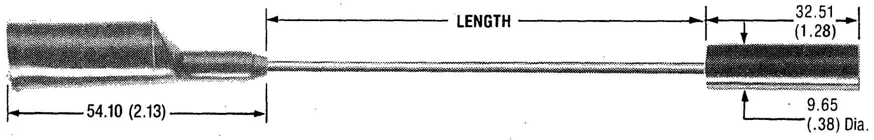


1ST END: Alligator clip. Steel, nickel plated. Insulation: Vinyl.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING; 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

ALLIGATOR CLIP TO BANANA JACK

Adapts to equipment using standard banana plugs.

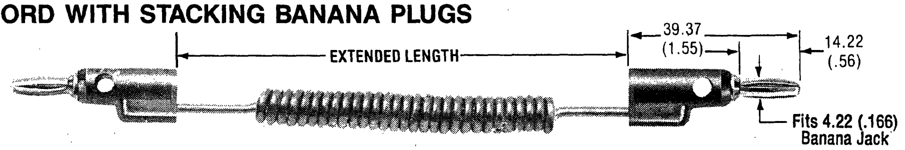
Model No.	Length	Net
4944-12*	304.8 (12.0)	4.50
4944-24*	609.6 (24.0)	4.50
4944-36*	914.4 (36.0)	4.50
4944-48*	1219.2 (48.0)	4.70
4944-60*	1524.0 (60.0)	4.90



1ST END: Alligator clip. Steel, nickel plated. Insulation: Vinyl.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: In-line banana jack. 4.22 mm (.166) dia., brass, nickel plated. Insulation: Polypropylene. Accepts standard banana plugs.
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

RETRACTILE (COILED) CORD WITH STACKING BANANA PLUGS

Permits the use of one size patch cord in place of many various lengths.



Model No.	Extended Length	Net
2484-36*	914.4 (36.0)	7.35
2484-48*	1219.2 (48.0)	8.25
2484-60*	1524.0 (60.0)	9.15

1ST END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
WIRE: 20 AWG, 42 x 36 t.c., rubber insulated, 3.68 mm (.145) O.D.
2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

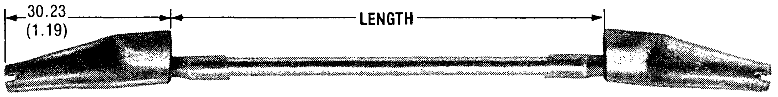
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

TEST LEADS & PATCH CORDS

INSULATED MINIGATOR CLIP LEAD — 18 AWG

Model No.	Length	Net
MG-B-4 *	101.6 (4.0)	3.50
MG-B-8 *	203.2 (8.0)	3.50
MG-B-12*	304.8 (12.0)	3.50
MG-B-24*	609.6 (24.0)	3.50
MG-B-36*	914.4 (36.0)	3.50
MG-B-48*	1219.2 (48.0)	3.70
MG-B-60*	1524.0 (60.0)	3.90

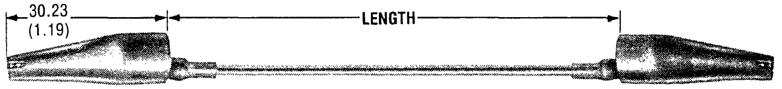


1ST END: Minigator. Steel, cadmium plated. Vinyl boot.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED MINIGATOR CLIP LEAD — 20 AWG

Model No.	Length	Net
1236-4 *	101.6 (4.0)	3.15
1236-8 *	203.2 (8.0)	3.15
1236-12*	304.8 (12.0)	3.15
1236-24*	609.6 (24.0)	3.15
1236-36*	914.4 (36.0)	3.15
1236-48*	1219.2 (48.0)	3.35
1236-60*	1524.0 (60.0)	3.55

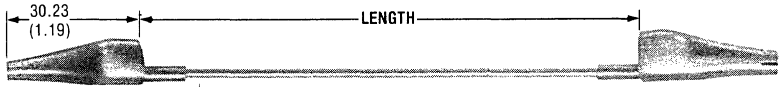


1ST END: Minigator. Steel, cadmium plated. Vinyl boot.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED MICROGATOR CLIP LEAD — 20 AWG

Model No.	Length	Net
1613-4 *	101.6 (4.0)	3.50
1613-8 *	203.2 (8.0)	3.50
1613-12*	304.8 (12.0)	3.50
1613-24*	609.6 (24.0)	3.50
1613-36*	914.4 (36.0)	3.50
1613-48*	1219.2 (48.0)	3.70
1613-60*	1524.0 (60.0)	3.90

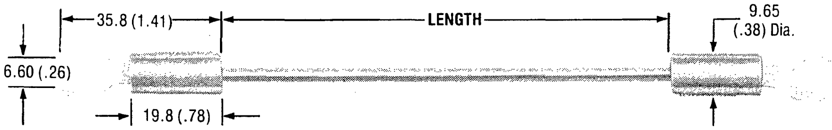


1ST END: Microgator. Copper. Vinyl boot.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D.

2ND END: Same as first end.
RATING: 3000 WVDC, 5 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG JUMPER

Model No.	Length	Net
1743-12*	304.8 (12.0)	3.95
1743-24*	609.6 (24.0)	3.95
1743-36*	914.4 (36.0)	3.95
1743-48*	1219.2 (48.0)	4.15
1743-60*	1524.0 (60.0)	4.35

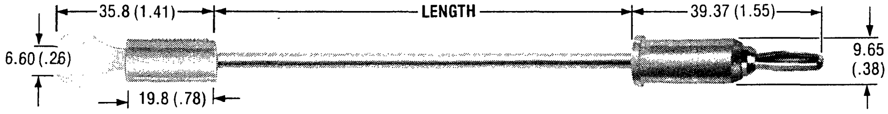


1ST END: Spade lug. Brass, nickel plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Same as first end.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO BANANA PLUG

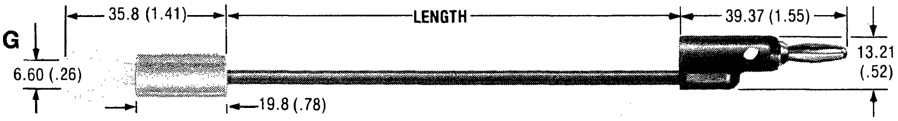
Model No.	Length	Net
1987-12*	304.8 (12.0)	4.15
1987-24*	609.6 (24.0)	4.15
1987-36*	914.4 (36.0)	4.15
1987-48*	1219.2 (48.0)	4.35
1987-60*	1524.0 (60.0)	4.55



1ST END: Spade lug. Brass, nickel plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene. Fits standard 4.22 mm (.166) dia. banana jacks.
RATING: 5000 WVDC, 7 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO STACKING BANANA PLUG

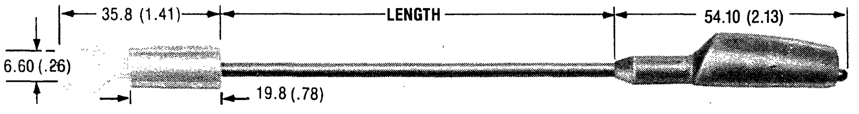
Model No.	Length	Net
1370-12*	304.8 (12.0)	4.15
1370-24*	609.6 (24.0)	4.15
1370-36*	914.4 (36.0)	4.15
1370-48*	1219.2 (48.0)	4.35
1370-60*	1524.0 (60.0)	4.55



1ST END: Spade lug. Brass, nickel plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.
2ND END: Stackup banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) banana jacks. Banana jack accepts standard banana plugs. Insulation: Polypropylene.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO ALLIGATOR CLIP

Model No.	Length	Net
1960-12*	304.8 (12.0)	3.75
1960-24*	609.6 (24.0)	3.75
1960-36*	914.4 (36.0)	3.75
1960-48*	1219.2 (48.0)	3.95
1960-60*	1524.0 (60.0)	4.15



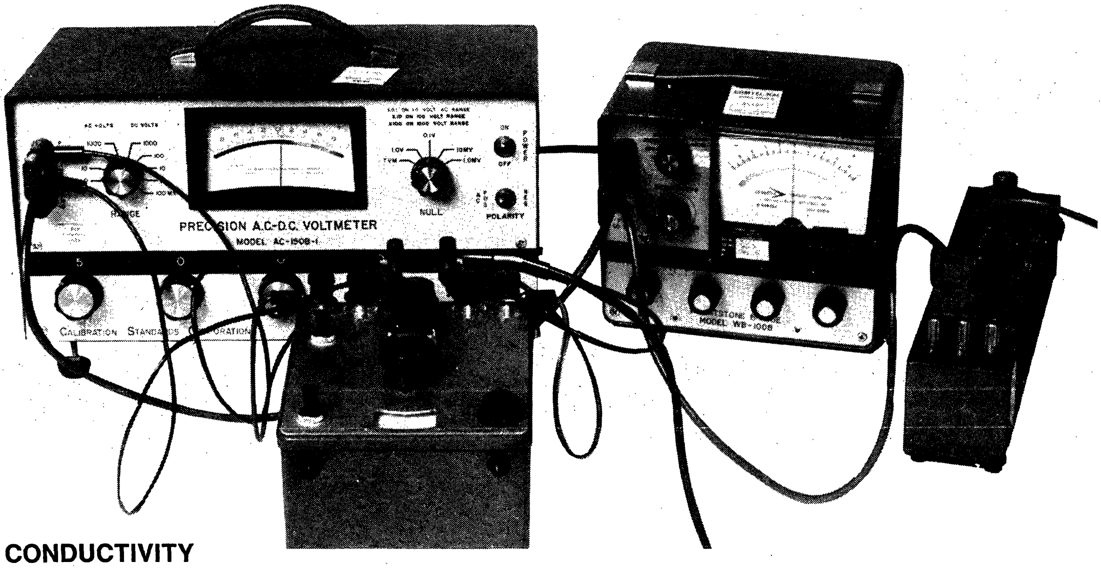
1ST END: Spade lug. Brass, nickel plated. Insulation: Polypropylene.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D.

2ND END: Alligator clip. Steel, nickel plated. Vinyl boot.
RATING: 5000 WVDC, 7 Amps, +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

LOW THERMAL E.M.F. SPADE LUG JUMPERS


PRECISION A.C.-D.C. VOLTMETER
MODEL AC-1508-1
CALIBRATION STANDARDS CORPORATION
MODEL WB-1008

HIGH CONDUCTIVITY ETP COPPER, ALLOY 110 LEADS FOR PRECISION MEASUREMENTS

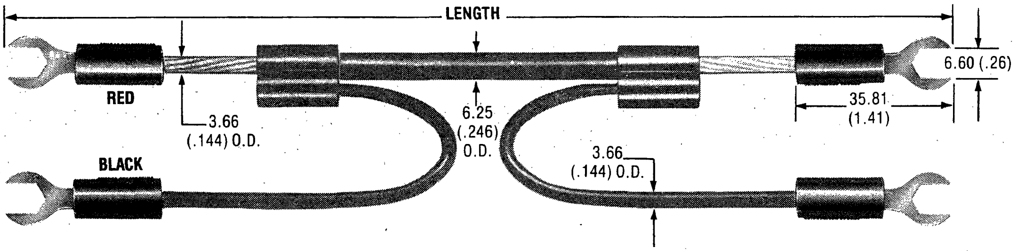
Pomona Electronics offers products for use in measurements when thermoelectric effects are significant sources of error. Comparators designed for use with the Kelvin-Varley voltage divider and microvolt leads were tested with primary standards laboratory equipment.

Thermoelectric voltages were not detected until the most sensitive galvanometer range was used.

Thermoelectric properties — High Conductivity ETP Copper, Alloy 110 gold plated spade lugs cold-staked to multi-stranded 12 gauge copper wire minimize thermoelectric effects — an absolute necessity for low voltage, high precision measurements.

Low resistance — 12 gauge multi-stranded copper wire results in extremely low cable resistance. Spade lugs plated with 15 micro inches gold for minimum contact resistance and minimum thermal EMF when using copper binding posts (less than 0.01 μV/°C).

HIGH CONDUCTIVITY ETP COPPER, ALLOY 110 SPADE LUGS, SHIELDED LEAD



Model No.	Length
1756-24	609.6 (24.0)
1756-48	1219.2 (48.0)

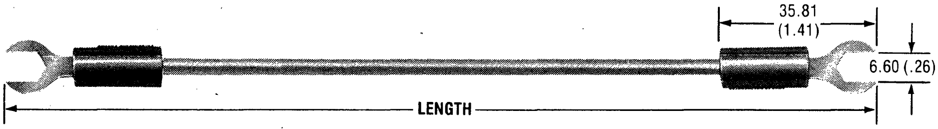
Designed for use with Kelvin-Varley voltage dividers where extreme precision is required for low voltage measurements. Features guard shield to effectively reduce shunt resistance.

1ST END: Spade lug. High conductivity ETP copper, Alloy 110, gold plated. Insulation: Polypropylene, one black and one red. Lead: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. Color: Black.

WIRE: 12 AWG, 7 x 38/36 bare copper, polyethylene insulation. Braid shield bare copper, PVC jacket. 6.25 mm (.246) O.D. per MIL-C-17/2A. Color: Black.
2ND END: Same as first end.
RATING: +55°C. (+131°F.) Max.

NET 28.95

HIGH CONDUCTIVITY ETP COPPER, ALLOY 110 SPADE LUG JUMPER



Model No.	Length	Net
1693-12*	304.8 (12.0)	10.95
1693-18*	457.2 (18.0)	10.95
1693-24*	609.6 (24.0)	10.95
1693-36*	914.4 (36.0)	10.95
1693-48*	1219.2 (48.0)	11.85
1693-60*	1524.0 (60.0)	12.75

Single High Conductivity ETP Copper, spade lug jumper used in applications where guard shield is not required.
1ST END: Spade lug. High conductivity ETP copper, Alloy 110, gold plated. Insulation: Polypropylene.

WIRE: 12 AWG, 7 x 38/36 bare copper, polyethylene insulated, PVC jacket, 3.66 mm (.144) O.D.
2ND END: Same as first end.
RATING: 2000 WVDC, 20 Amps, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

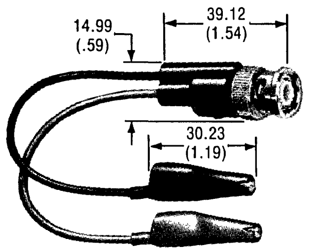
ITT POMONA ELECTRONICS

MOLDED BREAKOUTS

A series of "breakouts" designed to convert standard coaxial cables to test cables. By connecting proper breakout receptacle or plug to corresponding cable plug or receptacle, any standard coaxial cable becomes a test cable. All connections feature a tarnish resistant finish and black polypropylene molded to connector and wire.

BNC MALE TO TEST CLIPS

1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 18 AWG on alligator clips.20 AWG on minigator clips. One black and one red.
2ND END: Alligator clip. Steel, nickel plated. Minigators:* Steel, cadmium plated. Vinyl boots, one black and one red.
RATING; 500 VRMS, +50°C. (+122°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0)

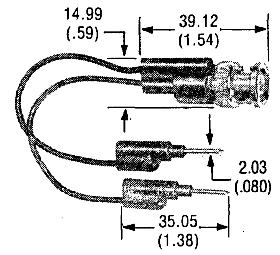


Model No.	
2885	(Alligator Clips)
2886	(Minigator Clips)

NET 8.95

BNC MALE TO STACKING PIN TIP PLUGS

1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Stackup pin tip plug. Gold plated. Accepts 2.03 mm (.080) dia. pin. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

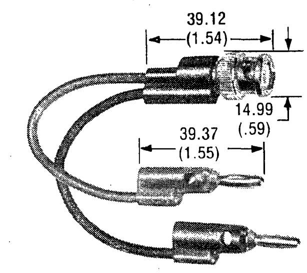


Model No.
3901

NET 9.95

BNC MALE TO STACKING BANANA PLUGS

1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. One black and one red.
2ND END: Stackup banana plug. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

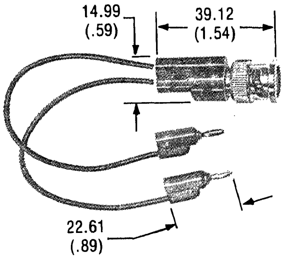


Model No.
3957

NET 8.95

BNC MALE TO MINIATURE STACKING BANANA PLUGS

1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Stackup miniature banana plugs. Gold plated. Fits miniature 2.64 mm (1.04) dia. banana jacks. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

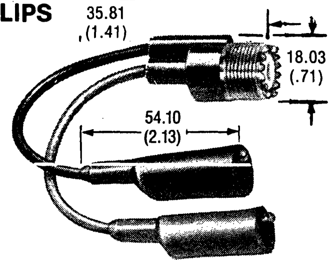


Model No.
4815

NET 9.50

UHF FEMALE TO TEST CLIPS

1ST END: UHF female. Tarnish resistant plated brass body. Gold plated beryllium copper contact.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. Color: One black and one red.
2ND END: Alligator clips. Steel, nickel plated. Vinyl boots, one black, one red.
RATING: 500 VRMS, +50°C. (+122°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

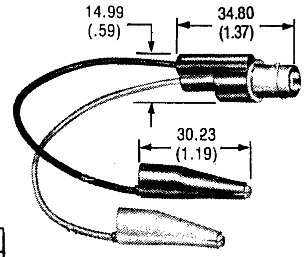


Model No.
2632

NET 12.95

BNC FEMALE TO TEST CLIPS

1ST END: BNC female. Tarnish resistant plated brass body. Beryllium copper center contact, gold plated.
WIRE: 18 AWG on alligator clips. 20 AWG on minigator clips. One black and one red.
2ND END: Alligator clip. Steel, nickel plated. Minigators. Steel, cadmium plated. Vinyl boots, one black, one red.
RATING: 500 VRMS, +50°C. (+122°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

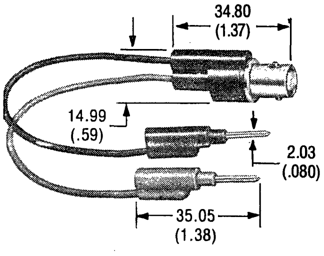


Model No.	
2630	(Alligator Clips)
2631	(Minigator Clips)

NET 6.95

BNC FEMALE TO STACKING PIN TIP PLUGS

1ST END: BNC female. Tarnish resistant plated brass body. Gold plated beryllium copper contact.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Stackup pin tip plugs. Gold plated brass body and beryllium copper spring. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

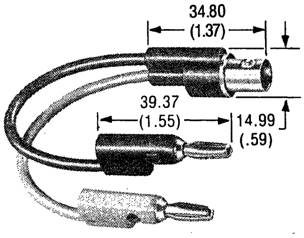


Model No.
3221

NET 7.50

BNC FEMALE TO STACKING BANANA PLUGS

1ST END: BNC female. Tarnish resistant brass body. Gold plated center contact.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. One black and one red.
2ND END: Stackup banana plugs. Fits standard 4.22 mm (.166) dia. banana jacks. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

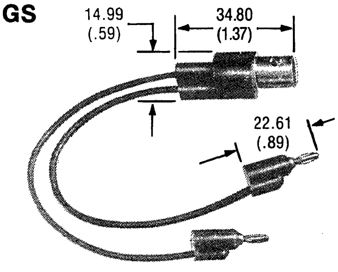


Model No.
3073

NET 6.50

BNC FEMALE TO MINIATURE STACKING BANANA PLUGS

1ST END: BNC female. Tarnish resistant brass body. Gold plated center contact.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Stackup miniature banana plugs. Gold plated. Fits miniature 2.64 mm (.104) dia. banana jacks. One black and one red.
RATING; 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
3966

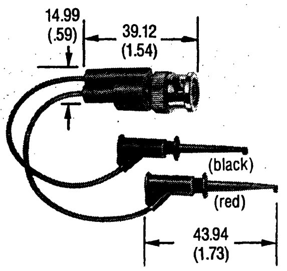
NET 7.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MOLDED BREAKOUTS

MICROGRABBER™ TEST CLIPS TO BNC MALE

This molded breakout converts a coaxial cable with a BNC female to a test cable with clips.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Micrograbber™ Gold plated, beryllium copper contacts. Glass filled nylon insulation. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

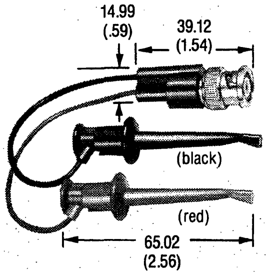


Model No. 5189

NET 10.95

MINIGRABBER™ TEST CLIPS TO BNC MALE

This molded breakout converts a coaxial cable with a BNC female to a test cable with clips.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Minigrabber™ Gold plated beryllium copper contacts. Glass filled nylon insulation. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

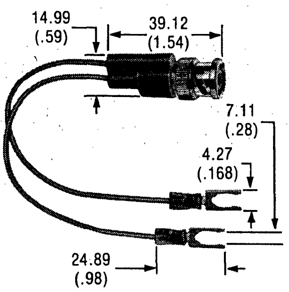


Model No. 3789

NET 8.25

BNC MALE TO #8 SPADE LUGS

This breakout allows a BNC cable to be used with equipment having #8 screw terminals, such as fanning strips, etc.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Spade lugs, copper, tin plated. One black and one red.
RATING: 500 VRMS, +50°C. (+122°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

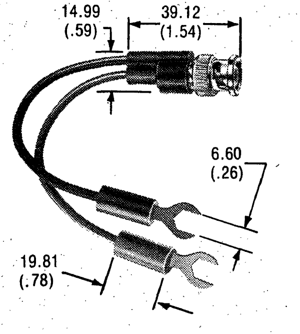


Model No. 5052

NET 6.95

BNC MALE TO SPADE LUGS

This breakout allows a BNC cable to be used with equipment having binding posts.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (1.44) O.D. One black and one red.
2ND END: Spade lugs, brass, nickel plated. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

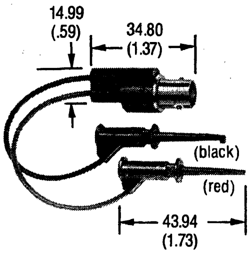


Model No. 5007

NET 9.50

MICROGRABBER™ TEST CLIPS TO BNC FEMALE

This molded breakout converts a coaxial cable with a BNC male to a test cable with clips.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Micrograbber™ Contacts, beryllium copper, gold plated. Glass filled nylon insulation. One black and one red.
RATING: 500 VRMS, +50°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0)

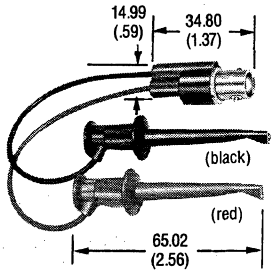


Model No. 5188

NET 8.50

MINIGRABBER™ TEST CLIPS TO BNC FEMALE

This molded breakout converts a coaxial cable with a BNC male to a test cable with clips.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Minigrabber™ Contacts, beryllium copper, gold plated. Glass filled nylon insulation. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

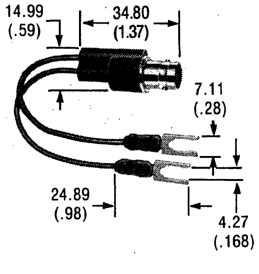


Model No. 3788

NET 6.95

BNC FEMALE TO #8 SPADE LUGS

This breakout allows a BNC cable to be used with equipment having #8 screw terminals, such as fanning strips, etc.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: Spade lugs, copper, tin plated. One black and one red.
RATING: 500 VRMS, +50°C. (+122°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

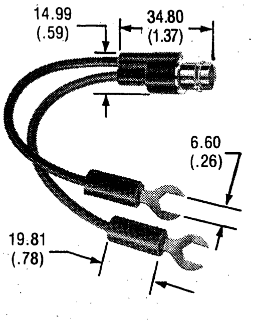


Model No. 5051

NET 5.50

BNC FEMALE TO SPADE LUGS

This breakout allows a BNC cable to be used with equipment having binding posts.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. One black and one red.
2ND END: Spade lugs, brass, nickel plated. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).



Model No. 5009

NET 7.95

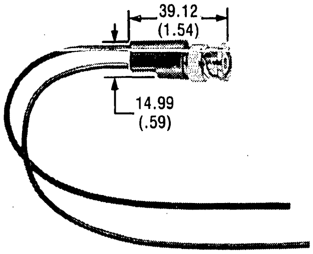
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MOLDED BREAKOUTS

BNC MALE TO 20 AWG LEADS

Attach your own breakout or wire directly to circuit board.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: None.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).

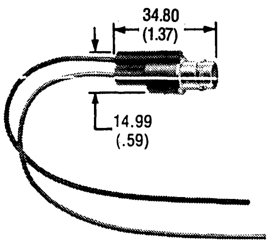


Model No.
4970

NET 5.95

BNC FEMALE TO 20 AWG LEADS

Attach your own breakout or wire directly to circuit board.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
2ND END: None.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).



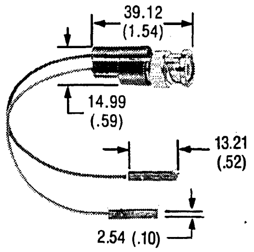
Model No.
4969

NET 4.35

BNC MALE TO 0.64 mm (.025) SQ. RECEPTACLES

NEW

This molded breakout can be attached directly to the 0.64 mm (.025) square pins on a circuit card.
1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D. One black and one red.
2ND END: 0.64 mm (.025) square pin receptacles, phosphor bronze, gold plated. ABS insulation. One black and one red.
RATING; 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).



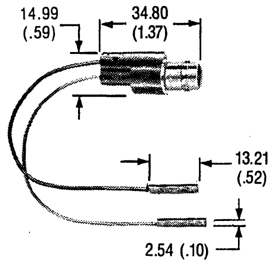
Model No.
5070

NET 6.95

BNC FEMALE TO 0.64 mm (.025) SQ. RECEPTACLES

NEW

This mold breakout can be attached directly to the 0.64 mm (.025) square pins on a circuit card.
1ST END: BNC female. Body, brass, tarnish resistant plated. Center contact, beryllium copper, gold plated.
WIRE: 22 AWG, 19 x 34 t.c., PVC insulated, 1.63 mm (.064) O.D. One black and one red.
2ND END: 0.64 mm (.025) square pin receptacles, phosphor bronze, gold plated. ABS insulation. One black and one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.
OVERALL LENGTH: 177.8 mm (7.0).



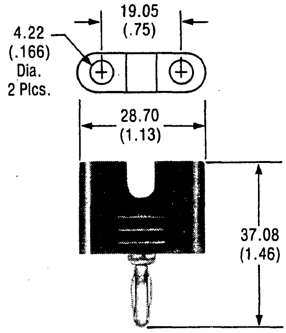
Model No.
5069

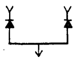
NET 5.95

BANANA PLUGS WITH ISOLATION DIODES

DOUBLE BANANA JACK TO BANANA PLUG WITH ISOLATION DIODES

Ideal for troubleshooting solid state TV's. Protects bench power supply or meter by preventing reverse power flow from TV.
UPPER: Banana jacks, 4.22 mm (.166) dia. on 19.05 mm (.750) centers. Brass, nickel plated. Accepts standard banana plugs.
CENTER: Isolation diodes, type IN4007.
LOWER: Single banana plug. Body, brass. Spring, one piece heat treated beryllium copper. Nickel plated.
INSULATION: ABS, green.
RATING: 1000 V Max., 1 Amp, +50°C. (+122°F.) Max.

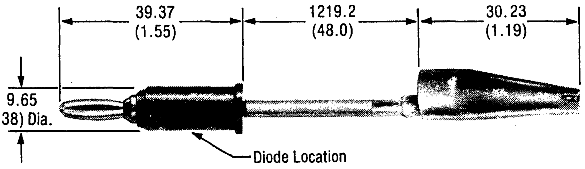




Model No.
5050

NET 6.95

BANANA PLUG TO MINIGATOR WITH ISOLATION DIODE



Ideal for troubleshooting solid state TV's Protects bench power or meter by preventing reverse power flow from TV.
1ST END: Banana plug. Body, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Insulation: Polypropylene, green. Fits standard 4.22 mm (.166) dia. banana jacks. Diode, type 1N4007.
WIRE: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D., green.
2ND END: Minigator, steel, cadmium plated. Vinyl boot.
RATING; 1000 Volts Max., 1 Amp, +50°C. (+122°F.) Max.

Model No.
5055-48

NET 6.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MICROWAVE COAXIAL CABLE ASSEMBLIES

These coaxial cables allow testing of frequencies up to 12.4 Gigahertz. Microwave coaxial cables can also be built to your specifications on special order. Just tell us the length you want, the cable you would prefer (it can even be your special cable) and what type of connectors. We will be happy to quote prices.

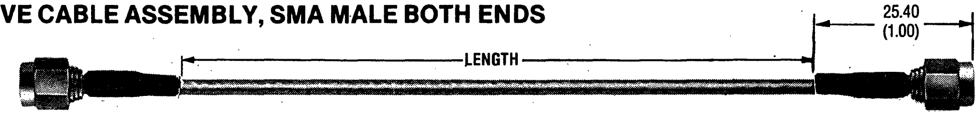
CABLE CHARACTERISTICS:

CABLE: RG 174/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.54 mm (.100)
Loss: .45 dB/ft. at 1.0 GHz Max.
Temperature: 85°C. (185°F.) Max.

CABLE: RG 316/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.49 mm (.098)
Loss: .56 dB/ft. at 3 GHz Max.
Temperature: 200°C. (392°F.) Max.

CABLE: RG 142 B/U
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 4.95 mm (.195)
Loss: .67 dB/ft. at 12.4 GHz
Temperature: 200°C (392°F.) Max.

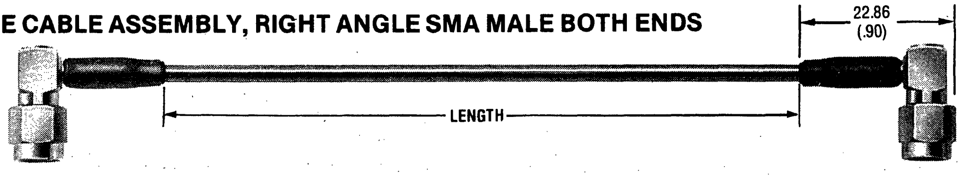
MICROWAVE CABLE ASSEMBLY, SMA MALE BOTH ENDS



Model No. RG 174/U	Net	Model No. RG 316/U	Net	Model No. RG 142 B/U	Net	Length
4846-K-24	32.25	4846-BB-24	35.15	4846-X-24	44.85	609.6 (24.0)
4846-K-48	33.45	4846-BB-48	41.15	4846-X-48	58.85	1219.2 (48.0)
4846-K-60	34.05	4846-BB-60	44.15	4846-X-60	65.85	1524.0 (60.0)

1ST END:
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
2ND END:
Same as 1st end

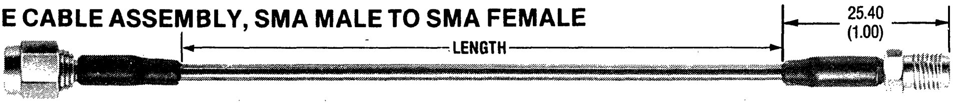
MICROWAVE CABLE ASSEMBLY, RIGHT ANGLE SMA MALE BOTH ENDS



Model No. RG 174/U	Net	Model No. RG 316/U	Net	Model No. RG 142B/U	Net	Length
4813-K-24	41.25	4813-BB-24	45.15	4813-X-24	57.95	609.6 (24.0)
4813-K-48	42.45	4813-BB-48	51.15	4813-X-48	71.95	1219.2 (48.0)
4813-K-60	43.05	4813-BB-60	54.15	4813-X-60	78.95	1524.0 (60.0)

1ST END:
Right angle, SMA male. Gold plated center conductor. Nickel plated stainless steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
2ND END:
Same as 1st end

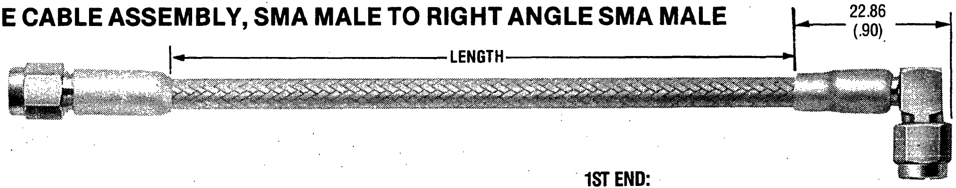
MICROWAVE CABLE ASSEMBLY, SMA MALE TO SMA FEMALE



Model No. RG 174/U	Net	Model No. RG 316/U	Net	Model No. RG 142 B/U	Net	Length
4528-K-24	34.50	4528-BB-24	37.25	4528-X-24	45.15	609.6 (24.0)
4528-K-48	35.10	4528-BB-48	40.25	4528-X-48	57.15	1219.2 (48.0)
4528-K-60	35.70	4528-BB-60	43.25	4528-X-60	64.15	1524.0 (60.0)

1ST END:
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
2ND END:
SMA, female. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.

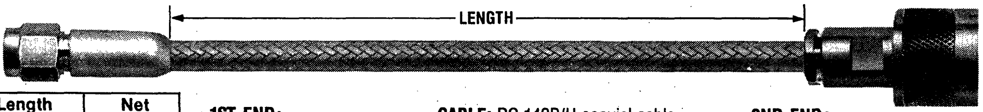
MICROWAVE CABLE ASSEMBLY, SMA MALE TO RIGHT ANGLE SMA MALE



Model No. RG 174/U	Net	Model No. RG 316/U	Net	Model No. RG 142B/U	Net	Length
4814-K-24	36.25	4814-BB-24	40.15	4814-X-24	51.45	609.6 (24.0)
4814-K-48	37.45	4814-BB-48	46.15	4814-X-48	65.45	1219.2 (48.0)
4814-K-60	38.05	4814-BB-60	49.15	4814-X-60	72.45	1524.0 (60.0)

1ST END:
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
2ND END:
Right angle, SMA male. Gold plated center conductor. Nickel plated stainless steel shell. Meets conditions of MIL-C-39012.

SMA MALE TO TYPE "N" MALE



Model No.	Length	Net
5058-X-12	304.8 (12.0)	33.95
5058-X-24	609.6 (24.0)	33.95
5058-X-36	914.4 (36.0)	39.95
5058-X-48	1219.2 (48.0)	45.95
5058-X-60	1524.0 (60.0)	51.95

1ST END:
SMA male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.

CABLE: RG 142B/U coaxial cable. (See top of page for characteristics.)

2ND END:
"N" male. Body, brass, tarnish resistant plated. Center contact brass, gold plated.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

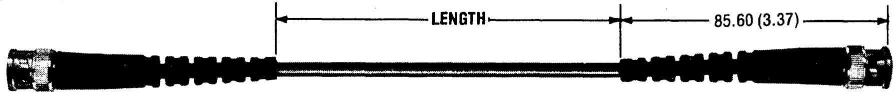
ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

STRESS-RELIEVED/WEATHERPROOFED CABLE ASSEMBLIES

The following cable assemblies with molded boot feature extra-long, stress-relieved PVC molded directly onto cable jacket and connector body. The advantages are stress protection against failure from excess bending, flexing & twisting and a weatherproof seal between cable and connector.

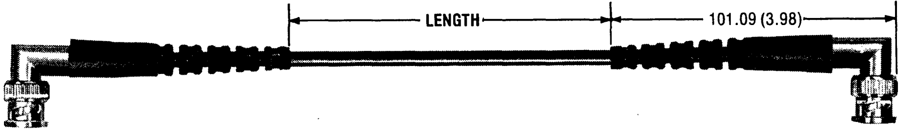
BNC MALE BOTH ENDS WITH STRESS RELIEF BOOT



RG58C/U 50 Ohm	Net	RG59B/U 75 Ohm	Net	RG174/U 50 Ohm	Net	RG62A/U 93 Ohm	Length	Net
2249-C-12	9.95	2249-E-12	11.25	2249-K-12	18.25	2249-M-12	304.8(12.0)	12.95
2249-C-24	9.95	2249-E-24	11.25	2249-K-24	18.25	2249-M-24	609.6(24.0)	12.95
2249-C-36	9.95	2249-E-36	11.25	2249-K-36	18.25	2249-M-36	914.4(36.0)	12.95
2249-C-48	10.55	2249-E-48	11.85	2249-K-48	18.85	2249-M-48	1219.2(48.0)	13.55
2249-C-60	11.15	2249-E-60	12.45	2249-K-60	19.45	2249-M-60	1524.0(60.0)	14.15
2249-C-72	11.75	2249-E-72	13.05				1828.8(72.0)	
2249-C-120	14.15						3048.0(120.0)	
2249-C-180	17.15						4572.0(180.0)	

1ST END: Crimp male BNC
CABLE: Shielded coaxial, RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15mm (.242) O.D.
RG62A/U 6.15mm (.242) O.D.
RG174/U 2.54mm (.100) O.D.
2ND END: Crimp male BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

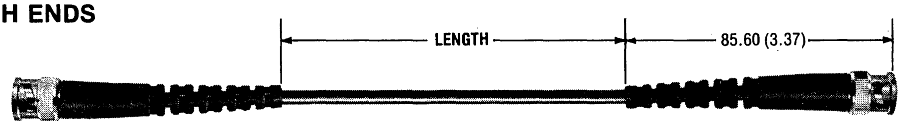
RIGHT ANGLE BNC MALE BOTH ENDS



RG58C/U 50 Ohm	Length	Net
4276-C-12	304.8 (12.0)	27.50
4276-C-24	609.6 (24.0)	27.50
4276-C-36	914.4 (36.0)	27.50
4276-C-48	1219.2 (48.0)	28.10
4276-C-60	1524.0 (60.0)	28.70

1ST END: Crimp male BNC, right angle.
CABLE: Shielded coaxial RG58C/U 4.95 mm (.195) O.D.
2ND END: Crimp male BNC, right angle.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

LOW-NOISE BNC MALE BOTH ENDS

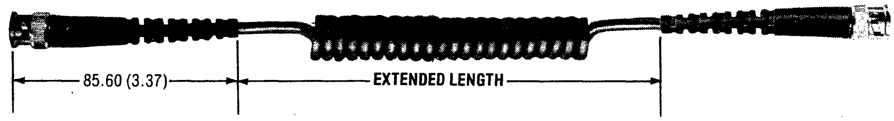


Belden 9223 50 Ohm	Length	Net
4964-SS-24	609.6 (24.0)	13.95
4964-SS-36	914.4 (36.0)	13.95
4964-SS-48	1219.2 (48.0)	15.45
4964-SS-60	1524.0 (60.0)	16.95

1ST END: Crimp male BNC.
CABLE: Low noise shielded coaxial, Belden 9223 o equivalent, 50 Ohm, 4.95 mm (.195) O.D.
2ND END: Crimp male BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

CRIMPED BNC ON RETRACTILE (COILED) CORD

This one size cord can be used in place of many varied lengths.



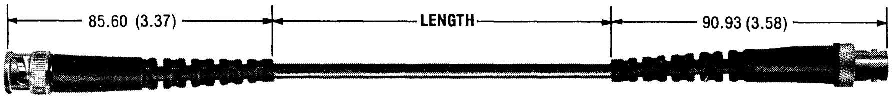
Model No.	Extended Length	Net
4487-48	1219.2 (48.0)	32.95
4487-60	1524.0 (60.0)	33.85
4487-72	1829.0 (72.0)	34.75

1ST END: Crimp male BNC.

CABLE: Shielded microphone. Center conductor 24 AWG (45 x 40), rubber insulated Spiral T.C. shield with neoprene jacket 4.32 mm (.170) O.D. Color: Black.

2ND END: Crimp male BNC.
RATING: +50°C. (+122°F.) Max.

BNC MALE TO BNC FEMALE



RG58C/U 50 Ohm	Length	Net
4524-C-12	304.8 (12.0)	14.95
4524-C-24	609.6 (24.0)	14.95
4524-C-36	914.4 (36.0)	14.95
4524-C-48	1219.2 (48.0)	15.55
4524-C-60	1524.0 (60.0)	16.15

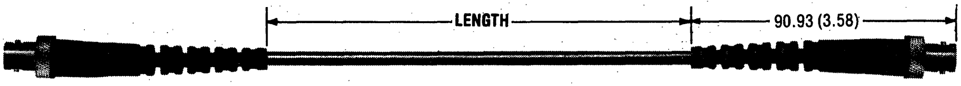
RG59B/U 75 Ohm	Length	Net
4524-E-12	304.8 (12.0)	18.95

1ST END: Crimp male BNC
CABLE: Shielded coaxial, RG58C/U 4.95mm (.195) O.D.
RG59B/U 6.15mm (.242) O.D.
2ND END: Crimp female BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

CABLE ASSEMBLIES

BNC FEMALE BOTH ENDS



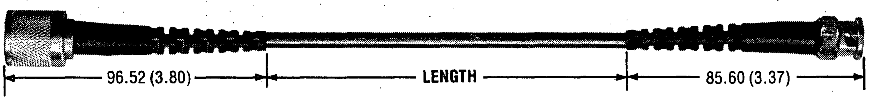
RG58C/U 50 Ohm	Length	Net
4277-C-12	304.8 (12.0)	15.95
4277-C-24	609.6 (24.0)	15.95
4277-C-36	914.4 (36.0)	15.95
4277-C-48	1219.2 (48.0)	16.55
4277-C-60	1524.0 (60.0)	17.15

1ST END:
Crimp female BNC.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
Crimp female BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

UHF MALE TO BNC MALE



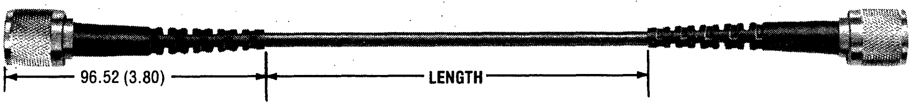
Model No.	Length	Net
1367-C-18	457.2 (18.0)	13.95
1367-C-24	609.6 (24.0)	13.95
1367-C-36	914.4 (36.0)	13.95
1367-C-48	1219.2 (48.0)	14.55
1367-C-60	1524.0 (60.0)	15.15

1ST END:
Crimp UHF male.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
Male BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

UHF MALE BOTH ENDS



Model No.	Length	Net
UHF-C-18	457.2 (18.0)	13.75
UHF-C-24	609.6 (24.0)	13.75
UHF-C-36	914.4 (36.0)	13.75
UHF-C-48	1219.2 (48.0)	14.35
UHF-C-60	1524.0 (60.0)	14.95

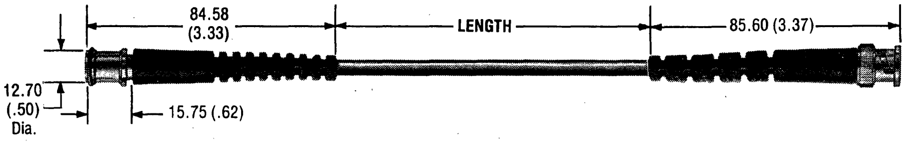
1ST END:
Crimp UHF, male.

CABLE:
Shielded coax., RG58C/U 4.95mm (1.95) O.D.

2ND END:
Crimp UHF, male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

TYPE "F" PUSH-ON TO BNC MALE

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc., where input into a BNC system is needed.



Model No.	Length	Net
4939-PP-24	609.6 (24.0)	12.95
4939-PP-36	914.4 (36.0)	12.95
4939-PP-48	1219.2 (48.0)	13.70
4939-PP-60	1524.0 (60.0)	14.45

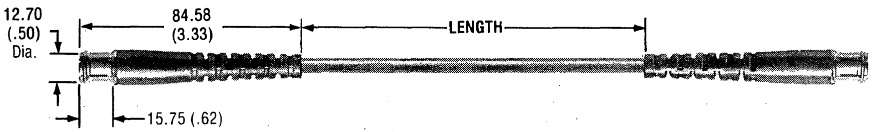
1ST END:
Push-on Type "F", male.

CABLE:
Shielded coax., RG59 type CATV cable. 6.15 mm (.242) O.D.

2ND END:
Crimp male BNC.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

TYPE "F" MALE PUSH-ON BOTH ENDS

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc.



1ST END:
Push-on Type "F," male.

CABLE:
Shielded coax., RG59 type CATV cable 6.15 mm (.242) O.D.

2ND END:
Push-on Type "F," male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

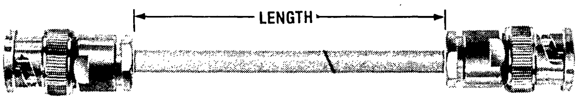
Model No.
4920-PP-48

NET 9.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

CABLE ASSEMBLIES

BNC MALE BOTH ENDS



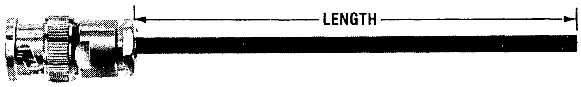
1ST END:
BNC, male.

CABLE:
Shielded mic. 4.95 mm (.195) O.D.
RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15 mm (.242) O.D.
RG62A/U 6.15 mm (.242) O.D.

2ND END:
BNC, male.
RATING:
500 VRMS.

Shielded Mic. Cable 50 Ohms	RG58C/U 50 Ohms	Net	RG59B/U 75 Ohms	RG62A/U 93 Ohms	Length	Net
BNC-B-18	BNC-C-18	10.95	BNC-E-18	BNC-M-18	457.2 (18.0)	11.95
BNC-B-24	BNC-C-24	10.95	BNC-E-24	BNC-M-24	609.6 (24.0)	11.95
BNC-B-30	BNC-C-30	10.95	BNC-E-30	BNC-M-30	762.0 (30.0)	11.95
BNC-B-36	BNC-C-36	10.95	BNC-E-36	BNC-M-36	914.4 (36.0)	11.95
BNC-B-48	BNC-C-48	11.55	BNC-E-48	BNC-M-48	1219.2 (48.0)	12.55
BNC-B-60	BNC-C-60	12.15	BNC-E-60	BNC-M-60	1524.0 (60.0)	13.15

BNC MALE ONE END ONLY



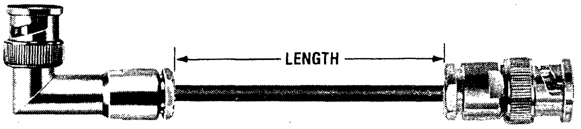
1ST END:
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15 mm (.242) O.D.

2ND END:
None.

RG58C/U	Net	RG59B/U	Length	Net
1661-C-12	7.95	1661-E-12	304.8 (12.0)	8.25
1661-C-24	7.95	1661-E-24	609.6 (24.0)	8.25
1661-C-36	7.95	1661-E-36	914.4 (36.0)	8.25
1661-C-48	8.55	1661-E-48	1219.2 (48.0)	8.85
1661-C-60	9.15	1661-E-60	1524.0 (60.0)	9.45

RIGHT ANGLE BNC TO BNC MALE



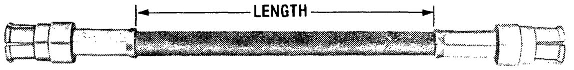
1ST END: BNC,
right angle male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.

2ND END:
BNC, male.

Model No.	Length	Net
1383-C-18	457.2 (18.0)	19.95
1383-C-24	609.6 (24.0)	19.95
1383-C-36	914.4 (36.0)	19.95
1383-C-48	1219.2 (48.0)	20.55
1383-C-60	1524.0 (60.0)	21.15

PUSH-ON BNC MALE BOTH ENDS



1ST END:
Crimp push-on
BNC, male.

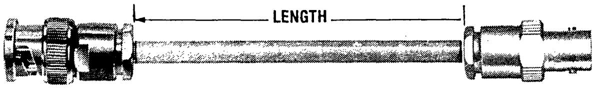
CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

2ND END:
Crimp push-on
BNC, male.

Model No.	Length	Net
3199-C-12	304.8 (12.0)	10.95
3199-C-24	609.6 (24.0)	10.95
3199-C-36	914.4 (36.0)	10.95
3199-C-48	1219.2 (48.0)	11.55
3199-C-60	1524.0 (60.0)	12.15

A test cable for rapid interconnection of equipment. Connector is pushed on and requires no twisting. Beryllium copper outer fingers maintain continuity of shield. Excellent for hard-to-get-at places.

BNC MALE TO BNC FEMALE



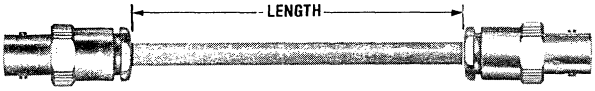
1ST END:
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

2ND END:
BNC, female.

Model No.	Length	Net
2223-C-12	304.8 (12.0)	11.75
2223-C-24	609.6 (24.0)	11.75
2223-C-36	914.4 (36.0)	11.75
2223-C-48	1219.2 (48.0)	12.35
2223-C-60	1524.0 (60.0)	12.95

BNC FEMALE BOTH ENDS



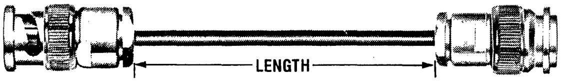
1ST END:
BNC, female.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

2ND END:
BNC, female.

Model No.	Length	Net
1808-C-12	304.8 (12.0)	12.50
1808-C-24	609.6 (24.0)	12.50
1808-C-36	914.4 (36.0)	12.50
1808-C-48	1219.2 (48.0)	13.10
1808-C-60	1524.0 (60.0)	13.70

BNC MALE TO TNC MALE



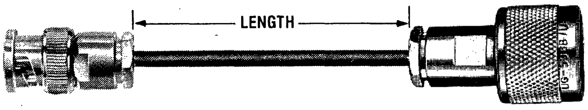
1ST END:
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

2ND END:
TNC, male.

Model No.	Length	Net
1948-C-12	304.8 (12.0)	16.95
1948-C-24	609.6 (24.0)	16.95
1948-C-36	914.4 (36.0)	16.95
1948-C-48	1219.2 (48.0)	17.55
1948-C-60	1524.0 (60.0)	18.15

BNC MALE TO SERIES "N" MALE



1ST END:
BNC,male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.

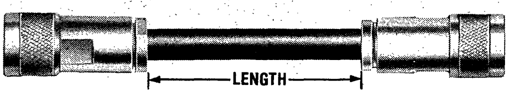
2ND END:
"N" male.

Model No.	Length	Net
1366-C-24	609.6 (24.0)	13.50
1366-C-36	914.4 (36.0)	13.50
1366-C-48	1219.2 (48.0)	14.10

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

CABLE ASSEMBLIES

SERIES "N" MALE BOTH ENDS



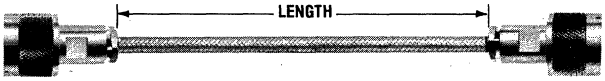
1ST END:
"N" male.

CABLE:
Coax., RG213/U 10.29 mm (.405) O.D. or RG214/U 10.80 mm (.425) O.D.

2ND END:
"N" male.
RATING: 1000 VRMS.

RG213/U	Net	Length	RG214/U	Net
1658-S-18	25.95	457.2 (18.0)	1658-T-18	33.95
1658-S-24	25.95	609.6 (24.0)	1658-T-24	40.95
1658-S-36	25.95	914.4 (36.0)	1658-T-36	47.95
1658-S-48	26.65	1219.2 (48.0)	1658-T-48	54.95
1658-S-60	27.35	1524.0 (60.0)	1658-T-60	61.95

SERIES "N" MALE BOTH ENDS



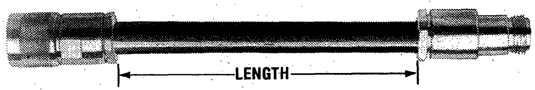
1ST END:
"N" male.

CABLE:
RG58C/U coaxial cable or RG142-B/U coaxial cable. (See top of page 112 for characteristics.

2ND END:
"N" male.

RG58C/U	Net	Length	RG142B/U	Net
2256-C-24	15.50	609.6 (24.0)	2256-X-24	37.25
2256-C-36	15.50	914.4 (36.0)	2256-X-36	43.25
2256-C-48	16.10	1219.2 (48.0)	2256-X-48	49.25
2256-C-60	16.70	1524.0 (60.0)	2256-X-60	55.25

SERIES "N" MALE TO "N" FEMALE



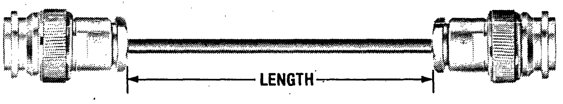
1ST END:
"N" male.

CABLE:
Coax., RG213/U 10.29 mm (.405) O.D. or RG214/U 10.80 mm (.425) O.D.

2ND END:
"N" female.
RATING: 1000 VRMS.

RG213/U	Net	Length	RG214/U	Net
4496-S-18	26.95	457.2 (18.0)	4496-T-18	54.95
4496-S-24	26.95	609.6 (24.0)	4496-T-24	61.95
4496-S-36	26.95	914.4 (36.0)	4496-T-36	68.95
4496-S-48	27.65	1219.2 (48.0)	4496-T-48	75.95
4496-S-60	28.35	1524.0 (60.0)	4496-T-60	82.95

TNC MALE BOTH ENDS



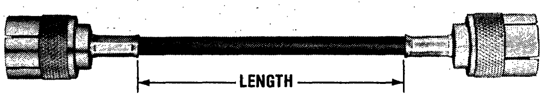
1ST END:
TNC, male.

CABLE:
RG58C/U coaxial cable or RG142B/U coaxial cable. (See top of page 112 for characteristics.

2ND END:
TNC, male.
RATING: 500 VRMS.

RG58C/U	Net	Length	RG142BU	Net
1944-C-12	19.95	304.8 (12.0)	1944-X-12	31.25
1944-C-18	19.95	457.2 (18.0)		
1944-C-24	19.95	609.6 (24.0)	1944-X-24	38.25
1944-C-36	19.95	914.4 (36.0)	1944-X-36	45.25
1944-C-48	20.55	1219.2 (48.0)	1944-X-48	52.25
1944-C-60	21.15	1524.0 (60.0)	1944-X-60	59.25

PUSH ON UHF MALE BOTH ENDS



1ST END:
Crimp push-on UHF, male.

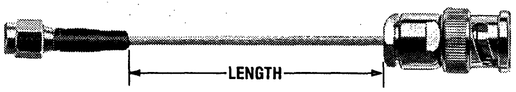
CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
Crimp push-on UHF, male.
RATING: 500 VRMS.

Model No.	Length
3137-C-36	914.4 (36.0)

NET 28.50

SMA MALE TO BNC MALE



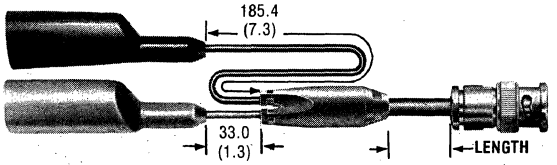
1ST END:
SMA male.

CABLE: RG 316/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.49 mm (.098)
Loss: .56 dB/ft. at 3 GHz Max.
Temperature: 200°C. (392°F.) Max.

2ND END:
BNC male.

Model No.	Length	Net
4935-BB-24	609.6 (24.0)	48.95
4935-BB-48	1219.2 (48.0)	54.95
4935-BB-60	1524.0 (60.0)	59.95

ALLIGATOR CLIPS TO BNC MALE



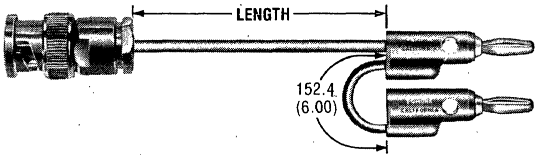
1ST END:
Alligator clips, steel. Insulators, vinyl: one black, and one red. +50°C. (+122°F.) Max.

CABLE:
Shielded mic. or shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation: Polyvinyl chloride.

2ND END:
BNC, male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

Shielded Mic. Cable	Shielded Coax. Cable	Length	Net
AL-B-BNC-18	AL-C-BNC-18	457.2 (18.0)	12.95
AL-B-BNC-24	AL-C-BNC-24	609.6 (24.0)	12.95
AL-B-BNC-30	AL-C-BNC-30	762.0 (30.0)	12.95
AL-B-BNC-36	AL-C-BNC-36	914.4 (36.0)	12.95
AL-B-BNC-48	AL-C-BNC-48	1219.2 (48.0)	13.55
AL-B-BNC-60	AL-C-BNC-60	1524.0 (60.0)	14.15

BNC MALE TO SINGLE BANANA PLUGS



1ST END:
BNC, male.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
Single banana plugs. Color: one black, one red.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

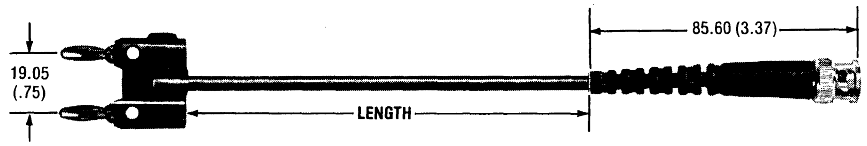
Model No.	Length	Net
2241-C-18	457.2 (18.0)	14.95
2241-C-24	609.6 (24.0)	14.95
2241-C-36	914.4 (36.0)	14.95
2241-C-48	1219.2 (48.0)	15.55

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

DOUBLE BANANA PLUG TO BNC MALE



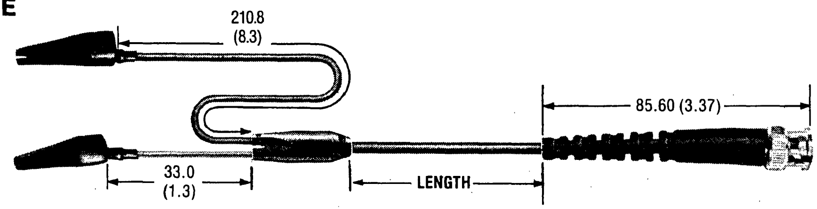
Model No.	Length	Net
4530-C-18	457.2 (18.0)	11.95
4530-C-24	609.6 (24.0)	11.95
4530-C-36	914.4 (36.0)	11.95
4530-C-48	1219.2 (48.0)	12.55
4530-C-60	1524.0 (60.0)	13.15

1ST END: Double banana plug, on 19.05 mm (.750) centers.

CABLE: Shielded coaxial, RG58C/U 4.95 mm (.195) O.D.

2ND END: Crimp male BNC. **RATING:** 500 VRMS, +50°C. (+122°F.) Max.

MINIGATOR CLIPS TO BNC MALE



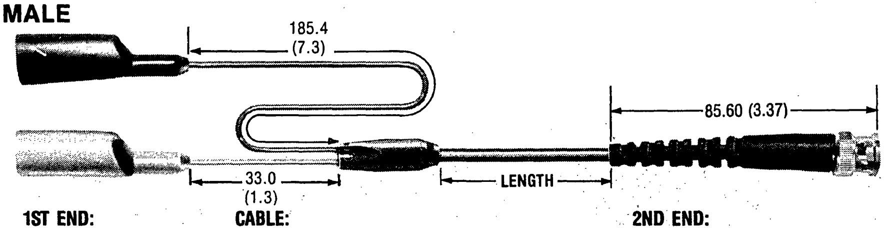
Model No.	Length	Net
4532-C-18	457.2 (18.0)	11.75
4532-C-24	609.6 (24.0)	11.75
4532-C-30	762.0 (30.0)	11.75
4532-C-36	914.4 (36.0)	11.75
4532-C-48	1219.2 (48.0)	12.35
4532-C-60	1524.0 (60.0)	12.95

1ST END: Minigator clips, steel, cadmium plated. Insulators, vinyl: Black-red.

CABLE: Shielded coaxial, RG58C/U 4.95 mm (.195) O.D. Y-mold insulation; PVC, black.

2ND END: Crimp male BNC. **RATING:** 500 VRMS, +50°C. (+122°F.) Max.

ALLIGATOR CLIPS TO BNC MALE



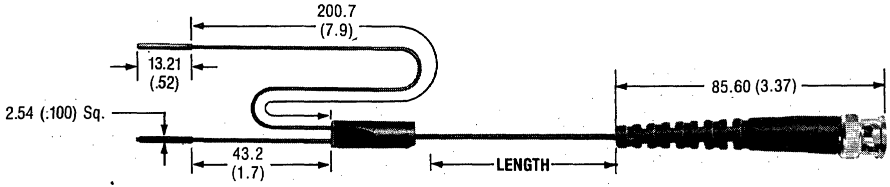
Model No.	Length	Net
4531-C-18	457.2 (18.0)	11.50
4531-C-24	609.6 (24.0)	11.50
4531-C-30	762.0 (30.0)	11.50
4531-C-36	914.4 (36.0)	11.50
4531-C-48	1219.2 (48.0)	12.10
4531-C-60	1524.0 (60.0)	12.70

1ST END: Alligator clips, steel, nickel plated. Insulators, vinyl: Black-red.

CABLE: Shielded coaxial, RG58C/U 4.95 mm (.195) O.D. Y-mold insulation; PVC, black.

2ND END: Crimp male BNC. **RATING:** 500 VRMS, +50°C. (+122°F.) Max.

0.635 mm (.025) SQUARE RECEPTACLES TO BNC MALE



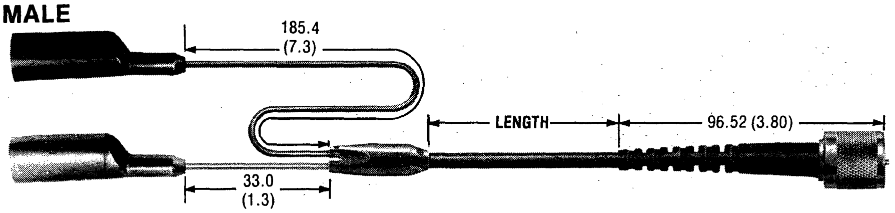
Model No.	Length	Net
4945-K-18	457.2 (18.0)	13.50
4945-K-24	609.6 (24.0)	13.50
4945-K-36	914.4 (36.0)	13.50
4945-K-48	1219.2 (48.0)	14.10
4945-K-60	1524.0 (60.0)	14.70

1ST END: 0.635 mm (.025) square pin receptacles, beryllium copper center contacts.

CABLE: Shielded coaxial, RG174/U 2.54 mm (.100) O.D. Y-mold insulation; PVC, black.

2ND END: Crimp male BNC. **RATING:** 500 VRMS, +50°C. (+122°F.) Max.

ALLIGATOR CLIPS TO UHF MALE



Model No.	Length	Net
AL-C-UHF-36	914.4 (36.0)	14.50
AL-C-UHF-60	1524.0 (60.0)	15.70

1ST END: Alligator clips, steel, cadmium plated. Insulators, vinyl: Black-red.

CABLE: Shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation; PVC, black.

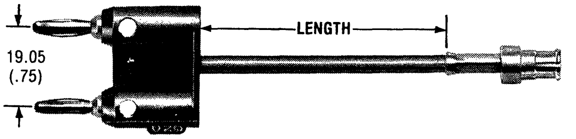
2ND END: Crimp, UHF, male. **RATING:** 500 VRMS, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

DOUBLE BANANA PLUG TO "PUSH ON" BNC MALE



1ST END:
Double banana plug, on 19.05 mm (.750) centers. Insulation; polyethylene, black.

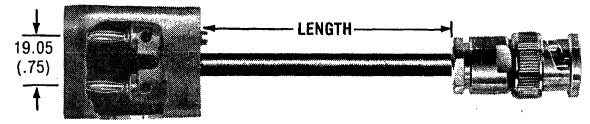
CABLE:
Shielded coax. RG58C/U 4.95 mm (.195) O.D.

2ND END:
Crimp "PUSH ON" BNC, male.

A test cable for rapid interconnection of equipment. Connector is pushed on and requires no twisting. Beryllium copper outer fingers maintain continuity of shield. Excellent for hard-to-get-at-places.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

Model No.	Length	Net
4767-C-24	609.6 (24.0)	11.50
4767-C-36	914.4 (36.0)	11.50
4767-C-48	1219.2 (48.0)	12.10
4767-C-60	1524.0 (60.0)	12.70

SHIELDED DOUBLE PLUG TO BNC MALE



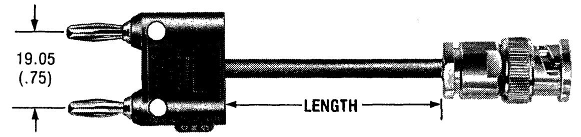
1ST END:
Shielded double plug, on 19.05 mm (.750) centers. Black anodized aluminum.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
BNC, male.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

Model No.	Length	Net
1555-C-36	914.4 (36.0)	19.95
1555-C-60	1524.0 (60.0)	21.15

DOUBLE BANANA PLUG TO BNC MALE



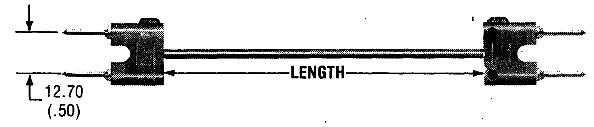
1ST END:
Double banana plug, on 19.05 mm (.750) centers.

CABLE:
Shielded microphone or Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END:
BNC, male.
RATING: 500 VRMS, +55°C. (+131°F.) Max.

Shielded Mic. Cable	Shielded Coax. Cable	Length	Net
2BB-BNC-18	2BC-BNC-18	457.2 (18.0)	11.95
2BB-BNC-24	2BC-BNC-24	609.6 (24.0)	11.95
2BB-BNC-30	2BC-BNC-30	762.0 (30.0)	11.95
2BB-BNC-36	2BC-BNC-36	914.4 (36.0)	11.95
2BB-BNC-48	2BC-BNC-48	1219.2 (48.0)	12.55
2BB-BNC-60	2BC-BNC-60	1524.0 (60.0)	13.15

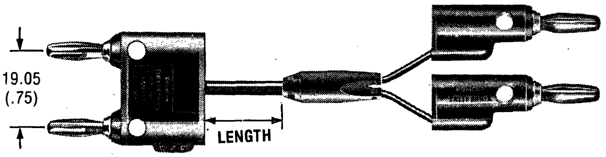
MINIATURE — DOUBLE PIN TIP PLUG BOTH ENDS



Model No.	Length	Net
4774-K-12	304.8 (12.0)	9.25
4774-K-24	609.6 (24.0)	9.25
4774-K-36	914.4 (36.0)	9.25
4774-K-48	1219.2 (48.0)	9.85
4774-K-60	1524.0 (60.0)	10.45

1ST END: Miniature double pin tip plug.
CABLE: Shielded coax., RG174/U
2ND END: Same as 1st end.
RATING: 1400 VRMS, +55°C. (+131°F.) Max.

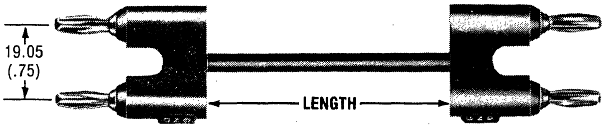
DOUBLE PLUG TO STACKING BANANA PLUGS



1ST END: Double banana plug on 19.05 mm (.750) centers.
CABLE: Two Cond., twisted pair, 18 AWG 6.35 mm (.250) O.D. PVC Y-mold.
2ND END: Single banana plugs. One black and one red.
RATING: 300 V AC, +50°C. (+122°F.) Max.

Model No.	Length	Net
1368-A-18	457.2 (18.0)	14.95
1368-A-24	609.6 (24.0)	14.95
1368-A-30	762.0 (30.0)	14.95
1368-A-36	914.4 (36.0)	14.95
1368-A-48	1219.2 (48.0)	15.55
1368-A-60	1524.0 (60.0)	16.15

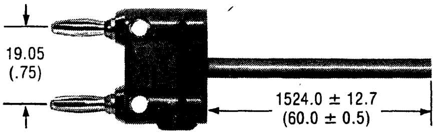
NON-STACKING DOUBLE PLUG BOTH ENDS



This non-stacking cable is excellent for those applications requiring no exposed metal when inserted. There is no side or top stacking.
1ST END: Double banana plug.
CABLE: Two cond., twisted pair, 6.35 mm (.250) O.D. or shielded coax. RG 58C/U, 4.95 mm (.195) O.D.
2ND END: Same as first end.
RATING: 1400 VRMS, +55°C. (+131°F.) Max.

Two Cond. Twisted Pr.	Net	RG58C/U	Length	Net
4059-A-36	13.95	4059-C-36	914.4 (36.0)	11.95
4059-A-48	14.55	4059-C-48	1219.2 (48.0)	12.55
4059-A-60	15.15	4059-C-60	1524.0 (60.0)	13.15

DOUBLE BANANA PLUG ONE END ONLY



1ST END:
Double banana plug, on 19.05 mm (.750) centers.

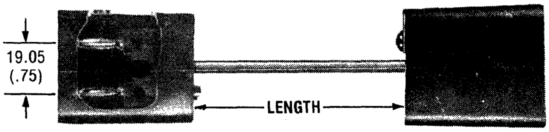
CABLE:
Two cond., twisted pair, 6.35 mm (.250) O.D. or shielded coax RG58C/U 4.95 mm (.195) O.D.

2ND END:
None.

Two Cond. Twisted Pr.	RG58C/U	Length
1326-A-60	1326-C-60	1524.0 (60.0)

NET 8.95

SHIELDED DOUBLE PLUG BOTH ENDS



1ST END: Shielded double banana plug on 19.05 mm (.750) centers. Shield, black anodized aluminum.

CABLE: Shielded coax., RG58C/U 4.95 mm (.195) O.D.

2ND END: Same as 1st
RATING: 1400 VRMS, +55°C. (+131°F.) Max.

Model No.	Length
1550-C-36	914.4 (36.0)

NET 25.50

All dimensions are shown in millimeters (inches)
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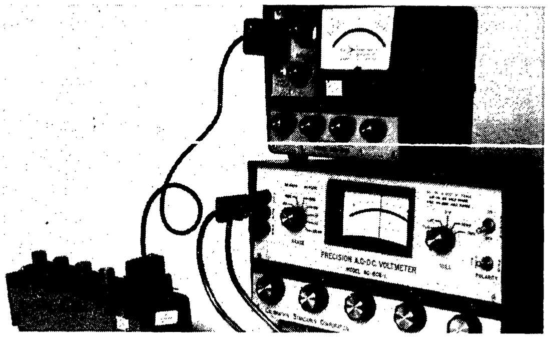
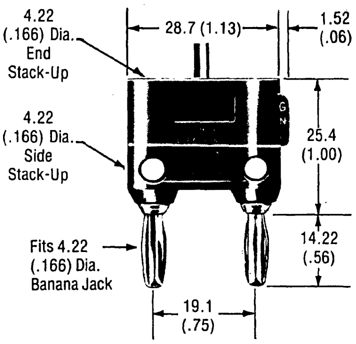
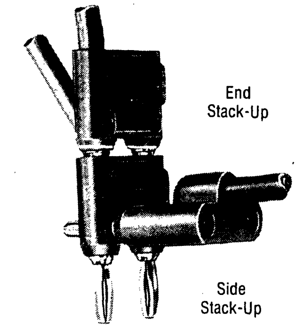
19.05 mm (.750) DOUBLE BANANA PLUG PATCH CORDS







These patch cords are indispensable for bridge transformer connection, three terminal capacitor measurements and general hookup for two wire system. Parallel connections can be made in side or end stackup.

FEATURES:

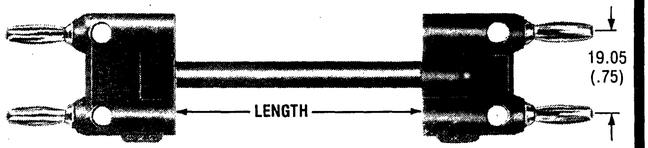
- Rounded spring design results in maximum contact area.
- GND., clearly molded on plug body and shell.
- Solder-bonded noise-free connections.

SPECIFICATIONS:

- Spring: one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body; brass per QQ-B-626, alloy 360.
- Nickel plated per QQ-N-290, Class 2.

STANDARD DOUBLE PLUG BOTH ENDS

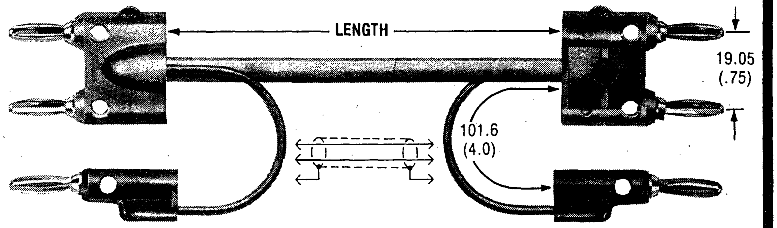
1ST END: Double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.
CABLE: Two cond. twisted pair 6.35 mm (.250) O.D. Shielded mic. 4.95 mm (.195) O.D. RG 58 C/U 4.95 mm (.195) O.D. RG 59 B/U 6.15 mm (.242) O.D.
2ND END: Same as first end.
RATING: +55°C. (+131°F.) Max.



Two Cond. Twisted Pr.	Net	Shielded Mic. Cable	Net	RG58C/U	Net	RG59B/U	Length	Net
2BA-18	11.95	2BB-18	10.25	2BC-18	9.95	2BE-18	457.2 (18.0)	10.25
2BA-24	11.95	2BB-24	10.25	2BC-24	9.95	2BE-24	609.6 (24.0)	10.25
2BA-36	11.95	2BB-36	10.25	2BC-36	9.95	2BE-36	914.4 (36.0)	10.25
2BA-48	12.55	2BB-48	10.85	2BC-48	10.55	2BE-48	1219.2 (48.0)	10.85
2BA-60	13.15	2BB-60	11.45	2BC-60	11.15	2BE-60	1524.0 (60.0)	11.45

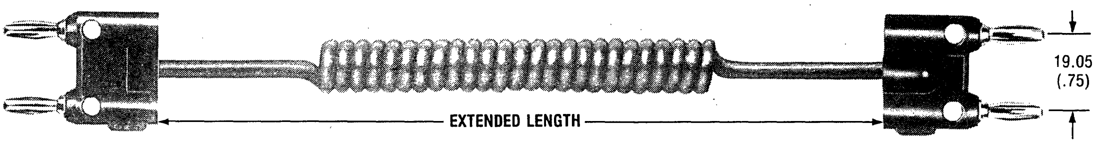
TWO COND. SHIELDED BALANCED LINE

1ST END: Double banana plug and single banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Double banana plug insulation, polyethylene, gray. Single banana plug insulation, polypropylene, green. Lead: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D., green
CABLE: Two conductor shielded microphone, 22 AWG, 5.87 mm (.231) O.D., gray.
2ND END: Same as first end.
RATING: 1000 WVDC, +55°C. (+131°F.) Max.



Model No.	Length	Net
1167-18	457.2 (18.0)	22.95
1167-24	609.6 (24.0)	22.95
1167-30	762.0 (30.0)	22.95
1167-36	914.4 (36.0)	22.95
1167-48	1219.2 (48.0)	23.55
1167-60	1524.0 (60.0)	24.15

RETRACTILE (COILED) PATCH CORD WITH DOUBLE BANANA PLUGS BOTH ENDS



Model No.	Extended Length	Net
3864-48	1219.2 (48.0)	18.50
3864-60	1524.0 (60.0)	19.40
3864-72	1829.0 (72.0)	20.30

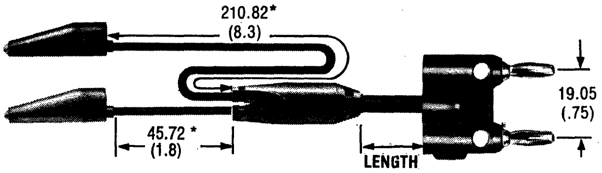
1ST END: Double banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Insulation; Polystyrene.
WIRE: 24 AWG, 45 x 40 t.c., rubber insulated, 4.32 mm (.170) O.D. Color: Black.
2ND END: Same as first end.
RATING: +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

MINIGATOR CLIPS TO DOUBLE BANANA PLUG



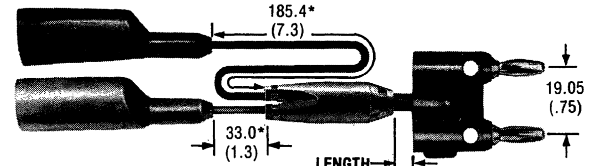
1ST END:
Minigator clips, steel, cadmium plated. Vinyl boots: One black, and one red. *Breakout lengths on 2BA-MG are each 109.2 mm (4.3) long.

CABLE:
Two cond., twisted pair, 6.35 mm (.250) O.D., shielded mic. 5.87 mm (.231) O.D. or shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation, PVC.

2ND END:
Double banana plug, on 19.05 mm (.750) centers.
RATING: +50°C. (+122°F.) Max.

Two Cond. Twisted Pair	Shielded Mic. Cable	Shielded Coax. Cable	Length	Net
2BA-MG-18		2BC-MG-18	457.2 (18.0)	14.75
2BA-MG-24		2BC-MG-24	609.6 (24.0)	14.75
2BA-MG-30		2BC-MG-30	762.0 (30.0)	14.75
2BA-MG-36	2BB-MG-36	2BC-MG-36	914.4 (36.0)	14.75
2BA-MG-48		2BC-MG-48	1219.2 (48.0)	15.35
2BA-MG-60		2BC-MG-60	1524.0 (60.0)	15.95

ALLIGATOR CLIPS TO DOUBLE BANANA PLUG



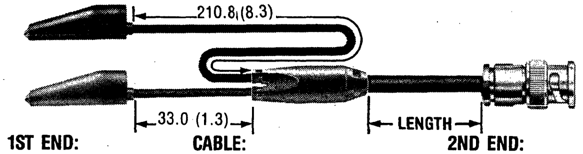
1ST END:
Alligator clips, steel, nickel plated. Vinyl boots, one black and one red. *Breakout lengths on 2BA-AL are each 96.52 mm (3.8) long.

CABLE:
Two cond., twisted pair, 6.35 mm (.250) O.D. shielded mic. or shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation, PVC.

2ND END:
Double banana plug.
RATING: +50°C. (+122°F.) Max.

Two Cond. Twisted Pair	Net	Shielded Mic. Cable	Shielded Coax. Cable	Length	Net
2BA-AL-18	14.95	2BB-AL-18	2BC-AL-18	457.2 (18.0)	12.95
2BA-AL-24	14.95	2BB-AL-24	2BC-AL-24	609.6 (24.0)	12.95
2BA-AL-30	14.95	2BB-AL-30	2BC-AL-30	762.0 (30.0)	12.95
2BA-AL-36	14.95	2BB-AL-36	2BC-AL-36	914.4 (36.0)	12.95
2BA-AL-48	15.55	2BB-AL-48	2BC-AL-48	1219.2 (48.0)	13.55
2BA-AL-60	16.15	2BB-AL-60	2BC-AL-60	1524.0 (60.0)	14.15

MINIGATOR CLIPS TO BNC MALE



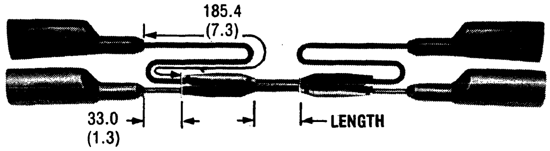
1ST END:
Minigator clips, steel, cadmium plated. Vinyl boots: One black, and one red. *Breakout lengths on 2BA-MG are each 109.2 mm (4.3) long.

CABLE:
Shielded mic. or Shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation, PVC.

2ND END:
BNC, male.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

Shielded Mic. Cable	Shielded Coax. Cable	Length	Net
MG-B-BNC-18	MG-C-BNC-18	457.2 (18.0)	12.50
MG-B-BNC-24	MG-C-BNC-24	609.6 (24.0)	12.50
MG-B-BNC-30	MG-C-BNC-30	762.0 (30.0)	12.50
MG-B-BNC-36	MG-C-BNC-36	914.4 (36.0)	12.50
MG-B-BNC-48	MG-C-BNC-48	1219.2 (48.0)	13.10
MG-B-BNC-60	MG-C-BNC-60	1524.0 (60.0)	13.70

ALLIGATOR CLIPS BOTH ENDS



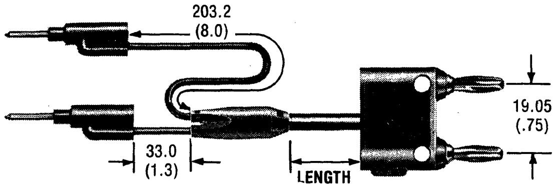
1ST END:
Alligator clips, steel, nickel plated. Vinyl boots, one black and one red.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation, PVC.

2ND END:
Same as 1st end.
RATING: 1400 VRMS, +50°C. (+122°F.) Max.

Model No.	Length	Net
1152-C-12	304.8 (12.0)	13.95
1152-C-24	609.6 (24.0)	13.95
1152-C-36	914.4 (36.0)	13.95
1152-C-48	1219.2 (48.0)	14.55
1152-C-60	1524.0 (60.0)	15.15

DOUBLE PLUG TO STACKUP PIN TIPS



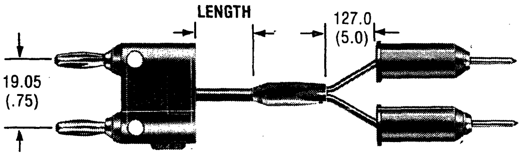
1ST END:
Single stackup pin plugs, 2.03 mm (.080) dia. Color; 1 black, 1 red.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D. Y-mold insulation, PVC.

2ND END:
double banana plug.
RATING: 1400 VRMS, +50°C. (+122°F.) Max.

Model No.	Length	Net
2BC-PP-18	457.2 (18.0)	12.75
2BC-PP-24	609.6 (24.0)	12.75
2BC-PP-36	914.4 (36.0)	12.75
2BC-PP-48	1219.2 (48.0)	13.35
2BC-PP-60	1524.0 (60.0)	13.95

DOUBLE PLUG TO SINGLE PIN TIPS



1ST END:
Double banana plug.

CABLE:
Two conductor twisted pair, 18 AWG 6.35 mm (.250) O.D. Y-mold insulation, PVC.

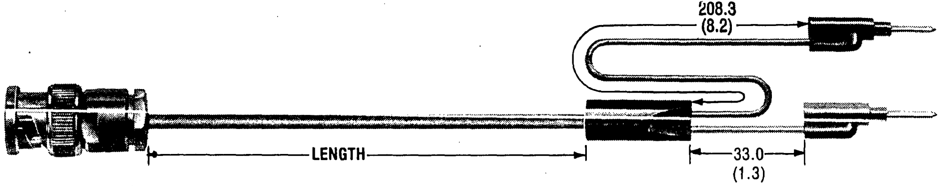
2ND END:
Single pin tip plugs, 2.03 mm (.080) dia. Color; 1 black, 1 red.
RATING: 300 VRMS, +50°C. (+122°F.) Max.

Model No.	Length	Net
2184-A-36	914.4 (36.0)	16.95
2184-A-48	1219.2 (48.0)	17.55
2184-A-60	1524.0 (60.0)	18.15

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

CABLE ASSEMBLIES

BNC MALE TO STACKING PIN TIPS



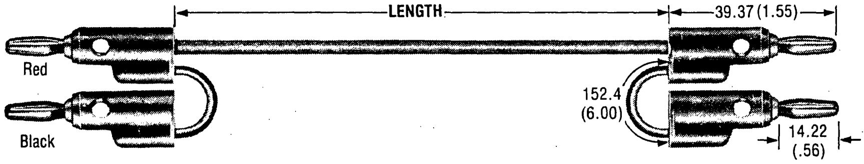
Model No.	Length	Net
2882-C-18	457.2 (18.0)	12.95
2882-C-24	609.6 (24.0)	12.95
2882-C-36	914.4 (36.0)	12.95
2882-C-48	1219.2 (48.0)	13.55
2882-C-60	1524.0 (60.0)	14.15

1ST END: BNC male. Body, brass, tarnish resistant plated. Center contact, brass, gold plated.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D. Y-Mold insulation, PVC.

2ND END: Stackup pin tip plugs. 2.03 mm (.080) dia. Body: brass, gold plated. Pin jack spring: beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin. Insulation: Polypropylene. One black and one red.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

SINGLE STACKING BANANA PLUGS BOTH ENDS



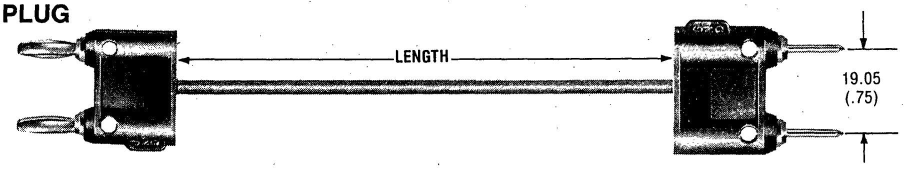
Model No.	Length	Net
2239-C-24	609.6 (24.0)	16.95
2239-C-36	914.4 (36.0)	16.95
2239-C-48	1219.2 (48.0)	17.55
2239-C-60	1524.0 (60.0)	18.15

1ST END: Single stackup banana plugs. Body, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Insulation: Polyethylene, red. Lead: 18 AWG, 65 x 36 t.c., PVC insulated, 3.66 mm (.144) O.D. Color: Black. Ground plug insulation: polypropylene, black.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D. Color: Black.

2ND END: Same as first end.
RATING: 1400 VRMS, +55°C. (+131°F.) Max.

DOUBLE BANANA PLUG TO DOUBLE PIN TIP PLUG



Model No.	Length	Net
2288-C-36	914.4 (36.0)	11.95
2288-C-48	1219.2 (48.0)	12.55
2288-C-60	1524.0 (60.0)	13.15

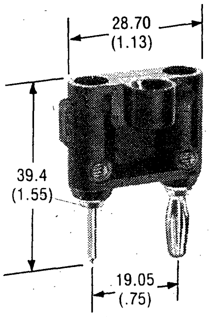
1ST END: Double banana plug. Body, brass. Spring, one piece heat treated beryllium copper. Nickel plated. Fits standard 4.22 mm (.166) dia. banana jacks. Double banana jack accepts standard banana plugs. Insulation: Polyethylene, black.

CABLE: Shielded coax., RG 58C/U, 4.95 mm (.195) O.D. Color: Black.

2ND END: Double pin tip plug. 2.03 mm (.080) dia. Body: brass, nickel plated. Insulation: Polyethylene.
RATING: 1400 VRMS, +55°C. (+131°F.) Max.

POLARIZED DOUBLE PLUG

This polarized double plug makes it virtually impossible to insert into a mating jack incorrectly. Setscrews secure leads. (Used with Model 4967).
UPPER: Banana/Pin jack: brass, nickel plate, with gold plated beryllium copper spring in pin jack. ABS insulation.
LOWER: Banana/Pin tip plug. Brass, nickel plated.
RATING: 2500 W VDC, 5 Amps, +50°C. (+122°F.) Max.

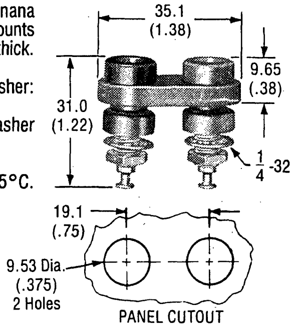


Model No.	Color
4966-0	Black
4966-2	Red

NET 2.25

DOUBLE POLARIZED JACK

This double polarized jack is used with Model 4966. One side is a pin jack and the other is a banana jack. Choice of black or red mounting base. Mounts in panels 1.60 mm (.063) to 9.53 mm (.375) thick. Choice of black or red mounting base.
MATERIAL: Banana/Pin jack: brass. Lockwasher: steel. Hex nut: brass.
FINISH: Banana/Pin jack: tin plated. Lockwasher and hex nut, nickel plated.
INSULATION: Polycarbonate.
RATING: 2500 WVDC, 5 Amps, +115°C. (+239°F.) Max.



Model No.	Color
4967-0	Black
4967-2	Red

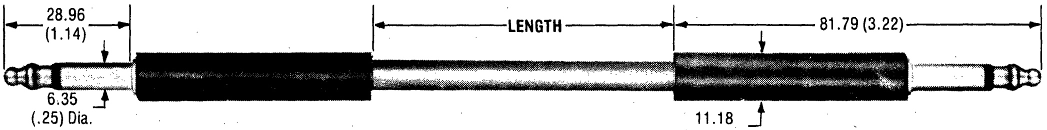
(unassembled)

NET 2.50

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

AUDIO/VIDEO CABLE ASSEMBLIES

PJ-051 (WE310) PHONE PLUG BOTH ENDS



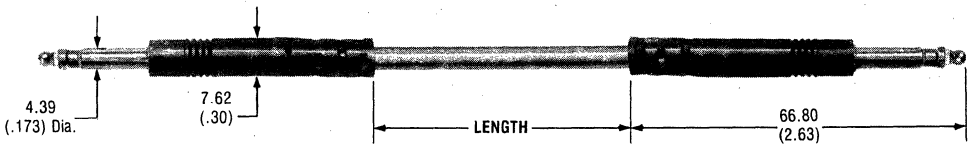
Model No.	Length	Net
2524-A-18	457.2 (18.0)	25.95
2524-A-24	609.6 (24.0)	25.95
2524-A-36	914.4 (36.0)	25.95
2524-A-48	1219.2 (48.0)	26.55
2524-A-60	1524.0 (60.0)	27.15

WIRED TIP AND RING ONLY
1ST END: PJ-051 Phone plug, brass. Insulation: Phenolic, red.
CABLE: Two conductor twisted pair. 6.35 mm (.250) O.D. Color; gray.
2ND END: Same as first end.
RATING: 500 V Peak.

Model No.	Length	Net
2524-J-18	457.2 (18.0)	29.95
2524-J-24	609.6 (24.0)	29.95
2524-J-36	914.4 (36.0)	29.95
2524-J-48	1219.2 (48.0)	30.55
2524-J-60	1524.0 (60.0)	31.15

WIRED TIP, RING AND SLEEVE
1ST END: PJ-051 Phone plug, brass. Insulation: Phenolic, red.
CABLE: Two conductor shielded microphone, 5.87 mm (.231) O.D. Color: Gray.
2ND END: Same as 1st end.
RATING: 500 V Peak.

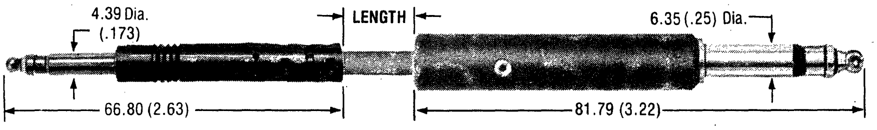
BANTAM PLUG TO BANTAM PLUG



Model No.	Length	Net
4279-12	304.8 (12.0)	23.95
4279-24	609.6 (24.0)	23.95
4279-36	914.4 (36.0)	23.95
4279-48	1219.2 (48.0)	24.55
4279-60	1524.0 (60.0)	25.15

WIRED TIP, RING AND SLEEVE
1ST END: Miniature 3 cond. phone plug. Insulation; PVC, black
CABLE: Two conductor, stranded copper, 26 AWG, PVC, insulated, 4.57 mm (.180) O.D. Color; Gray.
2ND END: Same as first end.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

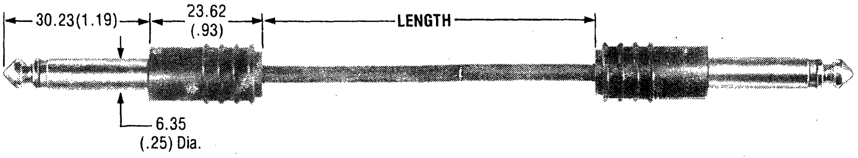
BANTAM PLUG TO PJ-051 (WE 310)



Model No.	Length	Net
4280-36	914.4 (36.0)	49.95
4280-48	1219.2 (48.0)	50.55
4280-60	1524.0 (60.0)	51.15

WIRED TIP, RING AND SLEEVE
1ST END: Miniature 3 cond. phone plug. Insulation: PVC, black
CABLE: Two conductor, stranded copper, 26 AWG, PVC, insulated, 4.57 mm (.180) O.D. Color: Gray.
2ND END: PJ-051 Phone plug: brass. Insulation: Phenolic, red.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

STANDARD PHONE PLUG BOTH ENDS



Model No.	Length	Net
4053-B-36	914.4 (36.0)	12.95
4053-B-60	1524.0 (60.0)	14.15

1ST END: Standard 2 cond. phone plug: brass, nickel plated. Insulation: Polyethylene, gray.
CABLE: Shielded microphone coaxial. Gray vinyl jacket, 4.95 mm (.195) O.D.
2ND END: Same as first end.
RATING: 500 V Peak, +55°C. (+131°F.) Max.

All dimensions are shown in millimeters (inches)
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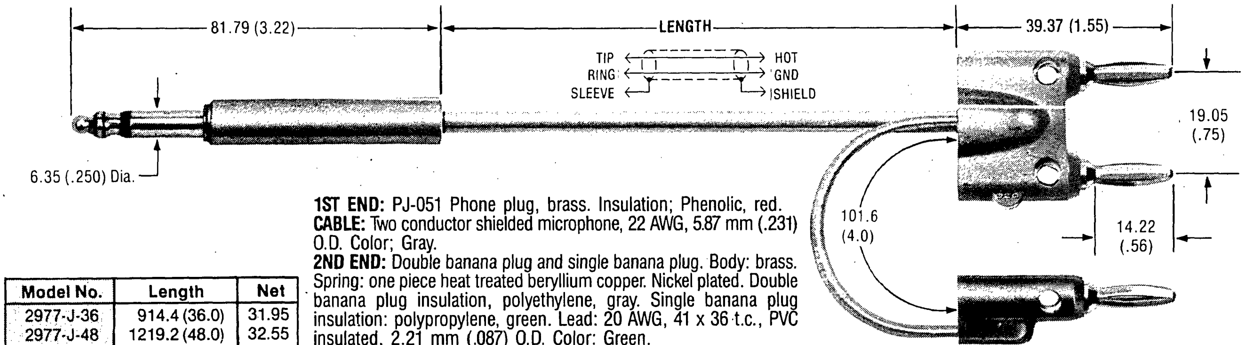
ITT POMONA ELECTRONICS

AUDIO/VIDEO CABLE ASSEMBLIES

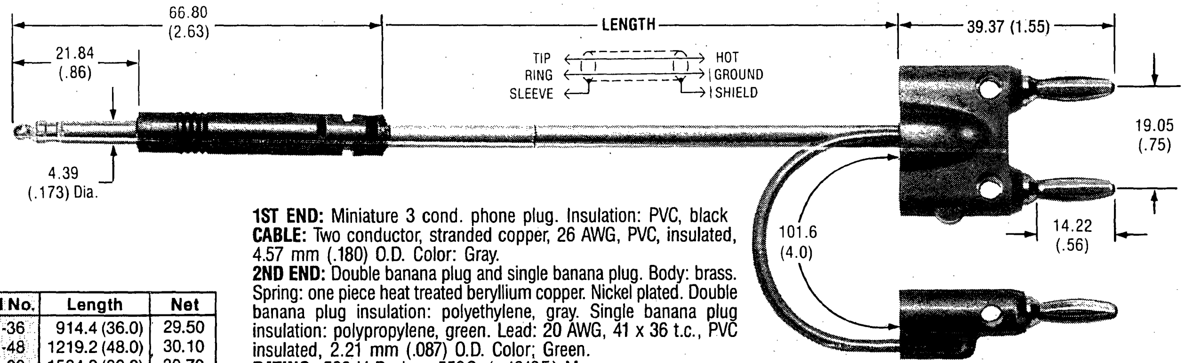
PJ-051 (WE310) TO DOUBLE PLUG BALANCED LINE


81.79 (3.22)
LENGTH
39.37 (1.55)
TIP
RING
SLEEVE
HOT
GND
SHIELD
19.05 (.75)
6.35 (.250) Dia.
101.6 (4.0)
14.22 (.56)

1ST END: PJ-051 Phone plug, brass. Insulation; Phenolic, red.
CABLE: Two conductor shielded microphone, 22 AWG, 5.87 mm (.231) O.D. Color; Gray.
2ND END: Double banana plug and single banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Double banana plug insulation, polyethylene, gray. Single banana plug insulation: polypropylene, green. Lead: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. Color: Green.
RATING: 500 V Peak, +55°C. (+131°F.) Max.

Model No.	Length	Net
2977-J-36	914.4 (36.0)	31.95
2977-J-48	1219.2 (48.0)	32.55
2977-J-60	1524.0 (60.0)	33.15

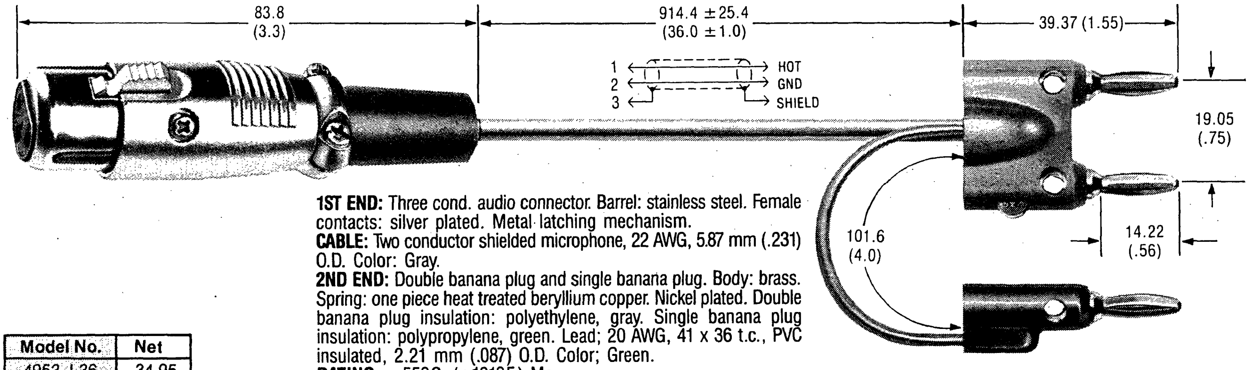
BANTAM PLUG TO DOUBLE PLUG BALANCED LINE


66.80 (2.63)
21.84 (.86)
LENGTH
39.37 (1.55)
TIP
RING
SLEEVE
HOT
GROUND
SHIELD
19.05 (.75)
4.39 (.173) Dia.
101.6 (4.0)
14.22 (.56)

1ST END: Miniature 3 cond. phone plug. Insulation: PVC, black
CABLE: Two conductor, stranded copper, 26 AWG, PVC, insulated, 4.57 mm (.180) O.D. Color: Gray.
2ND END: Double banana plug and single banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Double banana plug insulation: polyethylene, gray. Single banana plug insulation: polypropylene, green. Lead: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. Color; Green.
RATING: 500 V Peak, +55°C. (+131°F.) Max.

Model No.	Length	Net
4281-36	914.4 (36.0)	29.50
4281-48	1219.2 (48.0)	30.10
4281-60	1524.0 (60.0)	30.70

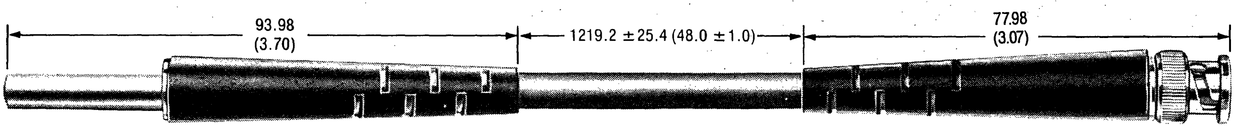
AUDIO CONNECTOR TO THREE BANANA PLUGS


83.8 (3.3)
914.4 ±25.4 (36.0 ±1.0)
39.37 (1.55)
1
2
3
HOT
GND
SHIELD
19.05 (.75)
101.6 (4.0)
14.22 (.56)

1ST END: Three cond. audio connector. Barrel: stainless steel. Female contacts: silver plated. Metal latching mechanism.
CABLE: Two conductor shielded microphone, 22 AWG, 5.87 mm (.231) O.D. Color: Gray.
2ND END: Double banana plug and single banana plug. Body: brass. Spring: one piece heat treated beryllium copper. Nickel plated. Double banana plug insulation: polyethylene, gray. Single banana plug insulation: polypropylene, green. Lead; 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. Color; Green.
RATING: +55°C. (+131°F.) Max.

Model No.	Net
4953-J-36	34.95

VIDEO (WE .090) PLUG TO BNC MALE


93.98 (3.70)
1219.2 ±25.4 (48.0 ±1.0)
77.98 (3.07)

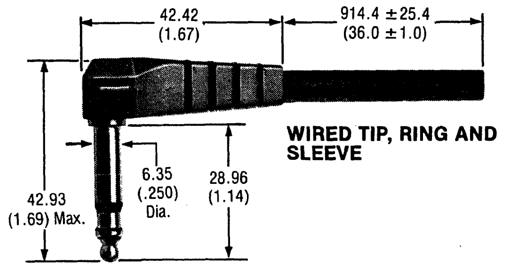
1ST END: Video 2.29 mm (.090) plug. Gold plated brass 2.29 mm (.090) dia. Nickel plated brass outer shell. Strain relief, PVC.
CABLE: 75 Ohm precision video cable, Belden 8281, 7.72 mm (.304) O.D.
2ND END: Crimp male BNC. Strain relief, PVC.
RATING: +50°C. (+122°F.) Max.

Model No.	Net
4954-RR-48	39.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

AUDIO/VIDEO CABLE ASSEMBLIES

RIGHT ANGLE PJ-051 (WE 310) PHONE PLUG


42.42
(1.67)
914.4 ±25.4
(36.0 ±1.0)
6.35
(.250)
Dia.
28.96
(1.14)
42.93
(1.69) Max.

WIRED TIP, RING AND SLEEVE

Model No.	Net
4949-J-36	13.95

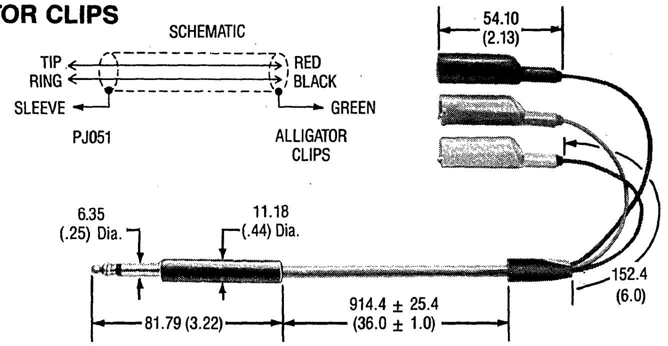
1ST END: Right angle PJ-051 phone plug. Strain relief insulation, polyethylene. Color: gray.
CABLE: Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: gray.
2ND END: None.
RATING: 500 V Peak, +55° C. (+131°F.) Max.

PJ051 (WE310) PHONE PLUG TO 3 ALLIGATOR CLIPS

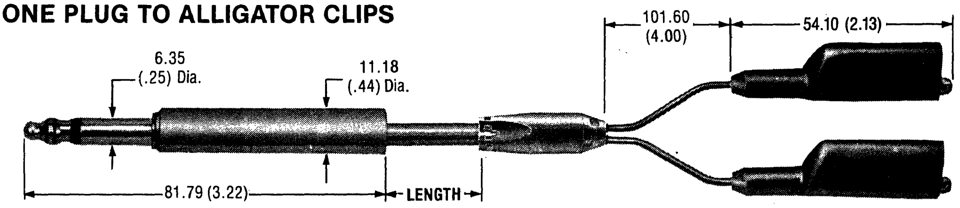
NEW

1ST END: Phone plug PJ-051, with red phenolic handle, body: brass.
CABLE: Two cond. shielded microphone. Polyethylene insulation. Vinyl jacket 5.87 (.231) O.D. nom. cap. between cond. 18 pf/ft. Nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: gray. Y-mold insulation, PVC, gray.
2ND END: Alligator clips: steel, nickel plated. Vinyl boots, one red, one black, and one green.
RATING: 500 V Peak. +50°C. (+122°F.) Max.

Model No.	Net
5151-J-36	24.95


SCHEMATIC
TIP
RING
SLEEVE
RED
BLACK
GREEN
PJ051
ALLIGATOR CLIPS
54.10
(2.13)
6.35
(.25) Dia.
11.18
(.44) Dia.
81.79 (3.22)
914.4 ± 25.4
(36.0 ± 1.0)
152.4
(6.0)

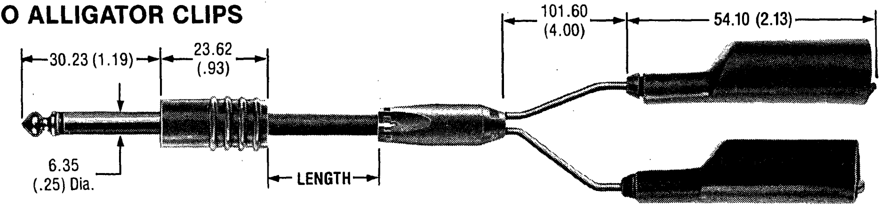
PJ-051 (WE 310) PHONE PLUG TO ALLIGATOR CLIPS


6.35
(.25) Dia.
11.18
(.44) Dia.
81.79 (3.22)
LENGTH
101.60
(4.00)
54.10 (2.13)

Model No.	Length	Net
3352-A-36	914.4 (36.0)	21.95
3352-A-60	1524.0 (60.0)	23.15
3352-A-84	2133.6 (84.0)	26.35
3352-A-120	3048.0 (120)	28.15

Plug wired tip to red alligator and ring to black alligator.
1ST END: PJ-051 Phone plug: brass. Insulation: Phenolic, red.
CABLE: Two cond. twisted pair, 18 AWG, 65 x 36 t.c., 6.35 mm (.250) O.D. Y-Mold insulation, PVC, gray.
2ND END: Alligator clips: steel, nickel plated. Vinyl boots, one black and one red. Leads: 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

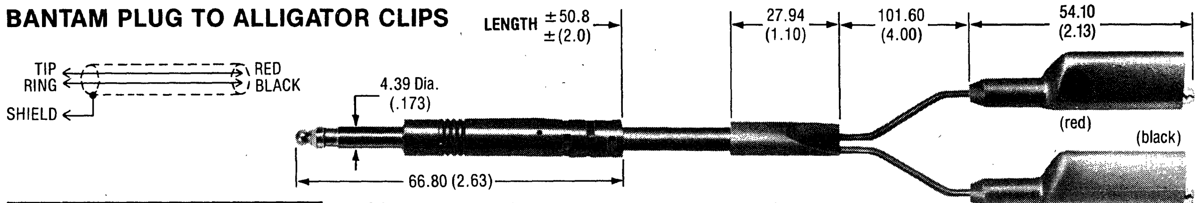
STANDARD PHONE PLUG TO ALLIGATOR CLIPS


30.23 (1.19)
23.62
(.93)
6.35
(.25) Dia.
LENGTH
101.60
(4.00)
54.10 (2.13)

Model No.	Length	Net
4990-B-36	914.4 (36.0)	14.50
4990-B-60	1524.0 (60.0)	15.70
4990-B-84	2133.6 (84.0)	18.90
4990-B-120	3048.0 (120)	20.70

Plug wired tip to red alligator and ring to black alligator.
1ST END: Standard 2 cond. phone plug: brass, nickel plated. Insulation: polyethylene, gray.
CABLE: Shielded microphone coax., 4.95 mm (.195) O.D. Y-Mold insulation: PVC, gray.
2ND END: Alligator clips: steel, nickel plated. Vinyl boots, one red and one black. Leads; 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

BANTAM PLUG TO ALLIGATOR CLIPS


LENGTH ±50.8
±(2.0)
TIP
RING
SHIELD
RED
BLACK
4.39 Dia.
(.173)
66.80 (2.63)
27.94
(1.10)
101.60
(4.00)
54.10
(2.13)
(red)
(black)

Model No.	Length	Net
5026-36	914.4 (36.0)	21.50
5026-60	1524.0 (60.0)	22.70
5026-84	2133.6 (84.0)	23.90

1ST END: Miniature 3 cond. phone plug. Insulation: PVC, black
CABLE; Two conductor, stranded copper, 26 AWG, PVC, insulated, 4.57 mm (.180) O.D. Y-Mold insulation, PVC, gray.
2ND END: Alligator clips: steel, nickel plated. Vinyl boots, one red and one black. Leads; 20 AWG, 41 x 36 t.c., PVC insulated, 2.21 mm (.087) O.D. One black and one red.
RATING: 500 V Peak, +50°C. (+122°F.) Max.

All dimensions are shown in millimeters (inches)
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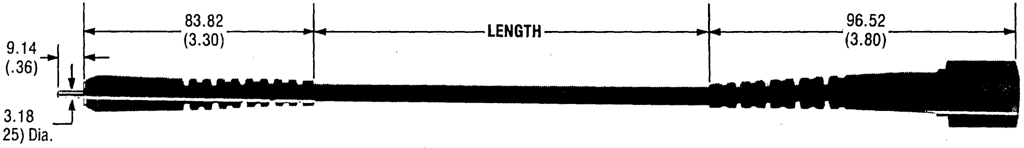
AUDIO/VIDEO CABLE ASSEMBLIES

PHONO PLUG TO UHF MALE

This computer interface cable connects the computer to the video display unit. For use with WANG and other units using the UHF connector.

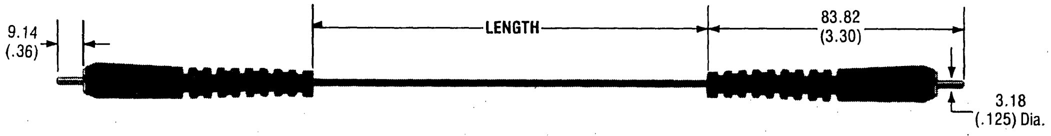


Model No.	Length	Net
5047-E-36	914.4 (36.0)	14.95
5047-E-48	1219.2 (48.0)	15.55
5047-E-60	1524.0 (60.0)	16.15

1ST END: Phono plug, brass, nickel plated. Insulation: PVC, black.
CABLE: Coaxial, RG 59 B/U, 6.15 mm (.242) O.D., 75 Ohm. Color: black.

2ND END: UHF male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

PHONO PLUG BOTH ENDS

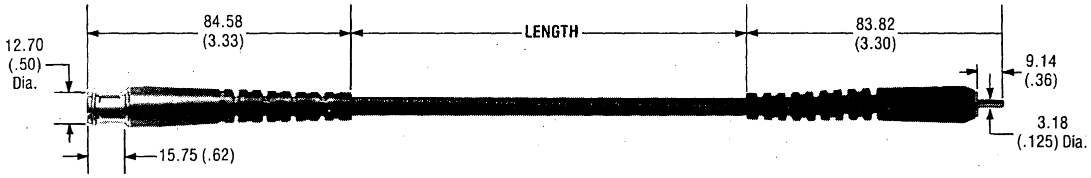


Model No.	Length	Net
5092-K-18	457.2 (18.0)	7.95
5092-K-24	609.6 (24.0)	7.95
5092-K-36	914.4 (36.0)	7.95
5092-K-48	1219.2 (48.0)	8.55

1ST END: Phono plug: brass, nickel plated. Insulation: PVC, black.
CABLE: Shielded coax., RG 174/U, 2.54 mm (.100) O.D., 50 Ohm.

2ND END: Same as first end.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

TYPE "F" PUSH-ON TO PHONO PLUG



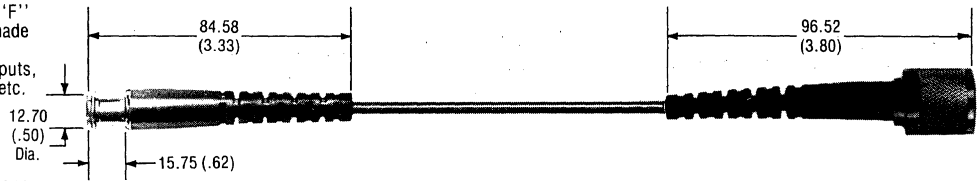
Model No.	Length	Net
5025-E-72	1829 (72.0)	12.95
5025-E-144	3658 (144.0)	16.55

1ST END: Push-on type "F" male, brass, nickel plated.
CABLE: Coaxial, RG 59 B/U, 6.15 mm (.242) O.D., 75 Ohm. Color: Black.

2ND END: Phono plug: brass, nickel plated. Insulation: PVC, black.
RATING: +50°C. (+122°F.) Max.

TYPE "F" PUSH-ON TO UHF MALE

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc.

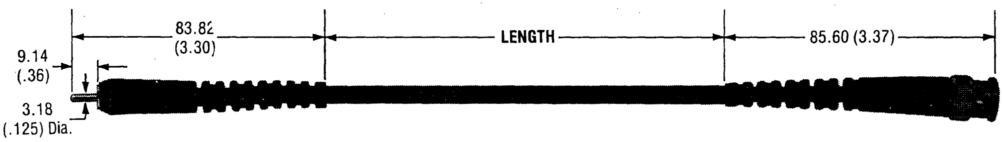


Model No.	Length	Net
5045-E-36	914.4 (36.0)	13.50
5045-E-48	1219.2 (48.0)	14.10
5045-E-60	1524.0 (60.0)	14.70

1ST END: Push-on type "F" male, brass, nickel plated.
CABLE: Coaxial, RG 59 B/U, 6.15 mm (.242) O.D., 75 Ohm.

2ND END: UHF male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

PHONO PLUG TO BNC MALE



Model No.	Length	Net
4963-E-24	609.6 (24.0)	12.95
4963-E-36	914.4 (36.0)	12.95
4963-E-48	1219.2 (48.0)	13.55
4963-E-60	1524.0 (60.0)	14.15

1ST END: Phono plug: brass, nickel plated. Insulation: PVC, black.
CABLE: Coaxial, RG 59 B/U, 6.15 mm (.242) O.D., 75 Ohm.

2ND END: BNC male. Body: brass, tarnish resistant plated. Center contact: brass, gold plated.
RATING: 500 VRMS, +50°C. (+122°F.) Max.

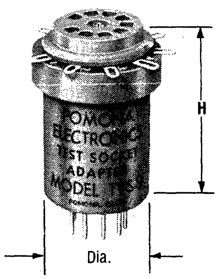
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

TUBE TEST SOCKET ADAPTERS & SOCKET SAVER® ADAPTERS

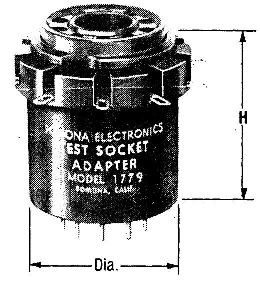
TEST SOCKET TUBE ADAPTERS

Ideal for making measurements of voltage, resistance, audio and video without tracing complicated circuits from the bottom of the chassis. They feature: Extended test tabs for easy use with either alligator or test prods; low loss mica-filled molded phenolic construction per MIL-M-14, MFE. Power factor less than 0.010 at 10 MHz; high insulation resistance, the I.R. exceeds 500,000 megohms at 40% R.H., at 24°C; distributed capacity, inter-element approximately 1 pico farad; high voltage operation, voltage breakdown elements exceeds 1,700 VAC or DC. Models 1779 and TV-12 molded of electrical grade black phenolic. Model TVS-8 has 2.36 mm (.093) dia. pins. All other models have 1.02 mm (.040) dia. pins.

Model No.	Type	Size H x Dia.	Pin Circle Dia.	Net
TVS-7	7 Pin Miniature	36.07 (1.42) x 19.05 (.75)	9.53 (.375)	9.75
TVS-8	8 Pin Octal	27.94 (1.10) x 29.46 (1.16)	17.45 (.687)	13.50
TVS-9	9 Pin Miniature	35.56 (1.40) x 22.10 (.87)	11.89 (.468)	11.25
1779	9 Pin Novar	36.83 (1.45) x 30.22 (1.19)	17.45 (.687)	10.95
TVS-12	12 Pin Compactron	35.31 (1.39) x 29.72 (1.17)	19.05 (.750)	11.25



MODEL TVS-9


POMONA ELECTRONICS
TEST SOCKET
ADAPTER
MODEL 1779
POMONA, CALIF.
H
Dia.

MODEL 1779

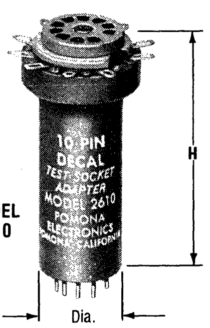
TALL TEST SOCKET TUBE ADAPTERS (For sockets having captive or telescoping tube shields)

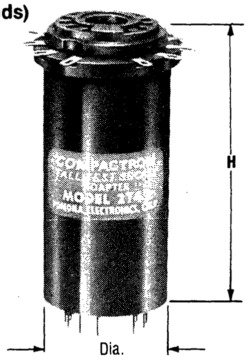
- Extra height — clears shields.
- Ready access to socket connections.
- Exposed operation saves time.
- Pins 1.02 mm (.040) dia.

These adapters rise above the shield and place testing in the open. Shields or tuner covers do not have to be removed. All construction is the highest quality. Inter-element distributed capacity is approximately 1.5 pico farad. Voltage breakdown elements exceed 1800 VAC or DC.

Model No.	Type	Size H x Dia.	Pin Circle Dia.	Net
1447	7 Pin Miniature	54.36 (2.14) x 16.51 (.65)	9.53 (.375)	8.95
1449	9 Pin Miniature	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	9.85
1710	10 Pin Miniature	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	13.95
2610	10 Pin Decal	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	15.95
2742	12 Pin Compactron	66.30 (2.61) x 29.46 (1.16)	19.05 (.750)	21.25
2749	9 Pin Novar	70.87 (2.79) x 28.70 (1.13)	17.45 (.687)	20.95

MODEL 2610


10 PIN
DECAL
TEST SOCKET
ADAPTER
MODEL 2610
POMONA
ELECTRONICS
POMONA, CALIFORNIA
H
Dia.

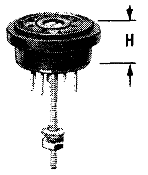

COMPACTRON
TALL TEST SOCKET
ADAPTER
MODEL 2742
POMONA ELECTRONICS
H
Dia.

MODEL 2742

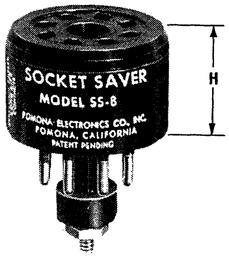
SOCKET SAVER® ADAPTERS

The Socket Saver® Adapter is designed to be installed on tube checkers and other electronic equipment to prevent wear and tear of sockets on original equipment. They are easy to install and remove. This eliminates the necessity of replacing and rewiring sockets on original equipment. Built of quality materials. Beryllium copper long life contacts to give maximum service. Models 1847 and 1849 are miniaturized for use in applications where vertical height is restricted.

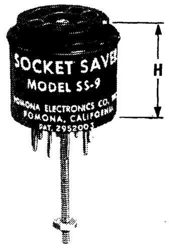
Model No.	Type	Size H	Pin Circle Dia.	Net
SS-7	7 Pin Miniature	20.57 mm (.81)	9.53 (.375)	9.75
1847	7 Pin Miniature*	8.38 mm (.33)	9.53 (.375)	9.95
SS-8	8 Pin Octal	20.57 mm (.81)	17.45 (.687)	16.95
SS-9	9 Pin Miniature	20.57 mm (.81)	11.89 (.468)	10.50
1849	9 Pin Miniature*	8.38 mm (.33)	11.89 (.468)	10.75
SS-11	11 Pin Octal	34.29 mm (1.35)	19.05 (.750)	19.75
SS-12	12 Pin Compactron	20.57 mm (.81)	19.05 (.750)	12.75
1451	9 Pin Magnoval	22.35 mm (.88)	17.45 (.687)	11.95
1751	9 Pin Novar	20.57 mm (.81)	17.45 (.687)	11.95



MINIATURIZED
MODEL 1847


SOCKET SAVER
MODEL SS-8
POMONA ELECTRONICS CO. INC.
POMONA, CALIFORNIA
PATENT PENDING
H

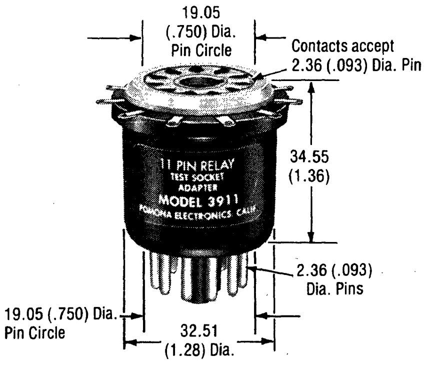
MODEL SS-8


SOCKET SAVER
MODEL SS-9
POMONA ELECTRONICS CO.
POMONA, CALIFORNIA
PAT. 2952003
H

MODEL SS-9

*Miniaturized

11 PIN RELAY TEST SOCKET ADAPTER


19.05
(.750) Dia.
Pin Circle
Contacts accept
2.36 (.093) Dia. Pin
11 PIN RELAY
TEST SOCKET
ADAPTER
MODEL 3911
POMONA ELECTRONICS CALIF.
34.55
(1.36)
2.36 (.093)
Dia. Pins
19.05 (.750) Dia.
Pin Circle
32.51
(1.28) Dia.

Model No.	Net
3911	20.95

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

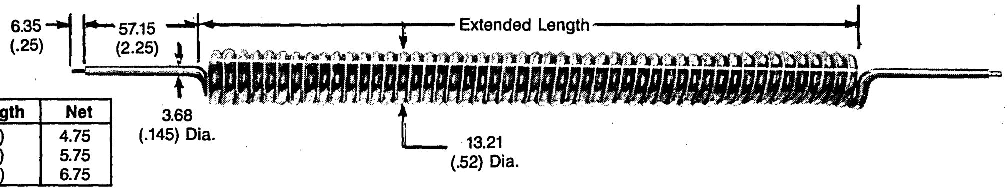
ITT POMONA ELECTRONICS

WIRE/PATCH CORD

RETRACTILE (COILED) PATCH CORD 20 AWG

WIRE: Single conductor, 20 AWG, strand. 42 x 36 rubber insulation, 3.68 (.145) O.D.
RATING: 3000 WVDC, 5 Amps, +80°C. (+176°F.) Max.
COLORS: -0 Black, -2 Red.

NEW

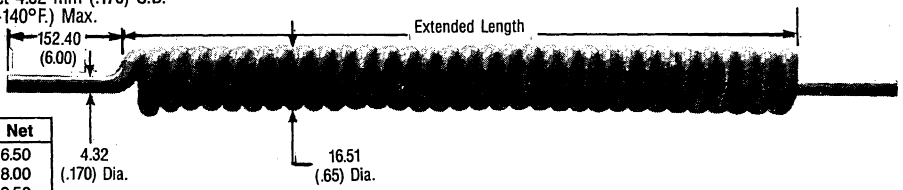


Model	Extended Length	Net
5202-36-*	914.4 (36.0)	4.75
5202-48-*	1219.2 (48.0)	5.75
5202-60-*	1524.0 (60.0)	6.75

RETRACTILE (COILED) SHIELDED MICROPHONE CABLE

CABLE: Shielded microphone. Center conductor, tinned cadmium bronze 24 AWG, strand. 45 x 40 rubber insulator, spiral T.C. shielded with neoprene jacket 4.32 mm (.170) O.D.
RATING: 30 VDC, 3 Amps, +60°C. (+140°F.) Max.
COLOR: Black.

NEW

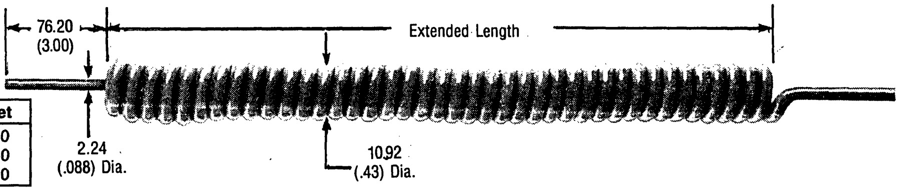


Model	Extended Length	Net
5204-48-*	1219.2 (48.0)	6.50
5204-60-*	1524.0 (60.0)	8.00
5204-72-*	1829.0 (72.0)	9.50

RETRACTILE (COILED) PATCH CORD 26 AWG

WIRE: Single conductor, 26 AWG, strand. 10 x 36 non-tinned copper, polyurethane insulation, 2.24 (.088) O.D.
RATING: 1000 VDC, 3 Amps, +80°C. (+176°F.) Max.
COLORS: -0 Black, -2 Red.

NEW



Model	Extended Length	Net
5205-36-*	914.4 (36.0)	3.50
5205-48-*	1219.2 (48.0)	4.50
5205-60-*	1524.0 (60.0)	5.50

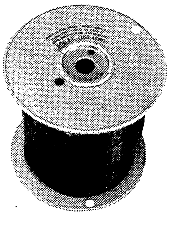
HOOKUP (PATCH CORD) WIRE

This quality wire is used to make up the patch cords throughout the catalog. It is available for purchase in 152.4 meter (500 foot) reels. These wires are ideal for do-it-yourself test leads or point-to-point electrical connections.

18 AWG WIRE

This is the same quality wire that Pomona uses on their 18 AWG patch cords.

SPECIFICATIONS:
STRANDING: 65 x 36 tinned copper.
O.D.: 3.66 mm (.144).
JACKET: PVC
TEMP. RANGE: −20°C. (−68°F.) to +105°C. (+221°F.).
RATING: 5000 WVDC max, 15 Amps max.



(Std. Pkg. 500′ Reel)

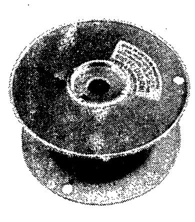
Model No.	Color
4418-0	Black
4418-2	Red

NET 140.00

20 AWG WIRE

This is the same quality wire that Pomona uses on their 20 AWG patch cords.

SPECIFICATIONS:
STRANDING: 41 x 36 tinned copper.
O.D.: 2.21 mm (.087).
JACKET: PVC
TEMP. RANGE: −20°C. (−68°F.) to +105°C. (+221°F.).
RATING: 3000 WVDC max, 12 Amps max.



(Std. Pkg. 500′ Reel)

Model No.	Color
4420-0	Black
4420-2	Red

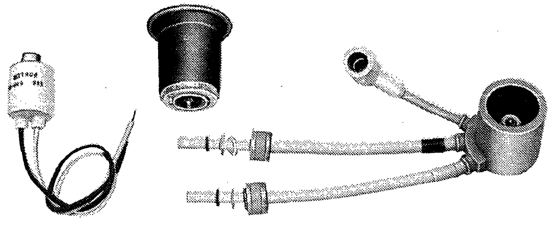
NET 115.00

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PROBLEM SOLVERS IN High-voltage

A COMPLETE DESIGN-ENGINEERING AND MANUFACTURING
SERVICE FOR ALL O.E.M. PROPRIETARY PRODUCTS FOR OVER 28 YEARS

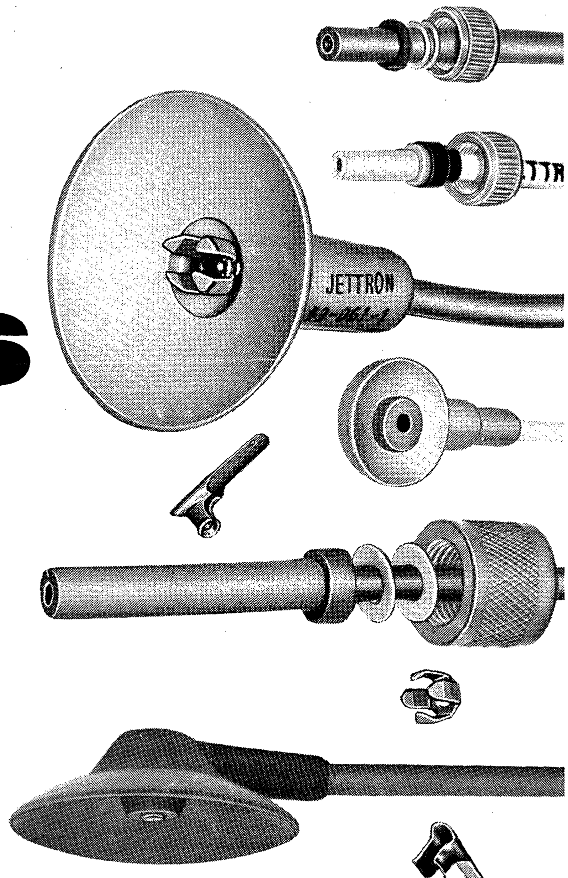
- ***MILITARY & COMMERCIAL***

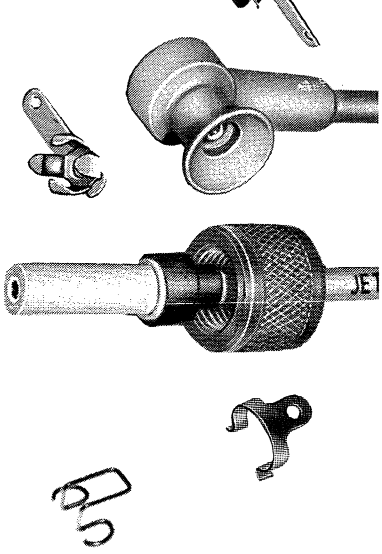


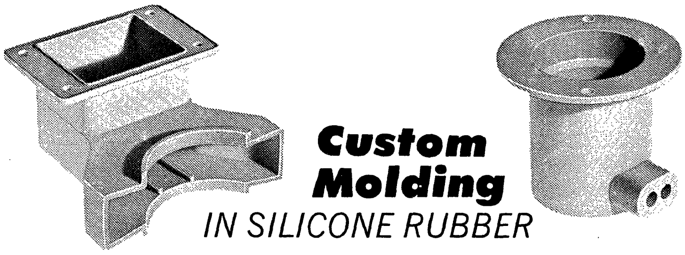
MAGNETRON CONNECTORS

JETTRON'S

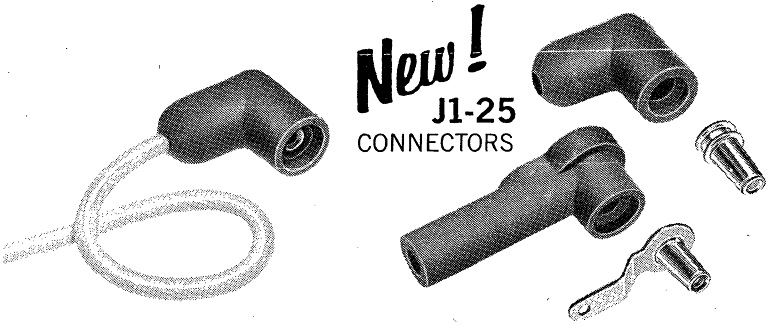
Extensive line of high voltage connections to 50KVDC including molded silicone CRT anode leads (leakproof & corona free), in-line connectors, splices, and CRT anode connector kits for customer assembly. Potting contacts of BeCu for the JEDEC J1-21, J1-22, J1-25, J1-30, and J1-32 anode terminals.







Custom Molding
IN SILICONE RUBBER



New!
J1-25
CONNECTORS

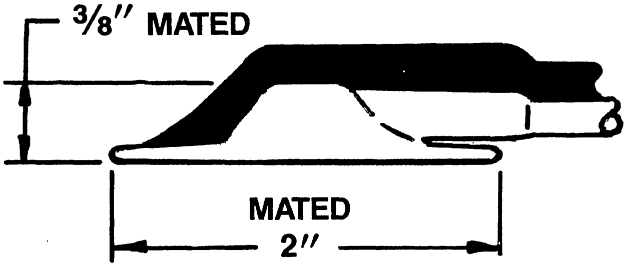
JETTRON PRODUCTS, INC.

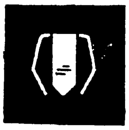
jettron®
56 ROUTE 10, P.O. BOX 337E, EAST HANOVER, N.J. 07936
Telephone (201) 887-0571

LOWEST PROFILES since 1957

SILICONE CRT ANODE CONNECTORS

BONDED TO WIRE INSULATION OR KITS FOR EASY ASSEMBLY



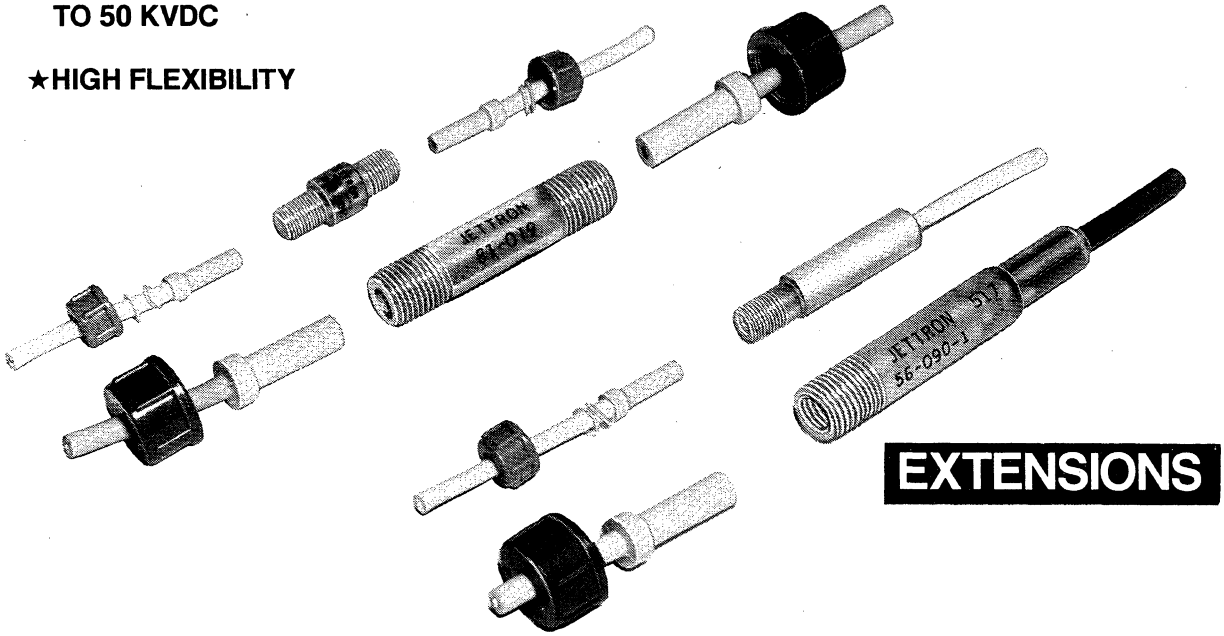


JI-21
53-000 SERIES

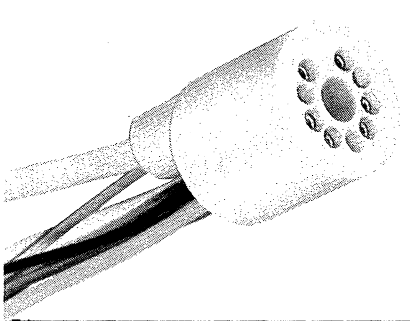
JI-22
52-000 SERIES

SPLICES

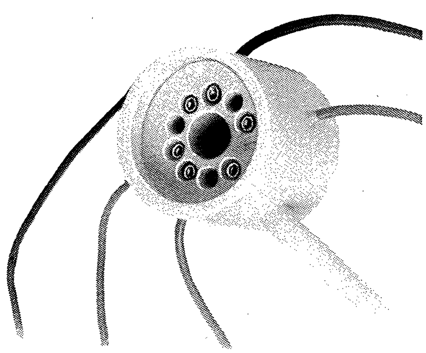
- ★HIGH VOLTAGE TO 50 KVDC
- ★HIGH FLEXIBILITY



EXTENSIONS



CRT BASE CONNECTORS



jettron®

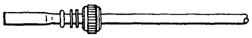
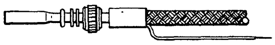
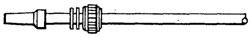
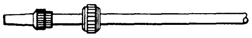
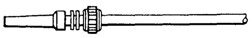
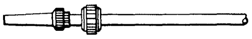
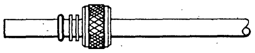
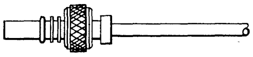
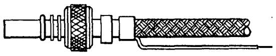
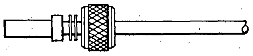
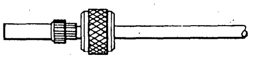
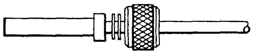
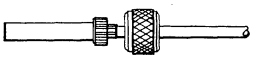
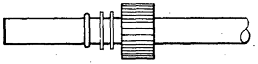
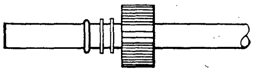
JETTRON PRODUCTS, INC.

56 ROUTE 10, P.O. BOX 337E, EAST HANOVER, N.J. 07936
Telephone (201) 887-0571

PARTIAL LISTING OF JETTRON LEAD ASSEMBLIES

TYPES

O *= "O" Ring End* ***M*** *= Molded* ***MF*** *= Molded End With Positive-Seal Ferrule*

LEAD OUTLINES	CATALOG NO.	*KVDC	TYPE	BARREL DEPTH	NUT DIA.	TYPICAL MATING RECEPTACLE
	**56-073**	**10 & 15**	**O**	**—**	**.44**	† LGH **½ I**
	**56-069**	**10 & 15**	**O**	**—**	**.44**	**½ I**
	**56-094**	**10**	**M**	**.51**	**.44**	**½ I**
	**57-157**	**10**	**MF**	**.51**	**.44**	**½ I**
	**56-119**	**15**	**M**	**.88**	**.44**	**½ LI**
	**57-119**	**15**	**MF**	**.88**	**.44**	**½ LI**
	**56-102**	**20 & 25**	**O**	**—**	**.75**	**1 I**
	**56-065**	**20 & 25**	**O**	**—**	**.75**	**1 I**
	**56-079**	**20 & 25**	**O**	**—**	**.75**	**1 I**
	**56-064**	**20**	**M**	**.88**	**.75**	**1 I**
	**57-064**	**20**	**MF**	**.88**	**.75**	**1 I**
	**56-128**	**25**	**M**	**1.69**	**.75**	**1 LI**
	**57-128**	**25**	**MF**	**1.69**	**.75**	**1 LI**
	**56-075**	**30**	**O**	**—**	**.97**	**2 I**
	**56-141**	**50**	**O**	**—**	**1.25**	**4 I**

**** Rated Values: Apply when lead properly engaged in receptacle***
† Trademark of AMP Incorporated

JETTRON PRODUCTS, INC.
56 ROUTE 10, P.O. BOX 337E, EAST HANOVER, N.J. 07936
Telephone (201) 887-0571

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
TABLES
CODES

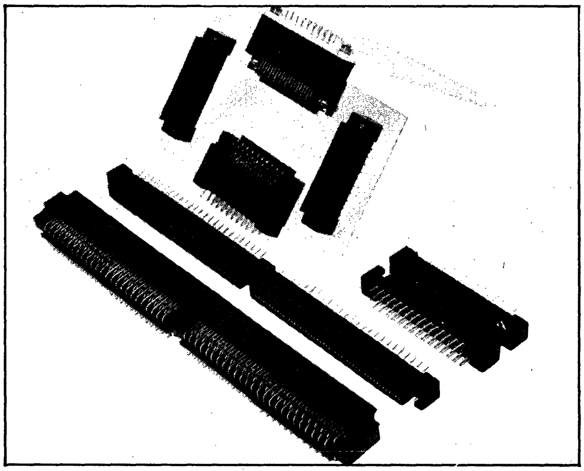
TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms .... **A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code .... **D**•1087
Batteries, Product Selection Guide .... **D**•1413
Batteries & Fuel Cells, Characteristics .... **D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **C**•1003
Capacitors, Basic Formulas .... **A**•1093
Capacitors, Miniglossary .... **A**•1066
Capacitors, Product Selection Guide .... **A**•1003
Circuit Boards (Printed) Product Selection Guide .... **C**•1099
Coils, Chokes, Inductors, Product Selection Guide .... **A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum .... **C**•1863
Connectors, Miniglossary .... **C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide .... **C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude .... **A**•1309
Delay Lines, Product Selection Guide .... **A**•1459
Discrete Semiconductors, Product Selection Guide .... **A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **B**•1015
EBCDIC Code .... **D**•1092
Encapsulation, Miniglossary .... **C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .. **C**•1623
Filters, Product Selection Guide .... **A**•1583
Instruments, Graphic Recording Product Selection Guide .... **D**•1401
Instruments, Panel Meters, Product Selection Guide .... **D**•1329
Instruments, Test & Measuring Product Selection Guide .... **D**•1175
Interconnection Systems, Product Selection Guide .... **C**•1699
Keyboards & Keypads, Product Selection Guide .... **B**•1705
Logofinder & Trademark Directories .... **B**•901
Microwave Components, Product Selection Guide .... **A**•1701
Military Qualified Products Lists .... **B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **B**•1129
Opto Semiconductors, Miniglossary .... **B**•1214
Oscilloscopes, Product Selection Guide .... **D**•1385
Panel Hardware, Product Selection Guide .... **C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **A**•1991
Power Supplies, Miniglossary .... **D**•1462
Power Supplies, AC, Product Selection Guide .... **D**•1877
Power Supplies, DC, Product Selection Guide .... **D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **B**•1225
Relay Contact Forms .... **B**•1317
Relays, Electromechanical, Miniglossary .... **B**•1308
Relays, Product Selection Guide .... **B**•1261
Resistor Color Codes .... **A**•1828
Resistors, Product Selection Guide .... **A**•1785
Servo Components, Miniglossary .... **D**•1985
Solenoids, Product Selection Guide .... **B**•1463
Switches, Product Selection Guide .... **B**•1477
Thermal Components, Product Selection Guide .... **B**•1741
Thermal Conductivity of Dielectrics at Room Temperature .... **B**•1744
Thyristors/High Power Diodes, Miniglossary .... **A**•2076
Transducers & Encoders, Product Selection Guide .... **B**•1777
Transformers, Product Selection Guide .... **A**•2099
Wire & Cable, Product Selection Guide .... **C**•1743
Wire Gauges—Diameter, Area, Copper Weight .... **C**•1844

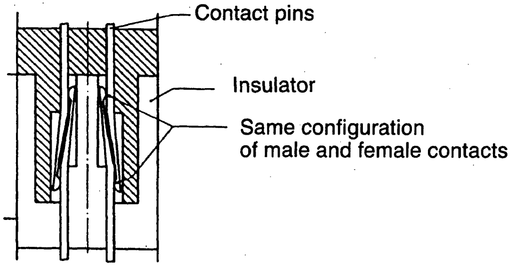
KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

8800 .050 c/c



NEW PRODUCT

CROSS SECTION



8800 SERIES CONNECTOR SPECIFICATION

How To Order

8800-XXX-170X A –Receptacle
8810-XXX-170X A –Plug

- A: Plating (See page 2)
- X: L: Right angle leg
  S: Straight leg
- XXX: No. of contact
  - 030: 30 pins
  - 040: 40 pins
  - 050: 50 pins
  - 060: 60 pins
- 8810: Series—See mating recommendations for ordering with & without mounting flanges.

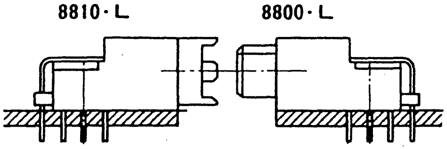
MATERIAL

Insulator: Glass filled Nylon (UL94V-O)
Color Black
Contacts: Copper alloy, Gold plating
over Nickel

SPECIFICATIONS

Current rating: 0.5A Individual contact
Contact resistance: 25 ohms Max.
Withstanding voltage: 650V AC
Insulation resistance: 1000M ohms Min. at 500V DC
Operating temperature: −55°C ∼ +85°C
Total insertion force
Less than 2.9 Kg/30 pins
Less than 3.8 Kg/40 pins
Less than 4.8 Kg/50 pins
Less than 5.7 Kg/60 pins

Mating examples between 8800 & 8810



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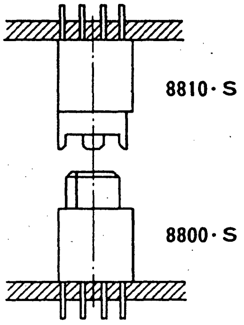
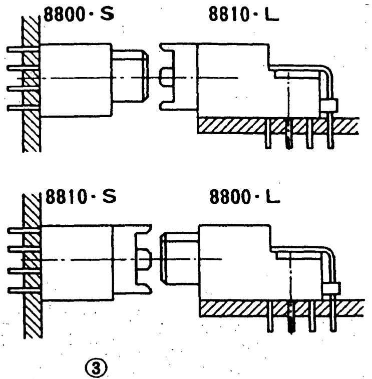


②



③

Mating recommendations

Receptacle	Plug	Mounting type
8800	8810	with flange
8801	8811	with flange includes metal pins to hold conn. on the PCB
8802	8812	without flange

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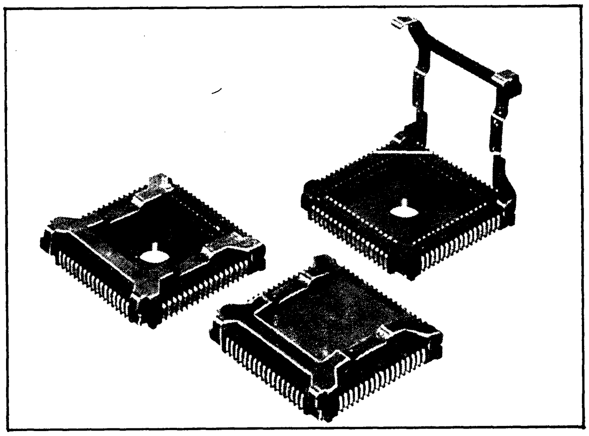
LCC-01 .050 cc

NEW PRODUCT

LEADLESS CHIP CARRIER



FEATURES

- *Low profile*
- *Conforms to JEDEC type A requirements*
- *Compact design*
- *Open-hinged cover for easy testing and replacement.*

SPECIFICATIONS

Contact Resistance: 30mΩ max.
Insulation Resistance: 1000MΩ min. 500V DC
Dielectric Withstanding Voltage: 500V AC

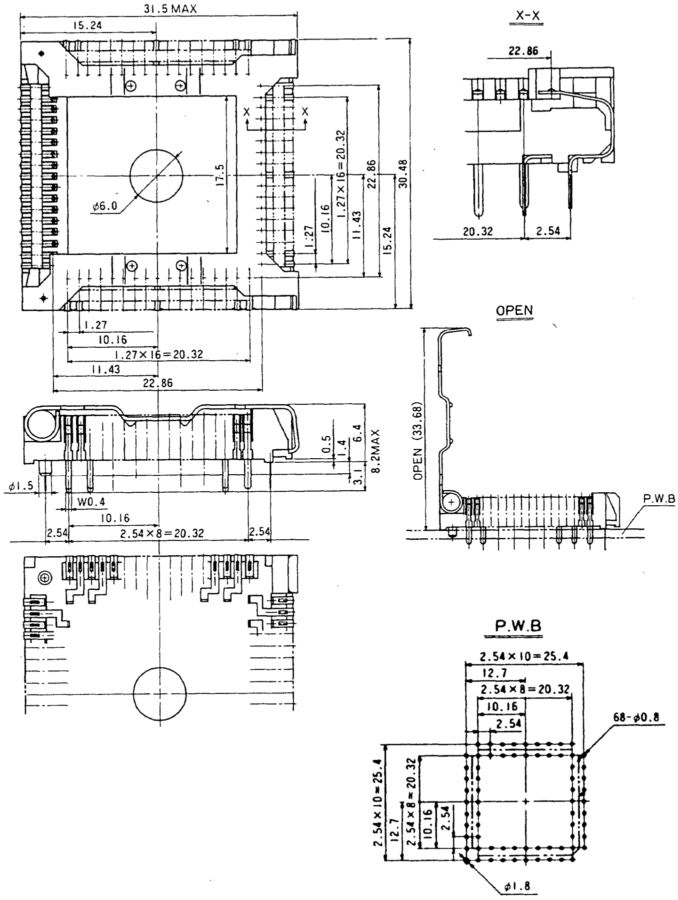
MATERIAL

Contact: Copper Alloy
Insulator: Polyphenylene Sulfide (PPS).

PART NUMBER

LCC01-068-310G-X

- X — Plating (See Page 2)
  - A: 10µ inches gold
  - B: 15µ inches gold
  - D: 30µ inches gold
- 310G — Finish: Gold plating over Nickel
- 068 — No. of contacts
- LCC01 — Series



31.5 MAX
15.24
X
X
17.5
φ6.0
1.27×16=20.32
10.16
1.27
22.86
11.43
30.48
15.24
1.27
10.16
1.27×16=20.32
11.43
22.86
0.5
1.4
6.4
8.2MAX
3.1
φ1.5
W0.4
10.16
2.54
2.54×8=20.32
2.54
X-X
22.86
20.32
2.54
OPEN
OPEN (33.68)
P.W.B
P.W.B
2.54×10=25.4
12.7
2.54×8=20.32
10.16
2.54
68-φ0.8
2.54×10=25.4
12.7
2.54×8=20.32
10.16
2.54
φ1.8

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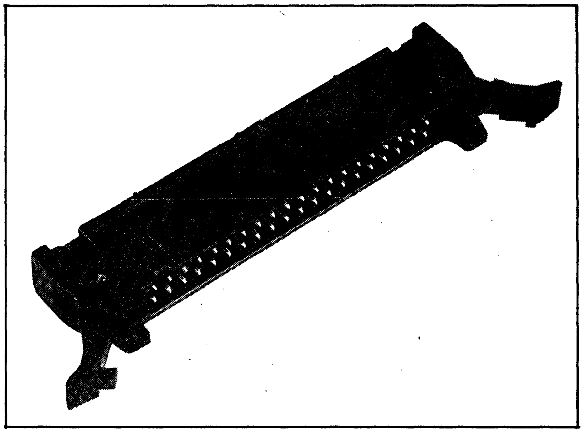
6201 .100 c/c

These Headers mate with 6200 and 6230 series sockets. They are available with straight or right angle terminals and are dimensionally compatible with MIL-C-83503.



PART NUMBER
6201 -XXX-256
6201S-XXX-258

Terminal style and contact plating (see page 2)
256 = Straight
258 = Right angle

No. of contacts

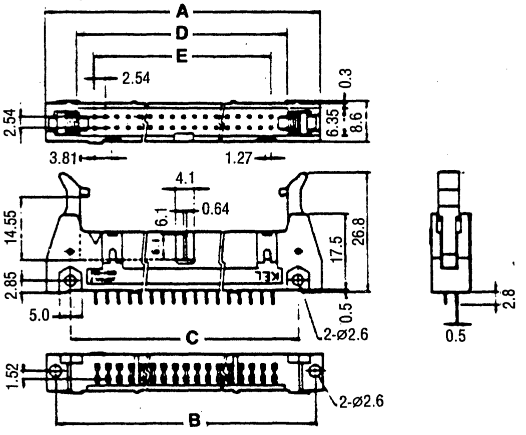
Series

S = Short latch
= Omit for long latch
N = No latches

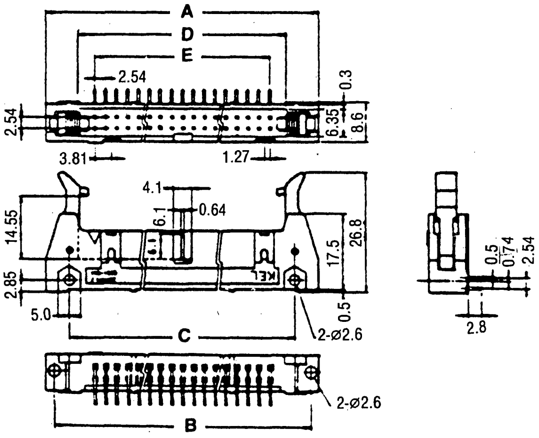
Contact material: Copper alloy

6201 METRIC

HEADER: Straight

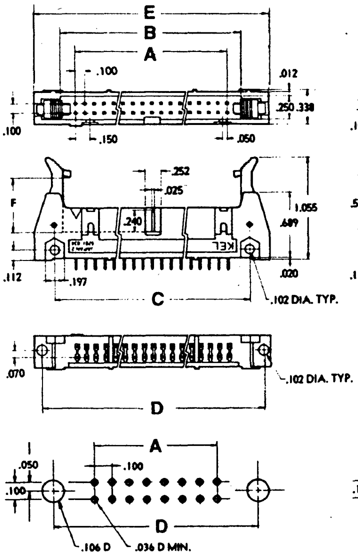

A
D
E
2.54
0.3
2.54
6.35
8.6
3.81
1.27
4.1
0.64
14.55
6.1
4.1
17.5
26.8
2.85
KEL
5.0
0.5
C
2-ø2.6
2.8
0.5
1.52
2-ø2.6
B

HEADER: Right angle


A
D
E
2.54
0.3
2.54
6.35
8.6
3.81
1.27
4.1
0.64
14.55
6.1
4.1
17.5
26.8
2.85
KEL
5.0
0.5
C
2-ø2.6
0.5
0.74
2.54
2.8
2-ø2.6
B

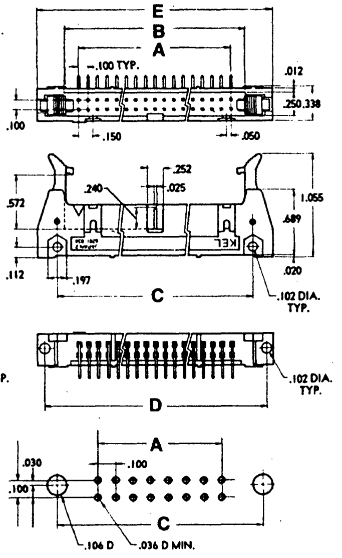
6201 CONVERSION

HEADER, STRAIGHT

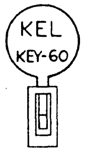

E
B
A
.100
.012
.250
.338
.100
.150
.050
.252
.025
F
1.055
.240
.689
.112
.197
.020
C
.102 DIA. TYP.
.070
.102 DIA. TYP.
D
A
.050
.100
.100
D
.106 D
.036 D MIN.

PC BOARD PATTERN FOR STRAIGHT HEADER

HEADER, R/A


E
B
A
.100 TYP.
.012
.250
.338
.100
.150
.050
.252
.025
.240
.572
1.055
.689
.112
.197
.020
C
.102 DIA. TYP.
.102 DIA. TYP.
D
A
.030
.100
.100
C
.106 D
.036 D MIN.

PC BOARD PATTERN FOR R/A HEADER



POLARIZING KEY
TO ORDER SPECIFY
P/N = KEY 60
(100 Per BAG)

Part Number	Size	A	B	C	D	E
6201-010-256•258	10	32.00	27.94	21.84	17.53	10.16
6201-014-256•258	14	37.08	33.02	26.92	22.61	15.24
6201-016-256•258	16	39.62	35.56	29.46	25.15	17.78
6201-020-256•258	20	44.70	40.64	34.54	30.23	22.86
6201-026-256•258	26	52.32	48.26	42.16	37.85	30.48
6201-030-256•258	30	57.40	53.34	47.24	42.93	35.56
6201-034-256•258	34	62.48	58.42	52.32	48.01	40.64
6201-040-256•258	40	70.10	66.04	59.94	55.63	48.26
6201-050-256•258	50	82.80	78.74	72.64	68.33	60.96
6201-060-256•258	60	95.50	91.44	85.34	81.03	73.66

Size	A	B	C	D	E	F
10	.400	.690	.860	1.100	1.260	
14	.600	.890	1.060	1.300	1.460	Long Latch = .572
16	.700	.990	1.160	1.400	1.560	
20	.900	1.190	1.360	1.600	1.760	
26	1.200	1.490	1.660	1.900	2.060	
30	1.400	1.690	1.860	2.100	2.260	
34	1.600	1.890	2.060	2.300	2.460	Short Latch = .412
40	1.900	2.190	2.360	2.600	2.760	
50	2.400	2.690	2.860	3.100	3.260	
60	2.900	3.190	3.360	3.600	3.760	

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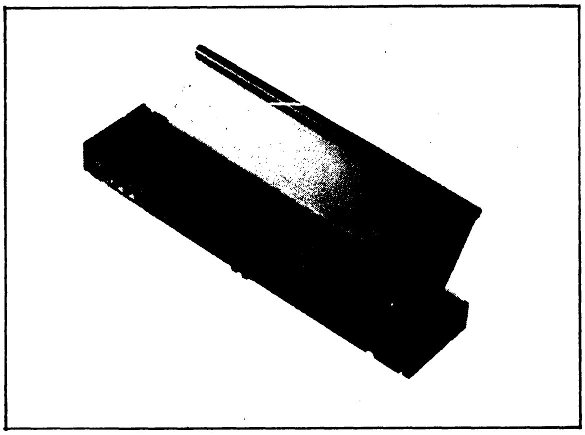
6230 .100 c/c



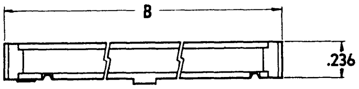
I.D.C. CONNECTOR (SOCKET) WITH PULL TAB

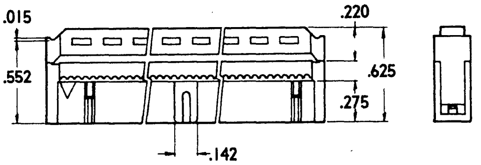
SPECIFICATIONS
Socket Accepts: 28AWG Standard Wire
Current Rating: 1A
Contact Resistance: 16mΩ max.
Insulation Resistance: 1000MΩ min. 500V DC
Dielectric Withstanding Voltage: 800 V AC

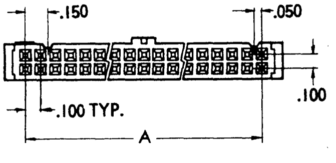
MATERIAL
Insulator: Glass-filled P.B.T. (UL84V-O)
Contact: Be Cu
Contact Finish: Gold plating over Nickel

PART NUMBER
6230-XXX-601 (Receptacle)

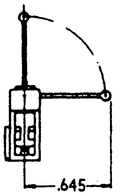
- 601 — Contact plating (See page 2)
- XXX — No. of contact: 010, 014, 016, 020, 026, 030, 034, 040, 050, 060
- 6230 — Series







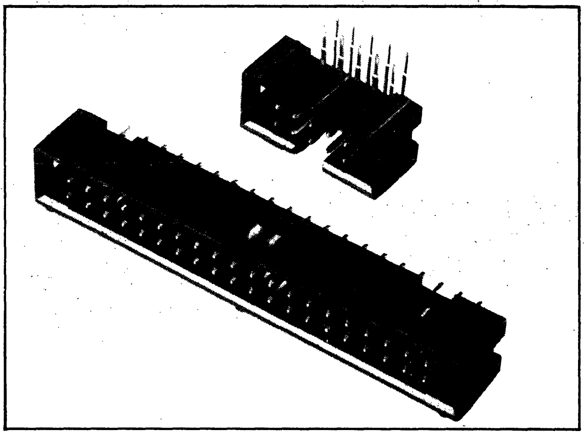
*The pull tab should be used when the mating header is a 6201 series without latches or a 6231 series header.
The pull tab is the only way to disengage the Socket from such a header.



KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

6231 .100 c/c

These box headers accept KEL-AM 6200 and 6230 series ribbon cable sockets and meet the requirements of MIL-C-83503. These headers accept the same polarizing keys as KEL-AM 6201 series headers. These headers are basically identical to the 6201 series except they have no ejector latches and are smaller in size.



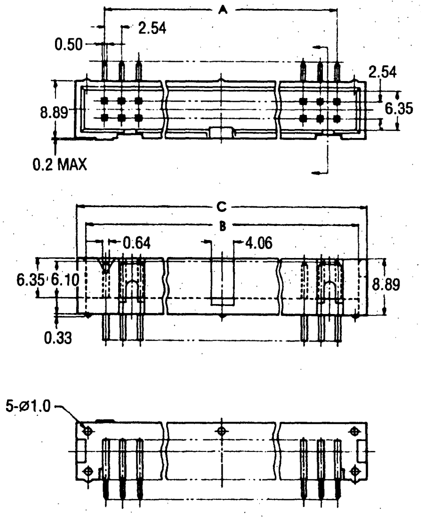
FEATURES

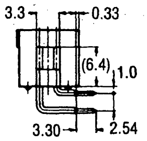
- Ten sizes.
- PBT (polyester) body, color black.
- Copper Alloy contacts
- Plating: gold over Ni (tails have bright tin terminals)
- Shrouded contacts
- Occupies min. "real estate."

PART NUMBER
6231-XXX-255
6231-XXX-257

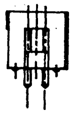
Terminal contact style
255-Right angle, 257-Straight
and contact plating (see page 2)
No. of contacts
Series

6231 METRIC



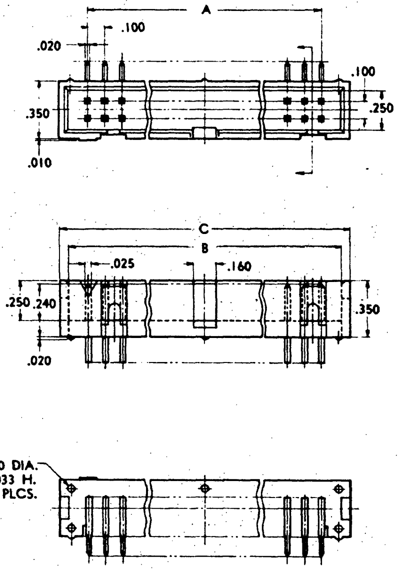


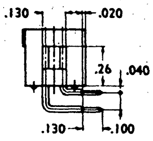
RIGHT ANGLE TERMINALS



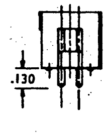
STRAIGHT TERMINALS

6231 CONVERSION





RIGHT ANGLE TERMINALS



STRAIGHT TERMINALS

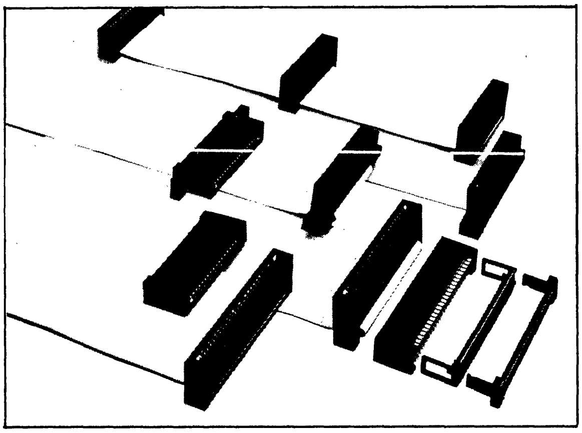
POLARIZING KEY
TO ORDER SPECIFY
P/N = KEY 60
(100 per bag)

DIMENSIONS				
Part Number	Size	A	B	C
6231-010-255•257	10	10.16	17.78	20.02
6231-014-255•257	14	15.24	22.86	25.10
6231-016-255•257	16	17.78	25.40	27.64
6231-020-255•257	20	22.86	30.48	32.72
6231-026-255•257	26	30.48	38.10	40.34
6231-030-255•257	30	35.56	43.18	45.42
6231-034-255•257	34	40.64	48.26	50.50
6231-040-255•257	40	48.26	55.88	58.12
6231-050-255•257	50	60.96	68.58	70.82
6231-060-255•257	60	73.66	81.28	83.52

DIMENSIONS				
Part Number	Size	A	B	C
6231-010-XXXX	10	.400	.700	.800
6231-014-XXXX	14	.600	.900	1.000
6231-016-XXXX	16	.700	1.000	1.100
6231-020-XXXX	20	.900	1.200	1.300
6231-026-XXXX	26	1.200	1.500	1.600
6231-030-XXXX	30	1.400	1.700	1.800
6231-034-XXXX	34	1,600	1.900	2.000
6231-040-XXXX	40	1.900	2.200	2.300
6231-050-XXXX	50	2.400	2.700	2.800
6231-060-XXXX	60	2.900	3.200	3.300

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

6300 .100 c/c



These receptacles mate with 1/16 inch edge card PC boards. Select the size cable required (number of conductors). See "Tooling" for ribbon cable seating tools. These ribbon cable receptacles are directly interchangeable with those of most major manufacturers. Note that pin 1 is reversed from pin 1 on RF series.

MATERIAL

Contact Material: Phosphor Bronze
Insulator: Glass-filled P.B.T. (UL94V-O)
Finish: Gold plating over Nickel

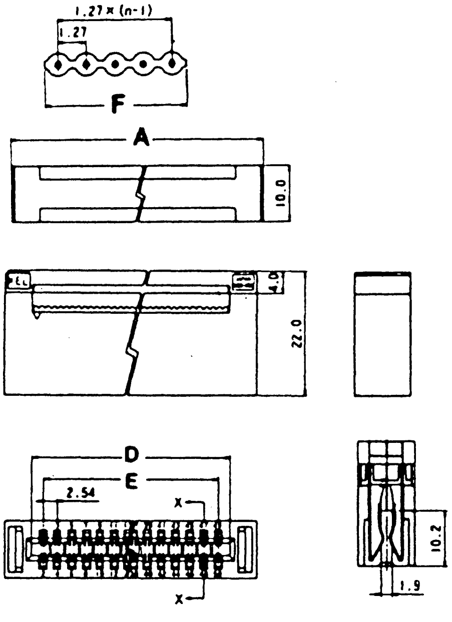
PART NUMBER

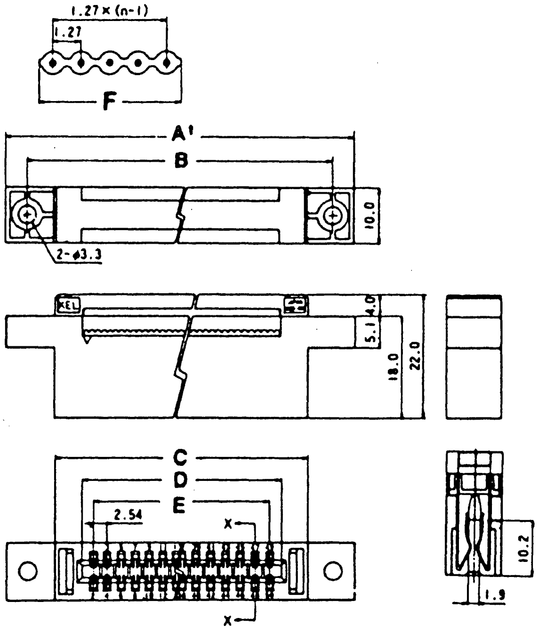
6300X-XXX-603

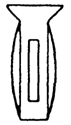
Contact plating (See page 2)
No. of contact:
010, 014, 016, 020, 024, 026, 030,
034, 040, 050, 060, 064, 072
A: Without flange & strain relief
B: Without flange & with strain relief
C: Without strain relief & with flange
D: With flange & strain relief
Series

SPECIFICATIONS

Current Rating: 1A
Contact Resistance: 16mΩ max.
Dielectric Withstanding Voltage: 800 V AC
Insulation Resistance: 1000MΩ min. 500 V DC
Insertion Force: 500g max./pair
Withdrawal Force: 28g min./pair







POLARIZING KEY
110-10-001-37

6300 METRIC

DIMENSIONS							
Size	**A**	**A¹**	**B**	**C**	**D**	**E**	**F**
10	24.40	41.20	33.20	24.40	15.34	10.16	12.70
14	29.48	46.28	38.28	29.48	20.42	15.24	17.78
16	32.02	48.82	40.82	32.02	22.96	17.78	20.32
20	37.10	53.90	45.90	37.10	28.04	22.86	25.40
24	42.18	58.98	50.98	42.18	33.12	27.94	30.48
26	44.72	61.52	53.52	44.72	35.66	30.48	33.02
30	49.80	66.60	58.60	49.80	40.74	35.56	38.10
34	54.88	71.68	63.68	54.88	45.82	40.64	43.18
40	62.50	79.30	71.30	62.50	53.44	48.26	50.80
50	75.20	92.00	84.00	75.20	66.14	60.96	63.50
60	87.90	104.70	96.70	87.90	78.84	73.66	76.20
64	92.98	109.78	101.78	92.98	83.92	78.74	81.28
72	103.14	119.94	111.94	103.14	94.08	88.90	91.44

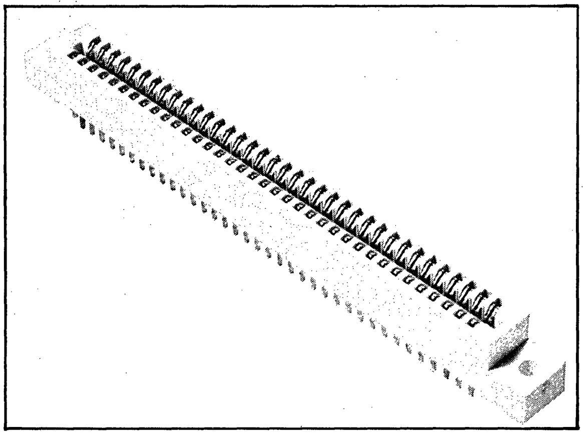
6300 CONVERSION

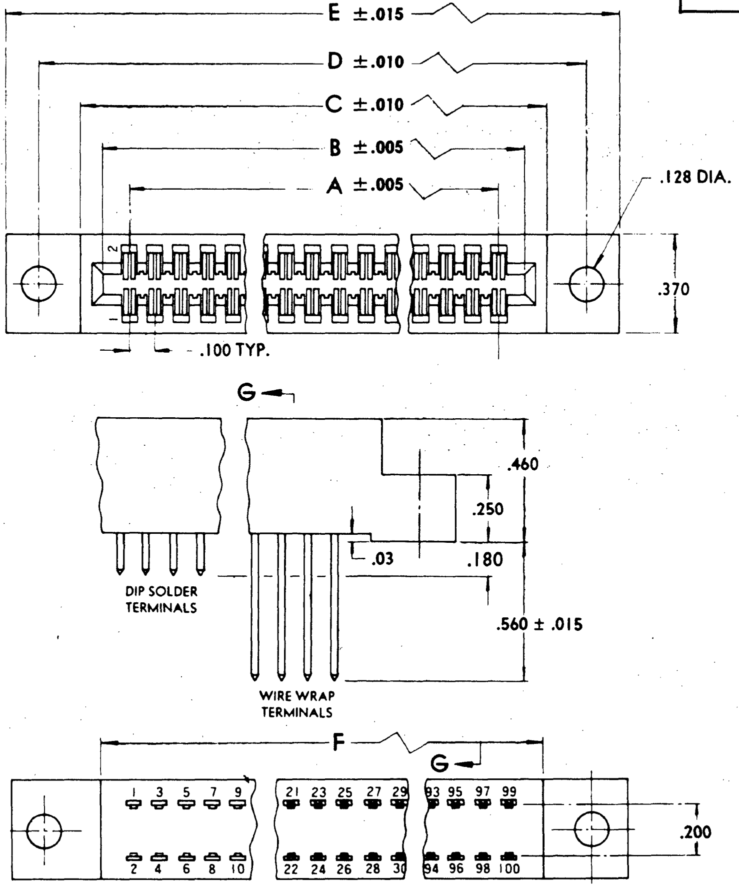
DIMENSIONS							
Size	**A**	**A¹**	**B**	**C**	**D**	**E**	**F**
10	.960	1.622	1.307	.960	.603	.399	.499
14	1.160	1.822	1.507	1.160	.803	.599	.699
16	1.260	1.922	1.607	1.260	.903	.699	.799
20	1.460	2.122	1.807	1.460	1.103	.899	.999
24	1.660	2.322	2.007	1.660	1.303	1.099	1.199
26	1.760	2.422	2.107	1.760	1.403	1.199	1.299
30	1.960	2.622	2.307	1.960	1.603	1.399	1.499
34	2.160	2.822	2.507	2.160	1.803	1.599	1.699
40	2.460	3.122	2.807	2.460	2.103	1.899	1.999
50	2.960	3.622	3.307	2.960	2.603	2.399	2.499
60	3.460	4.122	3.807	3.460	3.103	2.899	2.999
64	3.660	4.322	4.007	3.660	3.303	3.099	3.199
72	4.060	4.722	4.407	4.060	3.703	3.499	3.599

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

RC .100 c/c

These KEL-AM printed circuit receptacle connectors accept standard 1/16 edge boards and also mate with KEL-AM Pluggem™ series PF, PS and PR. They are available with either wire wrap or dip solder terminals.
Contact Material: Phosphor Bronze

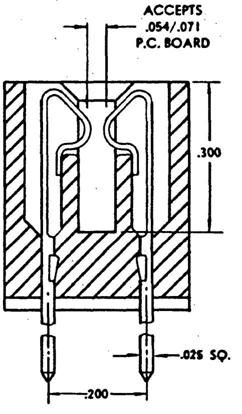



E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.128 DIA.
2
.370
.100 TYP.
G
.460
.250
.03
.180
.560 ± .015
DIP SOLDER TERMINALS
WIRE WRAP TERMINALS
F
G
1 3 5 7 9
21 23 25 27 29
93 95 97 99
2 4 6 8 10
22 24 26 28 30
94 96 98 100
.200

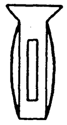
HOW TO ORDER:

RC 36 - 85 42 - 5 (Example)

Series
No. of contacts per row
Terminal type:
42 = Dip solder .025 sq.
85 = Wire wrap .025 sq.
Contact plating (See page 2)
5 = With ears


ACCEPTS .054/.071 P.C. BOARD
.300
.025 SQ.
.200

SECTION G-G



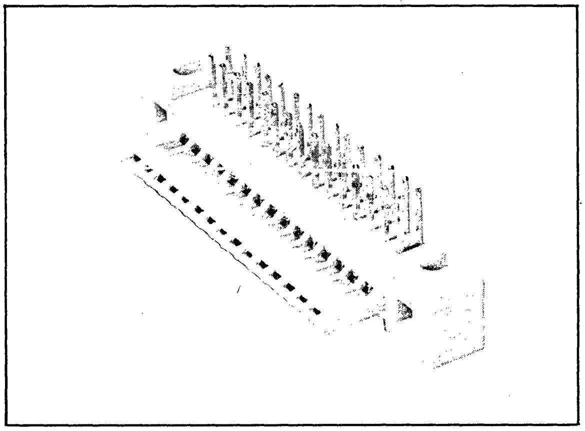
POLARIZING KEY
110-10-001-37

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RC10-XX42-5	.900	1.100	1.260	1.575	1.835	1.180
RC13-XX42-5	1.200	1.400	1.560	1.875	2.135	1.480
RC15-XX42-5	1.400	1.600	1.760	2.075	2.335	1.680
RC17-XX42-5	1.600	1.800	1.960	2.275	2.535	1.880
RC18-XX42-5	1.700	1.900	2.060	2.375	2.635	1.980
RC20-XX42-5	1.900	2.100	2.260	2.575	2.835	2.180
RC22-XX42-5	2.100	2.300	2.460	2.775	3.035	2.380
RC25-XX42-5	2.400	2.600	2.760	3.075	3.335	2.680
RC30-XX42-5	2.900	3.100	3.260	3.575	3.835	3.180
RC31-XX42-5	3.100	3.200	3.360	3.675	3.935	3.280
RC36-XX42-5	3.500	3.700	3.860	4.175	4.435	3.780
RC40-XX42-5	3.900	4.100	4.260	4.575	4.835	4.180
RC50-XX42-5	4.900	5.100	5.260	5.575	5.835	5.180

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

PR .100 c/c

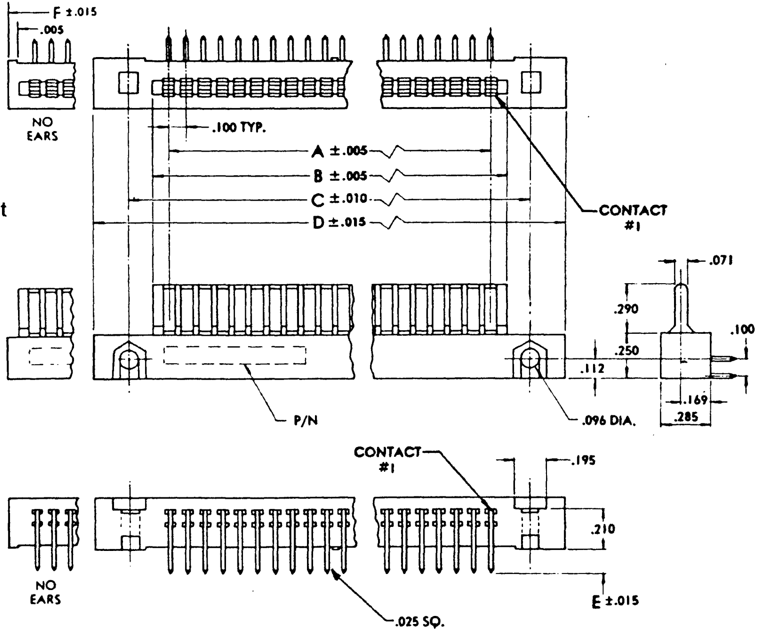
Pluggem™ Right Angle Plug Connector mates with RC and RF series KEL-AM receptacles. It is available with either dip solder or wire wrap .025 sq. terminals. Slot may be molded in plug to accommodate polarizing key. Slot will duplicate that shown on page 2 (see table below).
Contact material: Phosphor Bronze



HOW TO ORDER:

(Example) PR 30 - 65 41 - 15 - 19

Series — PR
No. of contacts per row — 30
Terminal type — 65
61 = Dip solder
65 = Wire wrap .560 LG.
Contact plating (see page 2) — 41
MTG style, right angle — 15
No ears = 0
Add to catalog number only if polarizing slot is required. Omit if no slot is required. (See table below) — 19



STANDARD SLOT POSITIONS OF PR-PS-PF				
NUMBER OF CONTACTS	10 THRU 18	20 THRU 30	36 THRU 40	50
SLOT BETWEEN CONTACTS	8-10	18-20	30-32	44-46
ADD TO END OF CATALOG NO.	-9	-19	-31	-45

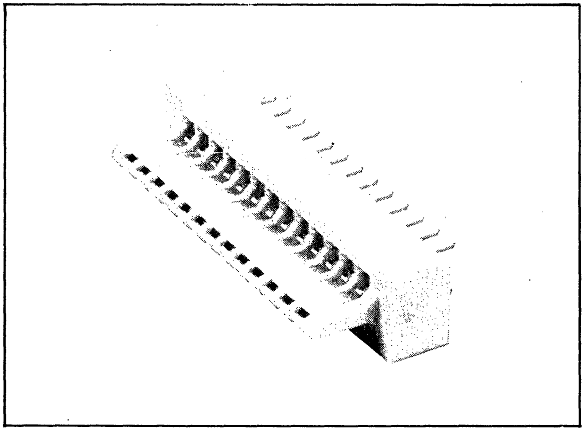
DIMENSIONS

PART NUMBER	A	B	C	D	F*	E DIP SOLDER	E WIRE WRAP
PR10-XXXX-15	.900	1.090	1.360	1.760	1.260	.130	.560
PR13-XXXX-15	1.200	1.390	1.660	2.060	1.560	.130	.560
PR15-XXXX-15	1.400	1.590	1.860	2.260	1.760	.130	.560
PR17-XXXX-15	1.600	1.790	2.060	2.460	1.960	.130	.560
PR18-XXXX-15	1.700	1.890	2.160	2.560	2.060	.130	.560
PR20-XXXX-15	1.900	2.090	2.360	2.760	2.260	.130	.560
PR22-XXXX-15	2.100	2.290	2.560	2.960	2.460	.130	.560
PR25-XXXX-15	2.400	2.590	2.860	3.260	2.760	.130	.560
PR30-XXXX-15	2.900	3.090	3.360	3.760	3.260	.130	.560
PR36-XXXX-15	3.500	3.690	3.960	4.360	3.860	.130	.560
PR40-XXXX-15	3.900	4.090	4.360	4.760	4.260	.130	.560
PR50-XXXX-15	4.900	5.090	5.360	5.760	5.260	.130	.560

*Dimen. F Applies to –0 Style Only

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

PS .100 c/c

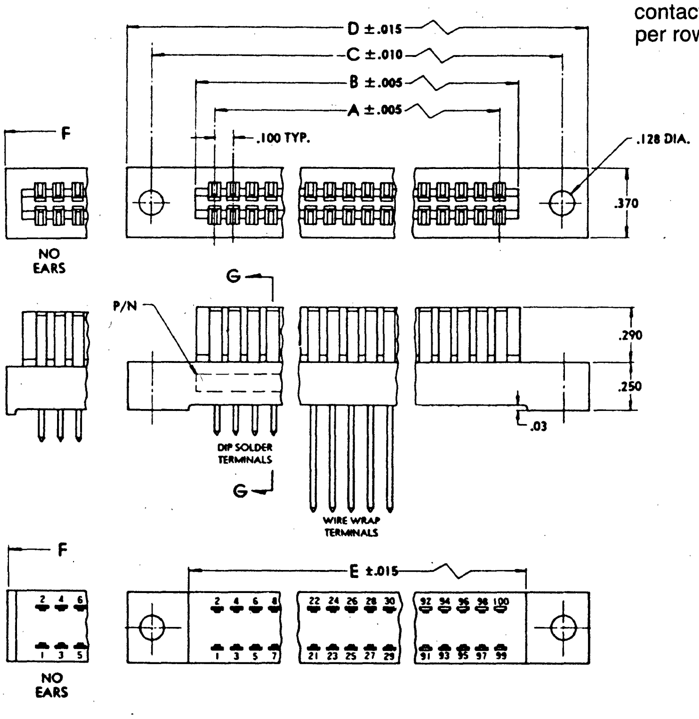


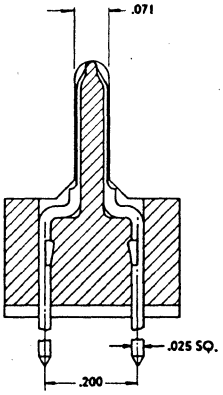
Pluggem™ Straight Plug Connector mates with RC and RF series KEL-AM receptacles. It is available with dip solder and wire wrap terminals, and is available with or without mounting ears. Contact material: Phosphor Bronze

HOW TO ORDER:

PS - 30 - 85 02 - 5 (Example)

Series
No. of contacts per row
Terminal type:
41 = Dip solder .130 LG.
43 = Dip solder .150 LG.
42 = Dip solder .220 LG.
85 = Wire wrap .560 LG.
Plating (See page 2)
0 = No ears
5 = With ears


D ±.015
C ±.010
B ±.005
A ±.005
F
.100 TYP.
.128 DIA.
.370
NO EARS
G
P/N
.290
.250
.03
DIP SOLDER TERMINALS
G
WIRE WRAP TERMINALS
F
E ±.015
2 4 6
1 3 5
NO EARS
2 4 6 8
1 3 5 7
22 24 26 28 30
21 23 25 27 29
92 94 96 98 100
91 93 95 97 99

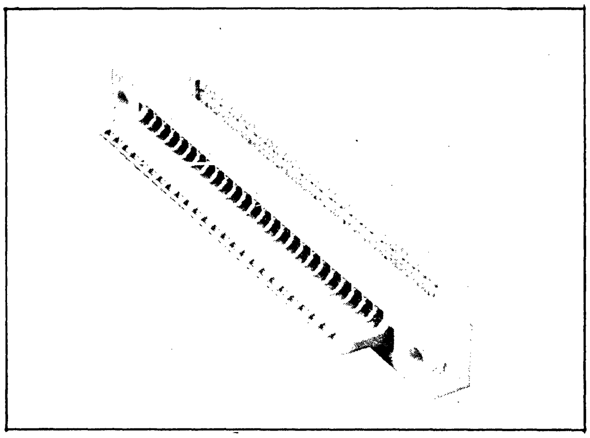

.071
.025 SQ.
.200

SECTION G-G

DIMENSIONS						
PART NUMBER	**A**	**B**	**C**	**D**	**E**	**F**
PS10-XXXX-X	.900	1.090	1.575	1.835	1.180	1.260
PS13-XXXX-X	1.200	1.390	1.875	2.135	1.480	1.560
PS15-XXXX-X	1.400	1.590	2.075	2.335	1.680	1.760
PS17-XXXX-X	1.600	1.790	2.275	2.535	1.880	1.960
PS18-XXXX-X	1.700	1.890	2.375	2.635	1.980	2.060
PS20-XXXX-X	1.900	2.090	2.575	2.835	2.180	2.260
PS22-XXXX-X	2.100	2.290	2.775	3.035	2.380	2.460
PS25-XXXX-X	2.400	2.590	3.075	3.335	2.680	2.760
PS30-XXXX-X	2.900	3.090	3.575	3.835	3.180	3.260
PS36-XXXX-X	3.500	3.690	4.175	4.435	3.780	3.860
PS40-XXXX-X	3.900	4.090	4.575	4.835	4.180	4.260
PS50-XXXX-X	4.900	5.090	5.575	5.835	5.180	5.260

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

PF .100 c/c



Pluggem™ Ribbon Cable Plug Connectors mate with KEL-AM RC and RF receptacle connectors. Select the size cable required, (Number of conductors and gage of the conductors). If, as an example, your ribbon cable has (40) #28 AWG conductors, order a PF20-2852-0 or -5 plug. KEL-AM PF plugs cannot be terminated to ribbon cable without using fixture (See tooling). See page 2 for information on polarizing key slot if required.

Contact material: Phosphor Bronze

HOW TO ORDER:

PF - 30 - 28 52 - 5 (Example)

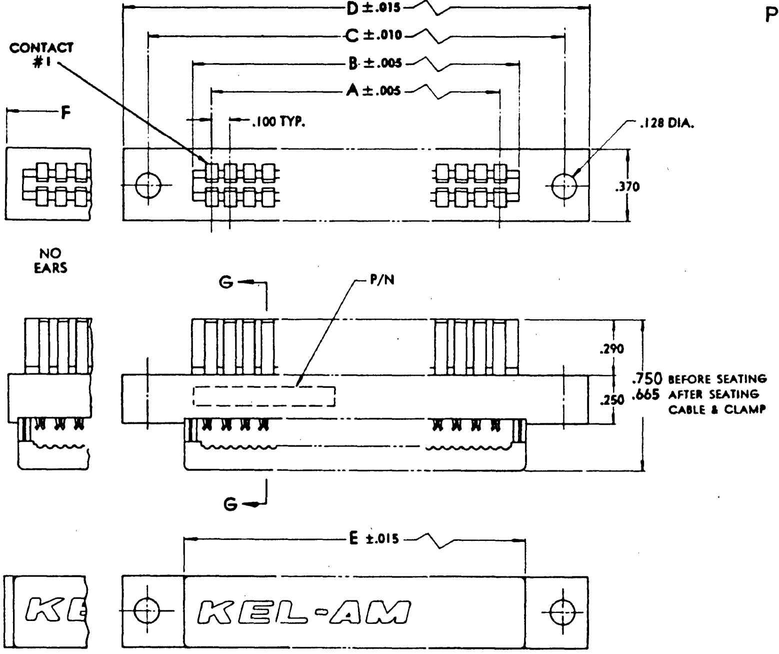
Series

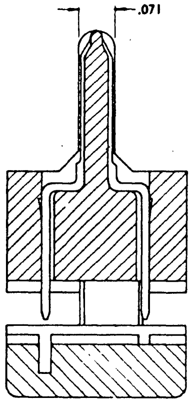
No. of Contacts Per Row

Terminal Size 28 = 28 AWG (Stranded)

Contact Plating (See Page 2)

0 = No Ears
5 = With Ears


CONTACT #1
F
D ±.015
C ±.010
B ±.005
A ±.005
.100 TYP.
.128 DIA.
.370
NO EARS
G
P/N
.290
.750 BEFORE SEATING
.665 AFTER SEATING CABLE & CLAMP
.250
G
E ±.015
KEL-AM

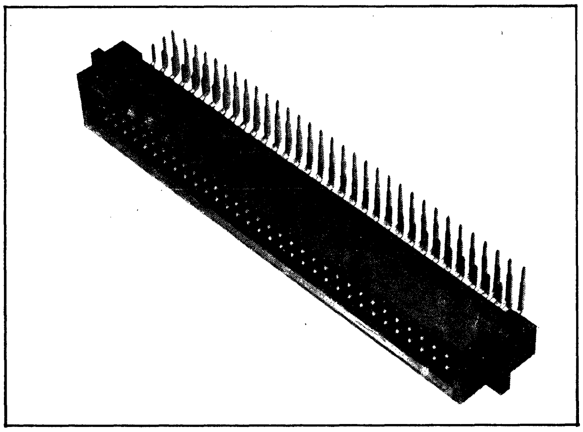


SECTION G-G

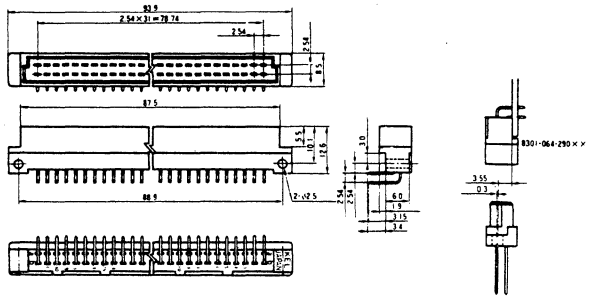
DIMENSIONS						
PART NUMBER	**A**	**B**	**C**	**D**	**E**	**F**
PF10-2852-X	.900	1.090	1.575	1.835	1.175	1.260
PF13-2852-X	1.200	1.390	1.875	2.135	1.475	1.560
PF17-2852-X	1.600	1.790	2.275	2.535	1.875	1.960
PF18-2852-X	1.700	1.890	2.375	2.635	2.075	2.060
PF20-2852-X	1.900	2.090	2.575	2.835	2.175	2.260
PF22-2852-X	2.100	2.290	2.775	3.035	2.375	2.460
PF25-2852-X	2.400	2.590	3.075	3.335	2.675	2.760
PF30-2852-X	2.900	3.090	3.575	3.835	3.175	3.260
PF36-2852-X	3.500	3.690	4.175	4.435	3.775	3.860

8301 DIN STANDARD .100 c/c

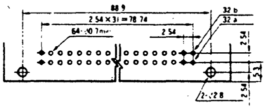
For specifications and part number refer to page 22, 8300 series.



8301-064 METRIC



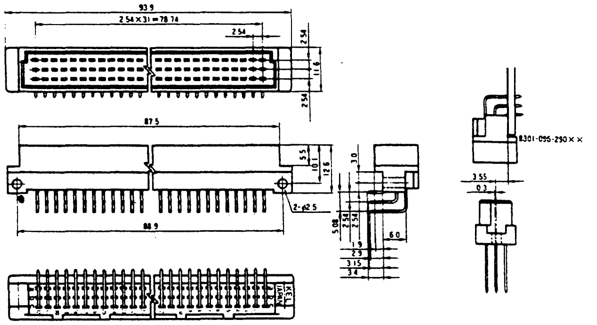
93.9
2.54×31=78.74
2.54
2.54
8.5
87.5
5.5
10.1
12.6
3.0
2-φ2.5
88.9
2.54
2.54
6.0
1.9
3.15
3.4
KEL JAPAN
8301-064-290××
3.55
0.3



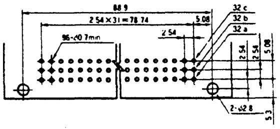
88.9
2.54×31=78.74
64-φ0.7min
2.54
32 b
32 a
2.54
5.1
2.54
2-φ2.8

RECOMMENDED DIMENSIONS FOR P.C.B.

8301-096 METRIC



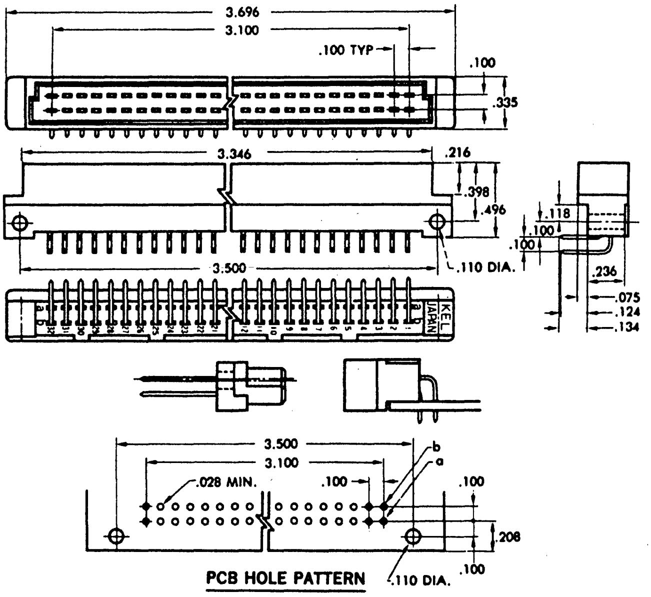
93.9
2.54×31=78.74
2.54
2.54
11.6
2.54
87.5
5.5
10.1
12.6
3.0
2-φ2.5
88.9
5.08
2.54
2.54
6.0
1.9
2.9
3.15
3.4
KEL JAPAN
8301-095-290××
3.55
0.3



88.9
2.54×31=78.74
5.08
96-φ0.7min
2.54
32 c
32 b
32 a
2.54
2.54
5.08
2-φ2.8
5.3

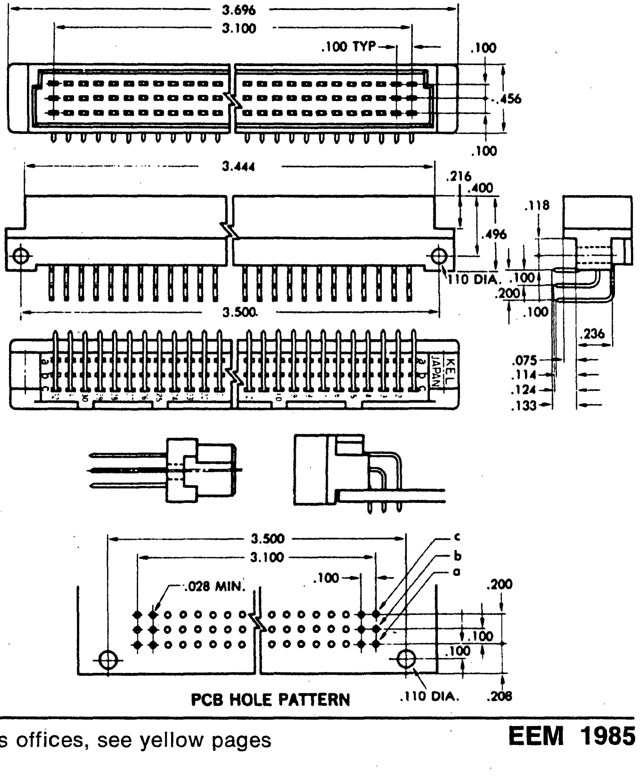
RECOMMENDED DIMENSIONS FOR P.C.B.

8301-064 CONVERSION



3.696
3.100
.100 TYP
.100
.335
3.346
.216
.398
.496
.118
.100
.100
.110 DIA.
3.500
.236
.075
.124
.134
KEL JAPAN
3.500
3.100
.028 MIN.
.100
b
a
.100
.208
.100
.110 DIA.
PCB HOLE PATTERN

8301-096 CONVERSION



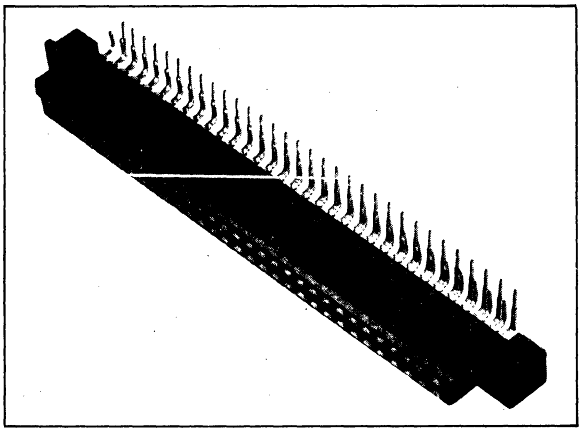
3.696
3.100
.100 TYP
.100
.456
.100
3.444
.216
.400
.118
.496
110 DIA.
.100
.200
.100
3.500
.236
.075
.114
.124
.133
KEL JAPAN
3.500
3.100
.028 MIN.
.100
c
b
a
.200
.100
.100
.110 DIA.
.208
PCB HOLE PATTERN

KEL-AM, INC. • 1-800-233-2001 (Nat'l. Sales) • 1-800-221-1059 (East. Reg. Sales)

8400 DIN INVERSE .100 c/c

SPECIFICATIONS

Current Rating: 2A
Contact Resistance: 20mΩ max.
Dielectric Withstanding Voltage: 1,000V AC
Insulation Resistance: 10^6MΩ min., 500V DC
Insertion Force: 64 pins—6.13kg max.
96 pins—9.18kg max.
Withdrawal Force: 64 pins—1.22kg min.
96 pins—1.94kg min.
Withdrawal Force of Individual Contact:
15.3g min./1 pair with 0.56mm thickness steel gage
Contact Retention: 2.04kg min.



PART NUMBER

8401-XXX-282-X Receptacle
8400-XXX-282-X Plug

Contact rows assembled
- No mark : A, B, C,
- 1 : A
- 2 : A, B,
- 3 : A, C,

Terminal style
- 291 : Wire wrap straight
- 292 : Dip Solder straight
- 282 : Right Angle

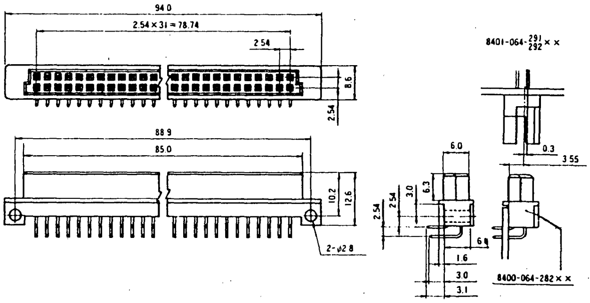
No. of contact
- 064 : 64 pins
- 096 : 96 pins

Series

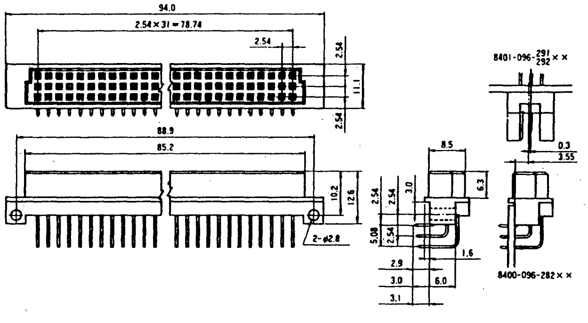
MATERIAL

Insulator: Glass-filled P.B.T. (UL94V-O)
Contact: Copper Alloy
Contact Finish: See page 2

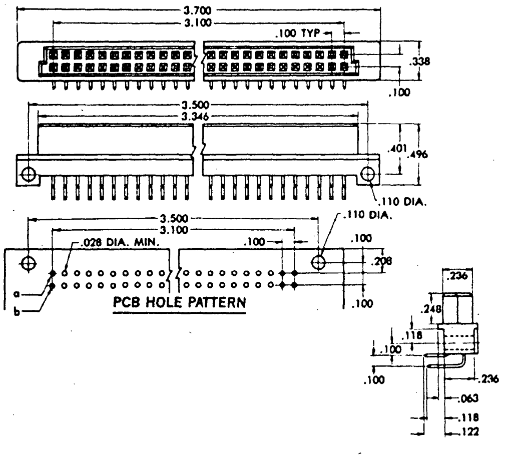
8400-064 METRIC


94.0
2.54×31=78.74
2.54
8.6
2.54
88.9
85.0
10.2
12.6
2-φ2.8
8401-064-291/292××
0.3
3.55
6.0
6.3
3.0
2.54
2.54
6
1.6
3.0
3.1
8400-064-282××

8400-096 METRIC


94.0
2.54×31=78.74
2.54
2.54
11.1
2.54
88.9
85.2
10.2
12.6
2-φ2.8
8401-096-291/292××
0.3
3.55
8.5
6.3
3.0
2.54
2.54
5.08
2.54
1.6
2.9
3.0
6.0
3.1
8400-096-282××

8400-064 CONVERSION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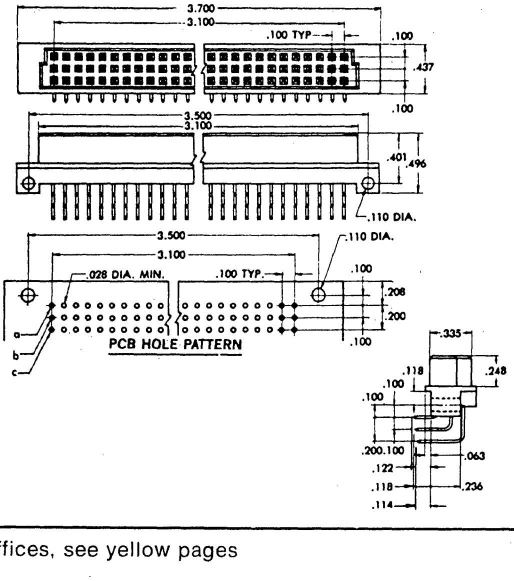
3.100
.100 TYP
.338
.100
3.500
3.346
.401
.496
.110 DIA.
3.500
3.100
.110 DIA.
.028 DIA. MIN.
.100
.100
.208
.100
a
b
PCB HOLE PATTERN
.236
.248
.118
.100
.100
.236
.063
.118
.122

8400-096 CONVERSION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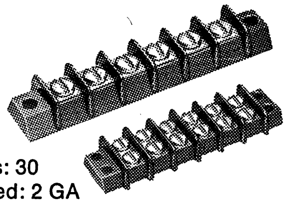
.100 TYP
.100
.437
.100
3.500
3.100
.401
.496
.110 DIA.
3.500
3.100
.110 DIA.
.028 DIA. MIN.
.100 TYP.
.100
.208
.200
.100
a
b
c
PCB HOLE PATTERN
.335
.118
.248
.100
.100
.200
.100
.063
.122
.118
.236
.114

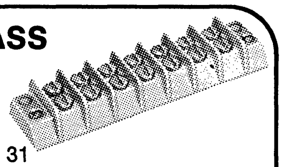
Kulka TERMINAL BOARDS, BLOCKS & STRIPS

FLAT MOUNT THERMOSET



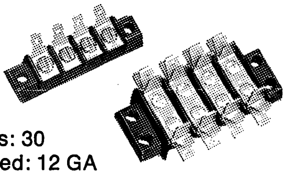
Current range: up to 90 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 30
Maximum wire size accommodated: 2 GA
Hardware: variations as needed, including wire wrap

MILITARY & NAVY CLASS



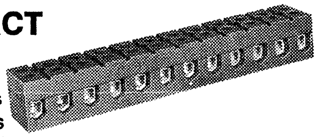
Current range: up to 50 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 31
Hardware: variations as needed
Molding materials: MAI-60, SDG-F or GDI-30F in accordance with MIL-M-14

KLIPTITE™ QUICK CONNECT



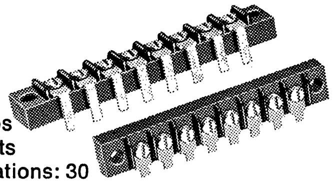
Maximum number of terminations: 30
Maximum wire size accommodated: 12 GA
Hardware: available in multiple configurations
Molding materials: thermoset or thermoplastic

PRESSURE CONTACT



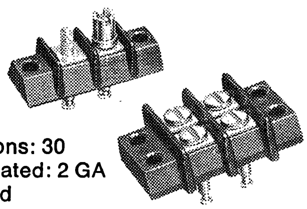
Current range: up to 85 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 12
Maximum wire size accommodated: 6 GA
Hardware: screw type
Molding materials: thermoset

PC MOUNT THERMOSET



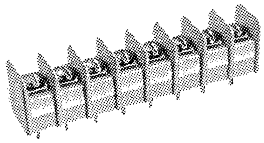
Current range: up to 20 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 30
Maximum wire size accommodated: 14 GA
Hardware: variations as needed

STUD & TURRET



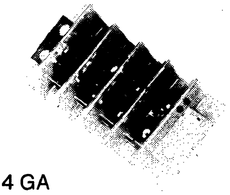
Current range: up to 90 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 30
Maximum wire size accommodated: 2 GA
Hardware: variations as needed
Molding materials: thermoset

PC MOUNT THERMOPLASTIC



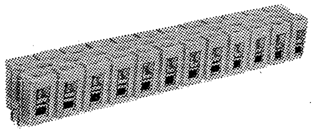
Current range: up to 20 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 25
Maximum wire size accommodated: 14 GA
Hardware: variations as needed

FLAT MOUNT THERMOPLASTIC



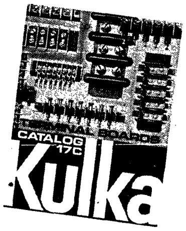
Current range: up to 20 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 20
Maximum wire size accommodated: 14 GA
Hardware: variations as needed, including wire wrap

Hi-Lo™



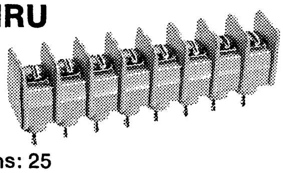
Current range: up to 50 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 24
Maximum wire size accommodated: AWG #8
Hardware: screw type clamp, P.C., wire wrap
Molding materials: thermoplastic

CATALOG & DESIGN MANUAL



Kulka's catalog contains drawings, dimensions and application criteria in conjunction with data on related components and overall terminal block configurations. Send for your free copy today.

INSULATED FEED-THRU THERMOPLASTIC



Current range: up to 20 amps
Rated voltage: up to 600 volts
Maximum number of terminations: 25
Maximum wire size accommodated: 14 GA
Hardware: variations as needed

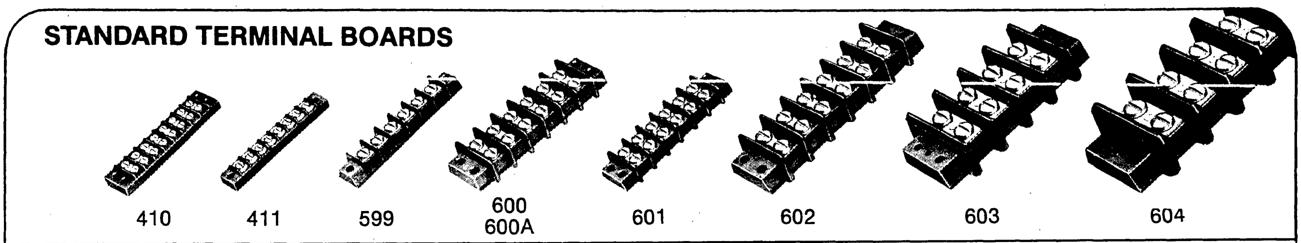
Kulka Smith®
A NORTH AMERICAN PHILIPS COMPANY

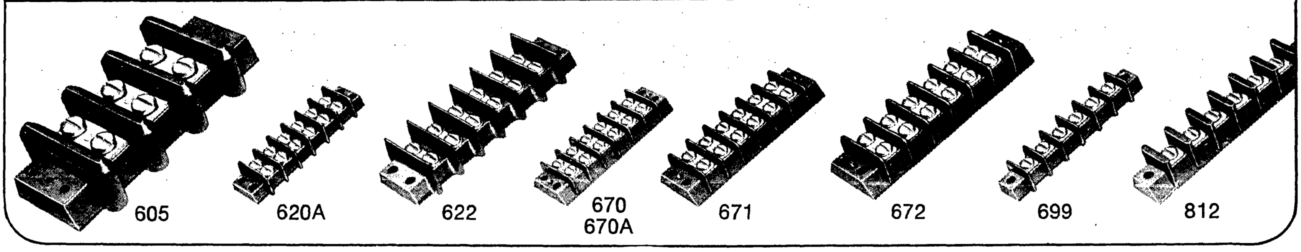
Kulka Smith, Inc. 1913 Atlantic Ave., Manasquan, NJ 08738 Tel: 201 223 9400

Kulka®

THERMOSET FLAT MOUNT STANDARD TERMINAL BOARDS

STANDARD TERMINAL BOARDS





STANDARD BOARDS: READY REFERENCE

Type	Special Features	Current Rating AMPS	Voltage Rating w/ M/S Volts RMS	Voltage Rating w/o M/S Volts RMS	Maximum Wire Size w/Comm. Lugs	Screw Size	Terminal Spacing C to C (inches)	Overall Width (inches)	Overall Height (inches)	No. of Terminals
410	Miniature	5	2000	1000	#20-18GA	2-56	¼	⅝	5/16	1 thru 22
411	Miniature-single row	5	2000	1000	#20-18GA	2-56	¼	13/32	5/16	1 thru 22
599	Single row	15	2500	1100	#22-16GA	5-40	⅜	9/16	13/32	1 thru 30
600	Standard series	15	2500	1100	#22-16GA	5-40	⅜	⅞	13/32	1 thru 22
600A	Standard series	15	2500	1100	#22-16GA	6-32	⅜	⅞	13/32	1 thru 22
601	Standard series	20	3000	1100	#16-14GA	6-32	7/16	1⅛	½	1 thru 23
602	Standard series	30	3300	1600	#14-12GA	8-32	9/16	1 5/16	⅝	1 thru 26
603	Heavy duty	50	3000	1700	#6GA	10-32	11/16	1 13/16	¾	1 thru 12
604	Heavy duty	70	3400	1800	#4GA	12-32	⅞	2	15/16	1 thru 8
605	Heavy duty	90	3800	2100	#2GA	¼-28	1⅛	2½	1⅛	1 thru 6
620A	High barrier	15	3000	1100	#22-16GA	6-32	⅜	⅞	½	1 thru 23
622	High barrier	30	4000	1600	#14-12GA	8-32	9/16	1⅜	¾	1 thru 26
670	Closed back	15		2500	#22-16GA	5-40	⅜	⅞	29/64	1 thru 30
670A	Closed back	15		2500	#22-16GA	6-32	⅜	⅞	29/64	1 thru 30
671	Closed back	20		3000	#16-14GA	6-32	7/16	1⅛	35/64	1 thru 30
672	Closed back	30		3300	#14-12GA	8-32	9/16	1 5/16	21/32	1 thru 26
699	Single row	20	3000	1100	#16-14GA	6-32	7/16	11/16	½	1 thru 23
812	Single row	30	3300	1600	#14-12GA	8-32	9/16	¾	23/32	1 thru 18

MOLDING MATERIALS AVAILABLE

The table below is compiled from various sources and is presented to facilitate comparison between the various materials. Values given are average and are not to be considered as absolute values.

Material	Description
General purpose phenolic	An economical material with good appearance, good electrical properties and well-balanced physical properties (94V-0).
Cellulose filled phenolic (CFG)	An economical material with good appearance, good electrical properties and well-balanced physical properties.
Mica filled phenolic (MFE)	Recommended for applications requiring low power factor, low loss, high resistivity and low water absorption. Comparatively fragile.
Diallyl phthalate mineral filled (MDG)	Provides dependable performance under adverse temperature and humidity conditions. Excellent electrical characteristics. Low impact strength.
Glass fiber filled phenolic (MFE)	Has the superior electrical properties of mica-filled phenolic (Type MFE) in addition to high strength and heat resistance.
Melmine mineral filled (MME)	Excellent dielectric properties with high arc and flame resistance. Excellent for airborne electronic equipment.
Alkyd glass fiber filled (MAI-60)	For applications requiring high strength and good electrical properties. After prolonged exposure to high humidity, there is a reduction of insulation resistance.
Diallyl phthalate long glass fiber filled (GDI-30F)	Good strength characteristics combined with physical stability and good electrical properties. Retains high insulation resistance after prolonged exposure to humidity. GDI-30F is flame-resistant and self-extinguishing.
Diallyl phthalate short glass fiber filled (SDGF)	Has good electrical properties of GDI-30F in addition to moldability, especially in thin-walled and/or deep section.

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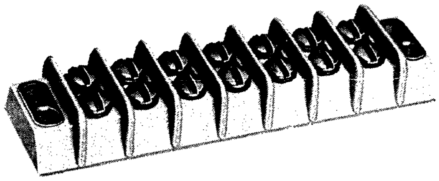
Kulka®

MILITARY & NAVY CLASS TERMINAL BOARDS

MILITARY CLASS: CLOSED BACK

These military boards feature molded-in terminals in an improved Kulka design for greater strength and flexibility. The mounting holes are covered with molded-in reinforcement straddle plates. The boards can be supplied with Sems or other types of special screws. They come in 3 sizes, Class 37TB through Class 39TB.

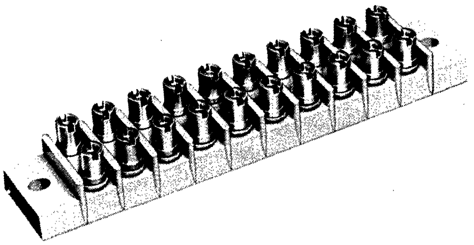


MIL-T-55164 Class No.	Current Rating Amps.	**Dielectric With standing Voltage (Test) Volts RMS	Maximum No. of Terminals	Type of Terminal	Terminal Screw Size	Commercial Equivalent, Interchangeable with Standard Kulka Series
37TB	15	3000	31	Screw	5-40x.219	670
40TB	7½	3000	31	Feed thru	5-40x.219	670-YSY
*lug #TBLD	15	3000	31	Two-sided	5-40x.219	670-ST
*lug #TBLS	15	3000	31	One-sided	5-40x.219	670-3/4ST
38TB	20	3400	23	Screw	6-32x1/4	671
41TB	10	3400	23	Feed thru	6-32x1/4	671-YSY
*lug #TBLD	20	3400	23	Two-sided	6-32x1/4	671-ST
*lug #TBLS	20	3400	23	One-sided	6-32x1/4	671-3/4ST
39TB	30	4000	18	Screw	8-32x1/4	672
42TB	15	4000	18	Feed thru	8-32x5/16	672-YSY
*lug #TBLD	30	4000	18	Two-sided	8-32x5/16	672-ST
*lug #TBLS	30	4000	18	One-sided	8-32x5/16	672-3/4ST

*This designation describes only the lug. A class number has not been assigned for the assembly.
**Test voltage specified per MIL-T-55164. This is a minimum and not actual breakdown voltage.

NAVY CLASS: MIL-T-55164

Designed and manufactured in accordance with MIL-T-55164, formerly MIL-T-16784, and BUSHIPS Dwg. 9000-S4505-73214 and BUORD S64101.



Class	Descr.*	Type Desig.	Federal Stock No. N5940-	Max. Volt. Rating	Maximum Applic. Set [2]	Amp. Rating	Max. No. of Wires Per Term.	Wire Terminal Spec. MIL-E-16366
3TB	SR	3TB10	500-5381	600	C	45	4	L-80
4TB	DR	4TB8	500-5378	600	C	40	4	L-80
		4TB20	502-8470	600	C	40	4	L-80
5TB	SRTC	5TB8	542-8547	600	C	50	4	L-80
		5TB10	502-8474	600	C	50	4	L-80
		5TB12	518-9610	600	C	50	4	L-80
6TB	DR	6TB6	500-5373	600	B	30	4	L-81
		6TB10	542-9333	600	B	30	4	L-81
		6TB24	577-7462	600	B	30	4	L-81
7TB	SRTC	7TB8	502-8476	600	B	40	4	L-81
		7TB12	502-8473	600	B	40	4	L-81
8TB [3]	DRL	8TB2	500-5388	300	B-(A)	30-(20)	2-(3)	L-83
		8TB6	542-8546	300	B-(A)	30-(20)	2-(3)	L-83
		8TB8	502-4522	300	B-(A)	30-(20)	2-(3)	L-83
		8TB10	518-9611	300	B-(A)	30-(20)	2-(3)	L-83
9TB	SR	9TB2	500-5389	300	B	35	4	L-81
		9TB4	600-5390	300	B	35	4	L-81
10TB	DR	10TB8	892-3149	600	B	30	4	L-84
		10TB12	893-7485	600	B	30	4	L-84
		10TB18	502-8469	600	B	30	4	L-84
		10TB28	502-8480	600	B	30	4	L-84
11TB	SRTC	11TB4	502-8479	600	B	40	4	L-84
		11TB6	502-8478	600	B	40	4	L-84
		11TB9	837-8044	600	B	40	4	L-84
		11TB14	502-8471	600	B	40	4	L-84
15TB	DR	15TB10	502-8466	600	B	30	4	L-82
		15TB24	502-8465	600	B	30	4	L-82
16TB	DR	16TB4	500-5392	1000	C	40	4	L-80
		16TB10	502-8467	1000	C	40	4	L-80
17TB [3], [4]	DRL	17TB4	538-4089	600	C-(B)	40-(30)	3-(4)	L-80
		17TB10	583-2118	600	C-(B)	40-(30)	3-(4)	L-80
25TB	SR	25TB2	—	300	A	25	3	L-85
		25TB5	681-9771	300	A	25	3	L-85
		25TB6	681-9777	300	A	25	3	L-85
		25TB7	836-7671	300	A	25	3	L-85
		25TB9	—	300	A	25	3	L-85
		25TB10	836-7401	300	A	25	3	L-85
		25TB12	702-3733	300	A	25	3	L-85
26TB [3]	DRL	26TB2	836-7672	300	A	20	2-(3)	L-86
		26TB6	827-6575	300	A	20	2-(3)	L-86
		26TB8	836-7402	300	A	20	2-(3)	L-86
		26TB10	838-4353	300	A	20	2-(3)	L-86
		26TB12	818-8903	300	A	20	2-(3)	L-86
27TB	SRTC	27TB12	836-7404	300	A	30	3	L-85

NOTES:

Molded material is MAI-60 in accordance with MIL-M-14.

*Description:
SR = single row DR = double row DRL = double row linked
SRTC = single row through connection

[2] Application sets are as follows:
- Set A – These terminal boards are intended for use in equipment where the effect of a short circuit is limited to the terminal board and where normal operation powers up to 50 watts are involved.
- Set B – These terminal boards are intended for use where secondary short circuit protection in the form of fuses, circuit breakers and other parts are provided in the circuit, and where normal operating power does not exceed 2000 watts per terminal.
- Set C – These terminal boards are for power applications in excess of 2000 watts (per terminal) but still protected by secondary devices in the circuit which can safely interrupt resultant short circuit currents.

[3] The stud connector for these terminal boards is considered part of the stud and is required, unless otherwise specified. With the stud connector removed, the terminal board will provide twice the number of connection points and allow for an additional wire per terminal; however, the application set will be reduced as shown.

[4] The designation plate shall be supplied with the terminal board unless otherwise specified.

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Kulka

Kulka's pressure-contact terminal blocks are designed for heavy-duty applications. They are ideal for control cabinets, industrial air conditioners, electronic power equipment and other high voltage and heavy amperage use. These blocks feature a dead front, one-piece construction with a tubular screw that provides a vise-like grip on each wire of the through-connected pairs, eliminating soldering. They are available in lengths from 2 to 12 terminals or can easily be field cut. They are UL recognized.

PRESSURE-CONTACT TERMINAL BLOCKS

9-85 SERIES

ELECTRICAL RATING:
Rated voltage — 600 VOLTS
Current rating — 85 AMPS

HARDWARE:
Screws — steel, nickel plated
Tubular terminals — brass, nickel plated

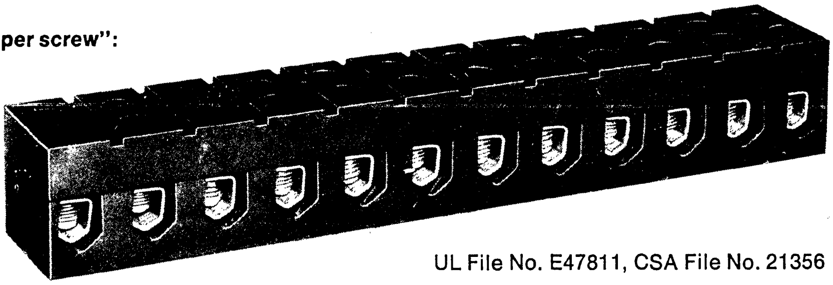
MOLDED MATERIAL:

Mil. Code	Kulka Code	Description
—	—	Commercial grade phenolic (black)
MAI-60	D	Glass fibre-filled alkyd (gray)

WIRE RANGE
#4 AWG thru #18 AWG copper (see below).
Tubular terminals are recognized by UL as "component pressure cable connectors" (file E47811).

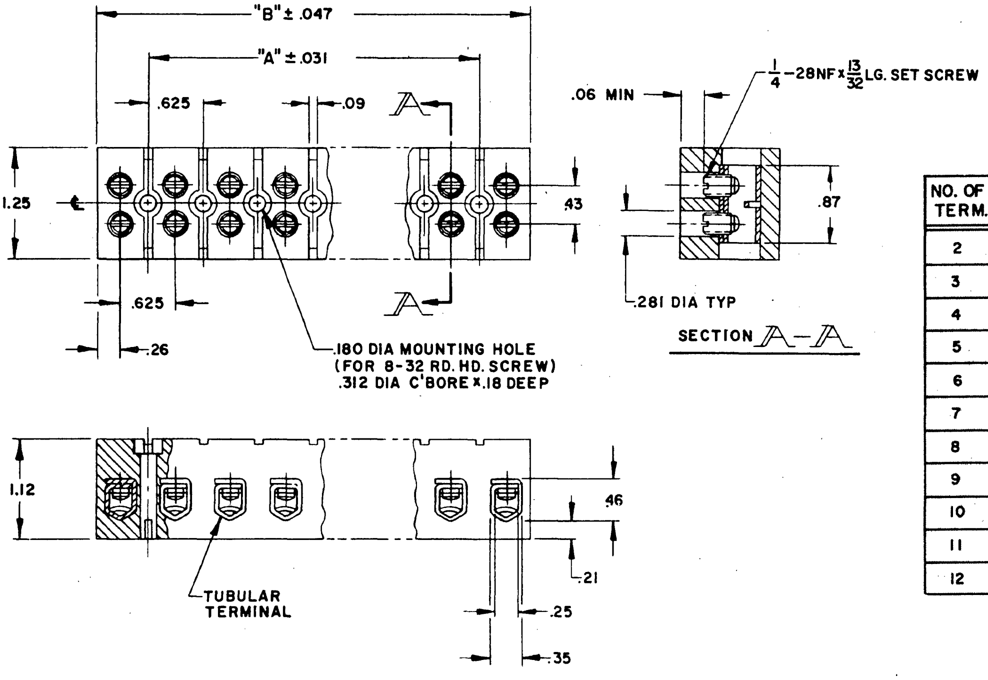
Conductor range and combination "per screw":

COPPER (AWG)
Catalog #9-85
1 #18 solid to 1 #4
2 #8
2 to 4 #10
2 to 4 #12
2 to 6 #14
2 to 6 #16
2 to 8 #18 solid or stranded



UL File No. E47811, CSA File No. 21356

9-85


"B" ± .047
"A" ± .031
.625
.09
A
1.25
.43
.625
.26
.180 DIA MOUNTING HOLE
(FOR 8-32 RD. HD. SCREW)
.312 DIA C'BORE x .18 DEEP
.06 MIN
1/4-28NF x 13/32 LG. SET SCREW
.87
.281 DIA TYP
SECTION A-A
1.12
.46
.21
TUBULAR TERMINAL
.25
.35

NO. OF TERM.	DIMENSIONS	
	A	B
2	—	1.156
3	.625	1.781
4	1.250	2.406
5	1.875	3.031
6	2.500	3.656
7	3.125	4.281
8	3.750	4.906
9	4.375	5.531
10	5.000	6.156
11	5.625	6.781
12	6.250	7.406

Kulka-Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 Tel.: (201) 223-9400

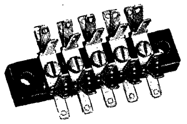
Kulka

KLIPTITE™ QUICK CONNECT

Kulka's Kliptite™ terminal boards, which accept standard female wire terminals, feature self-locking, quick-connect tabs. This feature is ideal for vending machines, appliances, or any application that requires a positive, yet quick disconnect termination. Kliptite tabs are available riveted to the board or assembled with screws. All of Kulka's Kliptite terminal boards are UL recognized and CSA certified.

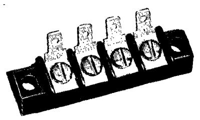
411 SERIES

Screw Constr. (2-56 B.H. Screw)
TAB WIDTH .110
TAB THICKNESS .020



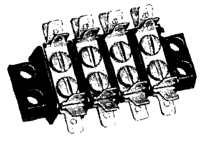
599 SERIES

Screw Constr. (5-40 B.H. Screw)
TAB WIDTH .187
TAB THICKNESS .020



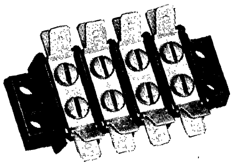
600, 600A, 620A & 670 SERIES

Screw Constr. (5-40 B.H. Screw)
Screw Constr. (6-32 B.H. Screw)
TAB WIDTH .187
TAB THICKNESS .020



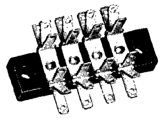
601 & 671 SERIES

Screw Constr. (6-32 B. H. Screw)
TAB WIDTH .250
TAB THICKNESS .032



511 SERIES

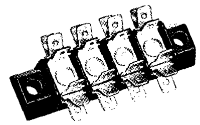
Rivet Construction
TAB WIDTH .110
TAB THICKNESS .020



NOTE: Board specifications listed in Kulka's general catalog under 411 Series

799 SERIES

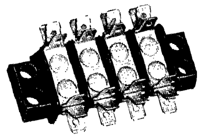
Rivet Construction
TAB WIDTH .187
TAB THICKNESS .020



NOTE: Board specifications listed in Kulka's general catalog under 599 Series

800 SERIES

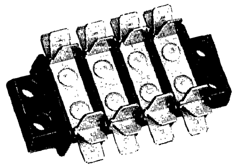
Rivet Construction
TAB WIDTH .187
TAB THICKNESS .020



NOTE: Board specifications listed in Kulka's general catalog under 600 Series

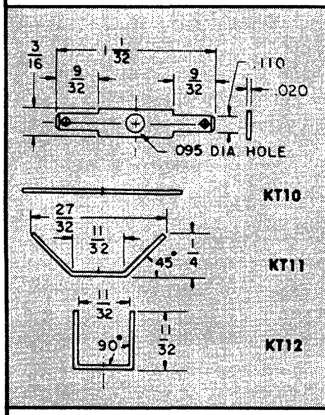
801 SERIES

Rivet Construction
TAB WIDTH .250
TAB THICKNESS .032

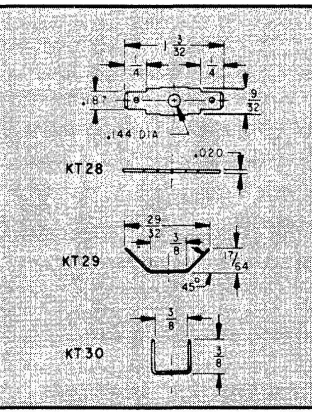


NOTE: Board specifications listed in Kulka's general catalog under 601 Series

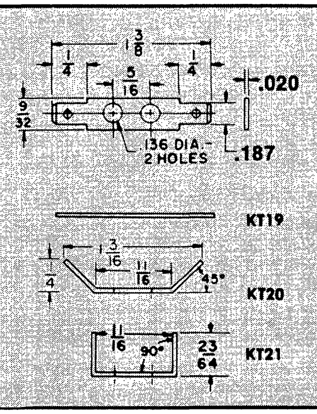
TWO SIDE TABS


3/16
1 1/32
9/32
9/32
.110
.020
.095 DIA. HOLE
KT10
27/32
11/32
45°
1/4
KT11
11/32
90°
11/32
KT12

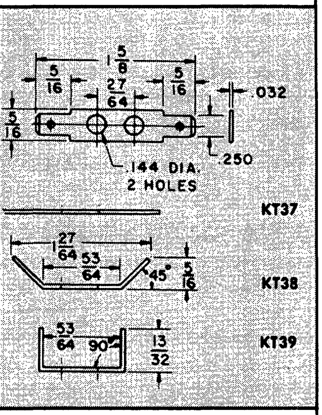
TWO SIDE TABS


1 3/32
1/4
1/4
.187
9/32
.144 DIA
KT28
.020
29/32
3/8
17/64
45°
KT29
3/8
3/8
KT30

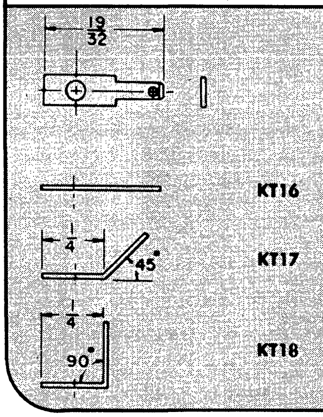
TWO SIDE TABS


1 3/8
1/4
5/16
1/4
.020
9/32
.136 DIA. 2 HOLES
.187
KT19
1 3/16
1/4
11/16
45°
KT20
11/16
90°
23/64
KT21

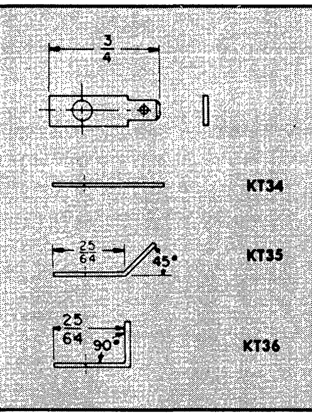
TWO SIDE TABS


1 5/8
5/16
27/64
5/16
.032
5/16
.144 DIA. 2 HOLES
.250
KT37
1 27/64
53/64
45°
5/16
KT38
53/64
90°
13/32
KT39

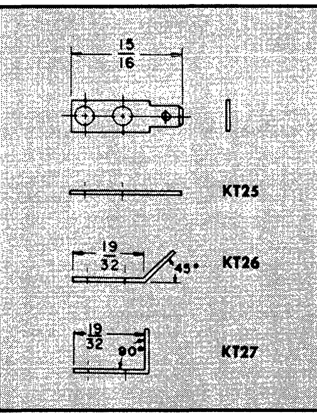
ONE SIDE TABS


19/32
KT16
1/4
45°
KT17
1/4
90°
KT18

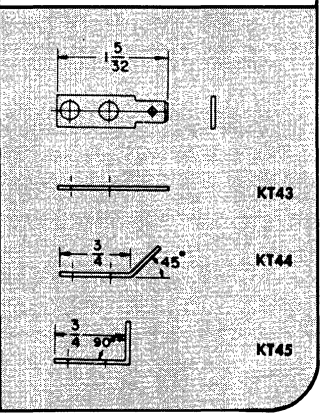
ONE SIDE TABS


3/4
KT34
25/64
45°
KT35
25/64
90°
KT36

ONE SIDE TABS


15/16
KT25
19/32
45°
KT26
19/32
90°
KT27

ONE SIDE TABS


1 5/32
KT43
3/4
45°
KT44
3/4
90°
KT45

Kulka-Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 Tel.: (201) 223-9400

Kulka

KLIPTITE™ QUICK CONNECT

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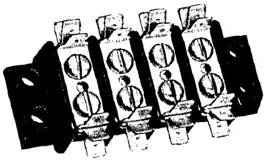
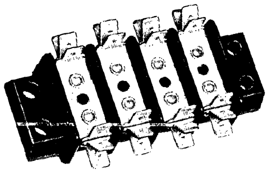
602 & 672 SERIES

Screw Constr. (8-32 B.H. Screw)
TAB WIDTH .250
TAB THICKNESS .032



802 SERIES

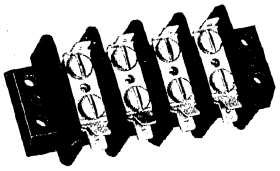
Rivet Construction
TAB WIDTH .250
TAB THICKNESS .032



NOTE: Board specifications listed in Kulka's general catalog under 602 Series

603 SERIES

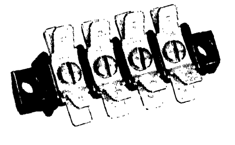
Screw Constr. (10-32 B.H. Screw)
TAB WIDTH .250
TAB THICKNESS .032



NOTE: Board specifications listed in Kulka's general catalog under 603 Series

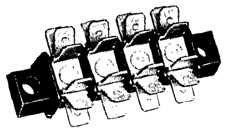
699 SERIES

Screw Constr. (6-32 B.H. Screw)
TAB WIDTH .250
TAB THICKNESS .032



899 SERIES

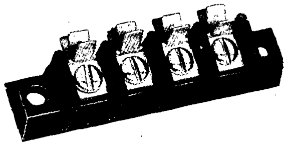
Rivet Construction
TAB WIDTH .250
TAB THICKNESS .032



NOTE: Board specifications listed in Kulka's general catalog under 699 Series

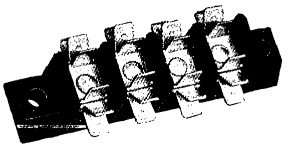
812 SERIES

Screw Constr. (8-32 B.H. Screw)
TAB WIDTH .250
TAB THICKNESS .032



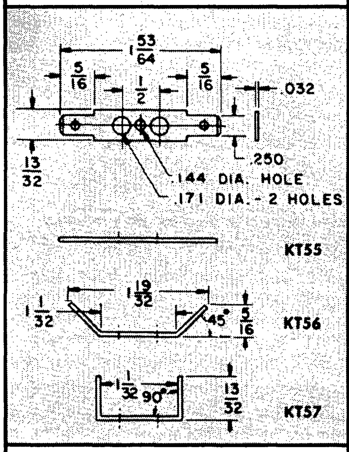
912 SERIES

Rivet Construction
TAB WIDTH .250
TAB THICKNESS .032

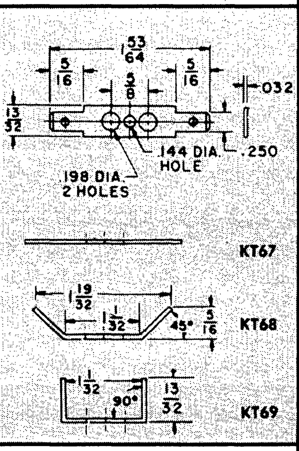


NOTE: Board specifications listed in Kulka's general catalog under 812 Series

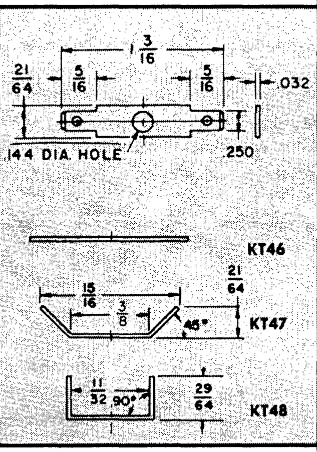
TWO SIDE TABS


1 53/64
5/16
1/2
5/16
.032
.250
13/32
.144 DIA. HOLE
.171 DIA.-2 HOLES
KT55
1 19/32
1 1/32
45°
5/16
KT56
1 1/32
90°
13/32
KT57

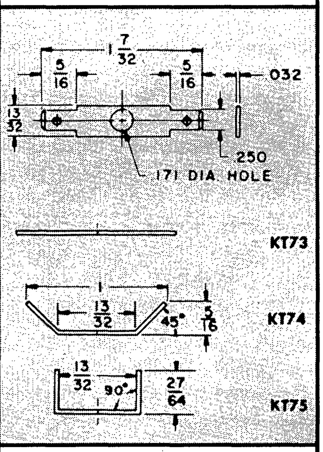
TWO SIDE TABS


1 53/64
5/16
5/8
5/16
.032
13/32
.144 DIA. HOLE
.250
.198 DIA. 2 HOLES
KT67
1 19/32
1 1/32
45°
5/16
KT68
1 1/32
90°
13/32
KT69

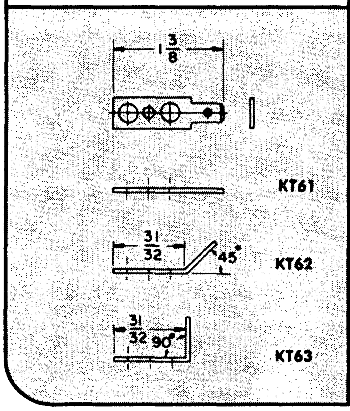
TWO SIDE TABS


1 3/16
21/64
5/16
5/16
.032
.144 DIA. HOLE
.250
KT46
15/16
3/8
45°
21/64
KT47
11/32
90°
29/64
KT48

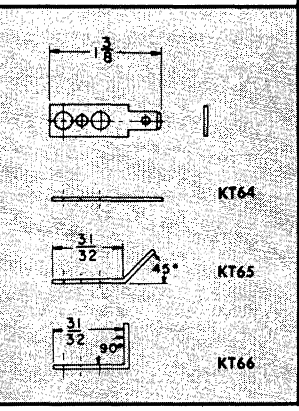
TWO SIDE TABS


1 7/32
5/16
5/16
.032
13/32
.250
.171 DIA. HOLE
KT73
1
13/32
45°
5/16
KT74
13/32
90°
27/64
KT75

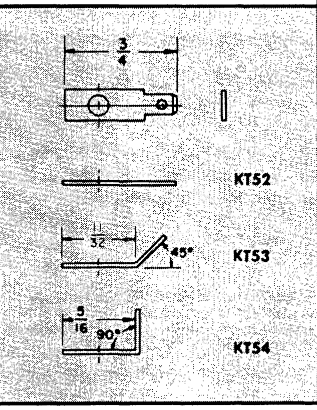
ONE SIDE TABS


1 3/8
KT61
31/32
45°
KT62
31/32
90°
KT63

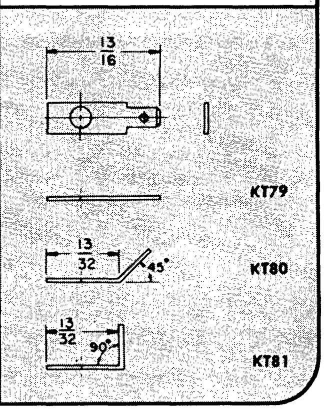
ONE SIDE TABS


1 3/8
KT64
31/32
45°
KT65
31/32
90°
KT66

ONE SIDE TABS


3/4
KT52
11/32
45°
KT53
5/16
90°
KT54

ONE SIDE TABS


13/16
KT79
13/32
45°
KT80
13/32
90°
KT81

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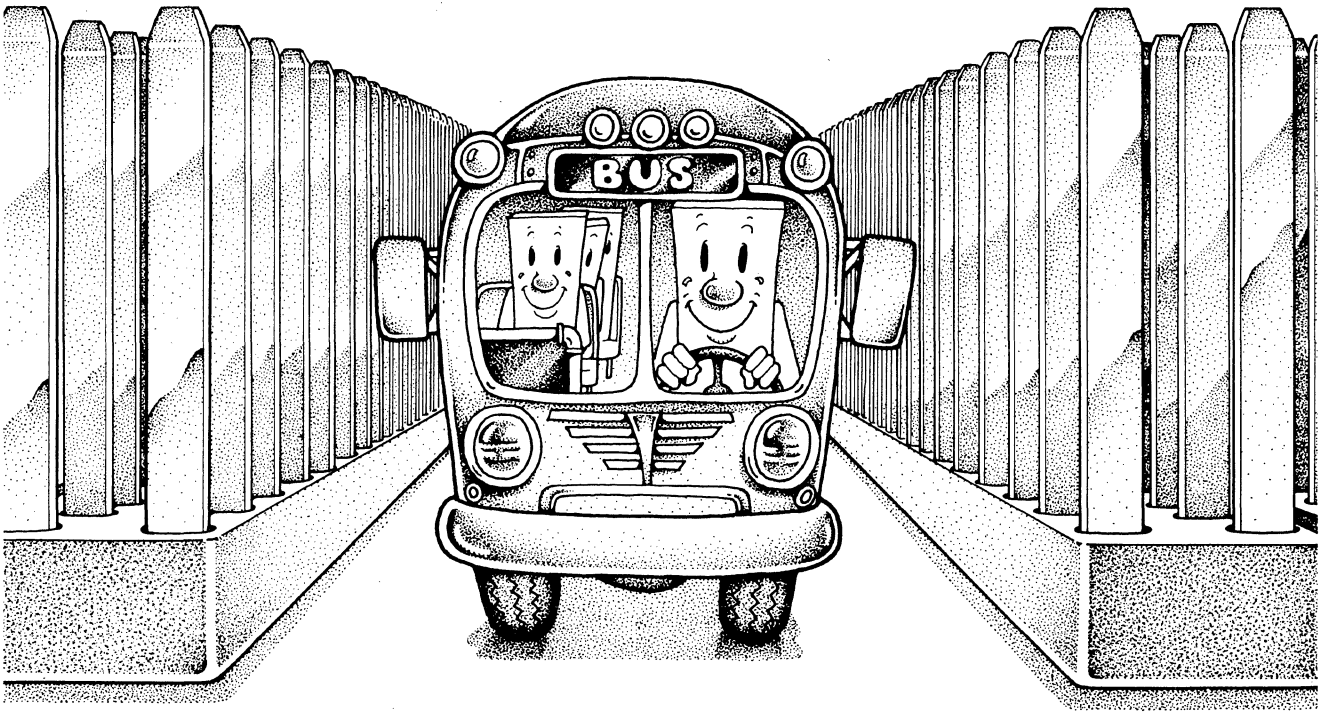
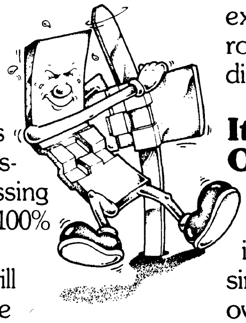


THE LEAR SIEGLER INTERPIN BUSSING PLAN.

Here's one bussing solution that nearly everyone's in favor of. Lear Siegler Pin Bars. Pin Bar products are narrow, coated metal alloy strips that are machined to your exact specifications. They grasp and connect common-spaced pins in electronic chassis better and faster than any other method known.

Iron-Clad, Gas-Tight Connections.

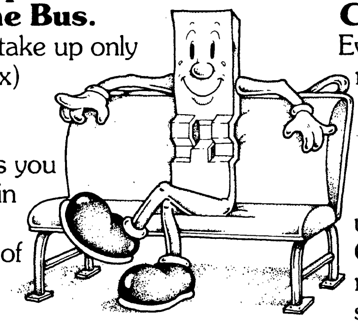


Pin Bars grip each pin with three times greater contact pressure than other bussing products, assuring 100% reliable gas-tight terminations that will outlast the life of the chassis.

With twice the gas-tight contact area and more uniform pressure, you reduce contact resistance, IR losses, heat, and electrical noise.

Performance is so high that it exceeds the tough specifications of MIL-STD-202 "D" for resistance to corrosion, thermal and mechanical shock, and vibration. It's so good that performance continuity checks aren't even necessary.

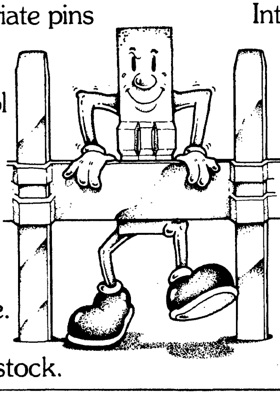
More Space When You Ride the Bus.



Pin Bars take up only ¼ in. (max) space on each pin. This gives you greater pin exposure and a lot of extra room for discrete and harness wiring.

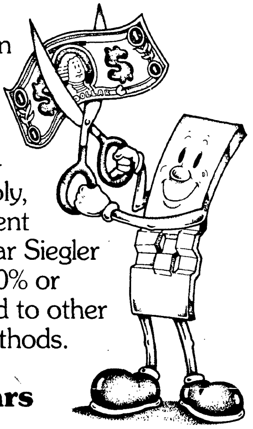
It's Simple To Assemble Our Pin Bars

Minimum skills are all that's required to make fool-proof terminations. Your assemblers simply place the metal strips over the appropriate pins and push down.



A remarkably simple $15.00 tool enables you to turn out up to thousands of terminations per minute. No wire preparation. No tool maintenance. No capital equipment. No bulky stock.

Pin Bars Can Cut Bussing Costs.



Everybody knows it's cheaper to ride the bus! Pin Bar connections cost as little as 4 cents per termination, depending on volume and usage. Considering reliability, non-skilled assembly, and more efficient production, Lear Siegler can save you 40% or more compared to other termination methods.

Free Pin Bars Available.

Interested? Free sample Pin Bars, complete specifications, and answers to questions engineers and manufacturing supervisors ask most are available. Simply contact Pin Bar Products, Lear Siegler, Inc., 714 North Brookhurst Street, Anaheim, CA 92803. Phone: (714) 774-1010.

LEAR SIEGLER, INC.
ELECTRONIC INSTRUMENTATION DIVISION

LEMO Electronic Connectors

The following 10 pages represent an overview of LEMO's product line. For more details, complete catalogs and information on local representatives, please contact LEMO U.S.A. at (707) 578-8811.

RELIABILITY: Positive locking mechanism and gold plated contacts assure consistent signal transmission to 1.5 GHz.

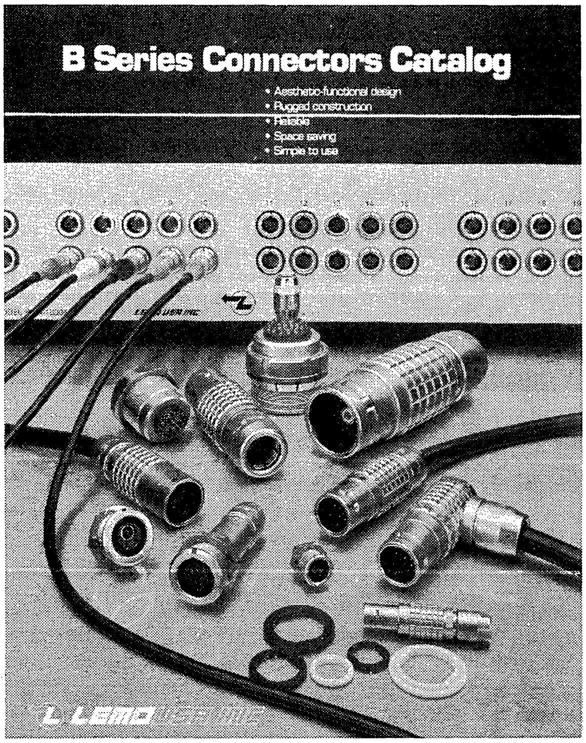
Quick-Lok mechanism assures secure contact by audible click when lock is engaged. Color coding is available too.

SPACE SAVINGS: Only finger clearance needed to engage and disengage connectors. No need to twist or turn locking ring.

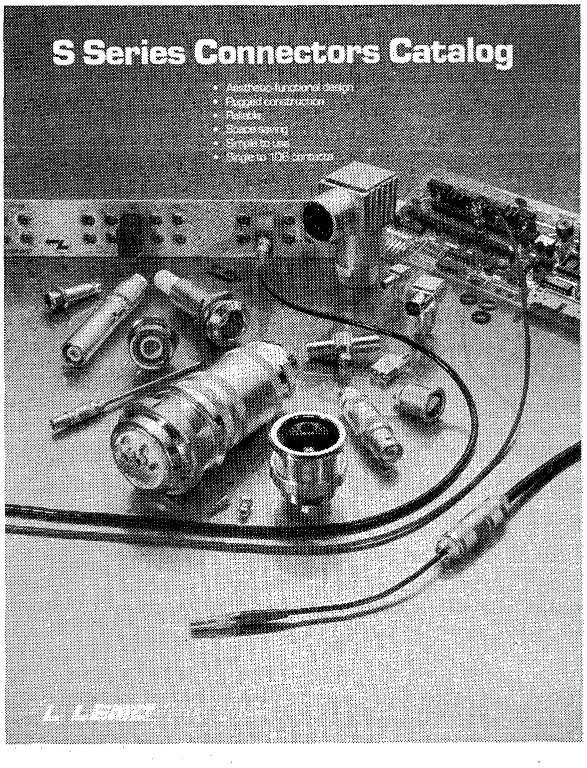
RUGGEDNESS: Connector components are precision machined. Locking mechanism is totally protected by outer shell, virtually eliminating accidental disconnections and damage to locking mechanism, cables and contacts.

SPEED: Connectors engage and disengage simply and quickly by pushing and pulling axially on the outer shell of the plug.

AESTHETIC-FUNCTIONAL DESIGN: Outer shell and back nut finished with matte chrome plating. Contacts are gold plated. LEMO connectors will complement any front panel application.


B Series Connectors Catalog
• Aesthetic-functional design
• Rugged construction
• Reliable
• Space saving
• Simple to use
LEMO USA INC

E Series Connectors Catalog
• Environmentally Sealed
• Aesthetic-functional design
• Rugged construction
• Reliable
• Space saving
• Simple to use
• Single to 106 contacts
LEMO


S Series Connectors Catalog
• Aesthetic-functional design
• Rugged construction
• Reliable
• Space saving
• Simple to use
• Single to 106 contacts
LEMO

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

The LEMO Choices

LEMO manufactures a complete line of high quality connectors specifically engineered and designed for a wide variety of applications.

S SERIES: LEMO's S Series has the widest choice of shell sizes. Proper connection is assured by hermaphroditic insulator and contact configuration.
Range of contact configuration: Single contact; coaxial; triaxial; multiple contact; mixed (coaxial and multiple or high voltage and multiple); and high voltage versions.
Range of cable outer diameter: .059″ to 1.188″/1.5mm to 30.2mm.
Range of contacts: 1 to 106.
S Series is also available in sealed version for special applications.

B SERIES: LEMO's B Series offers greater ruggedness, greater contact density, keying pattern for contact exclusivity, all-male contacts in plug; all-female contacts in receptacle; choice of crimp or solder contacts and color-coded bend reliefs.
Range of contact configuration: Multiple and mixed (coaxial and multiple or high voltage multiple).
Range of cable outer diameter: .083″ to .986″/2.1mm to 25.3mm.
Range of contacts: 2 to 64.

SPECIAL COAXIAL SERIES: LEMO has developed a wide range of coaxial connectors to meet most applications.
01-MINAX Series: LEMO's smallest coaxial connector accommodates cable sizes RG.196A/U, RG.178B/U and RG.174A/U.
00-NIM (Nuclear Instrumentation Module) - CAMAC (Computer Automated Measurement and Control) Series: Designed for cables RG.174A/U, RG.188A/U and RG.316/U.
OA-Telecommunications Series: Designed with contacts to accommodate telecommunications requirements in mind. These accommodate cables RG.58C/U, RG.174A/U.
Other Coaxial Connectors are available in S Series to accommodate cables up to .874″/22.2mm.

TRIAXIAL SERIES: LEMO's triaxial series is used mainly for video camera applications. LEMO has a number of standard connectors in this series and is in the forefront of developing new ones to meet clients' needs.

COMPACT 2C SERIES: LEMO's 2C Series is specially designed for applications where space is critical. It features shorter length shells and contacts.
Range of contact configuration: Multi contact only.
Range of cable outer diameter: .106″ to .314″/2.7mm to 8.1mm.
Range of contacts: 2 to 14.

ENVIRONMENTAL E SERIES: LEMO's E Series is dust and splash down water resistant. Proper connection is assured by hermaphroditic mating.
Range of contact configuration: Single contact, coaxial, triaxial, multiple and mixed (coaxial and multiple or high voltage and multiple).
Range of cable outer diameter: .047″ to 1.070″/1.2mm to 27.2mm.
Range of contacts: 1 to 106.

THERMOCOUPLE SERIES: LEMO's Thermocouple connectors are designed to assure continuous and accurate monitoring of hostile environments where extreme surface or ambient temperatures, gases or liquids must be controlled.

HIGH VOLTAGE SERIES: Originally developed for CERN nuclear facility in Switzerland, LEMO's High Voltage Series is designed for applications where there is a constant non-fluctuating flow of electricity and where power can be cut prior to connecting and disconnecting connector.
Range of contact configuration: Single contact only.
Range of cable: AWG 18 and 12/1.2mm and 2.5mm.

RP, RPL SERIES: This Series is specially designed for use on Printed Circuit Boards.

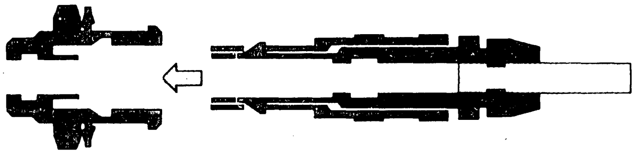
SPECIAL ORDERS: LEMO welcomes the opportunity to consider development of connectors to meet your requirements. Many of our present connectors were created through client requests.

SALES AND SERVICE
LEMO connectors are manufactured in Switzerland. North American inventory and sales headquarters are in Santa Rosa, California. Sales and service are available through a network of representatives or directly from LEMO U.S.A., in Santa Rosa, California.

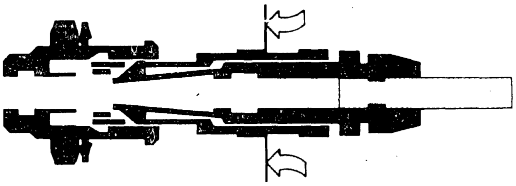
LEMO USA INC

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

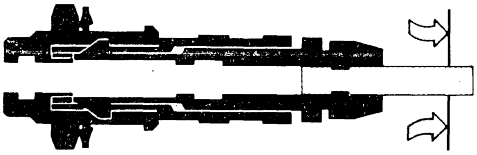
Quality Construction



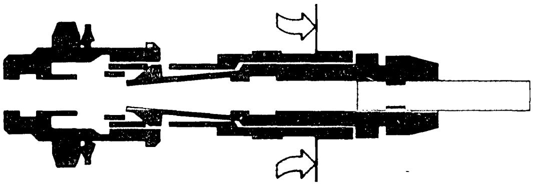
Connection is made simply by pushing plug directly into receptacle. An audible click is heard assuring lock is engaged.



The self-latching system assures the connector to be mated by simply pushing the plug axially into the receptacle.



Connection remains intact resisting stresses of pulling on the cable and any other component part except the outer shell.



When required, the connection is disengaged by a single straight axial pull on the outer shell.

Components	Material	Surface Treatment in microns(*)			
		Copper min.	Nickel min.	Chrome min.	Gold min.
Outer shell and collet nut	Brass ASTM C385	0.5	3	0.3	-
Inner latching sleeve	Special Brass	0.5	3	0.3	-
Earthing Crown	Bronze ASTM C544	0.5	3	-	-
Retaining Ring	Brass ASTM C385	0.5	3	-	-
Lockwasher	Brass ASTM C521	0.5	3	-	-
Locknut	Brass ASTM C385	0.5	3	2.3	-
Male contact	Brass ASTM C385	0.5	3	-	1.5
Female contact	Bronze ASTM C544	0.5	3	-	2.0

(*)Minimum thickness MIL-STD-45204 Type 1, Class 1

Insulator

Characteristics	Standards	Units	Valox Standard B Series Solder	PEEK Standard B Series Crimp	Nylatron Standard E & S Series	Teflon Standard E & S Series
Dielectric strength	ASTM D149	kV/mm	30	19	16.2	17.2-24
Volume resistivity	ASTM D257	Ωcm	10^{16}	10^{15}	5.8×10^{15}	10^{15}
Thermal resistivity	ASTM C177	W/mk	0.19	0.28	0.18	0.25
Max. working temperature	-	°C(°F)	140 (284)	260 (500)	140 (284)	260 (500)
Water absorption in 24 hrs. at 23°C (73°F)	ASTM D570	o/o	0.06	0.1	0.6	0.005
Radiation stability	-	rd	10^6	10^9	10^6	10^4

rd = 100 erg absorbed in a 1 g of material = 10^{-5} Ws/g

OPTIONS:

Materials: LEMO can provide alternate compatible materials (stainless steel, aluminum, etc.)

Surface treatment: Custom finishes such as black, green chrome plating and anodizing can be supplied.

Insulator materials: Other insulator materials to meet specific needs can be supplied.

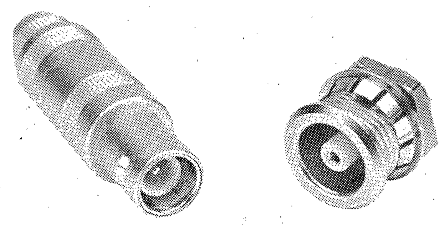
Before specifying special features, please contact your local representative or LEMO U.S.A. Inc. for more information on how we can meet your specific requirements.

LEMO USA INC
P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

Receptacles—Plugs—NIM-CAMAC

MINIATURE COAXIAL SERIES

NIM-CAMAC (Miniature Coaxial) 00 Series, 50 Ohms



This series is designed to meet the specifications of CD/N549 Norm

Mechanical Properties:
Outer Shell: Brass 59A
Insulator: Teflon
Contacts: Brass with high modulus of elasticity. Low and constant resistance. With copper flash, 3 microns nickel, 1.5 microns gold
Working Temperature: −250°C + 260°C (−410°F + 500°F)

Electrical Properties:

Impedance: 50 ohms ± 2%	Contact Resistance: <8mΩ
Frequency: over 1 GHz	Insulator Resistance: >10^{12}Ω
Max. Wave Resistance: 1 to 1.2 GHz	Working Voltage: 1000 Vdc
	Test Voltage: 3000 Vdc

Recommended Cables: RG.174A/U, RG.188A/U, RG.316/U, RG.58C/U, RG.178B/U, RG.187A/U, RG.196A/U.

Collet Sizes Available:

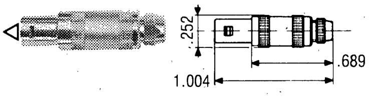
MM. 1.5 In. .059	1.7 .066	2.2 .086	2.7 .106	2.9 .114	3.1 MM. .122 In.	5.2 .204

Options: Alternative compatible insulators can be supplied. Before specifying other materials please contact your representative or LEMO for information.

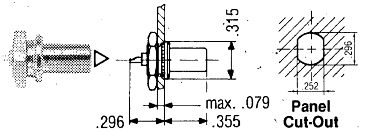
Cable bend reliefs can be supplied for crimped type cables as follows:
FOOS195N for cables up to 2.7mm (.106″) O.D.
FOOS196N for cables up to 3.1mm (.122″) O.D.
FOOS197N for cables up to 3.5mm (.138″) O.D.

Part numbers are for black strain reliefs. If other colors are required, please replace suffix "N" by proper color code.

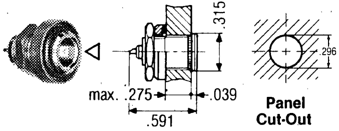
F STRAIGHT PLUG


.252
.689
1.004

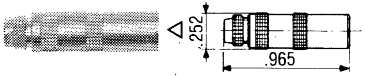
FA PANEL MOUNTING PLUG


.315
.296
max. .079
.296
.355
.252
Panel Cut-Out

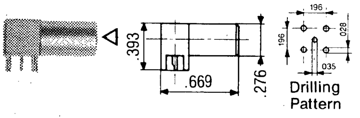
RAW SEALED RECEPTACLE


.315
296
max. .275
.039
.591
Panel Cut-Out

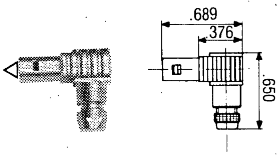
RC FREE RECEPTACLE



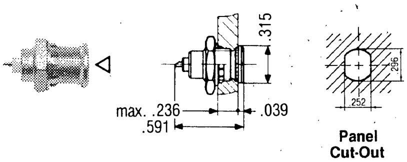
RPL RIGHT ANGLE RECEPTACLE FOR PRINTED CIRCUIT


.393
.669
.276
196
196
028
035
Drilling Pattern

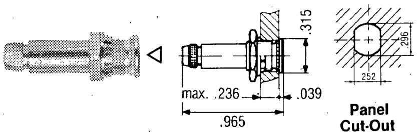
FL RIGHT ANGLE PLUG



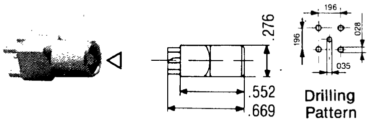
RA RECEPTACLE


.315
max. .236
.039
.591
296
252
Panel Cut-Out

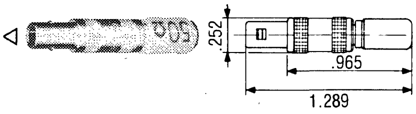
RASC RECEPTACLE WITH CABLE COLLET


.315
max. .236
.039
.965
296
252
Panel Cut-Out

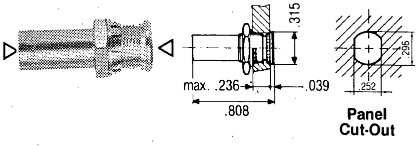
RP RECEPTACLE FOR PRINTED CIRCUIT


.276
.552
.669
196
196
028
035
Drilling Pattern

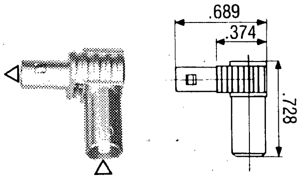
FRT PLUG WITH RESISTOR


50Ω
.252
.965
1.289

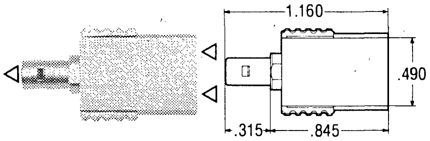
RAD DOUBLE RECEPTACLE


.315
max. .236
.039
.808
296
252
Panel Cut-Out

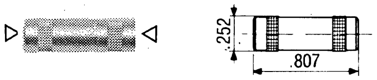
FR RIGHT ANGLE PLUG AND RECEPTACLE



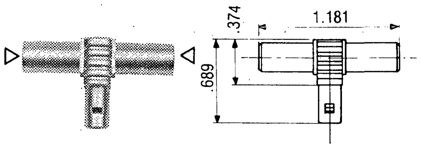
FY TWIN RECEPTACLE WITH MALE EXIT


1.160
.490
.315
.845

RM FREE DOUBLE RECEPTACLE



FT T-PIECE


.374
1.181
.689

LEMO USA INC
P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

B Series Inserts— Multi Contact and Mixed Contact Connectors

MULTI-CONTACT INSERTS

Contact types:

- C = solder contact (standard version)
- S = crimp contact
- P = printed circuit contact

Wire sizes in this table are valid for solder-type contacts (standard version). For crimp contacts please contact LEMO.

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
2	C S P	21	460	660	10	0
3	C S P	21	420	600	8	
4	C S	24	460	660	7	
5	C S	24	260	400	6.5	
Collet Range 1.5-5.5 MM. (.059-.217 In.)						
2	C S	19	530	760	15	1
3	C S	19	420	600	12	
4	C S	21	630	900	10	
5	C S	21	460	660	9	
6	C S P	24	460	660	7	
7	C S P	24	460	660	7	
Collet Range 2.0-7.5 MM. (.079-.295 In.)						
2	C S	14	700	1000	30	2
3	C S	16	560	830	17	
4	C S	19	1000	1300	15	
5	C S	19	860	1200	14	
6	C S	19	630	900	12	
7	C S	19	500	730	11	
8	C S P	21	1000	1500	10	
10	C S P	21	560	830	8	
12	C S P	24	560	830	7	
14	C S P	24	560	830	6.5	
16	C S P	24	500	730	6	
18	C S P	24	460	660	5.5	
19	C S P	24	460	660	5	
Collet Range 1.5-9.7 MM. (.059-.382 In.)						

MULTI-CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
2	C	10	760	1100	50	3
3	C S	14	1200	1600	25	
4	C S	14	830	1100	22	
5	C	16	860	1200	19	
6	C	16	730	1000	17	
7	C	16	730	1000	15	
8	C S	19	700	1000	13	
10	C S	19	460	660	12	
12	C S	21	560	830	9	
14	C S	21	560	830	9	
16	C S	21	460	660	8	
18	C S	21	460	660	7	
20	C S	24	500	730	6	
22	C S	24	400	560	5.5	
24	C S	24	400	560	5	
26	C S	24	260	400	4.5	
30	C S	24	260	400	3.5	
Collet Range 4.1-11.7 MM. (.161-.461 In.)						

MULTI-CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
4	C	10	930	1300	30	4
6	C	14	930	1300	24	
10	C	16	700	1000	17	
12	C	19	500	700	7.5	
16	C	21	1000	1400	10	
20	C	21	700	1000	8	
24	C	21	630	900	7	
30	C	21	460	660	5	
40	C	24	560	800	2	
Collet Range 5.1-16.0 MM. (.201-.630 In.)						
4	S	8	2500	3500	25	5
10	S	10	1200	1800	20	
16	S	14	1500	2100	12	
48	C S	19	630	900	6	
64	S	21	530	700	3	
Collet Range 11.6-25.0 MM. (.457-.984 In.)						

MIXED CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
1 coax 50 ohms 2 multi	C S	21	330	500	8	2
1 coax 50 ohms 4 multi	C S	24	400	600	5	
Collet Range 1.5-9.7 MM. (.059-.382 In.)						
1 coax 50 ohms 6 multi	C S	24	400	600	5	3
1 coax 50 ohms 9 multi	C S	24	400	600	5	
1 coax 50 ohms 12 multi	C S	21	400	600	5	
1 coax 50 ohms 13 multi	C S	24	400	600	5	
2 coax 50 ohms 4 multi	C S	21	400	600	8	
1 HV 18 multi	C S	21	40	60	5.5	
Collet Range 4.1-11.7 MM. (.161-4.61 In.)						

PLEASE NOTE:

If you do not see what you need please ask us.

LEMO is constantly developing new products; therefore, all available connectors could not be included in this reference.

MIXED CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
1 coax 50 ohms 75 ohms 2 multi	C S	21	400	600	8	4
1 coax 50 ohms 75 ohms 4 multi	C S	21	400	600	7	
1 coax 50 ohms 75 ohms 6 multi	C S	21	400	600	5	
2 coax 50 ohms 2 multi	C S	21	400	600	8	
2 coax 50 ohms 4 multi	C S	21	400	600	7	
2 coax 50 ohms 12 multi	C S	21	400	600	4	
2 coax 50 ohms 16 multi	C S	21	400	600	4	
2 coax 50 ohms 18 multi	C	24	500	700	2	
3 coax 50 ohms 12 multi	C	24	30	50	2	
Collet Range 5.1-16.0 MM. (.201-.630 In.)						

MIXED CONTACT INSERTS

Number of Contacts	Contact Types Available	Wire Max	Working Voltage		Amps	Shell Size
		AWG	AC	DC		
2 coax 50 ohms 75 ohms 10 multi	S	21	50	70	8	5
2 coax 50 ohms 75 ohms 16 multi	S	21	50	70	8	
2 coax 50 ohms 75 ohms 17 multi	S	14 21	50 50	70 70	30 8	
1 triax 75 ohms 32 multi	C	19	50	70	8	
Collet Range 11.6-25.0 MM. (.457-.984 In.)						

Many new mixed contact configurations are available. Please call for information.

LEMO USA INC

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

S Series Inserts— Single, Coaxial, Triaxial and Multi Contact Connectors

INSERTS FOR S SERIES SINGLE CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage
		AWG	MM.	
00	1	20	1.0	
0	1	18	1.4	500
1	1	14	1.8	500
	1	12	2.7	500
2	1	12	2.7	1000
	1	8	3.7	700
3	1	8	3.7	1000
	1	5	5.5	700
4	1	8	3.7	1500
	1	5	5.5	1000
5	1	-	12.0	1000

INSERTS FOR S SERIES COAX UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	1200	1600
1	1	18	1.4	1200	1600
	1	20	1.0	1000	1500
2	1	14	1.8	1300	1800
	1	18	1.4	700	1000
3	1	12	2.7	1400	2000
	1	14	1.8	1100	1600
4	1	8	3.7	700	1100
	1	12	2.7	600	900
5	1	-	4.5	1500	2200

INSERTS FOR S SERIES TRIAXIAL UNITS

(550 and 575 for cables without shield)
(650 and 675 for cables with shield)

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	100	150
	1	24	0.8	300	500
1	1	24	0.8	300	400
	1	24	0.8	300	400
2	1	18	1.4	400	600
	1	18	1.4	500	700
	1	24	0.8	500	700
	1	24	0.8	600	800
3	1	14	1.8	500	700
	1	14	1.8	200	300
	1	-	-	-	-
	1	-	-	-	-
4	1	12	2.7	-	-
	1	12	2.7	500	700
	1	-	-	-	-
	1	-	-	-	-

Specifications are based on Teflon insulators. For other insulators consult LEMO.

In some applications the female contact is required in the plug. Add "X" to shell configuration (ex. FX) and consult LEMO before specifying this feature.

INSERTS FOR S SERIES MULTI CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	2	24	0.8	500	700
	3,4	26	0.6	300	500
1	2	20	1.0	400	600
	3,4	24	0.8	400	600
	5,6	26	0.6	500	700
2	2	18	1.4	600	900
	3,4,5,6	20	1.0	500	700
	3	20	1.0	300	400
	4	24	0.8	300	400
	8,10	24	0.8	300	400
3	2,3	14	1.8	1000	1400
	4	14	1.8	500	700
	2	14	1.8	500	700
	3	20	1.0	500	700
	6	20	1.0	700	1000
	7,8,10	20	1.0	300	500
	12,13,14	24	0.8	400	600
	16	24	0.8	300	500
	18	24	0.8	300	400
4	2	8	3.7	700	1000
	1	8	3.7	700	1000
	2	12	2.7	700	1000
	4	12	2.7	700	1000
	2	12	2.7	700	1000
	3	14	1.8	700	1000
	6	14	1.8	700	1000
	3	14	1.8	700	1000
	4	20	1.0	700	1000
	8	20	1.0	900	1300
	9,10,12 13,14	20	1.0	700	1000
	16,18,20 22,24	24	0.8	700	1000

INSERTS FOR S SERIES MULTI-CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
5	2	5	5.5	1200	1800
	1	5	5.5	1200	1600
	2	8	3.7	1200	1600
	4	8	3.7	1200	1800
	2	8	3.7	1000	1500
	3	12	2.7	1000	1500
	6	12	2.7	1000	1400
	8	12	2.7	800	1100
	10,12	14	1.8	700	1000
	2	12	2.7	700	1000
	12	14	1.8	700	1000
	16	14	1.8	700	1000
	2	12	2.7	600	800
	16	18	1.4	600	800
	20	18	1.4	600	800
	2	12	2.7	600	800
	20	18	1.4	600	800
	24	18	1.4	700	1100
	30,36	20	1.0	600	800
	40,44,48	20	1.0	400	600
6	4	-	-	1000	1400
	12	7	4.5	700	1000
	18	8	3.7	400	500
	20	12	2.7	500	700
	24	12	2.7	400	600
	30	12	2.7	700	1100
	48	20	1.0	500	700
	60	14	1.8	500	700
	64	20	1.0	700	1000
	72	20	1.0	300	500
	106	24	0.8	300	400

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the point at which arcing occurred and reducing it by ⅓.
Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

LEMO USA INC

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(707) 578-8811, Telex 340-933 (LEMO USA SARO)

S Series Inserts— Mixed Contacts and Thermocouple Connectors

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
3	1 HV 2 multi	20 14	1.0 1.8	- 500	3000 700
	1 HV 4 multi	20 20	1.0 1.0	- 300	3000 500
	1 HV 5 multi	20 20	1.0 1.0	- 300	3000 500
	1 HV 6 multi	20 20	1.0 1.0	- 400	3000 600
	1 HV 7 multi	20 20	1.0 1.0	- 400	3000 600
	1 HV 8 multi	20 24	1.0 0.8	- 300	3000 500
	2 HV 2 multi	20 20	1.0 1.0	- 500	3000 700
	2 HV 4 multi	20 20	1.0 1.0	- 300	3000 500
	2 HV	20	1.0	-	3000
	1 coax 50 ohms 1 multi	26 20	0.6 1.0	400 1000	500 1400
	1 coax 50 ohms 2 multi	26 20	0.6 1.0	400 500	500 700
	1 coax 50 ohms 3 multi	26 20	0.6 1.0	400 700	500 1000
	1 coax 50 ohms 4 multi	26 20	0.6 1.0	400 300	500 500
	1 coax 50 ohms 5 multi	26 24	0.6 0.8	400 300	500 500

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
4	1 HV 2 multi	14 12	1.8 2.7	- 700	3000 1000
	1 HV 6 multi	14 20	1.8 1.0	- 700	3000 1000
	1 HV 12 multi	14 24	1.8 0.8	- 700	3000 1000
	2 HV 5 multi	14 20	1.8 1.0	- 700	3000 1000
	2 HV 7 multi	14 20	1.8 1.0	- 700	3000 1000
	2 HV 9 multi	14 24	1.8 0.8	- 700	3000 1000
	2 HV 10 multi	14 24	1.8 0.8	- 700	3000 1000
	2 HV, 3 HV, 4 HV	14	1.8	-	3000
	1 coax 50 ohms 6 multi	26 20	0.6 1.0	400 700	500 1000
	1 coax 50 ohms 9 multi	26 24	0.6 0.8	400 700	500 1000
	1 coax 50 ohms 12 multi	26 24	0.6 0.8	400 700	500 1000
	2 coax 50 ohms 4 multi	26 20	0.6 1.0	400 900	500 1300
	2 coax 50 ohms 16 multi	26 24	0.6 0.8	400 500	500 800

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
5	1 HV 8 multi	14 14	1.8 1.8	- 700	5000 1000
	2 HV 4 multi	14 12	1.8 2.7	- 800	5000 1100
	2 HV 8 multi	14 14	1.8 1.8	- 700	5000 1000
	2 HV 16 multi	14 20	1.8 1.0	- 600	5000 800
	1 HV 10 multi	12 14	2.7 1.8	- 600	10KV 800
	4 HV	14	1.8	-	5KV
	8 HV	14	1.8	-	3KV
	2 coax 50 ohms 8 multi	24 20	0.8 1.0	600 700	800 1000
	2 coax 50 ohms 12 multi	24 20	0.8 1.0	600 700	800 1100
	2 coax 50 ohms 20 multi	24 20	0.8 1.0	600 400	800 600
	2 coax 50 ohms 24 multi	24 20	0.8 1.0	600 400	800 600
6	4 coax 75 ohms	20	1.0	500	700
	3 coax 50 ohms 26 multi	24 14	0.8 1.8	600 500	800 700
	8 coax 50 ohms 20 multi	26 18	0.6 1.4	- 500	- 700
	3 coax 75 ohms 26 multi	20 20	1.0 1.0	500 500	700 700

INSERTS FOR S SERIES THERMOCOUPLE CONNECTORS

Sz.	No. of Cntcs.	Insulators Available	Type of Contacts Available
0	2	Nylatron	(J) Iron Constantan
	2	Teflon	(J) Iron Constantan
	2	Ceramic	(J) Iron Constantan
	2	Nylatron	(K) Chromel Alumel
	2	Teflon	(K) Chromel Alumel
	2	Ceramic	(K) Chromel Alumel
	2	Nylatron	(T) Copper Constantan
	2	Teflon	(T) Copper Constantan
	2	Ceramic	(T) Copper Constantan
	2	Nylatron	Brass Bronze
	2	Teflon	Brass Bronze
	2	Ceramic	Brass Bronze
	3	PEEK	Chromel Alumel Bronze
	4	Teflon	(K) Chromel Alumel
	4	Teflon	(J) Iron Constantan
1	2	Nylatron	(K) Chromel Alumel
	2	Teflon	(K) Chromel Alumel
	2	Nylatron	(J) Iron Constantan
	2	Teflon	(J) Iron Constantan

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the point at which arcing occurred and reducing it by ⅓.

Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

LEMO USA INC

P.O. Box 11488, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

E Series Inserts— Single, Coaxial, Triaxial, Multi and Mixed Contacts

INSERTS FOR E SERIES SINGLE CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage
		AWG	MM.	
0	1	18	1.4	500
1	1	14	1.8	500
	1	12	2.7	500
2	1	12	2.7	1000
	1	-	3.7	700
3	1	-	3.7	1000
	1	-	5.5	700

INSERTS FOR E SERIES COAXIAL UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	1200	1600
1	1	18	1.4	1200	1600
	1	20	1.0	1000	1500
2	1	14	1.8	1300	1800
	1	18	1.4	700	1000
3	1	12	2.7	1400	2000
	1	14	1.8	1100	1600
4	1	-	3.7	700	1100
	1	12	2.7	600	900

INSERTS FOR E SERIES TRIAXIAL UNITS

(550 and 575 for cables without shield)
(650 and 675 for cables with shield)

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	100	150
	1	24	0.8	300	500
1	1	24	0.8	300	400
	1	24	0.8	300	400
2	1	18	1.4	400	600
	1	18	1.4	500	700
	1	24	0.8	500	700
	1	24	0.8	600	800
3	1	14	1.8	500	700
4	1	12	2.7	-	-
	1	12	2.7	500	700
	1	-	-	-	-
	1	-	-	-	-

INSERTS FOR E SERIES MULTI-CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	2	24	0.8	500	700
	3,4	26	0.6	300	500

INSERTS FOR E SERIES MULTI CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
1	2	20	1.0	400	600
	3,4	24	0.8	400	600
	5,6	26	0.6	500	700
2	2	18	1.4	600	900
	3,4,5,6	20	1.0	500	700
	3 4	20 24	1.0 0.8	300 300	400 400
	8,10	24	0.8	300	400
3	2,3	14	1.8	1000	1400
	4	14	1.8	500	700
	2 3	14 20	1.8 1.0	500 500	700 700
	6	20	1.0	700	1000
	7,8,10	20	1.0	300	500
	12,14	24	0.8	400	600
	16,18	24	0.8	300	400
4	2	8	3.7	700	1000
	1 2	8 12	3.7 2.7	700 700	1000 1000
	4	12	2.7	700	1000
	2 3	12 14	2.7 1.8	700 700	1000 1000
	6	14	1.8	700	1000
	3 4	14 20	1.8 1.0	700 700	1000 1000
	8	20	1.0	900	1300
	9,10,12,14	20	1.0	700	1000
	16,18,20 22	24	0.8	700	1000
	24	24	0.8	700	2000
5	2	5	5.5	1200	1800
	1 2	5 8	5.5 3.7	1200 1200	1600 1600
	4	8	3.7	1200	1800
	6	12	2.7	1000	1400
	8	12	2.7	800	1100
	10,12	14	1.8	700	1000
	2 12	12 14	2.7 1.8	700 700	1000 1000
	2 16	12 18	2.7 1.4	600 600	800 800
	20	18	1.4	600	800
	2 20	12 18	2.7 1.4	600 600	800 800
	24	18	1.4	700	1100
	30,36	20	1.0	600	800
	44,48	20	1.0	400	600
6	12	7	4.5	700	1000
	24	12	2.7	400	600
	30	12	2.7	700	1100
	48	20	1.0	500	700
	60	14	1.8	500	700
	64	20	1.0	700	1000
	72	20	1.0	300	500
	106	24	0.8	300	400

INSERTS FOR E SERIES MIXED CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
3	1 HV 5 multi	20 20	1.0 1.0	- 300	3000 500
	1 HV 6 multi	20 20	1.0 1.0	- 400	3000 600
	1 HV 8 multi	20 24	1.0 0.8	- 300	3000 500
	2 HV 4 multi	20 20	1.0 1.0	- 300	3000 500
	1 coax 50 ohms 5 multi	26 24	0.6 0.8	400 300	500 500
4	1 HV 3 multi	14 14	1.8 1.8	- 700	3000 1000
	1 HV 10 multi	14 24	1.8 0.8	- 700	3000 1000
	2 HV 5 multi	14 20	1.8 1.0	- 700	3000 1000
	2 HV 12 multi	14 24	1.8 0.8	- 700	3000 1000
	1 coax 50 ohms 6 multi	26 20	0.6 1.0	400 700	500 1000
	1 coax 50 ohms 12 multi	26 24	0.6 0.8	400 700	500 1000
	2 coax 50 ohms 4 multi	26 20	0.6 1.0	400 900	500 1300
5	2 HV 8 multi	14 14	1.8 1.8	- 700	5000 1000
	8 HV	14	1.8	-	3KV
	2 coax 50 ohms 12 multi	24 20	0.8 1.0	600 700	800 1100
	2 coax 50 ohms 24 multi	24 20	0.8 1.0	600 400	800 600
	1 coax 75 ohms 3 multi	18 12	1.4 2.7	- -	- -
6	3 coax 50 ohms 26 multi	24 14	0.8 1.8	600 500	800 700
	2 coax 75 ohms 26 multi	20 14	1.0 1.8	- -	- -
	4 coax 75 ohms 20 multi	20 20	1.0 1.0	500 500	700 700
	8 coax 50 ohms 20 multi	26 18	0.6 1.4	- 500	- 700
	3 coax 75 ohms 26 multi	20 20	1.0 1.0	500 500	700 700
	6 multi 30 multi	- 20	4.5 1.0	- -	- -

Specifications are based on Teflon insulators. For other insulators contact LEMO.

LEMO USA INC

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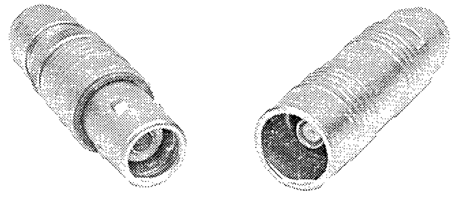
Special Applications

VIDEO TRIAX 4A (American) SERIES



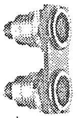
Technical Characteristics:
Nominal impedance: 75 ohms
Operating frequency: 2.5 GHz
VSWR: 1.01 + 0.076f[GHz]
Insertion loss: <0.4 dB
Contact resistance: center contacts <3mμ
internal ground <1mμ
Breakdown voltage: center contact/internal ground: 4KVrms
internal/external ground: 9.5kVrms
Operating temperatures: −50°C + 260°C (−58°F + 500°F).
Connector retention force, engaged: min. 28N
Cable retention force: min. 500N

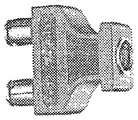
Recommended cables: Triax Felten & Guillaume Part No. 127657 and 127664
Triax BIW Part No. 10069-C-G20 and 10070-C-G14
Triax Belden types 9232, 8233, 9267 and 8232

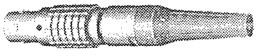
STEREO CONNECTOR SYSTEM

The LEMO stereo connector system consists of two receptacles, one double plastic panel washer, one bridge plug with or without monitoring output and one plug. The connector system may be either of the 3 pole type (303) or the 6 pole type (306).

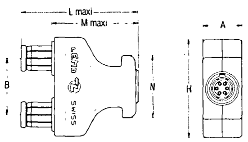
The double plastic panel washer, the bridge plug and the strain relief of the plug are available in nine colors. Color coding washers and strain reliefs match the colored bridge plug shells.



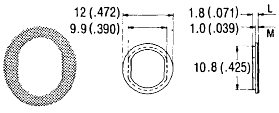




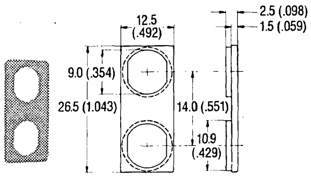
Bridge Plug: CAVF = Bridge plug with two non-latching plugs
CAVR = Bridge plug with two non-latching plugs and one monitoring receptacle for straight plug (test point)



RA 0.269-☐ ROUND INSULATING WASHER
(specify color)



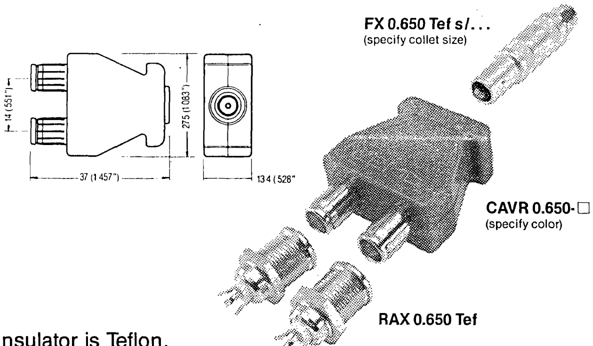
CAVR0B294-☐ RECTANGULAR INSULATING WASHER
(specify color)



CAVR 0.650 AND CAVR 0.651 TRIAXIAL BRIDGE PLUGS

CAVR 0.650 is - ☐ bridge plug with test point as shown
CAVR 0.651 is - ☐ bridge plug without test point.

These units are particularly suited for audio mixer or patching panel applications. LEMO's self-latching system is used between the FX 0.650 plugs and the RAX 0.650 receptacles as well as between the FX 0.650 and the CAVR 0.650 bridge plugs. LEMO's self-latching system is not used between the CAVR 0.650/CAVR 0.651 and the RAX 0.650 receptacles since the spring type contacts of the bridge plugs require a strong pulling strength.



Insulator is Teflon.
Wave resistance is 50 Ω.
Insulator resistance is $5 \bullet 10^6$ MΩ.
Contacts are made of BZ4 gold plated.
Shells of bridge plugs can be supplied in black, red, yellow, blue and white.

Sz.	No. of Cntcs.	Bridge Plug Part Number (*)	Working Voltage DC	Curr. Amps	Respective Receptacles	Monitoring Plug (**)	Double Panel Washer (*)	Strain Relief (*)/(**)
1B	3	CAVF1B303P-🄽 211	420	5	RG1B303CA222	no monitor	CAVR0B294N	-
	3	CAVR1B303P-🄽 202	420	5	RG1B303CA222	FG1B303WO060	CAVR0B294N	F1B192-N
	6	CAVF1B306P-🄽 211	270	3	RG1B306CA222	no monitor	CAVR0B294N	-
	6	CAVR1B306P-🄽 211	270	3	RG1B306CA222	FB1B306WO060	CAVR0B294N	F1B192-N

(*) Above part numbers cover units in black color. For other colors, replace suffix N by relevant color code from color code table.
(**) Above part numbers are shown assuming a .220" O.D. cable is used. For other cable sizes, please contact LEMO U.S.A. Inc.

Bridge Plug Dimensions

Part Number	Number of Contacts	A		B		H		L		M		N	
		In.	MM.	In.	MM.	In.	MM.	In.	MM.	In.	MM.	In.	MM.
CAVF1B303P-🄽 211	3	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVR1B303P-🄽 202	3	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVF1B306P-🄽 211	6	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVR1B306P-🄽 202	6	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0

LEMO USA INC
P.O. Box 11488, Santa Rosa, CA 95406
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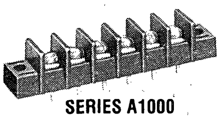
MAGNUM

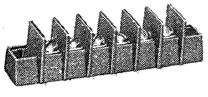
SINGLE ROW TERMINAL STRIPS

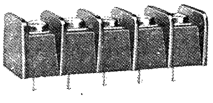
Magnum single-row terminal strips are a truly low cost, rugged alternative to double row strips. . . for both new and retrofit applications. Made of unbreakable plastic, strips feature "Press-In" construction which tensions the terminal inserts into the plastic body for a solid, zero-clearance assembly. Press-in technique prevents any force on terminals from being transmitted to and injuring circuit board-to-pin connections.

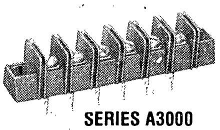
All strips are in full compliance with appropriate UL and CSA standards.

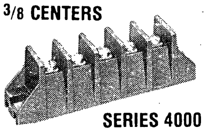
NEW
LOW PROFILE

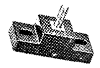

SERIES A1000
.325 CENTERS


SERIES A2000
3/8 CENTERS

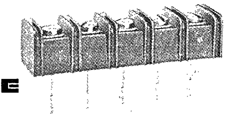

SERIES LP2000
3/8 CENTERS


SERIES A3000
7/16 CENTERS


SERIES 4000
9/16 CENTERS


SERIES 5000

NEW
LOW PROFILE


SERIES LP3000
7/16 CENTERS

MATERIAL SPECIFICATIONS

All Magnum terminal strip bodies are molded from UL rated 94V-O fire retardant thermoplastic. All current carrying terminal parts are 70/30 cartridge brass with a 200 microinch bright tin coat. Standard screws are cadmium plated steel. Terminal inserts are tin plated to exacting specifications and Magnum consciously adheres to the highest plating standards. . . which are necessary for good soldering.

UL & CSA COMPLIANCE

Meets UL 1059 and UL 94V-O, self-extinguishing. UL file E48580; CSA No. LR-28145. Contact Magnum for additional ratings.

OPTIONS (Contact Magnum)

- Special screws
- SEMS screws
- Screws & clamp plates
- Captive screws
- Quick Connects
- Solder lugs
- Covers
- Marker Strips & Markings
- Jumpers
- Mounts
- Fuseholders
- Colored Strips
- Mix terminals

PRIMARY SPECIFYING FEATURES

SERIES	CENTERS	MAXIMUM LINES	LOW PROFILE	ENDS MOUNT	ENDS BARRIER	STANDARD TOP HARDWARE	BASES FLAT	BASES INSULATOR	STANDARD BOTTOM TERMINAL STYLES
A1000	.325	1-36*	—	X	X	Steel Screws	X	—	PC, Wire-Wrap, Right Angle
A2000	3/8	1-32*	—	X	X	Steel Screws	X	X	PC, Wire-Wrap, Quick Connect, Right Angle
LP2000	3/8	1-32*	X	X	X	Steel Screws	X	X	
A3000	7/16	1-28*	—	X	X	Steel Screws	X	X	PC, Wire-Wrap Quick Connect Right Angle
LP3000	7/16	1-28*	X	X	X	Steel Screws	X	X	
4000	9/16	24**	—	X	—	Screws & Studs	X	X	Solder, #53 Taper Pins, Screws, Studs
5000	N/A	—	—	X	—	Studs	X	—	None

*2 lines less for mount end. **Available in any practical length on special order.

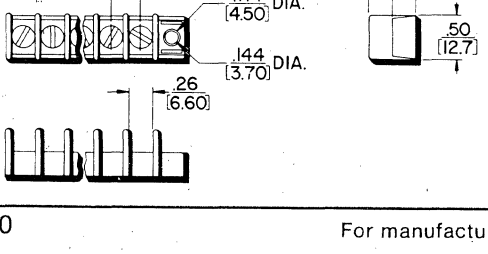
SERIES A1000—.325 CENTERS—SINGLE ROW TERMINAL STRIPS

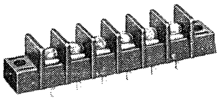
SERIES A1000 miniature strips have connections on .325 centers, with excellent selection of mount or barrier ends, flat or insulator bases, and selection of terminals including straight and right angle PC, wire-wrapping and no bottom terminals. Mount end—34 lines max.; barrier end—36 lines max.

Thousands of practical variations of top and bottom hardware. . . and covers, marker strips, legends, color strips. . . are available. . . most from standard dies.

DIMENSIONS & RATINGS

U.L. Rated Voltages (rms)	V	150
U.L. Rated Current	A	15
Creepage Distance Between Terminals	Thru Air	.15 (3.81)
	Over Surface	.26 (6.60)
Creepage Distance Terminal to Ground (Open Base)	Thru Air	.06 (1.52)
	Over Surface	.08 (2.03)
Mtg. Dim. Accuracy	In./line	± .001 (.03)
Operating Temperature Range °F (°C)	Max.	180 (82)
	Min.	−40 (−40)

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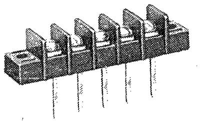
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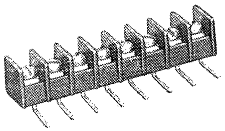
A107208-NL-R45

PART NUMBERS

Part No.[1]	Bottom Terminals	Ends[2]	Base[3]
A1021XX-NL	Straight PC	M	F
A1022XX-NL		B	F
A1031XX-NL	None	M	F
A1032XX-NL		B	F
A1041XX-NL[4]	Wire-Wrapping or Right Angle PC	M	F
A1042XX-NL[4]		B	F
A1071XX-NL[4]		M	F
A1072XX-NL[4]		B	F

1. 01-36 for XX digits to specify no. of lines.
34 max. for mount ends; 36 max. for barrier ends.
2. M = Mount; B = Barrier 3. F = Flat; I = Insulator
4. Add suffix -RXX for right angle bends. Contact Magnum for details.

ORDERING

Order by part number from table. Contact Magnum for any applications assistance required.

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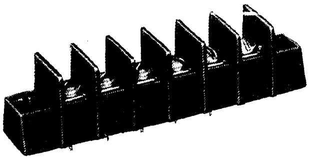
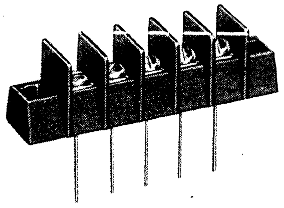
MAGNUM®

SINGLE ROW TERMINAL STRIPS—3/8 CENTERS

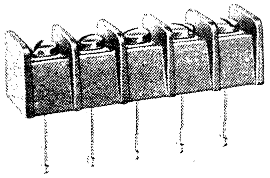
SERIES A2000 & LP2000



A202106-NL



A207105-NL



LP201205-NL

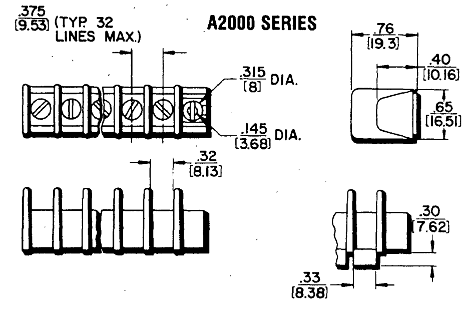
SERIES A2000 single row strips have connections on 3/8 in. centers, with mount or barrier ends, flat or insulator bases, and feed-thru terminals (straight hand wire, straight or right angle PC, wire-wrapping or quick connect). Strips can also be specified with non feed-thru bases (either open or closed type).

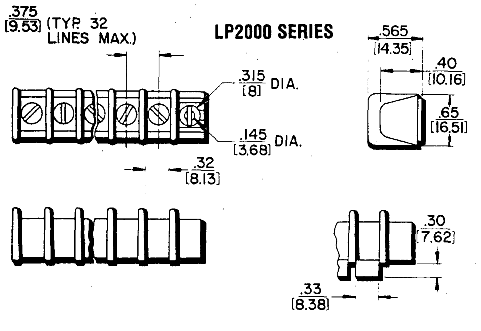
NEW SERIES LP2000 "Low Profile" single row strips have low silhouette barriers for compatibility with miniature and subminiature solid state circuitry for "tight" packaging situations. Other features are the same as Series A2000.

No. 6-32 screws are standard top hardware for both series; screws accept AWG 12 & smaller wiring and .312 wide rings and spade terminals. A wide variety of top and bottom hardware . . . and covers, marker strips, legends, colored strips are available . . . most from standard dies.

DIMENSIONS & RATINGS

		A2000 Series	LP2000 Series
U.L. Rated Voltages (rms)	V	300	250
U.L. Rated Current	A	20	20
Creepage Distance Between Terminals	Thru Air	.34 (8.64)	.17 (4.32)
	Over Surface	.38 (9.65)	.34 (8.64)
Creepage Distance Terminal to Ground (Open Base)	Thru Air	.27 (6.86)	.27 (6.86)
	Over Surface	.41 (10.41)	.41 (10.41)
Creepage Distance Terminal to Ground (Closed Base)	Thru Air	.46 (11.68)	.46 (11.68)
	Over Surface	.51 (12.95)	.51 (12.95)
Mtg. Dim. Accuracy	In./line	± .001 (.03)	± .001 (.03)
Operating Temperature Range °F (°C)	Max.	180 (82)	180 (82)
	Min.	−40 (−40)	−40 (−40)





NOTES

Also Available with

1. CLOSED BARRIERS

2. 7/16″ CENTERS

PART NUMBERS

Part No.[1]	Part No.[1]	Bottom Terminals	Ends[2]	Base[3]
A2011XX-NL	LP2011XX-NL	Straight, Hand Wire	M	F
A2012XX-NL	LP2012XX-NL		B	F
A2013XX-NL	LP2013XX-NL		M	I
A2014XX-NL	LP2014XX-NL		B	I
A2021XX-NL	LP2021XX-NL	Straight PC	M	F
A2022XX-NL	LP2022XX-NL		B	F
A2031XX-NL	LP2031XX-NL	None	M	F
A2032XX-NL	LP2032XX-NL		B	F
A2035XX-NL	LP2035XX-NL[4]		M	F
A2041XX-NL	LP2041XX-NL[5]	PC or Straight Wire-Wrapping	M	F
A2042XX-NL	LP2042XX-NL[5]		B	F
A2043XX-NL	LP2043XX-NL		M	I
A2044XX-NL	LP2044XX-NL		B	I
A2071XX-NL	LP2071XX-NL[5]	Right Angle PC	M	F
A2072XX-NL	LP2072XX-NL[5]		B	F
A2073XX-NL	LP2073XX-NL[5]		M	I
A2074XX-NL	LP2074XX-NL[5]		B	I
A2091XX-NL	LP2091XX-NL	.250 Quick-Connect	M	F
A2092XX-NL	LP2092XX-NL		B	F
A2101XX-NL	LP2101XX-NL	.187 Quick-Connect	M	F
A2102XX-NL	LP2102XX-NL		B	F
A2103XX-NL	LP2103XX-NL		M	I
A2104XX-NL	LP2104XX-NL		B	I
A2111XX-NL	LP2111XX-NL	.110 Quick-Connect	M	F
A2112XX-NL	LP2112XX-NL		B	F
A2113XX-NL	LP2113XX-NL		M	I
A2114XX-NL	LP2114XX-NL		B	I
A2193XX-NL	LP2193XX-NL	.250 Quick-Connect	M	I
A2194XX-NL	LP2194XX-NL		B	I

1. 01-32 for XX digits to specify no. of lines. 30 max. for mount ends; 32 max. for barrier ends.
2. M = Mount; B = Barrier
3. F = Flat; I = Insulator
4. Base molded completely closed.
5. Add suffix -RXX for right angle bends. Contact Magnum for details.

ORDERING

Order by part number from table. Contact Magnum for any applications assistance required.

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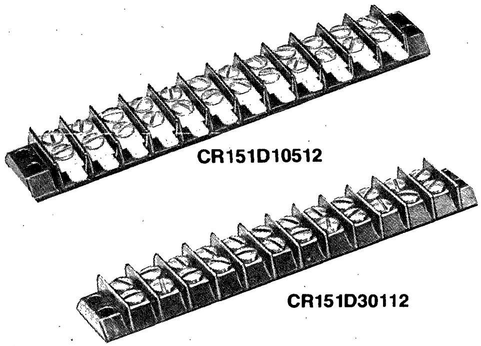
COOPER INDUSTRIES MAGNUM

MAGNUM®

SERIES D1, D2, D3, D7

DOUBLE ROW TERMINAL STRIPS



SPECIFICATIONS	SERIES D1	SERIES D2	SERIES D3	SERIES D7
Rating*	15 A, 1200 V	20 A, 1600 V	30 A, 2500 V	15 A, 1200 V
Center Spacing; In. (mm)	3/8 (9.53)	7/16 (11.11)	9/16 (14.29)	3/8 (9.53)
Wiring, Max. AWG	#14	#12	#10	#14
Terminal Screws	#5-40	#6-32	#8-32	#6-32
Distance Between Barriers; In(mm)	0.3 (7.62)	.33 (8.4)	.42 (10.67)	0.3 (7.62)
Molding Material	General Purpose Phenolic, Black			
Mounting Screws	#6	#6	#8	#6
Materials & Finishes	Screws: bright zinc plated steel. Terms & access.: tin plated brass.			
Breakdown Voltage Ratings	Suitability for specific application depends upon the equipment specification in terms of creepage, clearance and breakdown voltage requirements, mounting, and wire connectors used.			
Voltage, V	3600	4800	7500	3600
Creepage path over molded surface Terminal-to-terminal In. (mm)	.275 (6.99)	.4 (10.16)	.5 (12.7)	.275 (6.99)
Terminal-to mtg. surface In. (mm)	.3 (7.62)	.375 (9.53)	.450 (11.43)	.3 (7.62)

*Rating based on 1/3 breakdown voltage.

ORDERING

Order by part numbers from table.
Contact Magnum for any applications assistants.

PART NUMBERS – D1 SERIES 3/8 CENTERS, DOUBLE ROW, MOUNT ENDS

Part No.	Top Hardware		Bottom Hardware
CR151D101XX[1]	Screw	Screw	—
CR151D102XX[1]	Solder lug & #5-40 tapped hole	Solder lug & #5-40 tapped hole	—
CR151D103XX[1]	Screw	Solder lug & #5-40 tapped hole	—
CR151D104XX[1]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D106XX[1]	Solder lug & Screw	Solder lug & Screw	—
CR151D107XX[1]	Screw	Solder lug & Screw	—
CR151D137XX[1]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail

1. Insert number (01-36) for number of positions desired.

PART NUMBERS – D2 SERIES 7/16 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D201XX[2]	Screw	Screw	—
CR151D202XX[2]	Solder lug & #6-32 tapped hole	Solder lug & #6-32 tapped hole	—
CR151D203XX[2]	Screw	Solder lug & #6-32 tapped hole	—
CR151D204XX[2]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D206XX[2]	Solder lug & Screw	Solder lug & Screw	—
CR151D207XX[2]	Screw	Solder lug & Screw	—
CR151D227XX[2]	Screw	See "Bottom Hardware"	Wire-Wrapping 90° Down

2. Insert number (01-30) for number of positions desired.

PART NUMBERS – D3 SERIES 9/16 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D301XX[3]	Screw	Screw	—
CR151D302XX[3]	Solder lug & #8-32 tapped hole	Solder lug & #8-32 tapped hole	—
CR151D303XX[3]	Screw	Solder lug & #8-32 tapped hole	—
CR151D304XX[3]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D306XX[3]	Solder lug & Screw	Solder lug & Screw	—
CR151D307XX[3]	Screw	Solder lug & Screw	—

3. Insert number (01-24) for number of positions desired.

PART NUMBERS – D7 SERIES 3/8 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D701XX[4]	Screw	Screw	—
CR151D702XX[4]	Solder lug & #6-32 tapped hole	Solder lug & #6-32 tapped hole	—
CR151D703XX[4]	Screw	Solder lug & #6-32 tapped hole	—
CR151D704XX[4]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D706XX[4]	Solder lug & Screw	Solder lug & Screw	—
CR151D707XX[4]	Screw	Solder lug & Screw	—
CR151D727XX[4]	Screw	—	Wire-wrapping Term. 90° down
CR151D734XX[4]	Screw	Wire-wrapping Term. straight[5]	—
CR151D735XX[4]	Screw	Wire-wrapping Term. 45° up[5]	—
CR151D736XX[4]	Screw	Wire-wrapping Term. 90° up[5]	—
CR151D737XX[4]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail

4. Insert number 01-30 for number of positions desired. 5. .031 x .062 in. post.

FOR FURTHER INFORMATION, CONTACT MAGNUM TODAY!

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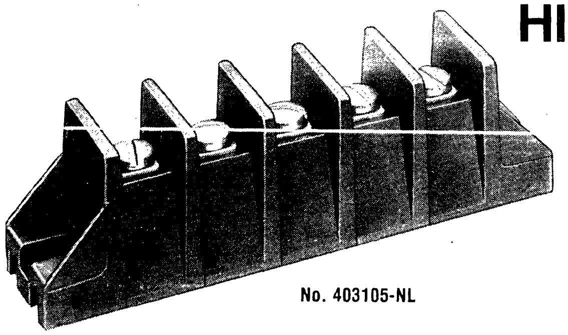
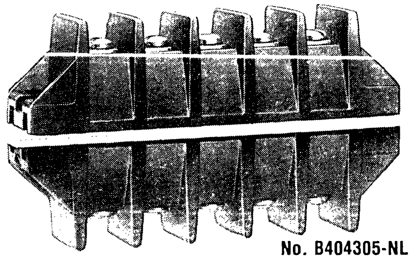
MAGNUM®

SERIES 4000 & B4000

SINGLE ROW TERMINAL STRIPS HIGH POWER—9/16 CENTERS


No. 403105-NL

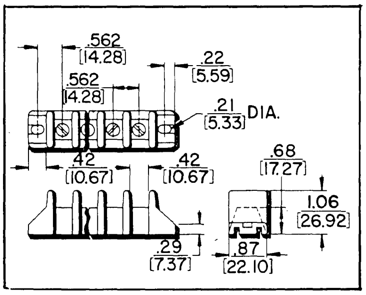

No. B404305-NL

SERIES 4000 high power screw and stud feedthru strips are designed for high current, high power connections. Terminals are spaced on 9/16 in. centers, and strips can be supplied with any practical number of lines. See chart for top and bottom terminals available. Stud terminals are recommended for multiple ring lug connections. Strips have mount ends and fasten in panels up to 1/8 in. thick. Strips meet UL general purpose apparatus requirements for 600 V, 30 A rating.

Bulkhead connectors (Series B4000) comprise two strips mated through a bulkhead of cabinet wall up to 1/8 in. thick.

Series 4000 & B4000 are in full compliance with UL 1059 and UL 94V-O. Listed under UL file no. E48580 and CSA No. LR-28145.

Contact Magnum for complete dimensional data.



PART NUMBERS

Part No.[1]	Top Hardware	Bottom Hardware	Wiring[2]
4003XX-NL	8-32 screws	8-32 studs	HW
B4003XX-NL	8-32 screws	8-32 studs	PPHW
4013XX-NL	8-32 screws	#53 taper pin term.	TP, HW
4031XX-NL	8-32 screws	None	SSW
4035XX-NL	8-32 screws	None	SSW
4043XX-NL	8-32 screws	8-32 screws	HW
B4043XX-NL	8-32 screws	8-32 screws	PPHW
4703XX-NL	8-32 studs	8-32 studs	HW
B4703XX-NL	8-32 studs	10-32 studs	PPHW
4731XX-NL	8-32 studs	None	SCW
4803XX-NL	10-32 screws	8-32 studs	HW
B4803XX-NL	10-32 screws	8-32 studs	PPHW
4813XX-NL	8-32 screws	#53 taper pin term.	TP, HW
4831XX-NL	10-32 screws	None	SSW
4835XX-NL	10-32 screws	None	SSW
4843XX-NL	10-32 screws	8-32 screws	HW
B4843XX-NL	10-32 screws	8-32 screws	PPHW
4931XX-NL	10-32 studs	None	SCW
4953XX-NL	10-32 studs	10-32 studs	HW
B4953XX-NL	10-32 studs	10-32 studs	PPHW

NOTES:

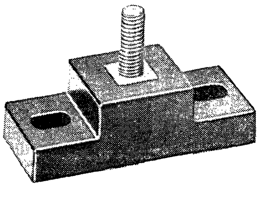
1. XX digits to specify no. of lines. Any practical number available.
2. TP—Taper Pin
   HW—Hand Wire
   PPHW—Point-to-point wiring
   SSW—Surface wire, screw connected
   SCW—Surface wire, stud connected

ORDERING

Order by part number from table. Contact Magnum for any applications assistance required.

30 AMP SINGLE STUD TERMINAL, SERIES 5000

A heavy-duty 30 A connector uses stud for secure, reliable connections. Accepts ring and spade lugs and hand wiring. Dimension .75 in. w. x 1.03 in. h. x 1.75 in. 1. See Series 4000 & B4000 for UL & CSA listings.



PART NUMBERS

Part No.	Description
570501-NL	8-32 threads
590501-NL	10-32 threads

1. Stud terminals supplied without nuts. Contact Magnum for complete dimensional data.

ORDERING

Order by part number from table. Contact Magnum for any applications assistance required.

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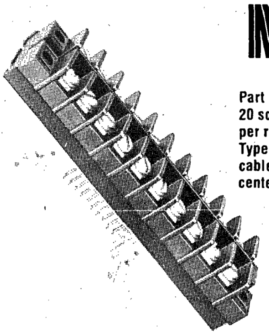
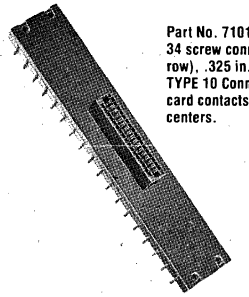
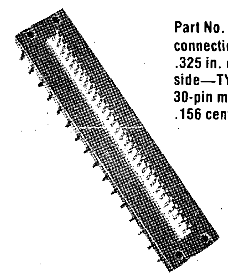
MAG-MASTER™ TERMINATING SYSTEM



Part No. 722120
20 screw connections (10 per row), .325 in. centers. Type 22 connector, 20-pin flat cable contacts, .100 x .100 centers, with latch.



Part No. 710134 (Rear View)
34 screw connection (17 per row), .325 in. centers. TYPE 10 Connector—34 pin edge card contacts on .100 x .200 centers.



Part No. 732130 30 screw connections (15 per row), .325 in. centers. Connector side—TYPE 32 Connector, 30-pin mass wiring header, .156 centers.

Mag-Master is a simple, time saving interface device used to interconnect field wiring with electronic and electromechanical circuits, equipment and systems. . . via state-of-the-art connectors, such as edge card, pin type, and flat ribbon type insulation displacement connectors.

Applications include alarm systems, computers & data processing equipment, environmental control systems, telecommunications, test adapters (in-house or field circuit test), instrumentation, programmable controls, power sources.

Mag-Master has four big built-in connecting advantages:

1. **FAST CONNECTING**—just plug-in your mating mass termination cable connector. The time needed for hand soldering of wires and hand loading of terminal strips in PC boards is eliminated. Field wiring connections are made via handy screw terminals.
2. **CONVENIENT CONNECTING**—Direct connecting for mass wiring techniques allows the use of state-of-the-art insulation displacement connectors which solves many interface problems between circuit wiring and field wiring.
3. **ECONOMICAL CONNECTING**—No need to fabricate special adaptive devices. Designing Mag-Master into your equipment and systems saves time in production, QA/QC, field work, and reduces your overall "installed" costs.
4. **VERSATILE CONNECTING**—Choose from 6 standard devices with a selection of 8 to 40 positions. Many special order features are possible. Contact Magnum for details.

Six types of standard connectors can be supplied with Mag-Master:

• **Type 10**	.100 x .200 Edge Card	20,30,34,36 Circuits
• **Type 12**	.156 x .200 Edge Card	20,24,30,36 Circuits
• **Type 20**	.100 x .100 Flat Cable (w/o Latch)	10, 14, 16, 20, 26, 34, 40, 50, 60, Circuits
• **Type 22**	.100 x .100 Flat Cable (with Latch)*	
• **Type 30**	.100 Centers Mass Wiring Headers (.025 sq. pins)	8,10,16,20,24 30,32,34,36,40 Circuits
• **Type 32**	.156 Centers Mass Wiring Headers (.045 sq. pins)	

IMPORTANT NOTE: Many other types of Mag-Master terminating devices are available on special order; contact factory for price and availability.

SPECIFICATIONS

Electrical: 3A, 150 V (all standard Mag-Master).

Terminal Strips: Molded from UL rated 94 V O polyester or fire retardant nylon. Current carrying parts are 70/30 cartridge brass with 200 microinch bright tin coat. Screws are on .325 in. centers in two rows; 6-32 screws accept AWG 14 & smaller wiring, and .250 in. wide wire lugs. Screws bright plated steel.

NOTE: See standard Magnum catalog for additional terminal strip specifications and options.

PART NUMBERS

Connectors	Total Circuits	Part No.
Type 10 .100 x .200 Edge Card	20	**710120**
	30	**710130**
	34	**710134**
	36	**710136**
Type 12 .156 x .200 Edge Card	20	**712120**
	24	**712124**
	30	**712130**
	36	**712136**
Type 20 .100 x .100 Flat Cable (w/o) Latch	10	**720110**
	14	**720114**
	16	**720116**
	20	**720120**
	26	**720126**
	34	**720134**
	40	**720140**
	50	**720150**
	60	**720160**
Type 22 .100 x .100 Flat Cable (w/Latch)	10	**722110**
	14	**722114**
	16	**722116**
	20	**722120**
	26	**722126**
	34	**722134**
	40	**722140**
	50	**722150**
	60	**722160**
Type 30 .100 Centers Mass Wiring Headers	8	**730108**
	10	**730110**
	16	**730116**
	20	**730120**
	24	**730124**
	30	**730130**
	32	**730132**
	34	**730134**
	36	**730136**
	40	**730140**
Type 32 .156 Centers Mass Wiring Headers	8	**732108**
	10	**732110**
	16	**732116**
	20	**732120**
	24	**732124**
	30	**732130**
	32	**732132**
	34	**732134**
	36	**732136**
	40	**732140**

MAGNUM® MAGNUM COOPER INDUSTRIES

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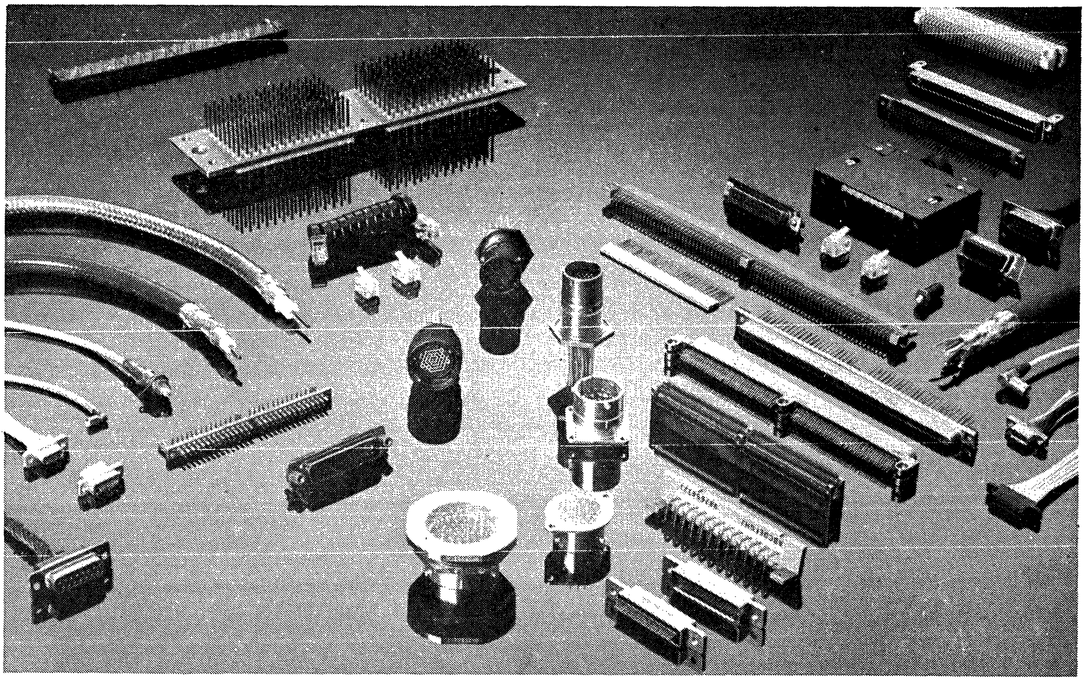
MAXIMUM CURRENT CAPACITY— CONDUCTORS

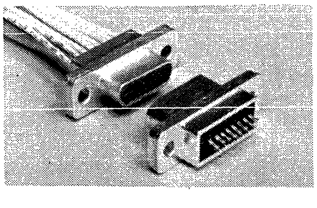
	MIL-W-5088				National Electrical Code	Underwriters Laboratory		American Insurance Association	500 c mils/A
	Copper		Aluminum						
Size, AWG	Single-wire	Wire-bundled	Single-wire	Wire-bundled		60°C	80°C		
30	. . .	. . .	. . .	. . .	. . .	0.2	0.4	. . .	0.20
28	. . .	. . .	. . .	. . .	. . .	0.4	0.6	. . .	0.32
26	. . .	. . .	. . .	. . .	. . .	0.6	1.0	. . .	0.51
24	. . .	. . .	. . .	. . .	. . .	1.0	1.6	. . .	0.81
22	9	5	. . .	. . .	. . .	1.6	2.5	. . .	1.28
20	11	7.5	. . .	. . .	. . .	2.5	4.0	3	2.04
18	16	10	. . .	. . .	6	4.0	6.0	5	3.24
16	22	13	. . .	. . .	10	6.0	10.0	7	5.16
14	32	17	. . .	. . .	20	10.0	16.0	15	8.22
12	41	23	. . .	. . .	30	16.0	26.0	20	13.05
10	55	33	. . .	. . .	35	. . .	. . .	25	20.8
8	73	46	58	36	50	. . .	. . .	35	33.0
6	101	60	86	51	70	. . .	. . .	50	52.6
4	135	80	108	64	90	. . .	. . .	70	83.4
2	181	100	149	82	125	. . .	. . .	90	132.8
1	211	125	177	105	150	. . .	. . .	100	167.5
0	245	150	204	125	200	. . .	. . .	125	212.0
00	283	175	237	146	225	. . .	. . .	150	266.0
000	328	200	. . .	. . .	275	. . .	. . .	175	336.0
0000	380	225	. . .	. . .	325	. . .	. . .	225	424.0

Connector and Cable Division

Microdot Electronic Components Group



The Connector and Cable Division of the Microdot Electronic Components Group has a longstanding worldwide reputation as a respected supplier of a broad array of electronic/electromechanical connecting devices and specialty cable. The Connector and Cable Division charter encompasses the engineering and manufacture of high-reliability MIL-Spec and commercial electronic/electromechanical connectors, specialty electronic cable and cable assemblies, and metal backpanels and plastic/metal headers. Products range from simple, low-cost wire-to-wire connectors, to highly sophisticated interconnect systems for electronic equipment.



Microminiature D Connectors
(Meets Mil-C-83513)

Microminiature D Connectors (MCK series - metal shell and MCD Series - plastic shell) utilize a precision #24 AWG patented low force (5oz. max) twist pin reducing individual contact insertion forces by 33%, while maintaining all previous mechanical, electrical and environmental standards.

- 8 different insert arrangements – 9, 15, 21, 25, 31, 37, 51 and 100 contacts on .050 inch centerlines.
- Meets MIL-C-83513 requirements.
- Vertically and horizontally mounted transition blocks available.

For additional information contact MALCO South Pasadena, (818) 799-9171.

MALCO

MALCO - Montgomeryville
12 Progress Drive
Montgomeryville, PA 18936

MALCO - South Pasadena
306 Pasadena Avenue
South Pasadena, CA 91030

MALCO - Franklin Park
11535 Franklin Avenue
Franklin Park, IL 60131

Connector Industries of America
639 North Wayne Avenue
Cincinnati, OH 45215

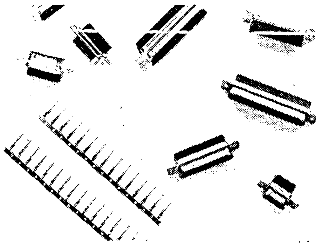
Connector Industries Of America

Connector and Cable Division
Microdot Electronic Components Group

D-Subminiature Crimp Connectors
376 Series

Complies with most industry interface standards such as EIA-RS-232C, EIA-RS-449 and IEEE Project 802. Available in all standard contact configurations including 9, 15, 25 and 37 pin positions.

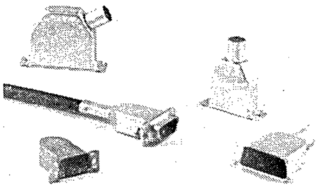
- Complete line of mounting and latching hardware types.
- Unique single-piece metal back shell hardware provides maximum EMI/RFI isolation.
- Application tooling available for both high and low volume cable assembly production.
- Compatible with AMP's HDP-20 Series



For additional information contact MALCO Montgomeryville, (215) 699-5373.

D-Subminiature Connector
Single-Piece Metal Backshells
382 Series

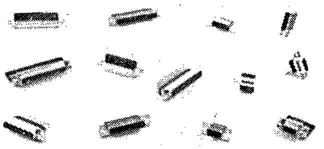
- Available in all standard shell configurations including: 9(E), 15(A), 25(B) & 37(C).
- Designed to comply with the EMI/RFI shielding requirements of both FCC docket 20780 and VDE.
- Designed for effective ESD shielding.
- Utilizes a crimp-applied dual ferrule system for excellent electrical and mechanical integrity.
- Available in vertical, 60° and 90° cable exit styles.
- Provides up to 60% savings in total applied cost when compared to foil wrap processes in over-molded assemblies.
- Considerably lower in cost, weight and profile size than die-cast backshell systems.
- Vinyl boot options provide insulation for non-molded assemblies where required.
- Application tooling available for either low or high volume cable assembly production.



For additional information contact MALCO Montgomeryville (215) 699-5373.

D-Subminiature Connectors
for PC Board and Solderless Wrap Applications
377 and 381 Series

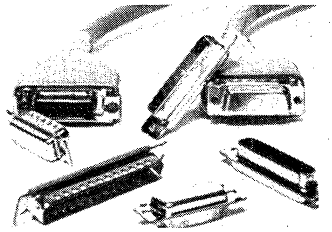
- Available in all standard contact configurations including: 9, 15, 25 & 37.
- Designed to comply with most industry interface standards such as: EIA-RS-232C, EIA-RS-449, IEEE Project 802 and Ethernet.
- Complete line of mounting and locking hardware types.
- Metal grounding strap option permits shielding from the connector shell to be carried to the PC board surface.
- Offered with either the traditional yellow chromate over zinc, or newer tin shell platings.
- Contact types include: vertical and right angle PC tails, as well as vertical two (2) and three (3) level wrap-types.



For additional information contact MALCO Montgomeryville (215) 699-5373.

D-Subminiature Connectors EMI/RFI Shielding Covers
378 Series

- Low cost shielding covers provide excellent protection from both emitted and induced EMI and RFI energy.
- Special interface detent tab optimizes shielding effectivity, while eliminating the need for additional mounting hardware, in many applications.
- Designed to mate with most industry standard D-subminiature, connector types (including Malco's Series 376 connectors).
- Available in several plating variations.



For additional information contact MALCO Montgomeryville (215) 699-5373.

MALCO

MALCO - Montgomeryville
12 Progress Drive
Montgomeryville, PA 18936

MALCO - South Pasadena
306 Pasadena Avenue
South Pasadena, CA 91030

MALCO - Franklin Park
11535 Franklin Avenue
Franklin Park, IL 60131

Connector Industries of America
639 North Wayne Avenue
Cincinnati, OH 45215

CIA
Connector Industries Of America

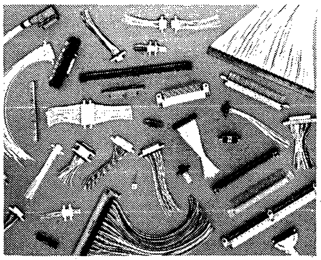
Connector and Cable Division
Microdot Electronic Components Group

Mil Qualified Circular Hermetic Receptacles

Circular hermetically sealed environmental connectors are designed and fabricated to specialized military and commercial specifications and drawings. Primarily utilized in military/aerospace applications subjected to severe environmental conditions such as heat, humidity, vibration and shock.

- Military specifications include Mil-C-5015, Mil-C-25955, Mil-C-26482, Mil-C-26500, Mil-C-38999, Mil-C-83723, Mil-C-81703.
- Mounting styles include bulkhead mount, square flange, round flange, and weld mount.

For additional information contact Connector Industries Of America, (513) 733-3680.

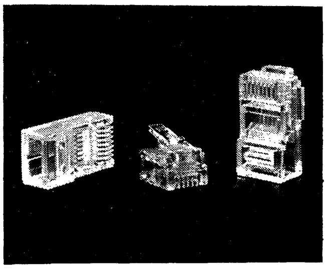


Rectangular Connectors

High density microminiature connectors featuring Malco's patented Twist Pin high reliability contact system. Provides perfect contact alignment with low engaging forces. Includes plastic and metal shell "D" connectors, plastic and metal shell two piece edgeboard connectors and strip connectors.

- Twist pins provide 7 points of contact no discontinuity in excess of 1 micro second and have a 3 amp rating.
- Contacts on .050 centers.
- Wire range #30 AWG and #24 AWG.
- Insert arrangements available from 9 pin to 400 pin.

For additional information contact MALCO South Pasadena, (818) 799-9171.

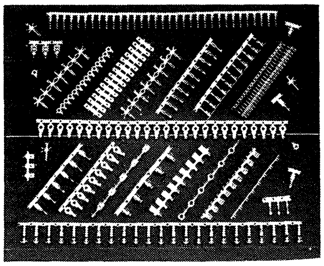


Telephone Module Plug 375 Series

Meets both FCC and REA specifications and has the latest design improvements, including a superior strain relief. Modular plugs available in 4, 6 and 8 circuit configurations for a host of telephone, computer or other key electronics applications.

- Shielded computer versions.
- Readily terminated to either stranded or tinsel cables.
- Available off-the-shelf in sub assembly form to minimize total applied cost.
- Contacts selectively gold plated for maximum economy and reliability.
- State-of-the-art application equipment is available for small & large volumes.

For additional information contact MALCO Montgomeryville, (215) 699-5373.



Strip Terminals

Malco is a leading supplier of strip terminals and other wire terminations with over 30 years experience in research, design and precision engineering.

- Pin connectors and pin receptacles
- Cord clamps — hooks, rings, offsets, wings, bands, "J's"
- Tabons and tab receptacles
- Snap-in male tab terminals
- Ring terminals — wire crimps, insulation pierce with and without insulation grip
- Spade terminals — insulation pierce or wire crimp with insulation grip
- Hook terminals
- Flag terminals
- Bobbin terminals
- Application equipment available for all terminal products

For additional information contact MALCO Franklin Park (312) 455-2424

MALCO

MALCO - Montgomeryville
12 Progress Drive
Montgomeryville, PA 18936

MALCO - South Pasadena
306 Pasadena Avenue
South Pasadena, CA 91030

MALCO - Franklin Park
11535 Franklin Avenue
Franklin Park, IL 60131

Connector Industries of America
639 North Wayne Avenue
Cincinnati, OH 45215

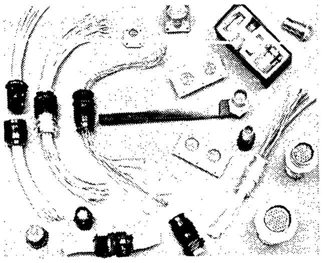
Connector Industries Of America

Connector and Cable Division
Microdot Electronic Components Group

Circular Connectors

Malco's proprietary line of high density, precision circular connectors represents the only modular multi-pin available in the industry today. Miniature 50-ohm, 75-ohm and 95 ohm coax contacts.

- Wire sizes 22 through 12 guage.
- Rear removable/insertable configuration – permits pre-termination of wires.
- Unsealed, environmentally sealed, or hermetically sealed.
- High density contact spacings as close as .065 centers.



For additional information contact MALCO South Pasadena, (818) 799-9171.

Coaxial Connectors - Microminiature

One of the best known, accepted lines of miniature and ultra miniature coax connectors in the industry, Malco lines include Standard, Golden Crimp™ Series, and Lepra/Con™ Series.

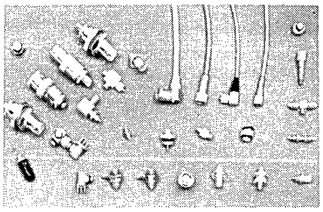
Each series offers straight and angle plugs, cabled jacks, bulkhead receptacles and adapters. A line of hermetic coax connectors is also available.

Standard Line
- Fits 50-95 ohm miniature cables.
- Threaded, "quick-connect", or slide-on coupling.
- Solder assembled center contact.
- Center contact gold plated; other metal parts silver plated.

Golden Crimp™ Series
- Rapid crimp assembly.
- Housing, nut, and contact gold plated.
- Operating temperature to 200°C.

Lepra/Con™ Series
- Ultra-Miniature Size.
- Fits 50 Ohm Miniature Cables.
- Threaded, Slide-On or Snap-Lock Coupling.
- Rapid Crimp Assembly (Straight Plugs and Jacks).
- Housing, Nut, and Contact Gold Plated.
- Operating Temperature to 200°C.

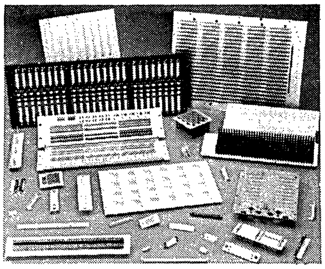
For additional information contact MALCO South Pasadena, (818) 799-9171.



Back Panel Assemblies and Headers Meets (Mil-C-28754, WS-6157, WS-6159)

Malco, the originator of the metal back plane technology produces aluminum metal plates for both card edge and metal to metal contact interfaces. Using a slide and tuning fork system, known as the wrappost assembly system panel, thousands of electrical terminations can be mounted on a single WASP plate. Malco features 3 amp contacts with .025″ square wire wrapposts on 0.100″, 0.125″ and 0.150″ centers as well as 6 amp contacts with .045″ square wire wrapposts on 0.200″ centers.

- High density up to 300 contacts per square inch with each contact positioned to permit use with automatic wire wrapping machines.
- Malco offers a complete line of extruded, metal and molded headers.
- Extruded headers series 440 & 441 provide reliable interconnection between the back plane and printed circuit board, selective plating, increased rigidity and maximum utilization of space.



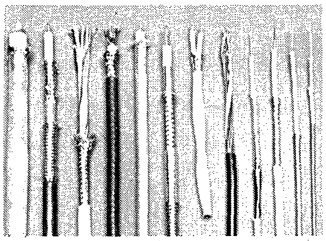
For additional information contact MALCO Montgomeryville, (215) 699-5373.

Wire and Cable

Malco offers a broad line of high-performance cables for a diverse range of applications.

These include microminiature coaxial cables, "Mini-Noise" cables, high temperature cables, and high speed data lines, including the increasingly popular Local Area Network cables.

Product offerings include:
- Microminiature coaxes, triaxes, twinaxes, etc.
- "Mini-Noise" cables reduce or eliminate the noise generated when the cables are flexed.
- Military type coax, twinax, and triaxial cables using PVC, polyethylene, nylon and flurocarbon materials.
- Foamed dielectrics including, FEP, polyethylene, and polypropylene.
- A wide range of cables classified by Underwriters Laboratory for fire and smoke characteristics (in accordance with Section 725-2(b) of the National Electric Code) for conduit-free installations in ducts and plenums.



For additional information contact MALCO South Pasadena, (818) 799-9171.

MALCO

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12 Progress Drive
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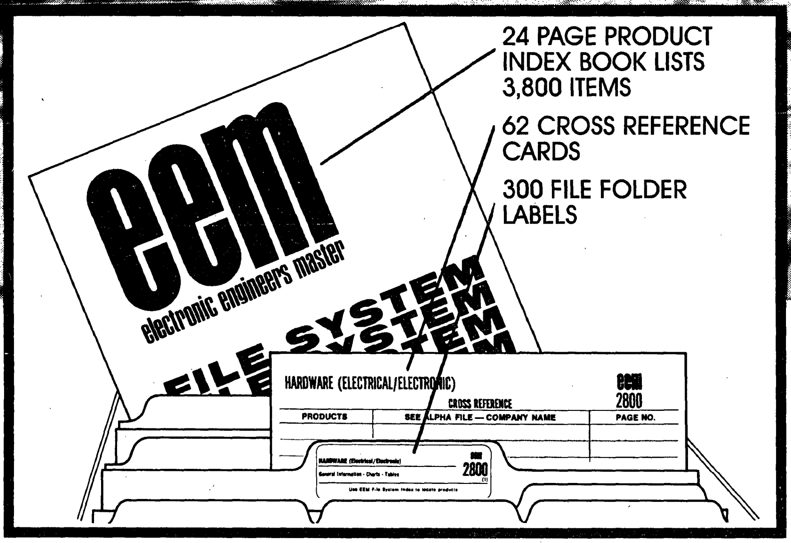
Connector Industries Of America


24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
62 CROSS REFERENCE CARDS
300 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
eem 2800
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SEE ALPHA FILE — COMPANY NAME
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645 stewart ave., garden city, ny 11530

LITHIUM BATTERY HOLDERS

Coin Cell Series

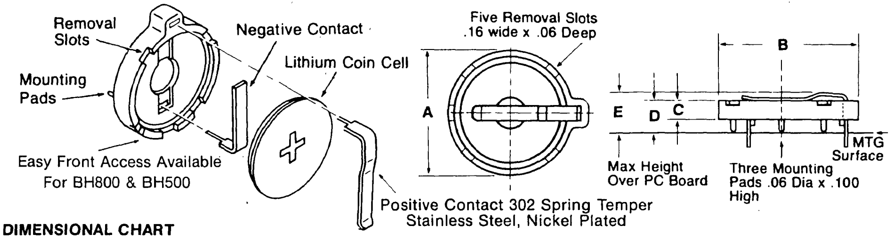
Lithium Batteries have gained wide usage for IC Memory Back-Up Systems due to long-lasting stable performance with low power consumption. A limitation in application has now been overcome with the introduction of MPD's printed circuit board mounted coin cell battery holders. The need for permanent mounting of the cell by use of solder tabs is now eliminated.

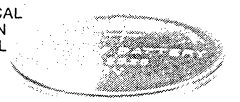
SPECIFICATIONS: Holder material—Self-extinguishing thermoplastic Polyester, VALOX® resin 420 SEO • Contacts—302 spring temper stainless steel, nickel plated • Flammability rating—UL94 V-0 • Dielectric strength—560 volts/mil at 25°C for 5 sec. • Color—Black • Temperature range— -55°C to +140°C • Resistance to solvents—Xylene; ethyl, butyl, methyl & propyl alcohol; ethyl acetate; heptane; toluene.

APPLICATIONS: • CMOS, Microprocessors & Microcomputer hold-memory • Electronic communications devices • Telecommunication equipment • Time clock back up.

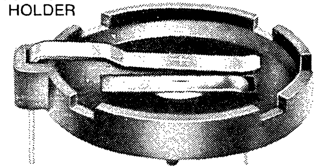
FEATURES: • Fits all 3 volt coin-type cells • Printed circuit board mounting • Unique molded design offers easy insertion & removal of battery without desoldering or special tools • The molded in beveled edge does not allow coin cell to make contact if placed in holder upside down or reverse direction • Special design contacts assure proper polarity of inserted battery • Raised mounting tabs permit free air flow around battery & insulation from extreme solder bath temperatures • Low profile for high density packaging

MPD COIN CELL HOLDERS/LITHIUM CELL SIZES	
MODEL #BH906	23MM DIA. BY 2.0MM TO 3.2MM THICK CELLS
#BH1000	24MM TO 25MM DIA. BY 2.0MM TO 3.0MM THICK CELLS
#BH800	20MM DIA. BY 2.0MM TO 3.2MM THICK CELLS
#BH500	12MM DIA. BY 2.0MM TO 2.5MM THICK CELLS

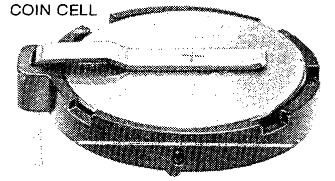

Removal Slots
Mounting Pads
Negative Contact
Lithium Coin Cell
Easy Front Access Available For BH800 & BH500
Five Removal Slots .16 wide x .06 Deep
A
B
E
D
C
MTG Surface
Max Height Over PC Board
Three Mounting Pads .06 Dia x .100 High
Positive Contact 302 Spring Temper Stainless Steel, Nickel Plated



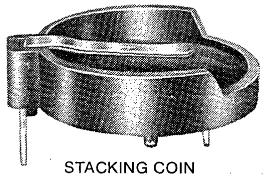
TYPICAL COIN CELL



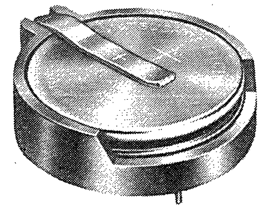
COIN CELL HOLDER



HOLDER WITH COIN CELL



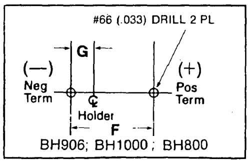
STACKING COIN CELL HOLDER



STACKING HOLDER WITH 2 COIN CELLS

DIMENSIONAL CHART

MODELS	A	B	C	D	E	F (±).015	G
BH1000	1.090	1.175	.185	.285	.326	.807	.256
BH906	1.00	1.130	.170	.270	.320	.807	.256
BH800	.890	1.075	.200	.300	.330	.807	.256
BH500	.595	.755	.100	.248	.280	.393	—


#66 (.033) DRILL 2 PL
G
(—) Neg Term
(+) Pos Term
℄ Holder
F
BH906; BH1000; BH800

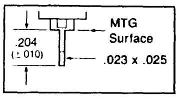
CONTACT MTG HOLE DETAIL

BATTERY APPLICATION CHART

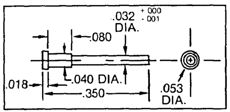
BATTERY NUMBER CODE
12mm Dia. **12 25** 2.5mm Thick

PANASONIC	RAY-O-VAC	GE/SANYO/VARTA DURACELL/TOSHIBA RENATA
BR1225 BR1220 BR2020 CR2025 BR2032 CR2032 BR2320 BR2325	BR1225 BR2320 BR2325 CR2025 CR2032	CR1220 CR1225 CR2025 CR2025H CR2032 CR2032H CR2320 CR2420 CR2430

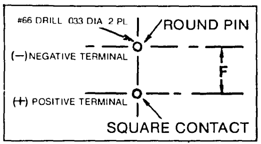
RECOGNIZED UNDER COMPONENT PROGRAM OF UL


MTG Surface
.204 (±.010)
.023 x .025

SQUARE CONTACT DETAIL

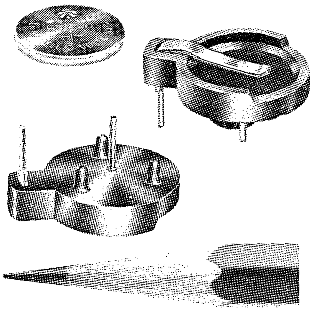

.032 +.000 -.001 DIA.
.080
.018
.040 DIA.
.350
.053 DIA.

ROUND CONTACT DETAIL

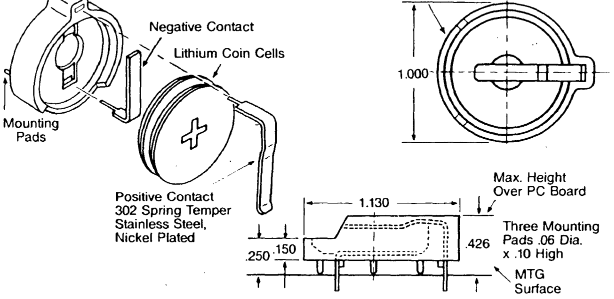

#66 DRILL .033 DIA 2 PL
ROUND PIN
(—) NEGATIVE TERMINAL
F
(+) POSITIVE TERMINAL
SQUARE CONTACT

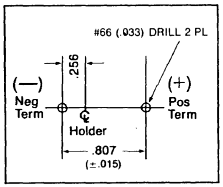
BH500 CONTACT MOUNTING HOLE DETAIL

BH-500 12MM COIN CELL HOLDER

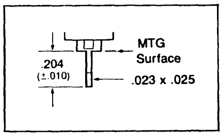


LITHIUM STACKING HOLDER BH906-S permits stacking of 2-3 volt coin-type cells up to 23mm x 2.5mm for 6 volt operation. Additional stacking cell holders for BH1000-S, BH800-S and BH500-S available soon. Specifications same as above.


Negative Contact
Lithium Coin Cells
Mounting Pads
Positive Contact 302 Spring Temper Stainless Steel, Nickel Plated
Easy Front Access
1.000
Max. Height Over PC Board
1.130
.250
.150
.426
Three Mounting Pads .06 Dia. x .10 High
MTG Surface


#66 (.033) DRILL 2 PL
.256
(—) Neg Term
(+) Pos Term
℄ Holder
.807 (±.015)

BH906-S MTG HOLE DETAIL


MTG Surface
.204 (±.010)
.023 x .025

SQUARE CONTACT DETAIL

VALOX® is a Registered Trademark of General Electric Company

CUSTOM BATTERY HOLDERS AVAILABLE ON REQUEST

U.S. Patent No. 4,487,820

Memory Protection Devices inc.

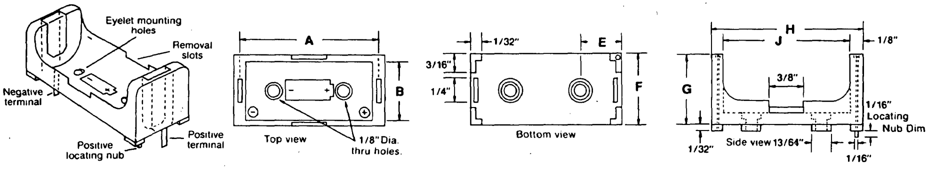
320 Broad Hollow Rd., Farmingdale, N.Y. 11735 • (516) 454-0340-41

LITHIUM BATTERY HOLDERS

Also for NiCd, Carbon, Carbon-Zinc and Alkaline Cells

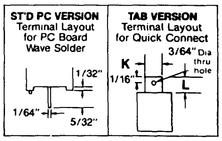
HORIZONTAL BATTERY HOLDERS

FEATURES: ● Fits all 3-volt Lithium cylinder cells (see table) ● Also accommodates Ni-Cd, Carbon, Carbon-Zinc and Alkaline cells (see table) ● Printed circuit board mounting ● Unique molded design offers easy insertion & removal of battery without desoldering or special tools ● Special design molded base assures proper polarity of inserted battery ● Raised mounting tabs permit free air flow around battery & insulation from extreme solder bath temperatures ● Fast-on tab terminal for hardwire soldering & eyelet mounting holder BH-T (see table) ● High temperature resistant UL 94V-O VALOX® resin


Eyelet mounting holes
Removal slots
Negative terminal
Positive locating nub
Positive terminal
A
B
Top view
1/8" Dia. thru holes.
1/32"
E
3/16"
1/4"
F
Bottom view
H
J
1/8"
3/8"
G
1/16" Locating Nub Dim
1/32"
Side view 13/64"
1/16"

DIMENSIONAL CHART

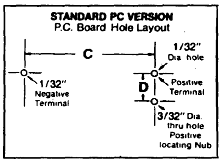
MODELS	STANDARD STYLE BATTERIES	FAST-ON-TAB	WEIGHT IN GRAMS	DIRECTION FINDER	DIMENSIONS A	B	C	D	E	F	G	H	J	L	K
BH 2/3A	2/3A		7	●	1-1/2	5/8	1-1/2	21/64	29/64	23/32	25/32	1-5/8	1-3/8	—	—
BH 2/3A-T	2/3A	●	7.3	●	1-1/2	5/8	—	—	29/64	23/32	25/32	1-5/8	1-3/8	9/32	3/16
BH 1/2 AA	1/2 AA		5.5	●	1-11/64	9/16	1-11/64	19/64	11/32	41/64	25/32	1-19/64	1-1/32	—	—
BH 1/2 AA-T	1/2 AA	●	6	●	1-11/64	9/16	—	—	11/32	41/64	25/32	1-19/64	1-1/32	9/32	3/16
BH AA	AA		18	●	2-11/64	9/16	2-11/64	19/64	15/32	41/64	25/32	2-19/64	2-1/32	—	—
BH AA-T	AA	●	19	●	2-11/64	9/16	—	—	15/32	41/64	25/32	2-19/64	2-1/32	9/32	3/16
BH-C	C		20	●	2-11/64	31/32	2-11/64	33/64	15/32	1-3/32	1-1/8	2-19/64	2-1/32	—	—
BH-C-T	C	●	20.7	●	2-11/64	31/32	—	—	15/32	1-3/32	1-1/8	2-19/64	2-1/32	9/32	3/16


ST'D PC VERSION
Terminal Layout for PC Board Wave Solder
1/32"
1/64"
5/32"
TAB VERSION
Terminal Layout for Quick Connect
3/64" Dia thru hole
K
1/16"
L

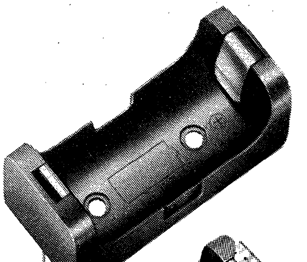
BATTERY APPLICATION CHART MPD MODEL BH 2/3A, BH 1/2AA, BHAA, BHC & T VERSIONS FITS THE FOLLOWING LITHIUM CYLINDER CELLS MANUFACTURER'S

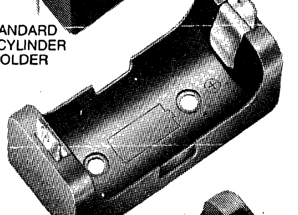
* BATTERY SIZES	PANASONIC	RAY O VAC	SANYO	ELECTROCHEM IND INC	DURACELL	TADIRAN	SAFT	POWER CONVERSION INC.	ALTUS CORP.
2/3A	●	●	● CR-2/3ASE		●		● LX-16/34	●	
1/2AA			● CR-1/2AASE			●	●	●	
AA				●		●	● LS-6	●	● w/o TAB
C	●			●		●		●	● w/o TAB

*Also accommodates Ni-Cd, Carbon Zinc and Alkaline Batteries
RECOGNIZED UNDER COMPONENT PROGRAM OF UL

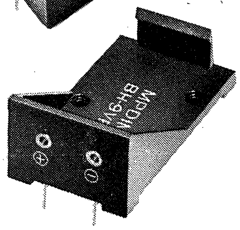

STANDARD PC VERSION
P.C. Board Hole Layout
C
1/32" Dia hole
1/32" Negative Terminal
D
Positive Terminal
3/32" Dia. thru hole Positive locating Nub

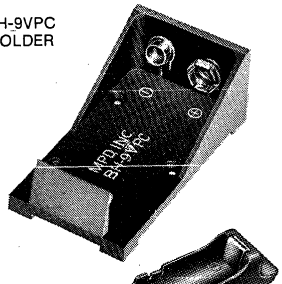
U.S. PATENT 4,495,257

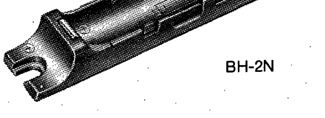

STANDARD PC CYLINDER HOLDER


TAB VERSION

Panasonic
LITHIUM
BATTERY
BR-2/3A
3V
PC HOLDER WITH CYLINDER CELL

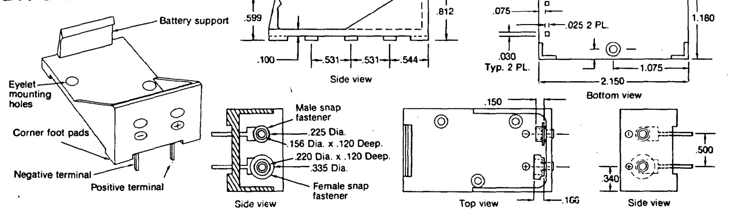

MPD INC
BH-9V
BH-9VPC HOLDER


MPD INC
BH-9VPC


BH-2N

9 VOLT BATTERY HOLDER: 9 volt batteries have gained wide usage in general purpose products i.e.: radios, smoke alarms, etc. A limitation in application has now been overcome with the introduction of MPD's printed circuit board mounted 9 volt battery holders with male/female snap fastener terminals to assure proper polarity. No snap fit cable assemblies needed. Can be used for other products needing PC mountable 9V batteries. Mounts in any position battery always held securely in place.

BH-9VPC

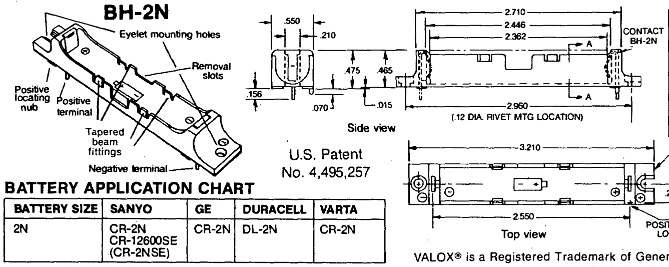

Battery support
Eyelet mounting holes
Corner foot pads
Negative terminal
Positive terminal
.599
.812
.100
.531
.531
.544
Side view
.075
.025 2 PL.
.030 Typ. 2 PL.
1.180
1.075
2.150
Bottom view
Male snap fastener
.225 Dia.
.156 Dia. x .120 Deep.
.220 Dia. x .120 Deep.
.335 Dia.
Female snap fastener
Side view
.150
Top view
.166
.500
.340
Side view

BH9V-PC FITS THE FOLLOWING

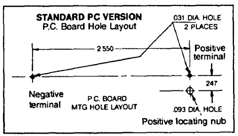
- Duracell
- Eveready
- GE
- Mallory
- Panasonic
- Radio Shack
- Ray-O-Vac
- Saft
- Sanyo
- Union Carbide

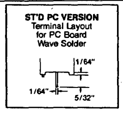
1/2" LOW PROFILE HORIZONTAL BATTERY HOLDER: The unique 1/2" BH-2N battery holder permits PC board stacking. Lithium Batteries have gained wide usage for IC Memory Back-Up Systems due to long-lasting stable performance with low power consumption. A limitation in application has now been overcome with the introduction of MPD's printed circuit board mounted cylinder battery holders. The need for permanent mounting of the cell by use of solder tabs is now eliminated. Molded of VALOX® resin.

BH-2N


Eyelet mounting holes
Removal slots
Positive locating nub
Positive terminal
Tapered beam fittings
Negative terminal
.550
.210
.475
.465
.156
.070
.015
Side view
2.710
2.446
2.362
CONTACT BH-2N
A
A
2.960
(.12 DIA. RIVET MTG LOCATION)
3.210
HOLDER BH-2N
.247 MTG LOCATION
2.550
POSITIVE DIRECTION LOCATING NUB
Top view

U.S. Patent
No. 4,495,257


STANDARD PC VERSION
P.C. Board Hole Layout
.031 DIA. HOLE 2 PLACES
2.550
Positive terminal
.247
Negative terminal
P.C. BOARD MTG HOLE LAYOUT
.093 DIA. HOLE
Positive locating nub


ST'D PC VERSION
Terminal Layout for PC Board Wave Solder
1/64"
1/64"
5/32"

BATTERY APPLICATION CHART

BATTERY SIZE	SANYO	GE	DURACELL	VARTA
2N	CR-2N CR-12600SE (CR-2NSE)	CR-2N	DL-2N	CR-2N

Recognized under component program of UL

VALOX® is a Registered Trademark of General Electric Company
CUSTOM BATTERY HOLDERS AVAILABLE ON REQUEST

Memory Protection Devices inc.

320 Broad Hollow Rd., Farmingdale, N.Y. 11735 • (516) 454-0340-41

BATTERY PACK HOLDERS
MODELS BH2AA - BH3AA - BH4AA
MODELS BH2AAA - BH3AAA - BH4AAA

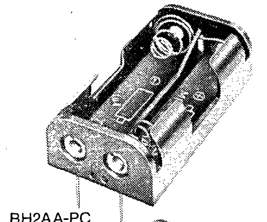
For NiCd, Carbon, Carbon-Zinc and Alkaline Cells

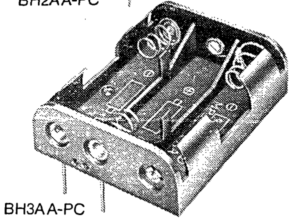
They come in three styles; PC-Printed Circuit; W-Wire; SF-Snap fastener, male/female terminals. They are used in Computers, Medical Instruments, Instrumentation and Security Equipment, etc. The MPD holder pack allows the above battery types to be replaced easily. The PC and wire models are soldered to the PC board whereas the snap fastener terminal model is not.

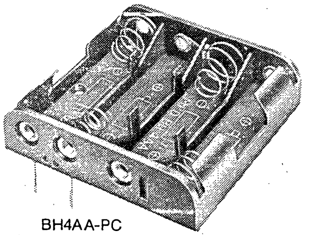
FEATURES: • Fits all AA and AAA type cells • PC-Printed Circuit Mountable • W-Wire 6" long ends stripped and tinned 3/16" typ. • SF-Snap Fastener terminals male/female (standard 9V configuration) • Is non-metallic • Battery compartments keep possible leakage self contained • Low contact resistance and corrosive free all nickel plated metal parts • Taper beam fittings keep batteries secure in place.

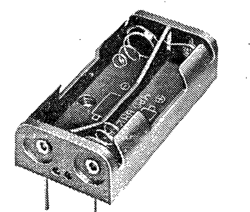
SPECIFICATIONS: • Holder material—Impact resistance nylon #6 • Contacts—Spring steel, nickel plated, imbedded in nylon • Terminals—Brass, nickel plated, snap fastener male/female terminals • Spring—Spring steel, nickel plated • Color—Black • Temperature Range— -40°C to +85°C. Resistant to Solvents—Aromatic and aliphatic solvents, hydrocarbons, common oils, refrigerants

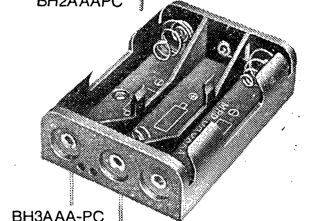
APPLICATIONS: • Microcomputers & Microprocessors, Hold-Memory • Memory back-up for CMOS • Telecommunication equipment • Power source for computer real time clocks • Appliances • Programmable electronic games • Emergency power supply equipment • Alarm & security back-up • Industrial controls • Electronic communications devices

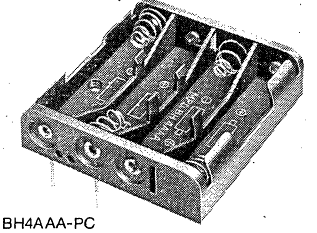

BH2AA-PC


BH3AA-PC

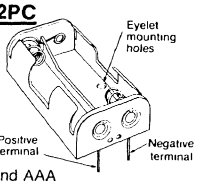

BH4AA-PC

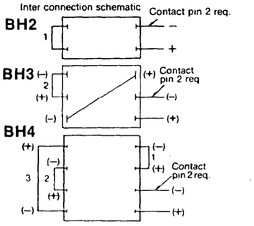

BH2AAAPC


BH3AAA-PC

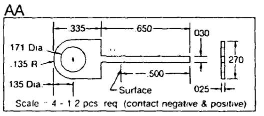

BH4AAA-PC

BH-2PC


Eyelet mounting holes
Positive terminal
Negative terminal

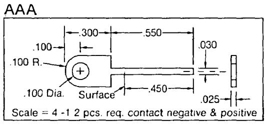

AA and AAA
Inter connection schematic
Contact pin 2 req.
BH2
1
−
+
BH3
(−)
2
(+)
(−)
(+)
Contact pin 2 req
(−)
(+)
BH4
(+)
(−)
3
2
(+)
(−)
(−)
1
(+)
Contact pin 2 req.
(−)
(+)

AA


.335
.650
030
171 Dia
.135 R
135 Dia.
.500
Surface
270
025

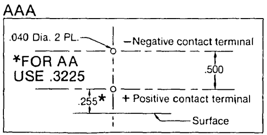
Scale = 4 - 1 2 pcs req (contact negative & positive)

AAA


.300
.550
.100
.030
.100 R.
.100 Dia.
Surface
.450
.025

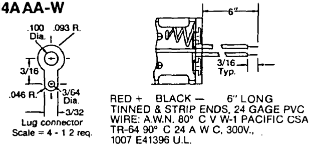
Scale = 4 -1 2 pcs. req. contact negative & positive

AAA


.040 Dia. 2 PL.
−Negative contact terminal
*FOR AA USE .3225
.500
.255*
+ Positive contact terminal
Surface

PC CONTACT MTG HOLE DETAIL

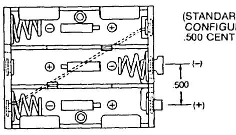
WIRE DIAGRAM FOR BH2AA-W, BH3AA-W, BH4AA-W, AND BH2AAA-W, BH3AAA-W, BH4AAA-W

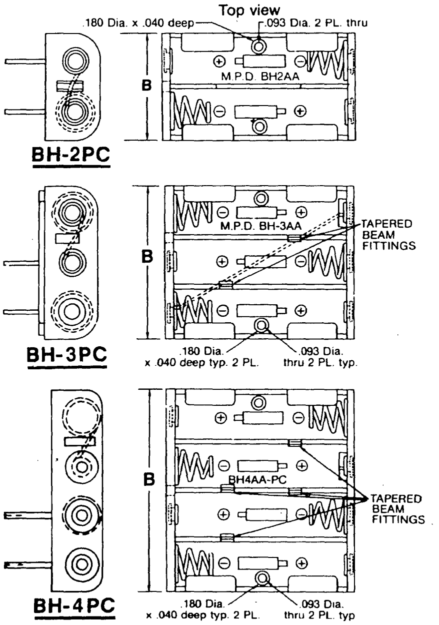

.100 Dia.
.093 R.
3/16
.046 R.
3/64 Dia.
3/32
6"
3/16 Typ.

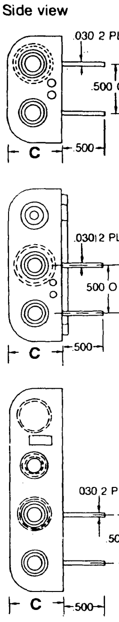
Lug connector
Scale = 4 - 1 2 req.

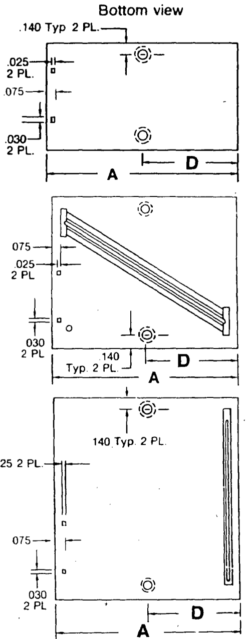
RED + BLACK — 6" LONG
TINNED & STRIP ENDS, 24 GAGE PVC
WIRE: A.W.N. 80° C V W-1 PACIFIC CSA
TR-64 90° C 24 A W C, 300V.,
1007 E41396 U.L.

SNAP FASTENER MALE/FEMALE TERMINALS DIAGRAM FOR BH2AA-SF, BH3AA-SF, BH4AA-SF, AND BH2AAA-SF, BH3AAA-SF, BH4AAA-SF.


(STANDARD 9V CONFIGURATION)
.500 CENTER
(−)
.500
(+)


Top view
.180 Dia. x .040 deep
.093 Dia. 2 PL. thru
M.P.D. BH2AA
B
BH-2PC
M.P.D. BH-3AA
TAPERED BEAM FITTINGS
B
.180 Dia. x .040 deep typ. 2 PL.
.093 Dia. thru 2 PL. typ.
BH-3PC
BH4AA-PC
B
TAPERED BEAM FITTINGS
.180 Dia. x .040 deep typ. 2 PL.
.093 Dia. thru 2 PL. typ
BH-4PC


Side view
.030 2 PL.
.500 O.C.
C
.500
.030 2 PL.
.500 O C
C
.500
.030 2 PL
.500 O.C.
C
.500


Bottom view
.140 Typ 2 PL.
.025 2 PL.
.075
.030 2 PL.
A
D
.075
.025 2 PL
.030 2 PL
.140 Typ. 2 PL.
D
A
.140 Typ. 2 PL.
.025 2 PL.
.075
.030 2 PL
D
A

BATTERY PACK HOLDERS

	BH2AA-PC	BH3AA-PC	BH4AA-PC	BH2AAA-PC	BH3AAA-PC	BH4AAA-PC
A	2.250	2.250	2.250	2.015	2.015	2.015
B	1.240	1.835	2.430	.970	1.430	1.890
C	.625	.625	.625	.490	.490	.490
D	1.125	1.125	1.125	1.0075	1.0075	1.0075

CUSTOM BATTERY
HOLDERS AVAILABLE
ON REQUEST

Memory Protection Devices Inc.

320 Broad Hollow Rd., Farmingdale, N.Y. 11735 • (516) 454-0340-41

METUCHEN CAPACITORS INC.

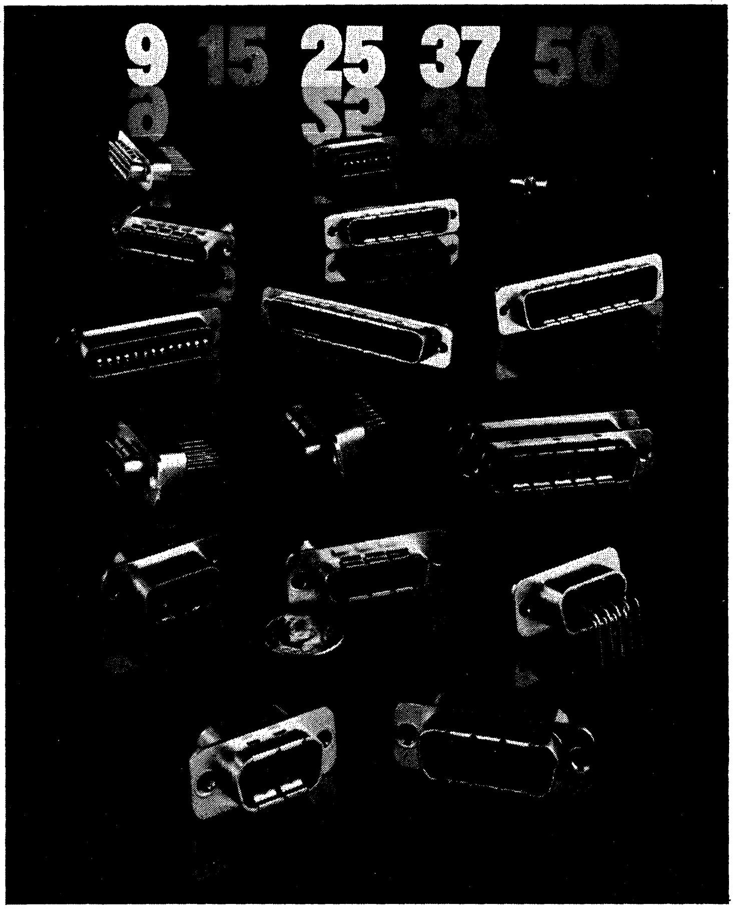
EMI Filtered D Subminiature Connectors

PRODUCT BENEFITS

- Provides optimum positioning of interference control at interconnect interface.
- Provides maximum volumetric efficiency.
- Design is based on proprietary ceramic technology of proven reliability and RF performance.
- Connectors mount in existing chassis hole pattern.
- A cost effective solution to electromagnetic compatibility (EMC).
- Provides a wide range of filter performance options.
- Adaptor styles provide for ease of retrofitting existing equipment.
- Testing 100% for key parameters ensures quality levels.
- Designed to provide compatibility with EIA RS-232 and RS-449.

M.C.I. has the world's largest inventory of filtered D-Subminiature connectors. These connectors are manufactured by the leader of the industry... Spectrum Control, Inc. Spectrum Control's Filtered D Subminiature connectors are designed to provide a cost effective method of complying with FCC Part 15, Sub Part J, VDE and MIL STD 461 A/B regulations. The filters are feed-thru capacitors and pi sections.

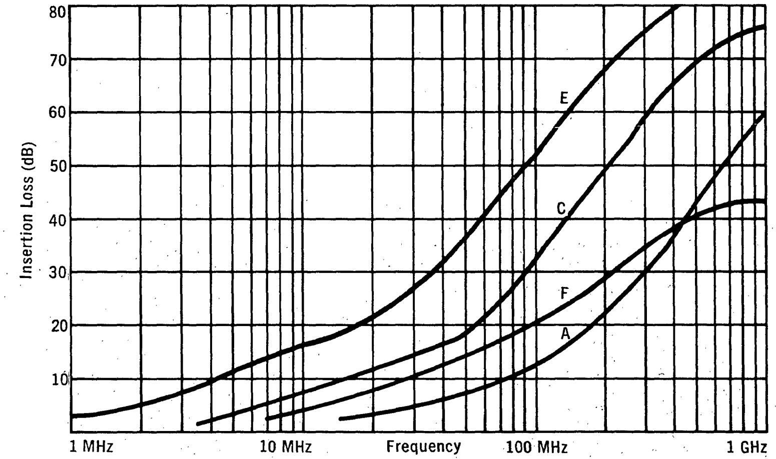
Our in-house stock includes all five shell sizes, 9, 15, 25, 37 and 50 position connectors in pin contacts (plugs), socket contacts (receptacles) and in the very versatile pin/socket adaptors. The four standard electrical configurations along with their performance values follows:



EMI FILTER PERFORMANCE

Filter Designation	*Filter Circuits	Capacitance		3 dB Max Cut-Off Frequency (MHz)	Dielectric W'Standing Voltage	Contact Rating	Contact Resist.	DC Working Voltage	Minimum Insertion Loss — Decibels (dB)							
		Value	Tolerance					−55°C to +125°C	5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	Pi	310 pF	±20%	17	300V	5A	.010 Ω Max.	100V	—	—	—	5	10	18	39	52
C	Pi	1000 pF	+100 −0%	3.2	300V	5A	.010 Ω Max.	100V	—	5	9	15	25	43	65	70
E	Pi	4000 pF	+100 −0%	0.8	150V	5A	.010 Ω Max.	200V	8	13	18	31	46	60	75	75
F	FT	830 pF	±20%	6.4	600V	5A	.010 Ω Max.	200V	—	3	6	12	17	23	30	35

TYPICAL PI FILTER AND FEED THROUGH CAPACITOR PERFORMANCE*



The following pages depict HM RS-232 series (shell size 25)

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control Inc...**
The world's leading manufacturer of Electro-Magnetic Components. Distributed for Spectrum Control Inc.

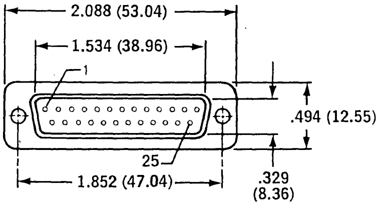
Metuchen Capacitors Inc. / Dept. EM, 420 Park Avenue, Perth Amboy, NJ 08861 / (201) 442-0500 / TWX 710-998-0892

METUCHEN CAPACITORS INC.

EMI Filtered D Subminiature Connectors: 25 Pin Plug

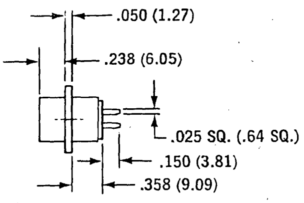
PIN CONTACT (PLUG)

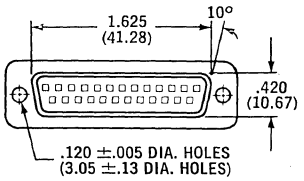
FRONT VIEW
(All Configurations)


2.088 (53.04)
1.534 (38.96)
1
25
.494 (12.55)
1.852 (47.04)
.329
(8.36)

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

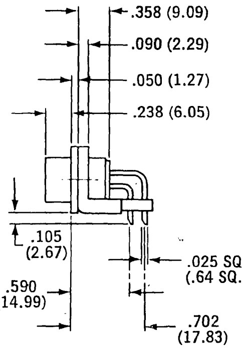

.050 (1.27)
.238 (6.05)
.025 SQ. (.64 SQ.)
.150 (3.81)
.358 (9.09)

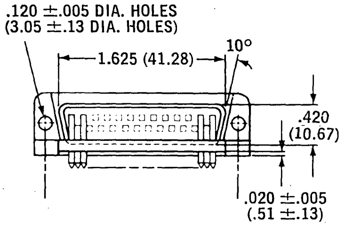

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-721-001	A	310 pF Pi	25	100 VDC
56-721-003	C	1000 pF Pi	25	100 VDC
56-721-005	E	4000 pF Pi	25	50 VDC
56-721-033	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT

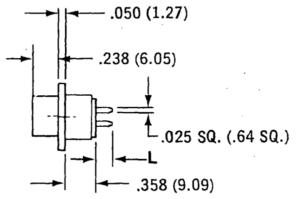

.358 (9.09)
.090 (2.29)
.050 (1.27)
.238 (6.05)
.105
(2.67)
.025 SQ.
(.64 SQ.)
.590
(14.99)
.702
(17.83)

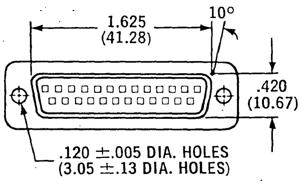

.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)
1.625 (41.28)
10°
.420
(10.67)
.020 ±.005
(.51 ±.13)

REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-722-001	A	310 pF Pi	25	100 VDC
56-722-003	C	1000 pF Pi	25	100 VDC
56-722-005	E	4000 pF Pi	25	50 VDC
56-722-008	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP

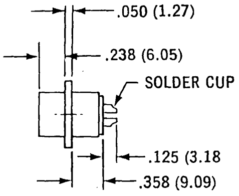

.050 (1.27)
.238 (6.05)
.025 SQ. (.64 SQ.)
L
.358 (9.09)

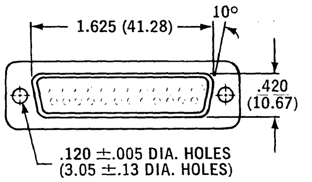

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Part Number	L .500	L .375	L .225	EMI Filter			Voltage Rating
				Type*	Cap Value	Lines Filtered	
56-721-	006	028	024	A	310 pF Pi	25	100 VDC
56-721-	008	030	026	C	1000 pF Pi	25	100 VDC
56-721-	010	032	027	E	4000 pF Pi	25	50 VDC
56-721-	042	039	036	F	830 pF FT	25	200 VDC

SOLDER CUP TERMINATION


.050 (1.27)
.238 (6.05)
SOLDER CUP
.125 (3.18
.358 (9.09)


1.625 (41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Part Number	EMI Filter			Voltage Rating
	Type*	Cap Value	Lines Filtered	
56-721-011	A	310 pF Pi	25	100 VDC
56-721-013	C	1000 pF Pi	25	100 VDC
56-721-015	E	4000 pF Pi	25	50 VDC
56-721-045	F	830 pF FT	25	200 VDC

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control Inc. . .**
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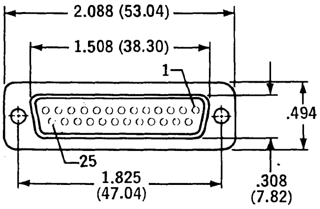
METUCHEN CAPACITORS INC.

EMI Filtered D Subminiature Connectors: 25 Socket Receptacle

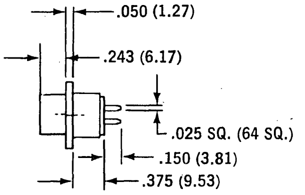
SOCKET CONTACT (RECEPTACLE)

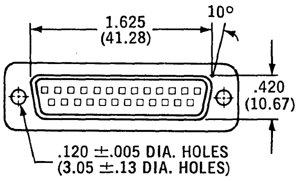
FRONT VIEW
(All Configurations)


2.088 (53.04)
1.508 (38.30)
1
.494 (12.55)
25
1.825
(47.04)
.308
(7.82)

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

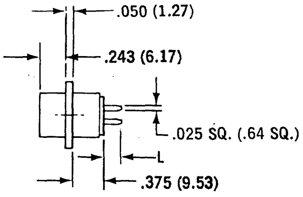

.050 (1.27)
.243 (6.17)
.025 SQ. (64 SQ.)
.150 (3.81)
.375 (9.53)

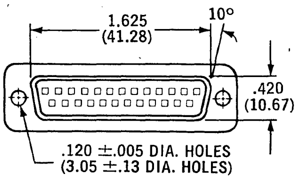

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Part Number	Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-723-001	A	310 pF Pi	25	100 VDC
56-723-003	C	1000 pF Pi	25	100 VDC
56-723-005	E	4000 pF Pi	25	50 VDC
56-723-023	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP

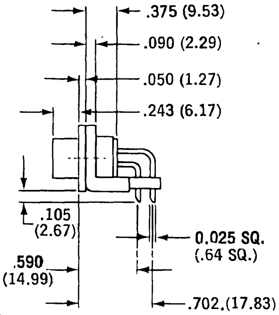

.050 (1.27)
.243 (6.17)
.025 SQ. (.64 SQ.)
L
.375 (9.53)

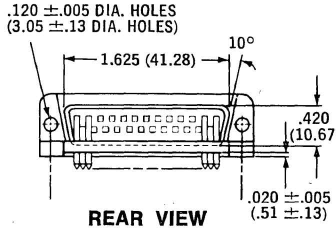

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Part Number	L .500	L .375	L .250	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-723-	006	017	012	A	310 pF Pi	25	100 VDC
56-723-	008	019	014	C	1000 pF Pi	25	100 VDC
56-723-	010	021	016	E	4000 pF Pi	25	50 VDC
56-723-	032	029	026	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT

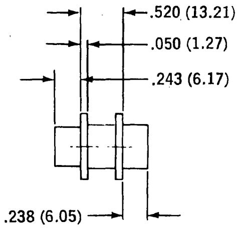

.375 (9.53)
.090 (2.29)
.050 (1.27)
.243 (6.17)
.105
(2.67)
0.025 SQ.
(.64 SQ.)
.590
(14.99)
.702 (17.83)

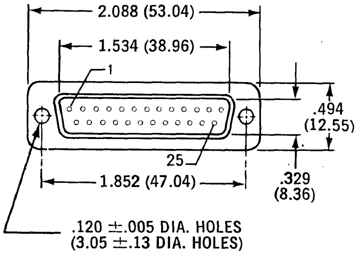

.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)
10°
1.625 (41.28)
.420
(10.67)
.020 ±.005
(.51 ±.13)

REAR VIEW

Part Number	Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-724-001	A	310 pF Pi	25	100 VDC
56-724-003	C	1000 pF Pi	25	100 VDC
56-724-005	E	4000 pF Pi	25	50 VDC
56-724-008	F	830 pF FT	25	200 VDC

EMI FILTERED CONNECTOR ADAPTOR: PIN/SOCKET (PLUG/ RECEPTACLE)


.520 (13.21)
.050 (1.27)
.243 (6.17)
.238 (6.05)


2.088 (53.04)
1.534 (38.96)
1
.494
(12.55)
25
1.852 (47.04)
.329
(8.36)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

Part Number	Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-725-001	A	310 pF Pi	25	100 VDC
56-725-003	C	1000 pF Pi	25	100 VDC
56-725-005	E	4000 pF Pi	25	50 VDC
56-725-019	F	830 pF FT	25	200 VDC

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The world's leading manufacturer of Electro-Magnetic Components. Distributed for Spectrum Control Inc.

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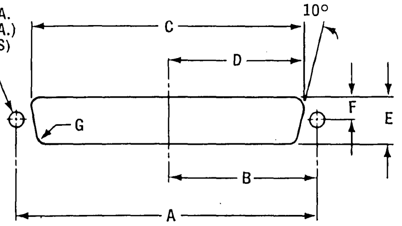
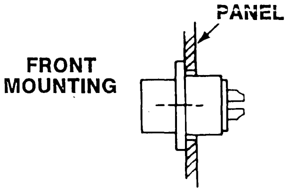
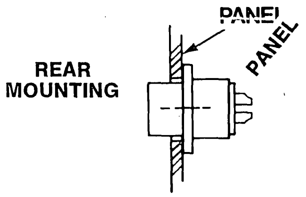
METUCHEN CAPACITORS INC.

Application Notes

25 D SUBMINIATURE PANEL CUTOUTS





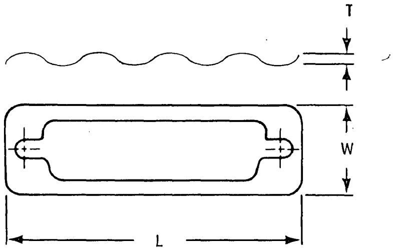


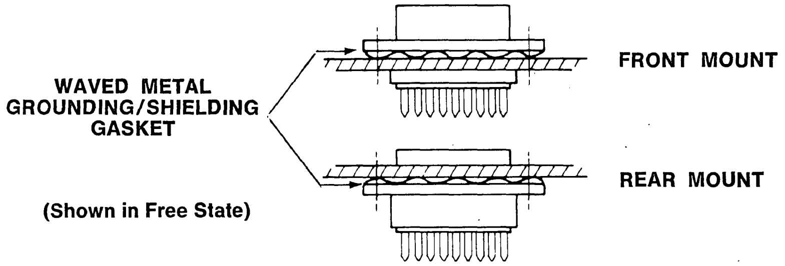
Mounting Method*	A ±.005 (0,13)	B ±.005 (0,13)	C ±.005 (0,13)	D ±.005 (0,13)	E ±.005 (0,13)	F ±.005 (0,13)	G ±.002 (0,05)
Front Mounting	1.852 (47,04)	.926 (23,52)	1.645 (41,78)	.822 (20,89)	.440 (11,18)	.220 (5,59)	.150 (3,81)
Rear Mounting	1.852 (47,04)	.926 (23,52)	1.528 (38,81)	.764 (19,41)	.360 (9,14)	.180 (4,57)	.110 (2,79)

* When Rear Mounting Pin (Plug) Connector use Front Mounting Panel Cutout.

Mounting Considerations
Waved Metal Gaskets...For Complete EMI Protection

Proper mounting of any EMI filter — including the EMI filtered D Subminiature — is critical to the achievement of electromagnetic compatibility. The mounting surface for grounding the connector must be free from paint or any other insulating material. The sketches below indicate the use of one of Spectrum's EMI gaskets to fill any tolerance gaps and adjust for irregularities in the flatness of the mounting surface.





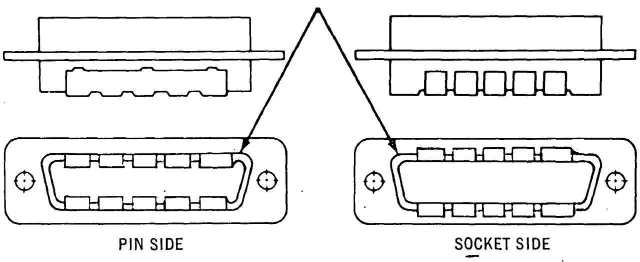
(Shown in Free State)

Shell Size	Mounting Configuration	L	W	T Free State	T Compressed	Part No.
25	Front - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00102-70
	Rear - Pin					
	Rear - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00107-70

Spectrum EMI Filtered D Subminiature...Unique

Spectrum D subminiature connectors feature a unique ground plane to effectively block bulkhead leakage of EMI. The design also provides line to line isolation separation to limit cross talk (line to line mutual coupling) to an absolute minimum. Another, and a most important feature, is the coaxial spring contact that provides proper electrical grounding when mating one connector to another connector.

R. F. GROUNDING SPRING CONTACT*



* Provided on all shell sizes — all termination styles Patent Pending.

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control Inc...**
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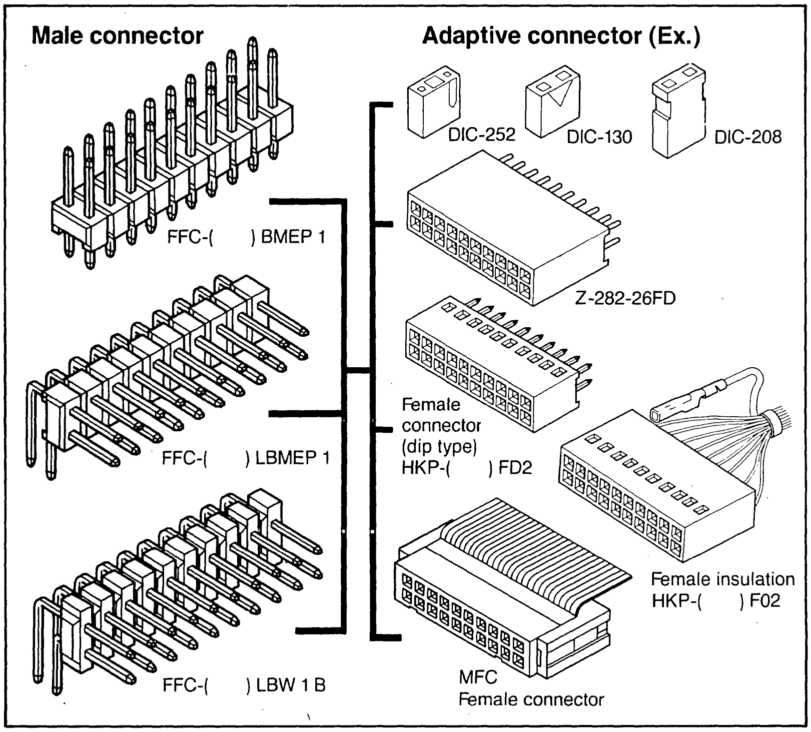
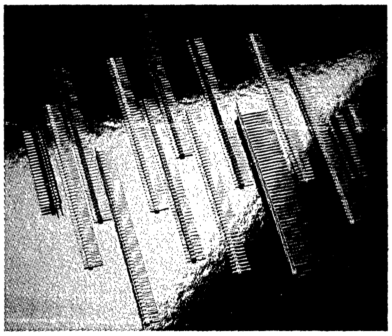
EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

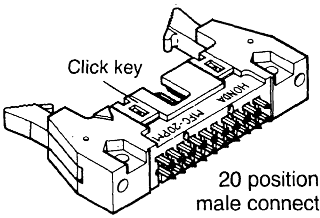
Honda Connectors FFC/MFC Series

FFC Series connectors are straight and right-angle headers on 2.54 mm (0.100 in.) centers in tin or gold plating and selected gold. Choose from a variety of pin lengths using 0.64 mm (0.025 in.) square or round pins molded in a plastic strip that breaks to length desired for PC board installation. Single and double-row male and female connectors are available.

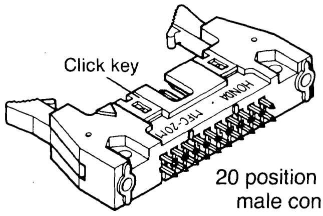

Male connector
Adaptive connector (Ex.)
DIC-252
DIC-130
DIC-208
FFC-( ) BMEP 1
Z-282-26FD
Female connector (dip type) HKP-( ) FD2
FFC-( ) LBMEP 1
Female insulation HKP-( ) F02
FFC-( ) LBW 1 B
MFC Female connector



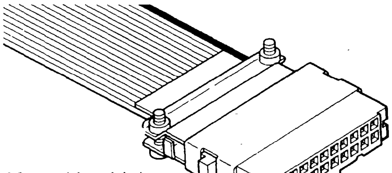
MFC Series ribbon cable connectors are available in straight, right angle and card edge configurations, with or without ejection latch. Pin pattern on 2.54 mm (0.100 in.) center spacing assures intermateability with similar connectors. Female connectors accept 0.64 mm (0.025 in.) square pin terminals with 10 to 64 contact positions. All plastic case parts prevent shorting between pins, receptacles and latching hardware. High speed signal transmission connectors combine the performance of coaxial cables with the economy and reliability of flat cables.



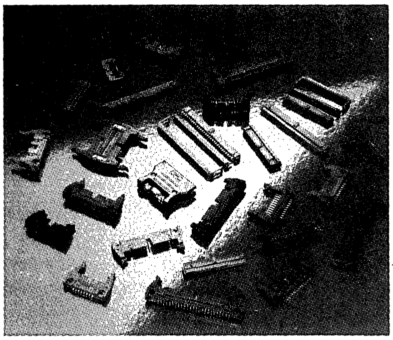
20 position 4-wall male connector with ejection latch



20 position 3-wall male connector with ejection latch



20 position high-speed signal transmission coaxial flat cable connector

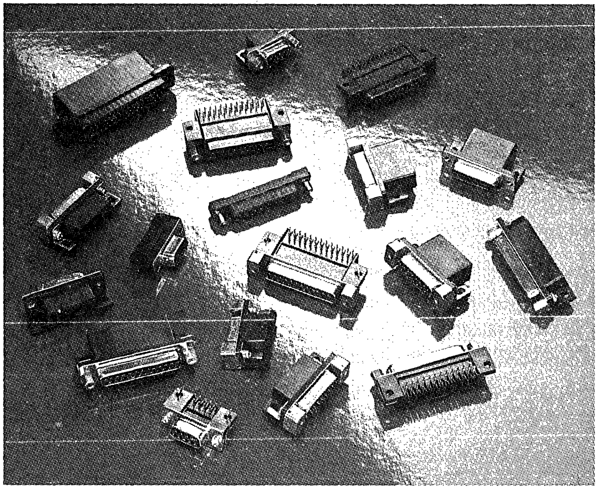


A wide variety of other connector series is available. For additional information or literature, call (312) 948-5600 or write Mhotronics, Inc., 444 Lake Cook Road, Suite 8, Deerfield, IL 60015.

MHO TRONICS

Honda Connectors GMM Series

GMM Series D-Subminiature pin and socket connectors are specially designed for modern high density packaging. They are completely intermateable and interchangeable with all similarly designed connectors. Applications include computer peripheral equipment, modems and industrial control instrumentation.

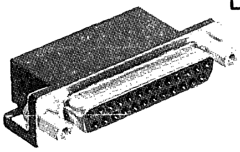


All GMM Series connectors are right-angle type for low cost, high performance printed circuit board mounting. Choose from 9, 15, 25, 37 or 50 contact positions and a variety of time-saving locking mechanisms and mounting hardware. Cases are all-molded, self-extinguishing thermoplastic to prevent short circuiting. All are available with steel shells for protection from electromagnetic and electrostatic interference on the mating side. When used in combination with other Honda connectors, this series offers a wide variety of packaging possibilities.

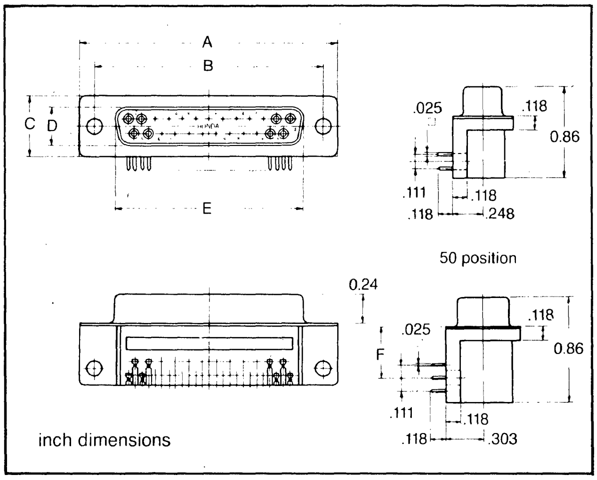
Anti-electrostatic noise interference right-angle female connector

GMM-A( )HUGDFDA

- GMM: Series prefix
- A: Anti-electrostatic noise interference connector
- ( ): Number of contacts
- HUG: Accessory 1 Blank: without metal fixture
- DF: Accessory 2 Blank: without earth
- DA: Right-angle A type



Anti-electrostatic noise interference right-angle female connector B type



inches

No. of Contacts	A	B	C	D	E	F
9	1.21	0.98	0.49	0.30	0.64	0.37
15	1.53	1.31			0.96	
25	2.08	1.85			1.50	
37	2.72	2.50			2.15	
50	2.63	2.40	0.60	0.40	2.06	0.42

Product Literature

HOND
GMM
ALL-
CON
Honda Connectors
ADS series

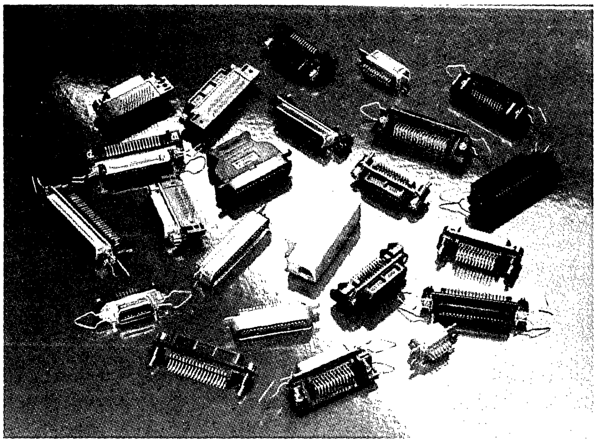
Complete details on performance specifications, materials and finishes, contact positions, locking mechanisms, dimensions and mounting schematics for the GMM Series are spelled out in our eight-page brochure, available on request.

A wide variety of other connector series is available. For additional information or literature, call (312) 948-5600 or write Mhotronics, Inc., 444 Lake Cook Road, Suite 8, Deerfield, IL 60015.

MHO TRONICS

Honda Connectors ADS Series

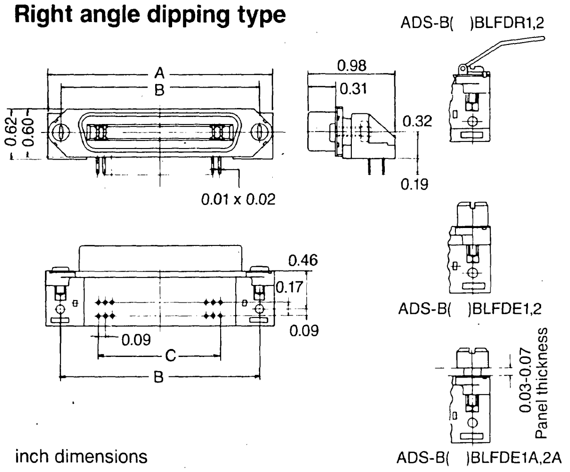
ADS Series Honda Connectors have broad applications in computers, communications equipment, measuring instruments and security equipment. They are completely intermateable and interchangeable with similarly designed connectors.



Choose from several configurations:

Insulation displacement connectors eliminate costly wire preparation by easily terminating ribbon and laminated cable, multi-conductor cable, unstripped and stranded wire. **PC board connectors** in vertical and right angle mount accommodate printed circuit board thicknesses from .062-.125 (1.57-3.18). **IEEE Interface Bus connectors** are available shielded and unshielded and conform to IEEE #488-1978. **Shielded connectors** provide protection from EMI and electrostatic discharge to sensitive circuitry. Available for ribbon cable, printed circuit boards, discrete wire or jacketed cable. **Pin printed circuit board connectors** combine cost effective pin terminals with insulation displacement connector interface.

Right angle dipping type



inch dimensions

Nomenclature

Straight type		With spring lock	ADS • B ( ) FDR
		Stand-off, with locking screw (compatible with IEEE #48-1978)	ADS • B ( ) FDE ADS • B ( ) FDEA
Right angle type	With earth	With spring lock	ADS • B ( ) BLFDR1 ADS • B ( ) BLFDR2
		Stand-off, with locking screw (compatible with IEEE #488-1978)	ADS • B ( ) BLFDE1 ADS • B ( ) BLFDE2 ADS • B ( ) BLFDE1A ADS • B ( ) BLFDE2A
	Without earth	With spring lock	ADS • B ( ) BLFDR1B ADS • B ( ) BLFDR2B
		Stand-off with locking screw (compatible with IEEE #488-1978)	ADS • B ( ) BLFDE1B ADS • B ( ) BLFDE2B

HOND
GMM
ALL-
CON
Honda Connectors
ADS series

Product Literature

Our eight-page brochure detailing performance specifications, materials and finishes, contact positions, locking mechanisms, dimensions and mounting schematics for the ADS Series is available on request.

Size

inches

No. of contacts	A	B	C
14	1.75	1.42	0.51
24	2.18	1.84	0.94
36	2.69	2.35	1.45
50	3.28	2.95	2.04

A wide variety of other connector series is available. For additional information or literature, call (312) 948-5600 or write Mhotronics, Inc., 444 Lake Cook Road, Suite 8, Deerfield, IL 60015.

MHO TRONICS

cem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C
CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J
JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K
kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L
LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P
PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

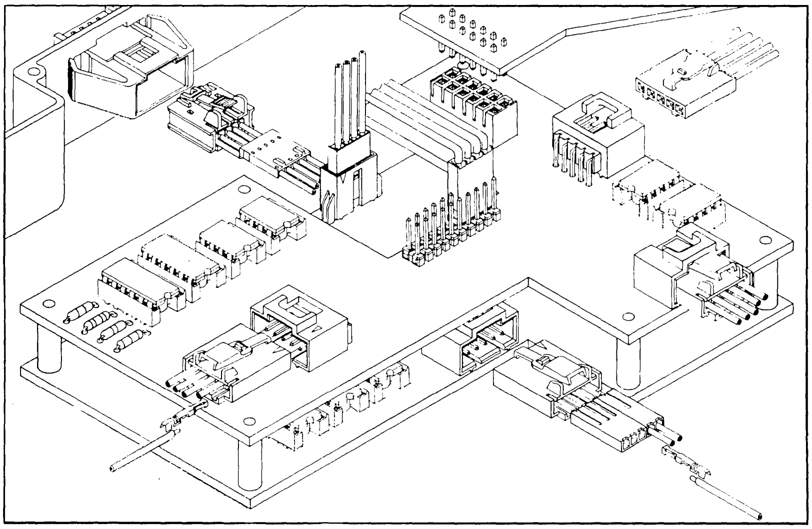
W
WPS word processing software

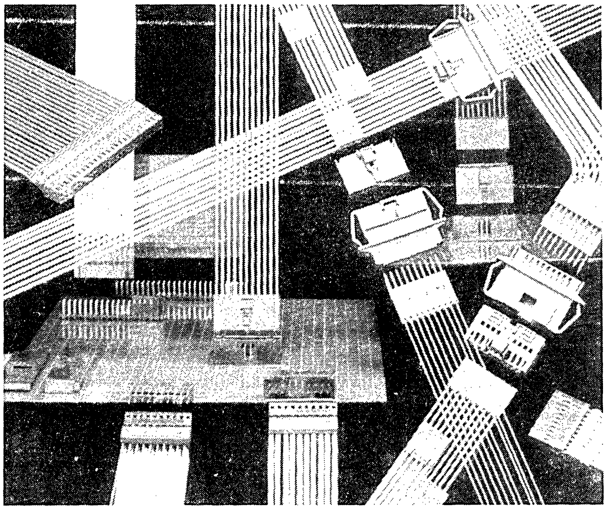
Y
YIG yttrium iron garnet

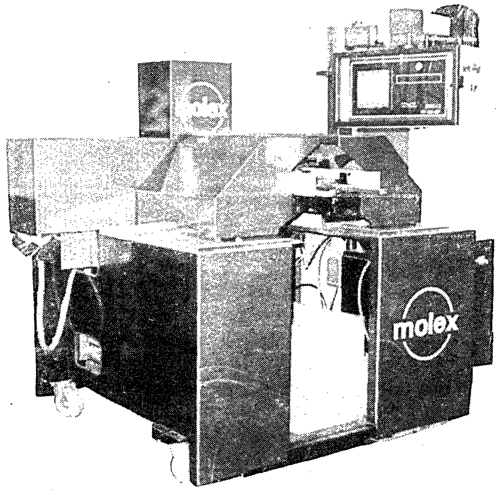
Z
ZIF zero insertion force

Service to the Customer ... Worldwide molex®

C-Grid™ .100" x .100" Center Interconnection System for Digital Electronics Applications







Fully automated harness making machine

Molex presents its modular .100" center interconnection products ... **C-Grid™**, our **dual row system for digital circuit boards** and **C-Grid SL™**, our new **single row fully stackable wire-to-board and wire-to-wire system.**

Both families feature similar material and electrical specifications and both utilize .025" pins, and selective plating.

C-Grid, based on a .100" grid, is designed for dense electronic packaging. It is comprised of straight and right angle headers in several styles including breakaway, shrouded, and end-to-end stackable. Also featured are board-to-board and wire-to-board connectors. A two-circuit shunt, which acts as a switch, completes the C-Grid product family. A line of insulation displacement type application tooling is offered to terminate the wire-to-board connector.

C-Grid boasts preassembled, single piece construction, modularity, design flexibility and automated harness-making capabilities when combined with our tooling. (See photo above)

Four low profile, stackable housings form the basis of the system. Each housing accommodates either male or female terminals, ID-type OR crimp.

Write for Free Catalog

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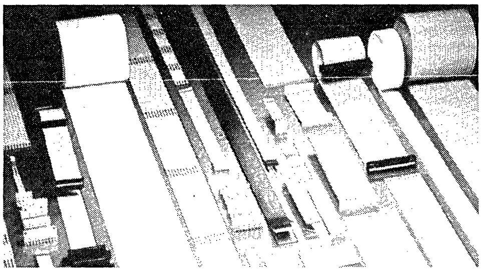
Planar Cable Products

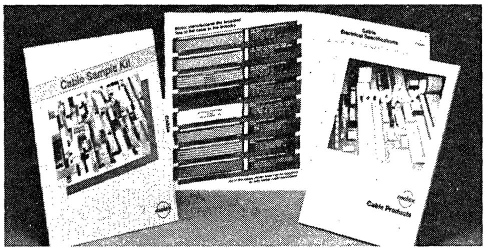


Molex manufactures the broadest line of flat cable in the industry.

- .050" center round conductor flat cable
- Gray PVC insulation
- Up to 68 circuits; 26 and 28 AWG
- UL Style 2651 - 300 V, 105°C, V W-1

- .100" center round conductor flat cable
- Gray PVC insulation
- Up to 36 circuits; 22, 24, 26 and 28 AWG
- UL Style 2651 - 300 V, 105°C VW-1

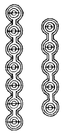
- .156" center round conductor flat cable
- Gray PVC insulation
- Up to 24 circuits; 18 and 22 AWG
- UL style 2651 - 300 V, 105°C, VW-1



Write for free sample kit

- .050" center foil shielded cable
- Reduces EMI/RFI
- Gray PVC insulation/black PVC jacket
- Up to 60 circuits
- UL style 2651 - 300 V, 105°C, VW-1

- .050" center foil ground plane cable
- Reduces crosstalk/controls impedence
- Gray PVC insulation/Black PVC jacket
- Up to 60 circuits
- UL style 2651 - 300 V, 105°C, VW-1



- .100" and .156" centers Polyshield™ cable
- Alternative to coax below 5 MHz
- Reduces crosstalk and EMI/RFI
- UL style 20325 - 300 V, 80°C VW-1

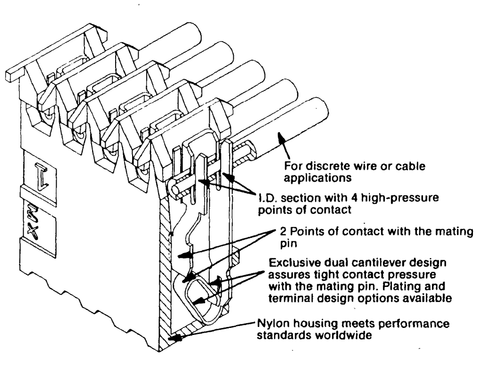
- .100" center heavy duty composite cable
- Tough insulation resists cut/melt through
- Natural irradiated PVC/Tan PVC insulation
- Up to 24 circuits

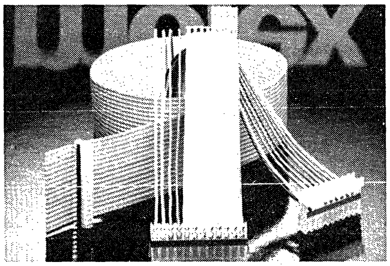
IDT™ Insulation Displacement Technology

Molex offers a complete insulation displacement system including harness and non-harness board connectors, edge connectors, and UL listed round conductor flat cable.

Molex IDT connectors are offered on five center spacings: .050", .098", .100", .156", and .200".

Detail of Standard IDT Connector


For discrete wire or cable applications
I.D. section with 4 high-pressure points of contact
2 Points of contact with the mating pin
Exclusive dual cantilever design assures tight contact pressure with the mating pin. Plating and terminal design options available
Nylon housing meets performance standards worldwide



IDT features

- **Mass termination to lower your applied costs**
- Housings are pre-loaded with IDT terminals
- Proven double cantilever contacts
- Accepts round conductor flat cable and discrete wires
- Optional locking ramp and voided circuits
- Polarizing keys and pegs available
- Molded-in strain reliefs on each side of daisy chain connectors
- Drop in replacement for Molex crimp-type connectors
- Optional dust covers available

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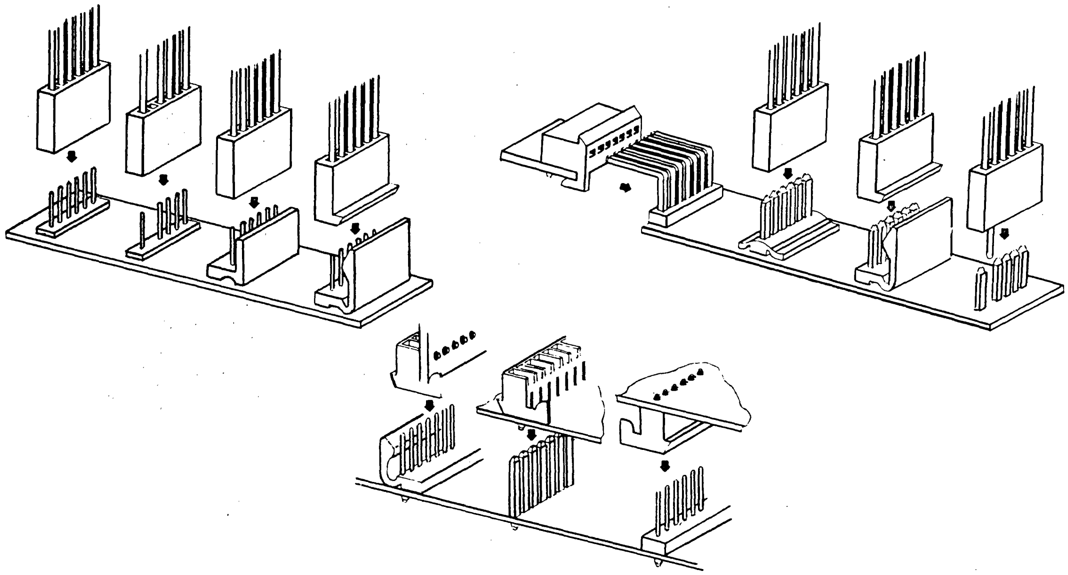
KK® Modular Interconnection System

A system of "building block" connectors for printed circuit board applications on .098", .100", .156", .197" and .200" centers. The system includes components for wire-to-board, board-to-board, and board- or wire-to-chassis connections.



UL Recognized File #29179
CSA Recognized File #19980

KK Technical Data*

Voltage Rating - 250 VAC max.
Current Rating - (.098" and .100") 2.5 amps max. with 22 AWG wire
- (.156" and .200") 7.0 amps max. with 18 AWG wire
Resistance - 20 milliohms max.
Dielectric Withstanding Voltage - 1500 VAC for 60 seconds
Insulation Resistance - Greater than 500K megohms (24°C and 50% R.H.)

Temperature Range - -40°C to 105°C

*Detailed product specifications should be requested for approval testing.

Features

Crimp Terminal Housings

- .197" and .100" versions 94V-0 material
- Variety of polarization methods
- Locking ramp
- Many circuit sizes

Solder Tail Connectors

- Accepts mating pins vertically, horizontally, thru board
- Strain relieving board hooks
- Stackable end-to-end
- Pre-assembled with double cantilever gas tight terminals

Headers

- Polarization thru voided positions, polarizing walls, non-symmetrical pin spacing
- Locking wall option
- .156" chassis or board mount version for feed thru applications
- Stackable end-to-end
- Industry compatible

Male Pins

- .045" or .025" square or round
- Press fit and solder to board
- Variety of platings and lengths

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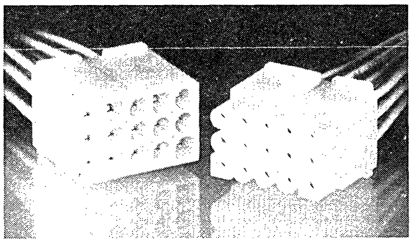
Nylon Pin & Socket Connectors

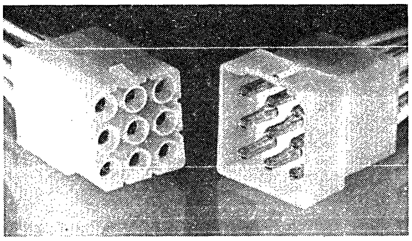
.093" Dia. Plug and Receptacle Housing	.093" Standard* Series *.198" Grid Spacing*	1991 Series *.25" Grid Spacing*	3191 Series *.264" Grid Spacing*
APPROVALS: U.L.	Yes	Yes	Yes
C.S.A.	Yes	Yes	Yes
V.D.E.	N/A	Yes	Yes
Japanese (EAMCL)	N/A	N/A	Yes
250 V.A.C.	Yes	Yes	Yes
600 V.A.C.	1816 - 2, 3, & 4 only	Yes	Yes
Current Rating	1-3 ckts.-12 amps 4-9 ckts.- 9 amps 12-15 ckts.-7.5 amps	3 ckts.-11 amps 4 & 6 ckts - 9 amps 9 ckts- 8 amps 14 ckts.- 6 amps	1-2 ckts.-12 amps 3 ckts-11 amps 4 & 6 ckts.- 9 amps 9 ckts.- 8 amps 12 ckts.- 7 amps 15 ckts.- 6 amps
FEATURES: Both housings fully insulate terminals	No	No	Yes
Pin and socket terminals used in either housing	Yes	Yes	Yes
Accepts .093" crimp terminals	Yes	Yes	Yes
Accepts .093" P.C. tail terminals (No current rating)	Yes	Yes	Yes
U.L. 94V-2 rating	Yes	Yes	Yes
Positive Locking	1816 & 2629 only**	Yes	Yes
Passive locking	Yes, except 1816 & 2629 only**	No	No
Circuit sizes avail.	1-6, 9, 12, and 15	3, 4, 6, 9, 12, and 15	1-4, 6, 9, 12, & 15
Fully polarized	Yes	Yes	Yes
Dual locking tangs	Yes	Yes	Yes
OPTIONS: Mounting ears	Yes	Yes	Yes (Receptacle) available only with ears)
Dyed for color code	Yes	Yes	Yes
94V-0	No	No	Yes
Pull tabs for gripping	15 circuits and less,	Yes	No

*Engineering Series: 1951, 1619, 1545, 1816, 1396, 1490, 2163, 1653, 2629, 1261, 1292, 1360, 1375

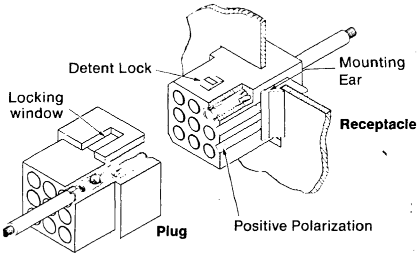
**Not all circuit sizes.



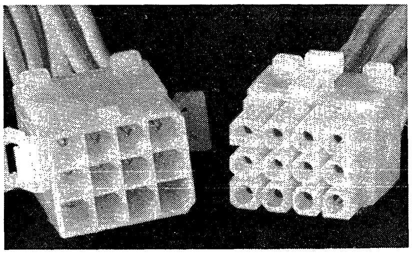
3191 Series, .093" Dia. Plug and Receptacle with .264" Grid Spacing



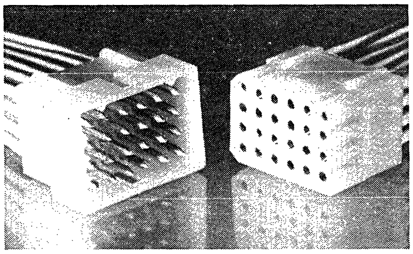
1991 Series, .25" Grid Spacing



Standard Series, .198" Grid Spacing



5025 Series, .062" Dia. Plug and Receptacle with .18" Grid Spacing



1625 Series, .145" Grid Spacing

.062" Dia. Plug and Receptacle Housing	5025 Series *.180" Grid Spacing*	1625/1649/1772/2004 Series *.145" Grid Spacing*
APPROVALS: U.L.	Yes	Yes
C.S.A.	Yes	Yes
V.D.E.	Yes	No
Japanese (EAMCL)	Yes	No
600 V.A.C. Rating	Yes	Yes
5 amp Rating	Yes	Yes 4 amps on 24 & 36 ck.
FEATURES: Circuit Sizes	2, 3, 4, 6, 9, 12 & 15	1-6, 8, 9, 12, 15, 24 & 36
Both housings fully insulated terminals	Yes	No - Receptacle only
Pin and socket terminals used in either housing	Yes	No
Accepts .062" terminals	Yes	Yes
Accepts .062" tail terminals (No current rating)	No	Yes
U/L 94-V2 housing	Yes	Yes
Positive locking	Yes	No
Passive locking	No	Yes
Fully polarized	Yes	Yes
Dual locking tangs	Yes	Yes
Accepted wire gauges	#14-28 AWG	#18-30 AWG
OPTIONS: Mounting ears	Yes	Yes
Dyed for color code	Yes	Yes
Accepts Molex 5005/5006/6206 terminals	Yes	N/A

***36 circuit has .165" grid spacing**

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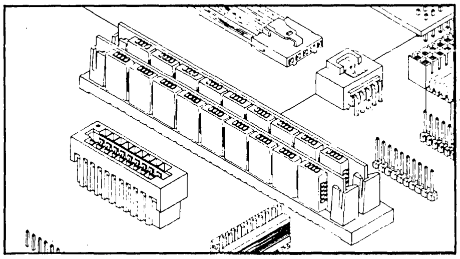
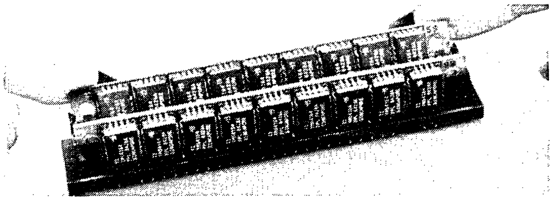
SIMM* Socket saves board space





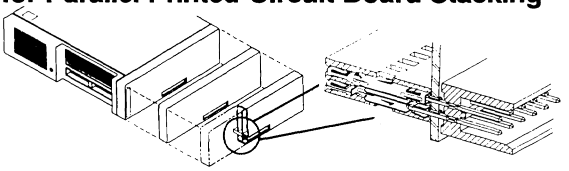
Serving as the connector portion of a high-density memory packaging system, the SIMM Socket provides a convenient means of expanding RAM capabilities.

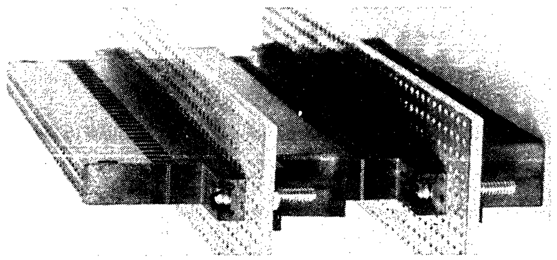
Using current technology, the maximum memory capacity of a discrete IC chip is 256K x 1 DRAM in a 16-pin package. Using the SIMM Socket, memory capacity can be increased to 1,152K DRAM bits (128K x 9 DRAM bits in a 60-pin package).

***Single In Line Memory Module. SIMM is a trademark of Wang Laboratories. Write for data sheet.**

Go-Thru™ Interconnection System

for Parallel Printed Circuit Board Stacking





Designed for easy plug-in by the end-user, the two-piece Molex GO-THRU™ system provides the parallel interface for personal computer add-ons such as disc drive controller, modem, additional memory, networking module and printer. The GO-THRU also provides the interconnect for internal parallel printed circuit board stacking.

Write for data sheet.

Fiber Optic Systems

User Friendly! You needn't be an optics expert!

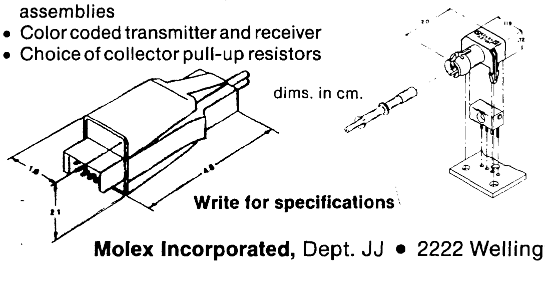
Molex's series of fiber optic links are unique systems that transfer electronic signals using fiber optics. Each system includes a fiber optic transmitter and receiver, housing and preterminated cable assembly. The Molex systems are available in SIMPLEX (single channel) or DUPLEX (two channels) configurations to process either digital or analog electronic signals. They have TTL output and can solve grounding, EMI, and RFI signal transmission problems.

Features:

- Low cost packages
- LSTTL/TTL compatible output level
- Single +5V receiver power supply
- 40 kHz analog or 10 K baud digital
- Sealed against dust and moisture
- Low profile (Simplex)
- Electrical connector interface (Duplex)
- Predetermined cable assemblies
- Low electromagnetic susceptability and emissions
- Operation to 60 meters
- .100" center line electrical leads
- Standard or special length cable assemblies
- Color coded transmitter and receiver
- Choice of collector pull-up resistors

Applications:

- Electronic control systems
- Static protection
- High voltage isolation
- Extremely wet or dirty environments
- Inter/intra-system data links
- EMC regulated systems (FCC, VDE)
- Secure data communications
- Medical equipment

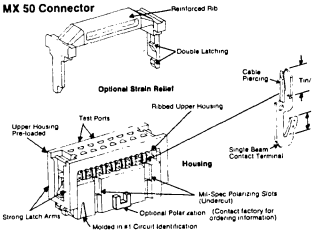


Write for specifications

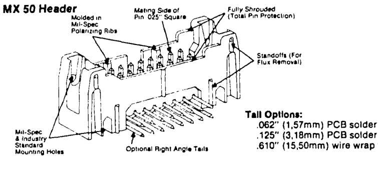
MX-50™

.050" Center Ribbon Cable Interconnection System

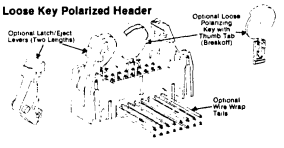
MX 50 Connector


Reinforced Rib
Double Latching
Optional Strain Relief
Cable Piercing
Tin/Lead
Material Beryllium Copper
15 or 30M min Gold (selective) - Nickel Underplate
Single Beam Contact Terminal
Ribbed Upper Housing
Test Ports
Upper Housing Pre-loaded
Housing
Mil-Spec Polarizing Slots (Undercut)
Optional Polarization (Contact factory for ordering information)
Strong Latch Arms
Molded in #1 Circuit Identification

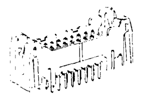
MX 50 Header


Molded in Mil-Spec Polarizing Ribs
Mating Side of Pin .025" Square
Fully Shrouded (Total Pin Protection)
Standoffs (For Flux Removal)
Mil-Spec & Industry Standard Mounting Holes
Optional Right Angle Tails
Tail Options:
.062" (1,57mm) PCB solder tail
.125" (3,18mm) PCB solder tail
.610" (15,50mm) wire wrap tail

Loose Key Polarized Header


Optional Latch/Eject Levers (Two Lengths)
Optional Loose Polarizing Key with Thumb Tab (Breakoff)
Optional Wire Wrap Tails

Non-Polarized, Straight Tail Version



Write for Catalog

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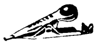
A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

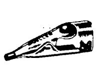
MUELLER ELECTRIC COMPANY
1583 East 31st Street, Cleveland, Ohio 44114
CALL TOLL FREE 800/222-2600, ext. 174
(In Ohio 800/556-1600 ext. 174)

MICRO-GATOR CLIP
(Smallest Insulated Clip Ever Made)

U.S. Patent No. 2,762,028 Trademark Reg.



Micro-Gator



Micro-Gator with Insulator

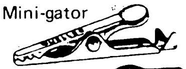
The alligator clip with the microscopic tip! New design features rivet hinge for greater strength. This is the alligator clip you now can use where no other clip will do . . . on printed circuits, in tight spots and on tiny terminals too crowded for anything but its microscopic tip. Including separate skin-tight insulator, the tip is no bigger than the head of a pin! Yet the Micro-gator has ample thumb grip, and plenty of bite to stand up straight on the smallest terminals. Ample 7/32" (.55) jaw spread. 1-3/32" (2.78) long. Solder connection. Skin-tight flexible vinyl insulator (sold separately) has "lip-action" tip slot so that jaws stay covered whether open or closed.

No. 34 — Steel, cadmium plated
No. 34-C — Solid Copper
No. 36 — **Insulator for 34 and 34-C**

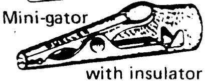
MINI-GATOR CLIP

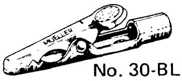
U.S. Patent No. 3,321,736 Trademark Reg.

Mini-gator

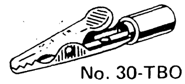


Mini-gator with insulator





No. 30-BL



No. 30-TBO

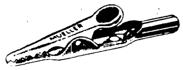
Indispensable for testing or incorporation into miniaturized equipment. Design features rivet hinge for greater strength, full-meshing teeth to grip finest wires. Skin-tight flexible vinyl insulator (sold separately) covers completely — has slotted "lip action" tip. Clip weighs 1/20th oz. has tiny 11/64" (.44) O.D. nose, but ample 3/16" (.48) jaw spread 1-3/32" (2.78) long. Crimping ears. Solder connection. Surprisingly strong bite penetrates corrosion and coatings.

No. 30 — Steel, cadmium plated
No. 30-C — Solid Copper
No. 30-BL — Steel, cadmium plated with rolled barrel tail section, 1-1/4" (3.18) long
No. 30-TBO — Steel, cadmium plated with 6-32 thread steel barrel, 1-1/4" (3.18) long
No. 32 — **Insulator for 30, 30-C, 30-BL, 30-TBO**

"60 SERIES" ALLIGATOR CLIPS

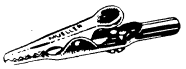
U.S. Patent No. 3,321,736 (All 5 Amp.)

No. 60 — CONVENTIONAL TYPE



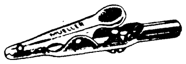
New slim design with full-meshing teeth. Convenient, round thumb grip, barrel connection for banana plug. Equipped with small soldering lip. Strong spring with a hard bite. Cadmium plates. 1-31/32" (5.00) long. **Also available in stainless steel. Ask for No. 60-X.**

No. 60-S — SCREW CONNECTION



Eliminates necessity for soldering. Otherwise same as No. 60.

No. 60-CS — COPPER ALLIGATOR CLIP

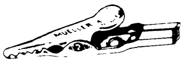


Solid copper version of No. 60-S. Screw connection. 1-31/32" (5.00) long. 10 per box.

No. 60-NS — ALLIGATOR NEEDLE CLIP

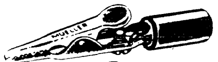
Like No. 60-S, but with insulation piercing needle in one jaw. Screw connection. 1-31/32" (5.00) long. 10 per box.

No. 60PR-2 — SPECIAL BARREL FOR TEST PROD OR PHONE TIP



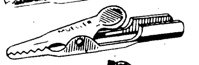
Barrel crimped to provide friction fit on standard test prod or phone tip. Holds prod on test, frees hand for other work.

No. 60HPR WITH INSULATED HANDLE



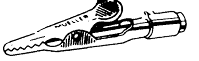
Like No. 60PR-2 except with insulated sleeve (red and black).

No. 60-U — SPECIAL U-SHAPED BARREL



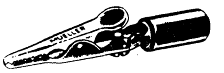
U-Shaped barrel allows for greater variety in wire sizes and mechanical use. Steel, cadmium plated, 1-31/32" (5.00) long.

No. 60-TBO — THREADED STEEL BARREL



Tail section of clip has a threaded steel barrel to allow connection to any 8-32 threaded male test prod or screw. Steel, cadmium plated, 2-1/8" (5.40) long.

No. 60-HS — STEEL ALLIGATOR CLIP WITH INSULATED HANDLE

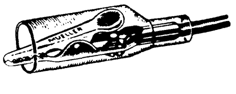


Same as No. 60-S except equipped with red and black insulating sleeves on end. Very convenient for distinguishing leads. Has screw connection also. Cadmium plated. 2-11/32" (5.95) long. Shipped half red, half black.

No. 60-CHS — COPPER ALLIGATOR CLIP, INSULATED HANDLE

Solid copper version of No. 60-HS. Screw connection. Shipped with half red, half black insulating sleeves. 10 per box.

No. 62 FLEXIBLE VINYL INSULATOR

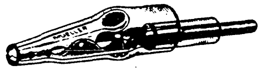


Red and black insulators for Alligator Clips 60, 60-S, 60-CS, 60PR-2, 60-X, 60-NS, 60-U.

COMPLETELY INSULATED ALLIGATOR CLIPS

Patent Pending

No. 63 or 63-C Clip



Sold only as a unit, with factory-applied insulators.

Completely insulated right down to the nose. Flexible 2-piece skin-type vinyl insulator of high dielectric strength, with "lip action" slotted tip that permits opening of clip without exposing metal. Insulator nose is only 13/64" O.D. The tight fitting sheath preserves all the slimness of the Alligator Clip, still giving complete protection against shorts in even the tightest spots. Screw connection easily made by slipping insulator forward. 2-1/4" (5.72) long.

No. 63 — INSULATED ALLIGATOR CLIP (STEEL)

Composed of Mueller No. 60-S Alligator Clip steel, cadmium plated, screw connection, complete with 2-piece vinyl insulator. Shipped half with red insulators, half black. 10 per box.

No. 63-C — INSULATED ALLIGATOR CLIP (COPPER)

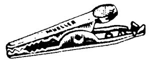
Composed of Mueller No. 60-CS Alligator Clip, solid copper, screw connection. Shipped half with red insulators, half black. 10 per box.

"70 SERIES" ALLIGATOR CLIPS

U.S. Patent No. 2,762,028

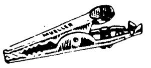
Features simplified design, fast connection of wire with cord strain relief ears, patented hinge construction and lower cost.

No. 70 — FOR SOLDERED CONNECTION



Steel, cadmium plated, 1-11/16" (4.28) long.

No. 70-S

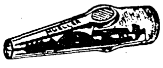


Same as No. 70 with screw.

No. 70-CS — COPPER SCREW CONNECTION

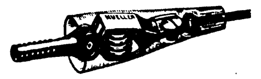
Solid copper version of No. 70-S.

No. 72 — SKIN-TIGHT INSULATOR FOR 70 SERIES ALLIGATOR CLIPS!

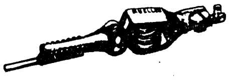


For the first time complete, skin-tight, one-piece insulation for a standard size Alligator Clip! Covers entire clip right down to nose. Special tip slot permits full jaw opening without exposing teeth.

CROCODILE CLIPS



No. 85 or 85-C Clip with No. 87 Insulator



No. 85-T Clip

No. 85 — A very small clip with slender, elongated jaws for getting into tight places in radio or electrical test work. Screw connection. 2-1/8" (5.40) long.

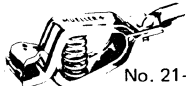
No. 85-C — Same as No. 85, except solid copper with phosphor bronze spring, brass screw. A radio frequency, entirely non-ferrous test clip. 10 per box.

No. 85-T — Crocodile "Tip Clip" — equipped with standard phone tip on one jaw, otherwise same as No. 85. Ideal for use as a prod for ordinary clip connections and for connections to insulated binding posts having nonremovable heads. 2-5/8" (6.67) long. 10 per box.

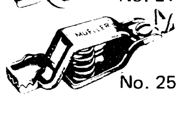
Use No. 87 Insulators for clips 85, 85-C and 85-T. Red and Black. Cover entire slip except nose. Protect against short and shock. Help to distinguish leads.

LARGER SIZES OF CLIPS

No. 24-A — 25 Amp. Steel, lead plated. 2-27/32" (7.22) long
No. 25 — 40 Amp. Steel, cadmium plated. 3" (7.62) long
No. 25-C — 75 Amp. Solid Copper. 3" (7.62) long
No. 21-A — 50 Amp. Steel, lead plated. 4-7/64" (10.44) long
No. 21-C* — 100 Amp. Solid Copper, 4-1/2" (10.04) long
No. 11-A* — 100 Amp. Steel, lead plated. 6" (15.24) long
No. 33-C* — 300 Amp. Solid Copper. 7-3/8" (19.69) long



No. 21-C



No. 25-C

All packed 10 per box.

*Furnished with detachable lug connection for easy securing to large cables

A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

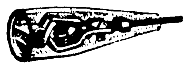
MUELLER ELECTRIC COMPANY
1583 East 31st Street, Cleveland, Ohio 44114
CALL TOLL FREE 800/222-2600, ext. 174
(In Ohio 800/556-1600 ext. 174)

TEST CLIPS

No. 45 PEE WEE

A very small test clip for radio, ignition, meter and similar work. 1-17/32" (3.89) long. Jaw spread 5/16". Steel cadmium plated.

No. 45-C
Solid Copper R.F. Test Clip

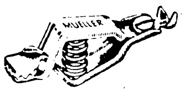


No. 45-C Clip
No. 47 Insulator

Solid copper radio frequency test clip. Phosphor bronze spring, brass screw. Will not heat up in high frequency test work, entirely nonferrous. 1-17/32" (3.89) long. 10 per box.

Use No. 47 Insulator for clips 45 and 45-C.

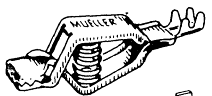
No. 48-B



A small test and battery clip for radio use and general testing purposes. 2" (5.08) long. Jaw spread 1/2" (1.27). Steel, cadmium plated. 10 per box.

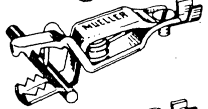
No. 48C — Solid Copper. Same as 48-B.

No. 48B-2E



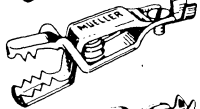
A small test and battery clip for general testing purposes. 2" (5.08) long. Jaw spread 1/2" (1.27). Two rear clinching ears. Steel, cadmium plated.

No. 50-C COPPER NEEDLE CLIP



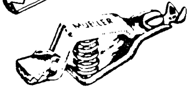
Solid copper clip with beryllium copper piercing needle in the top jaw for quick test contact through wire insulation. 6-32 brass set screw, 2-9/32" (5.79) long. 10 per box.

No. 51-C COPPER CLIP



Same as No. 50-C but without needle. Ideal for meter testing.

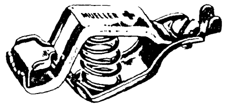
No. 55



Designed for electronic meter, ignition, and general testing. Features interlocking neck construction. Meshing teeth at front of jaw. 2" (5.08) long. Jaws open 7/16" (1.11).

Use No. 49 Insulator for clip No. 48-B, 48-C, 48B-2E, 50-C, 51-C, 55 and 95.

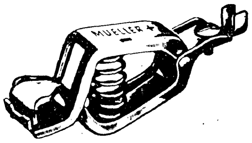
No. 80



Lighter construction clip with interlocking design. Ideal for battery chargers, trickle chargers, storage battery operated devices, automotive test equipment and general test work. 2-27/32" (7.22) long. Jaws open 3/4" (1.90).

Use No. 26 Insulator for clip No. 80.

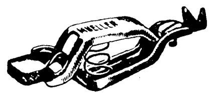
No. 96



A standard for battery charging work or for use on battery-powered equipment. Interlocking jaws. 10-32 screw. 4-7/64" (10.44) long. Jaws open 13/16" (2.06).

Use No. 23 Insulator for clip No. 96.

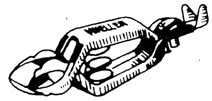
No. 27



A high grade test clip with meshing teeth on three sides of jaws. For laboratory and shop test work. 2-7/16" (6.19) long. Jaw spread 5/8" (1.59). Steel, cadmium plated. 10 per box.

No. 27-C — Solid copper. Same size as No. 27. 10 per box.

No. 27-CG GEOPHONE COPPER CLIP

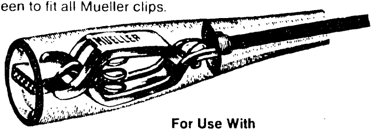


Highly specialized solid copper clips for use in geophysical work. Curved jaws clip onto seismograph cable rings. May be simply "yanked out" when test is completed. 10 per box.
No. 27-CG has 7/32" (.55) wide jaw
No. 27-CGW has 13/32" (1.03) wide jaw

Use No. 29 Insulator for clips 27, 27-C, 27-CG and 27-CGW.

FLEXIBLE INSULATORS FOR CLIPS

A convenient protection against short circuit and electric shock. Colors help distinguish leads. Packed half red and half black to indicate polarity. Long tail prevents breakage of wire. Constructed so the clip is held firmly. Flexible insulators are also available in blue, white, yellow and green to fit all Mueller clips.

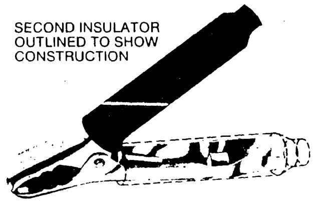


Insulator No.	For Use With Clip No.
13*	11-A, 11-C
23*	21-A, 21-C, 96
26*	24-A, 25, 25-C, 80
29*	27, 27-C, 27-CG, 27-CGW
32*	30, 30-C, 30-BL, 30-TBO
35	33-C
74	95
90	27, 27-C, 27-CG, 27-CGW
36*	34, 34-C
47*	45, 45-C

Insulator No.	For Use With Clip No.
49*	48-B, 48-C, 48B-2E, 50-C, 51-C, 55, 95
62*	60, 60-S, 60-CS, 60PR-2, 60-NS, 60-U, 60-X
72*	70, 70-S, 70-CS
87*	85, 85-C, 85-T

***Also available in blue, white, yellow and green.**

HIPPO-CLIP



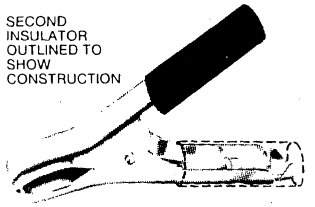
HIPPO-CLIP — For battery booster cables and fast chargers. Proved higher quality and superior design. Built-in solder strap and clinching ears for fast, sure cable connection. Supplied with vinyl handle insulators in red or black. Full 1-9/16" (3.97) jaw spread. 6" (15.24) long.

No. 41-A — Steel, bright copper plated, 100 amp

No. 41-C — Solid Copper, 300 amp

No. 43 — Insulator only

PIGMY HIPPO-CLIP



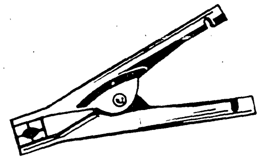
PIGMY HIPPO-CLIP — A new small plier clip for battery operated equipment and automotive test. Flat, wide handle allows positive grip. Won't "squirt away". Built-in solder strap and wire clinching ears. Supplied with vinyl handle insulators in red or black. Ample 1-1/8" (2.85) jaw spread. 2-13/16" (7.14) long.

No. 46-A — Steel, bright copper plated, 50 amp

No. 46-C — Solid Copper, 75 amp

No. 46-1 — Insulator Only

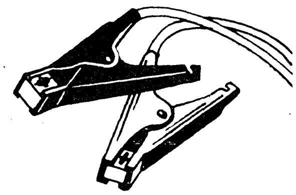
No. 44 CLIP, 300 AMP



Slim Jim clips feature solid copper jaws especially designed to provide fast, positive connections on conventional top and newer side terminals. Long, slim design provides optimum leverage and facilitates working in close quarters. Fully insulated vinyl-clad steel clips are available in red or black.

SPECIFICATIONS: Jaw Opening: 2"
Jaws: Solid Copper
Std. Pk.: 10

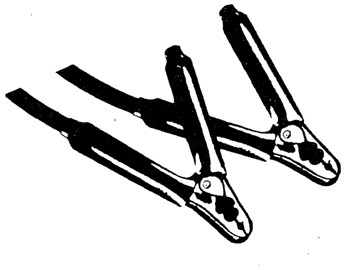
SLIM JIM™ BOOSTER CABLES



Heavy-duty quality feature Slim Jim clips (see features above). Provide positive, spring-loaded grip on top and side terminals. Solid copper cables are finely stranded for maximum flexibility. Heavy thermoplastic rubber insulation resists moisture, salt, acids, oils and grease. Cables won't tangle, crack or flake even at extreme temperatures.

Model	Length	Solid Copper A.W.G.	No. of Copper Strands
612	12'	6	133
616	16'	6	133
620	20'	6	133
416	16'	4	315
420	20'	4	315

PROFESSIONAL QUALITY CABLES



Heavy-duty design for positive grip on top and side terminals. Equipped with famous Mueller Hippo Clips (see features — No. 41). Cables are finely stranded for highest flexibility. Rubber insulation resists oil, grease and acid. Solid cable-to-clip connection prevents separation.

Model	Length	Solid Copper A.W.G.	No. of Copper Strands
8A6	8'	6	259
12A6	12'	6	259
12C4	12'	4	413

A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

MUELLER ELECTRIC COMPANY
1583 East 31st Street, Cleveland, Ohio 44114
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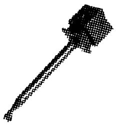
(In Ohio 800/556-1600 ext. 174)

"CLIPPER" PLUNGER-TYPE TEST CLIPS

"Clipper" test clips make difficult IC test connections fast and easy. Spring-loaded hook attaches to delicate component leads and terminals to free hands while troubleshooting and circuit testing.

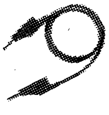
No.	Length	Color
201 "Micro"	44.45 mm (1.75")	Specify color: Red, black, yellow, blue, green or violet.
202 "Mini"	63.50 mm (2.5")	
203 "Standard"	88.90 mm (3.5")	
205 "Maxi"	127.00 mm (5")	



"ULTRA-FLEX" TEST LEADS

Laboratory-grade test leads provide superior performance and longer test lead life. Main conductor consists of 512 strands of soft drawn copper wire for tangle-free operation. Pure silicone rubber insulation withstands temperatures from -100°C to 300°C (-148°F to 572°F).

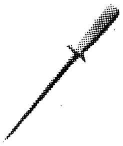
No.	Length	Color
3025	250 mm (9.843")	Specify color: Red, black, yellow, blue, green or violet.
3050	500 mm (19.685")	
3100	1000 mm (39.370")	
3150	1500 mm (59.055")	
3200	2000 mm (78.740")	



"ULTRA-TECH" TEST PRODS

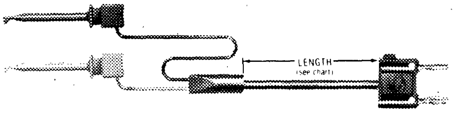
Accepts ULTRA-FLEX Test Leads and other 3.5 mm banana plug terminated leads. Feature lightweight, thermoplastic insulation that can withstand temperatures to 300°C (572°F).

No.	Length	Color
3930	130 mm (5.118")	Specify color: Red, black, yellow, blue, green or violet.



"MINI-CLIPPER" TEST CLIPS TO STACKABLE DOUBLE BANANA PLUG

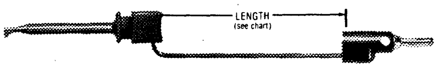
No.	Length
1170-C-12-0	12" (304.8 mm)
1170-C-24-0	24" (609.6 mm)
1170-C-36-0	36" (914.4 mm)
1170-C-48-0	48" (1219.2 mm)
1170-C-60-0	60" (1524.0 mm)



Mini-Clippers make difficult IC connections fast and easy. Molded "Y" block prevents separation and contact corrosion. Double Banana Plug features exclusive nine-leaf phosphor bronze, nickel-plated spring. Multiple stacking feature. Coaxial Cable: Black Shielded RG58C/U, MIL-C-17D, 50 Ohm.

"MINI-CLIPPER" TEST CLIP TO STACKABLE BANANA PLUG

No.	Length
1120-A-12-*	12" (304.8 mm)
1120-A-24-*	24" (609.6 mm)
1120-A-36-*	36" (914.4 mm)
1120-A-48-*	48" (1219.2 mm)
1120-A-60-*	60" (1524.0 mm)

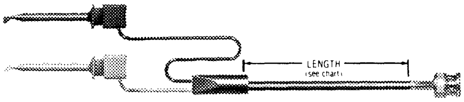


Mini-Clippers make difficult IC connections fast and easy. Banana plug features exclusive nine-leaf phosphor bronze, nickel-plated, spring and plug (3.5 mm). Multiple stacking feature. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.

*Color Code: Specify -0 for Black, -2 for Red.

"MINI-CLIPPER" TEST CLIPS TO BNC MALE

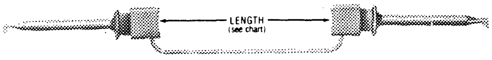
No.	Length
1150-C-12-0	12" (304.8 mm)
1150-C-24-0	24" (609.6 mm)
1150-C-36-0	36" (914.4 mm)
1150-C-48-0	48" (1219.2 mm)
1150-C-60-0	60" (1524.0 mm)



Mini-Clippers make difficult IC connections fast and easy. Molded "Y" block prevents separation and contact corrosion. BNC Male Connector, MIL-C-39012, has gold-plated center contact and silver-plated body. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

"MINI-CLIPPER" TEST CLIP — BOTH ENDS

No.	Length
1111-A-12-*	12" (304.8 mm)
1111-A-24-*	24" (609.6 mm)
1111-A-36-*	36" (914.4 mm)
1111-A-48-*	48" (1219.2 mm)
1111-A-60-*	60" (1524.0 mm)

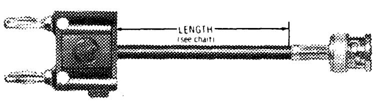


Mini-Clippers make difficult IC connections fast and easy. Spring-loaded beryllium copper conductor attaches firmly yet gently to delicate component leads and terminals. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.

*Color Code: Specify -0 for Black, -2 for Red.

BNC MALE TO STACKABLE DOUBLE BANANA PLUG

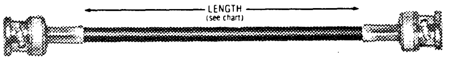
No.	Length
5070-B-12-0	12" (304.8 mm)
5070-B-24-0	24" (609.6 mm)
5070-B-36-0	36" (914.4 mm)
5070-B-48-0	48" (1219.2 mm)
5070-B-60-0	60" (1524.0 mm)



BNC Male Conductor, MIL-C-39012, features a gold-plated center contact and silver-plated body. Double Banana Plug features exclusive nine-leaf phosphor bronze, nickel-plated spring and plug (3.5 mm). Multiple stacking feature. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

BNC MALE — BOTH ENDS

No.	Length
5050-B-12-0	12" (304.8 mm)
5050-B-24-0	24" (609.6 mm)
5050-B-36-0	36" (914.4 mm)
5050-B-48-0	48" (1219.2 mm)
5050-B-60-0	60" (1524.0 mm)



BNC Male Connectors, MIL-C-39012, feature gold-plated center contact with silver-plated body. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

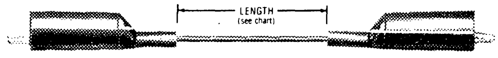
A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

MUELLER ELECTRIC COMPANY
1583 East 31st Street, Cleveland, Ohio 44114
CALL TOLL FREE 800/222-2600, ext. 174
(In Ohio 800/556-1600 ext. 174)

INSULATED ALLIGATOR CLIP — BOTH ENDS

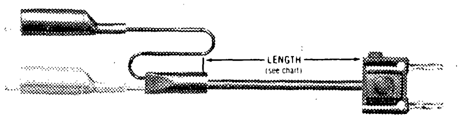
No.	Length
3030-A-12-*	12" (304.8 mm)
3030-A-24-*	24" (609.6 mm)
3030-A-36-*	36" (914.4 mm)
3030-A-48-*	48" (1219.2 mm)
3030-A-60-*	60" (1524.0 mm)



Mueller 60PR-2 Alligator Clips — steel cadmium plated with 5/16" jaw opening (other clips available upon request). Insulator color matches 41/36 #20 AWG hook-up wire.
*Color Code: Specify -0 for Black, -2 for Red.

INSULATED ALLIGATOR CLIPS TO STACKABLE DOUBLE BANANA PLUG

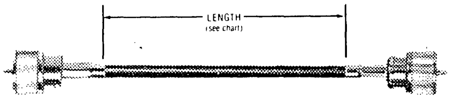
No.	Length
3070-C-12-0	12" (304.8 mm)
3070-C-24-0	24" (609.6 mm)
3070-C-36-0	36" (914.4 mm)
3070-C-48-0	48" (1219.2 mm)
3070-C-60-0	60" (1524.0 mm)



Mueller 60-PR-2 Alligator Clips — steel cadmium plated with 5/16" jaw opening. Molded "Y" block prevents separation and contact corrosion. Double Banana Plug features exclusive nine-leaf phosphor bronze, nickel-plated spring and plug (3.5 mm). Multiple stacking feature. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

UHF MALE — BOTH ENDS

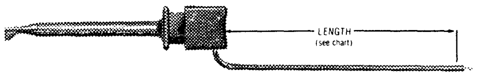
No.	Length
6060-B-12-0	12" (304.8 mm)
6060-B-24-0	24" (609.6 mm)
6060-B-36-0	36" (914.4 mm)
6060-B-48-0	48" (1219.2 mm)
6060-B-60-0	60" (1524.0 mm)



Crimped UHF Male Connectors feature nickel-plated brass contact. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

"MINI-CLIPPER" TEST CLIP WITH TINNED END

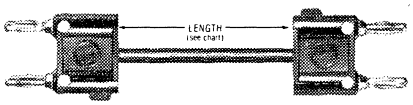
No.	Length
1149-A-12-*	12" (304.8 mm)
1149-A-24-*	24" (609.6 mm)
1149-A-36-*	36" (914.4 mm)
1149-A-48-*	48" (1219.2 mm)
1149-A-60-*	60" (1524.0 mm)



Mini-Clipper's spring-loaded hook attaches to delicate component leads and terminals. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.
*Color Code: Specify -0 for Black, -2 for Red.

STACKABLE DOUBLE BANANA PLUG — BOTH ENDS

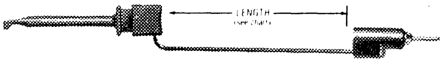
No.	Length
7070-B-12-0	12" (304.8 mm)
7070-B-24-0	24" (609.6 mm)
7070-B-36-0	36" (914.4 mm)
7070-B-48-0	48" (1219.2 mm)
7070-B-60-0	60" (1524.0 mm)



Double Banana Plugs feature exclusive nine-leaf phosphor bronze, nickel-plated spring and plug (3.5 mm). Multiple stacking feature. Coaxial Cable: Shielded RG58C/U, MIL-C-17D, 50 Ohm.

"MINI-CLIPPER" TEST CLIP TO STACKABLE .080 PIN TIP PLUG

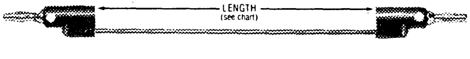
No.	Length
1145-A-12-*	12" (304.8 mm)
1145-A-24-*	24" (609.6 mm)
1145-A-36-*	36" (914.4 mm)
1145-A-48-*	48" (1219.2 mm)
1145-A-60-*	60" (1524.0 mm)



Mini-Clipper features a spring-loaded beryllium copper conductor for maximum heat dissipation. Pin Tip Plug is nickel-plated with .163 diameter jack to accept a 3.5 mm banana plug. Stacking feature. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.
*Color Code: Specify -0 for Black, -2 for Red.

STACKABLE SINGLE BANANA PLUG — BOTH ENDS

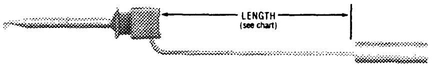
No.	Length
2020-A-12-*	12" (304.8 mm)
2020-A-24-*	24" (609.6 mm)
2020-A-36-*	36" (914.4 mm)
2020-A-48-*	48" (1219.2 mm)
2020-A-60-*	60" (1524.0 mm)



Banana Plug features exclusive nine-leaf phosphor bronze, nickel-plated spring and plug (3.5 mm). Multiple stacking feature. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.
*Color Code: Specify -0 for Black, -2 for Red.

"MINI-CLIPPER" TEST CLIP TO IN-LINE BANANA JACK

No.	Length
1125-A- 3-*	3" (76.14 mm)
1125-A-12-*	12" (304.8 mm)
1125-A-24-*	24" (609.6 mm)
1125-A-36-*	36" (914.4 mm)
1125-A-48-*	48" (1219.2 mm)



Mini-Clipper's spring loaded beryllium copper conductor provides maximum heat dissipation. In-Line Banana Jack accepts all standard banana plugs. Hook-up Wire: 41/36 #20 AWG with high temperature insulation.
*Color Code: Specify -0 for Black, -2 for Red.

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(In Ohio 800/556-1600 ext. 174)

PRODUCTION CAPABILITIES

Mueller Electric Company, a privately-owned corporation, enters its 76th year with 72,000 square feet of manufacturing, assembly and warehouse capacity. We invite you to call us for prompt attention to your design or manufacturing requirements for which our experience and production capabilities might be suitable. As the largest manufacturer of electrical test clips and insulators, we have developed many unique capabilities in the following areas:

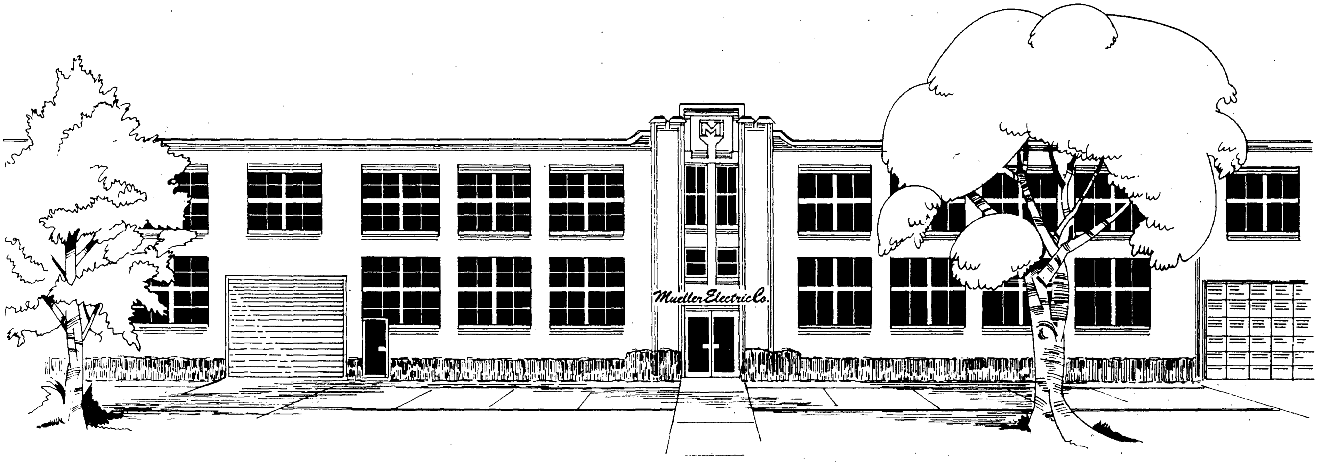
METAL FABRICATION: Our modern press department features presses ranging in size from one to fifty tons. Materials which we fabricate include alloy steels, copper, copper alloy, and stainless steel

SPRING PRODUCTION: Mueller manufactures helical and torsion springs in a variety of sizes. Materials available include hard (cold) drawn steel and music wire, stainless steel, inconel and phosphor bronze. Both strength and size can be modified to meet many special requirements.

PLATING: While we normally plate with cadmium, we also offer a wide variety of other plating techniques, including lead, chrome, chromate, nickel, zinc, tin and copper.

INJECTION MOLDING: All Mueller insulators are produced on our own molding equipment using both flexible polyvinyl chloride (PVC) and acetate. Ranging in size up to 30 ounce capacity, these machines can be used with most thermoplastic materials.

ASSEMBLY DEPARTMENT: Our assembly department features personnel who are skilled in small parts assembly. Our system can be readily adapted to include secondary or special operations.


Mueller Electric Co.

GET IT TOGETHER

COAXIAL CONNECTORS AND ADAPTERS

Quality precision connectors and adapters are available in many styles suitable for cable TV, computer, medical electronics and other applications. Special threaded and miniature types are exclusively manufactured by NT•T. Miniatures are for use where space is limited.

Male and female BNC and TNC connectors are of proprietary unique unitized construction. Male parts are crimp style. All BNC and TNC connectors meet MIL spec performance. They are manufactured for assembly to all coaxial cables including miniature styles RG174, RG178 and RG179.

Cable Assemblies utilize NT•T manufactured connectors of the highest quality. Styles include coaxial cables with BNC or TNC connectors, threaded coaxial connectors, miniature coaxial connectors, molded dual banana plugs, phone plugs, phono plugs, alligator clips, or any combination of the above. Test leads, patch cords, and special cable assemblies to customer's specifications are also available.

The varied NT•T line includes **antenna plugs and jacks, banana plugs and jacks, binding posts, test leads, fuse holders, phone plugs and jacks, phono plugs and jacks, binding post boards, interlock receptacles, lugs and brackets, terminal strips, alligator clips and PC style phono jacks.**

WITH ntt

Whether you crimp it, plug it, solder it, screw it, clip it, wrap it, interlock it, bayonet it—however you make your connection, get it together with NT•T.

National Tel•Tronics
State Road Hill
Meadville, PA 16335
(814) 724-6440
Telex: NATL TEL MEAD 914-405

ntt
NATIONAL
TEL·TRONICS

PANDUIT® *HI-CON*™

The Reliability and Density You Demand In Industrial and Communications Packaging

SERIES 100 — The original standard per DIN 41612 with the female connector mounted to the backplane or motherboard and the male connector mounted to the daughter card. Versions available include Types B and ½ B (two row) and Types C and ½ C (three row) signal connectors on .100″ grid; plus Types D and F power connectors on .200″ grid.

SERIES 130 — The "inverse" counterpart of Series 100 Type C, the 130 male becomes the motherboard connector and the female is the daughter board component. This Type R interconnect lowers your backplane costs and is ideal where redesign or expandability of the system is anticipated.

SERIES 136 — Inverse (Type R) connectors with up to 195 contacts. These "stretch" or "expanded" connectors are offered in a variety of lengths and pin configurations. Consult factory with your requirements.

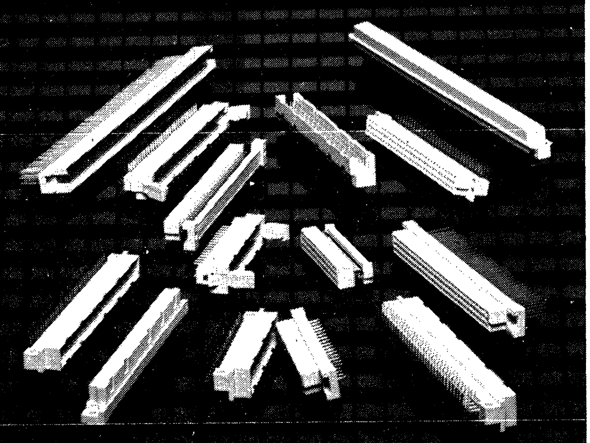
SERIES 140 — Specify this male Type R Press-Fit connector in thru-plated hole applications where you will benefit from lower board stress offered by compliant pins. Pins are replaceable from front or back of the panel with a .040±.003″ finished hole size.

SERIES 120 — For .050″ flat cable applications this line stands alone or is fully intermateable with Series 100 Types B, C and ½ C, as well as Series 130 and 140 Type R components.

HI-CON INTERMATEABILITY: Designed to meet the specifications of DIN 41612; MIL-C-55302/131,/132,/133,/134; BS 9525 F0004; IEC 603-2; VG 95324.

VMEbus: Series 100 Type C connectors are VMEbus-compatible for use in P1/P2 or J1/J2 connector applications.

HIGH DENSITY TWO-PIECE CONNECTORS



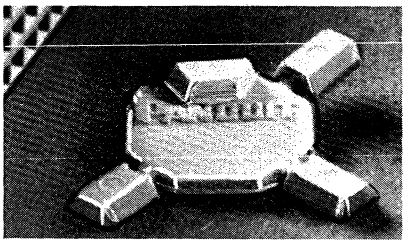
U.L. RECOGNIZED E73711

HI-CON . . . SINCE 1971 . . . A COMPLETE FAMILY OF HIGH-DENSITY TWO-PIECE CONNECTORS GROWING WITH YOUR DESIGN REQUIREMENTS.

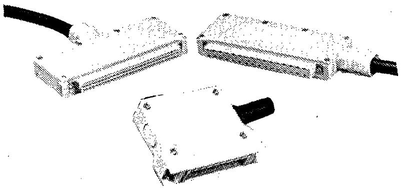
PANDUIT HI-CON CONNECTOR CHARACTERISTICS AND SPECIFICATIONS

SERIES	100					101	130	136	140	120		
TYPE	B	Half B	C	Half C	D	F	R	R	R	B	C	Half C
Number of Contact Positions Possible	32 or 64	16 or 32	32, 64 or 96	16, 32 or 48	16 or 32	32 or 48	32, 64 or 96	Up to 195	32, 64 or 96	64	64	32
Termination Methods									Male Only Press-Fit or Press-Fit with WW			
Male	Wave Solder, Wire Wrap, Hand Solder				Wave Solder		WS, WW			Wave Solder, Wire Wrap		
Female	Wave Solder, Wire Wrapping, Hand Solder						WS, WW			Insulation Displacement		
Operating Voltage	300V r.m.s.				600V r.m.s.		300V r.m.s.					
Amps @ 68°F (20°C)	3 Amps Max.				6 Amps Max.		2 Amps Max.			1 Amp Max.		
Temperature Range	−67°F to 257°F (−55°C to 125°C)											
Housing Material	Glass Filled Polyester					Nylon	Glass Filled Polyester					
U.L. Flammability	94V-0					HB	94V-0					

EXTEND CONNECTOR VERSATILITY WITH HI-CON ACCESSORIES



Unique Coding System
Offers up to 1000 keying options per pair.



Connector Housings
For full and half size connectors. Provide for instrumentation interface and in-line interconnect.

CUSTOM ENGINEERING IDEAS AND ASSISTANCE

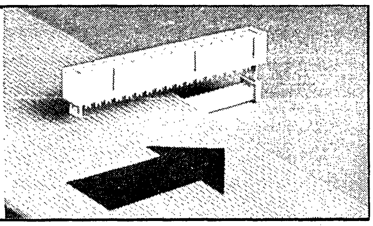
The HI-CON line offers opportunities to create new applications and the possibility of customized products. For special requests or design assistance, please consult factory.

PANDUIT CORP.
ELECTRONICS GROUP

DEPT. EM, 17301 RIDGELAND AVENUE, TINLEY PARK, ILLINOIS 60477
PHONE (312) 532-1800 TELEX 25-4560

PANDUIT® *LAT-CON*™

Laterally Installed Connector System For .050″ Flat Cable



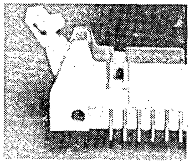
Unique open-sided socket... cable is inserted laterally! Simplifies insertion operation, improves reliability, reduces assembly time up to 75%.

The LAT-CON System provides superior terminations

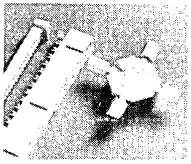
An end termination made by the LAT-CON System is shown above. Note that the cable end is recessed a controlled distance from the edge of the socket. This process ensures that the cable end is inserted far enough to provide good termination but recessed enough to protect the cable end. This eliminates rejects and rework and reduces the hazard of subsequent short circuits and potential damage to equipment.

MORE REASONS TO SPECIFY LAT-CON SOCKETS & HEADERS

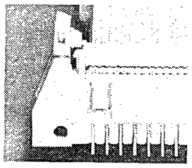
The "Coding Wedge" system



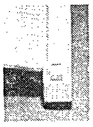
1. Break out the prescored wedge sections from the header wall.



2. Use the convenient tab to insert coding wedge into the corresponding slot in the socket wall.

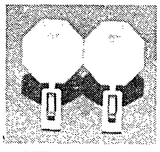


3. Repeat as necessary to meet coding requirements. Coding positions available vary with connector length.



Recessed Cover

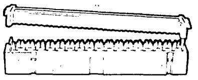
Cover recessed on both ends to permit tight cable folds in any cable entry configuration.



Mil Spec Keys

Provide MIL spec polarization. Aid in correct mating of connector and header. Two key positions in 20 circuit and larger headers.

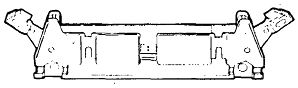
EXCLUSIVE PREASSEMBLED OPEN SIDED SOCKET



INTEGRAL METAL LOCKING CLIPS on both ends assure positive retention of cover to socket when terminated.

ONE SOCKET FOR END OR DAISY-CHAIN TERMINATIONS simplifies planning and cuts parts inventory requirements.

UNIQUE LOW-PROFILE EJECTOR/LATCH for use with or without strain relief. Saves space and reduces separate parts inventory.



FOUR WALL HEADER protects contacts and provides for unique "Coding Wedge" system.

A Complete Family of .050″ Sockets and PCB Headers

Circuit sizes offered: 10, 14, 16, 20, 26, 34, 40, 50, 60

Recommended cable: UL Style 2651

FOUR WALL HEADERS

Contacts: Brass .025″ (0.63mm) square pins. On .100″ x .100″ grid.

Contact Options: Straight or angle pins either .114″ (2.9mm) or .177″ (4.5mm) length.

Ejector/Latch Options: No latches; LAT-CON low profile latch preinstalled; MIL latch preinstalled; loose piece LAT-CON or MIL latches.

Socket Contacts: Beryllium Copper

Housing Material: Glass Filled Polyester

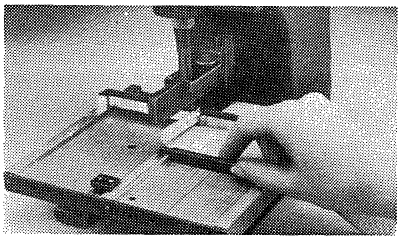
U.L. Flammability: 94V-0

U.L. RECOGNIZED E73711

Plating Options: (socket and header) fully tin plated contacts; 15 μinch selective gold over nickel; 30 μinch selective gold over nickel.

Termination presses for low to medium volume

A LAT-CON manual termination press is shown below. An open-sided socket is placed in the feed track. Then, the flat cable is located against a stop in the front of the die and moved laterally into the socket. Both the socket and cable are then slid into terminating position and the press is actuated. Typically, this takes 6 seconds or less. A pneumatic version of this press is also available.

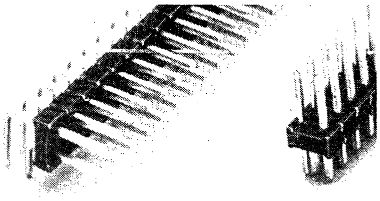


Daisychain terminations are also greatly simplified in the LAT-CON System. The cable is simply moved into the connector and the press activated. Daisychain connectors can be added even after both cable ends have been terminated and this system permits extremely close spacing of connectors on the cable (less than .1″ or 2.5 mm, wall to wall).

MIL-C-83503 INTERMATEABLE. LAT-CON sockets and headers meet the requirements of and are fully intermateable with all MIL-C-83503 products. Also meet DIN 41651 (draft) and BSI 9525F0023 (draft).

NEED FAST DELIVERY?

Call About Ship-From-Stock to 10 Days.



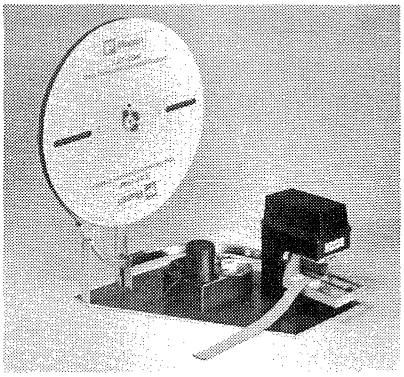
DUAL ROW UNSHROUDED HEADERS

Two through 64 contacts on .100″ grid. Easily cut to smaller sizes. Pins .230″ above wafer by .025″ square. Tin plated or 15 or 30 μinch gold plated available.

SOCKETS ON REELS...

For high volume applications...

In addition to the low to medium volume press, the LAT-CON application equipment line includes a high volume press which also features lateral cable insertion and automatic recessing of the cable ends. With this system the open-sided sockets are automatically fed into the back of the press from a reel of sockets on pressure sensitive tape. This equipment automatically ejects the terminated cable assembly and feeds another socket into the die, positioned for the next termination.



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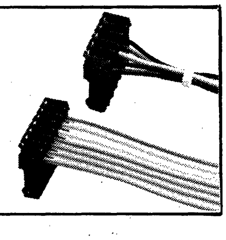
PANDUIT® *MAS-CON*®

Mass Terminated Connector System

Connectors—Headers—Installation Tools

For Discrete Wire and Flat Cable

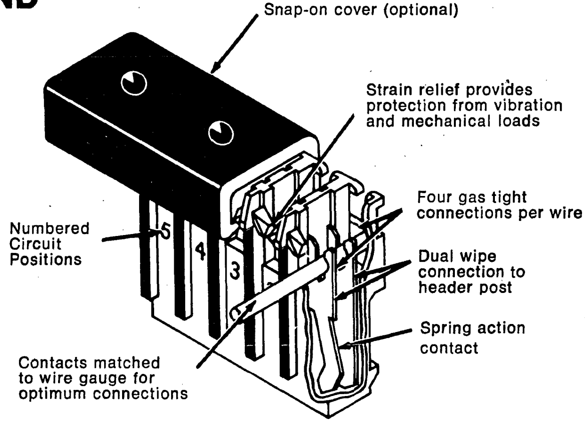


HIGH RELIABILITY AND LOWER INSTALLED CONNECTOR COSTS

Preloaded insulation displacement contacts eliminate wire stripping, individual crimping and hand loading contacts into housings.

Interchangeable with AMP and Molex.

Delivery from stock to ONE WEEK!


Snap-on cover (optional)
Strain relief provides protection from vibration and mechanical loads
Four gas tight connections per wire
Dual wipe connection to header post
Spring action contact
Numbered Circuit Positions
Contacts matched to wire gauge for optimum connections
5
4
3

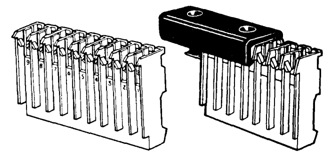
- End and through connectors accept discrete wire, notched round conductor flat cable and pre-split ribbon cable.
- Industry intermateable and stackable end-to-end.
- Female contacts are made of special brass alloy with bright acid tin or selective gold over nickel plating.
- Housings are molded of 6/6 nylon (U.L. 94V-2) with color-coded stripes to indicate contact wire gauge.

CSA CERTIFIED

U.L. RECOGNIZED E73711

.100″ (2.54mm) CENTERLINE CONNECTORS

- End and Through connectors offered with 2 through 28 circuit positions
- For 22, 24, 26 and 28 AWG wire
- Rated 300VAC/VDC, up to 4 amps with 22 AWG



Matching covers available for all connectors.

.156″ (3.96mm) CENTERLINE CONNECTORS

- End and Through connectors offered with 2 through 24 circuit positions
- For 18, 20, 22, 24 and 26 AWG
- Rated 300VAC/VDC, up to 8 amps with 18 AWG

PC BOARD HEADER ASSEMBLIES

U.L. RECOGNIZED E73711 CSA CERTIFIED

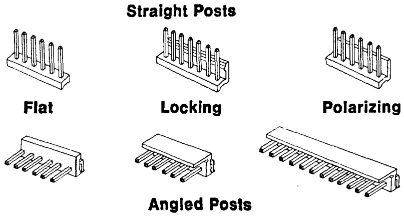
- Molded Thermoplastic wafer material is breakable for prototype or short production runs (U.L. 94V-0).
- Industry intermateable.
- Available tin plated or 15 μinch or 30 μinch gold.

.100″ CENTERLINE

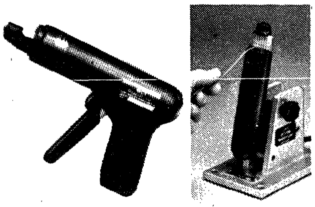
- .025″ (0.64mm) square straight and angled posts.
- Two through 36 circuit positions.

.156″ CENTERLINE

- .045″ (1.14mm) square straight and angled posts or round straight.
- Two through 24 circuit positions.

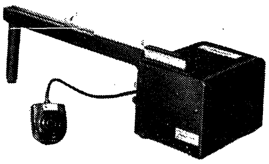

Straight Posts
Flat
Locking
Polarizing
Angled Posts

FAST, RELIABLE WIRE AND CABLE TERMINATION TOOLING



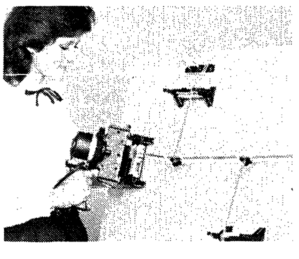
HAND TOOLS

Manual and pneumatic for prototype, repair and low volume assembly. Single wire termination. Bench mount adapter for air tool is foot pedal actuated.



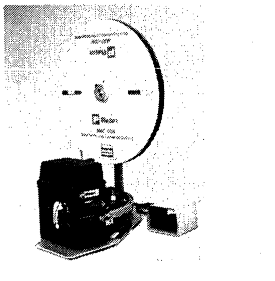
TRACK-FED BENCH TOOLS

Electric single wire terminator illustrated. Track fed mass terminating press for flat cable also available.



ON-THE-BOARD SYSTEM

Harness board fixtures and portable tool to mass terminate discrete wire, end and daisy chain.



REEL-FED MACHINE

High volume mass termination with flat cable.

PANDUIT CORP.
ELECTRONICS GROUP

DEPT. EM, 17301 RIDGELAND AVENUE, TINLEY PARK, ILLINOIS 60477
PHONE (312) 532-1800 TELEX 25-4560

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms .... **A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code .... **D**•1087
Batteries, Product Selection Guide .... **D**•1413
Batteries & Fuel Cells, Characteristics .... **D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **C**•1003
Capacitors, Basic Formulas .... **A**•1093
Capacitors, Miniglossary .... **A**•1066
Capacitors, Product Selection Guide .... **A**•1003
Circuit Boards (Printed) Product Selection Guide .... **C**•1099
Coils, Chokes, Inductors, Product Selection Guide .... **A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum .... **C**•1863
Connectors, Miniglossary .... **C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide .... **C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude .... **A**•1309
Delay Lines, Product Selection Guide .... **A**•1459
Discrete Semiconductors, Product Selection Guide .... **A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **B**•1015
EBCDIC Code .... **D**•1092
Encapsulation, Miniglossary .... **C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **C**•1623
Filters, Product Selection Guide .... **A**•1583
Instruments, Graphic Recording Product Selection Guide .... **D**•1401
Instruments, Panel Meters, Product Selection Guide .... **D**•1329
Instruments, Test & Measuring Product Selection Guide .... **D**•1175
Interconnection Systems, Product Selection Guide .... **C**•1699
Keyboards & Keypads, Product Selection Guide .... **B**•1705
Logofinder & Trademark Directories .... **B**•901
Microwave Components, Product Selection Guide .... **A**•1701
Military Qualified Products Lists .... **B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **B**•1129
Opto Semiconductors, Miniglossary .... **B**•1214
Oscilloscopes, Product Selection Guide .... **D**•1385
Panel Hardware, Product Selection Guide .... **C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **A**•1991
Power Supplies, Miniglossary .... **D**•1462
Power Supplies, AC, Product Selection Guide .... **D**•1877
Power Supplies, DC, Product Selection Guide .... **D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **B**•1225
Relay Contact Forms .... **B**•1317
Relays, Electromechanical, Miniglossary .... **B**•1308
Relays, Product Selection Guide .... **B**•1261
Resistor Color Codes .... **A**•1828
Resistors, Product Selection Guide .... **A**•1785
Servo Components, Miniglossary .... **D**•1985
Solenoids, Product Selection Guide .... **B**•1463
Switches, Product Selection Guide .... **B**•1477
Thermal Components, Product Selection Guide .... **B**•1741
Thermal Conductivity of Dielectrics at Room Temperature .... **B**•1744
Thyristors/High Power Diodes, Miniglossary .... **A**•2076
Transducers & Encoders, Product Selection Guide .... **B**•1777
Transformers, Product Selection Guide .... **A**•2099
Wire & Cable, Product Selection Guide .... **C**•1743
Wire Gauges—Diameter, Area, Copper Weight .... **C**•1844

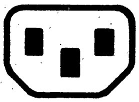
INTERNATIONAL Primary Power Connectors

Use of a primary power connector and cordset instead of a permanently installed power supply cord makes it possible for the equipment user to easily replace a cordset if it is damaged. It also makes it very easy and economical for the equipment manufacturer to supply the correct cordset for a foreign client because cordsets with a molded IEC-320/CEE-22 primary power connector are available with virtually any of the world's power plugs installed on the other end.

The IEC-320/CEE-22 connector is by far the most commonly used 3-wire (grounded) primary powef connector in North America and Europe. It is also used in Australia and Japan as well as major developing countries.

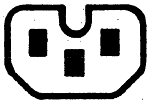
The connector illustrated at right is the most widely used of the IEC-320/CEE-22 types. Rated for use at 65°C.

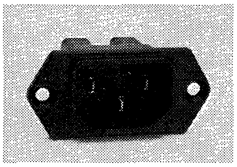
65°C

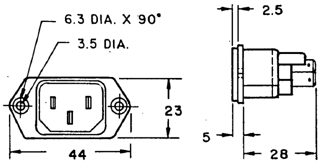


The connector at right has a polarizing key which prevents insertion of "cool" cord connector above. Rated for use at 120°C.

120°C



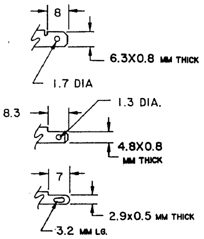


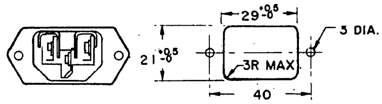


8843.FSG.40.60
with 6.3 × 0.8 mm (.250 × .032 inch) solder/quick disconnect tab terminals

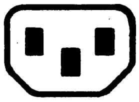
8843.FSM.40.60
with 4.8 × 0.8 mm (.187 × .032 inch) solder/quick disconnect tab terminals

8843.Z.40.60
with soldering tabs





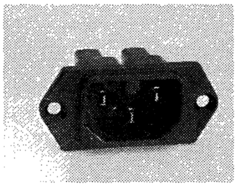
65°C

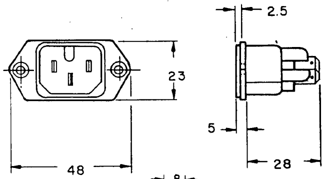


Approval/Certification/Recognition
CSA NEMKO SEV DEMKO
OVE UL KEMA SEMKO VDE

Especially recommended for new applications, this general purpose power cord receptacle is rated at 6 amps, 65°C by the European agencies and 15 amps at UL. Note that CSA certifies model 8843.FSG.40.60 at 15 amps; models 8843.FSM.40.60 and 8843.Z.40.60 at 10 amps. Mounting holes are 40 mm on center and oriented horizontally. Contacts are formed from brass strip stock and are nickel plated.

Insulator is molded from a polyamide-type thermoplastic. Weight is 9 grams.

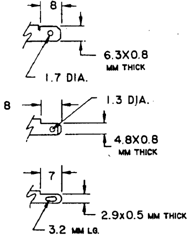


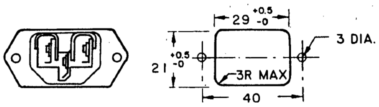


8843.FSG.W.40.60
with 6.3 × 0.8 mm (.250 × .032 inch) solder/quick disconnect tab terminals

8843.FSM.W.40.60
with 4.8 × 0.8 mm (.187 × .032 inch) solder/quick disconnect tab terminals

8843.Z.W.40.60
with soldering tabs



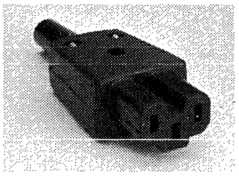


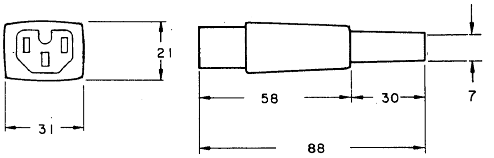
120°C

Approval/Certification/Recognition
CSA DEMKO KEMA NEMKO OVE SEMKO SEV UL VDE

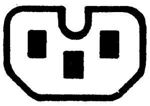
Especially recommended for new applications, this general purpose power cord receptacle is rated at 10 amps, 120°C by the European agencies and 15 amps at UL. Note that CSA certifies model 8843.FSG.W.40.60 at 15 amps; models 8843.FSM.W.40.60 and 8843.Z.W.40.60 at 10 amps. Includes a polarizing key which prevents use with cordsets rated at 6 amps, 65°C. Mounting holes are 40 mm on center and oriented horizontally. Contacts are formed from brass strip stock and are nickel plated.

Insulator is molded from a polyamide-type thermoplastic. Weight is 9 grams.





120°C



8943.W.60
General purpose power cord plug with 10 amp, 120°C rating (15 amps, UL and CSA) for use on electrical equipment. Mates with all 6 amp, 65°C and 10 amp, 120°C receptacles. Contains integral cable-clamp strain relief and screw-type connections.

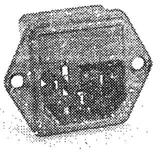
Plug body and insulator molded from a polyamide-type thermoplastic. Weight is 24 grams.

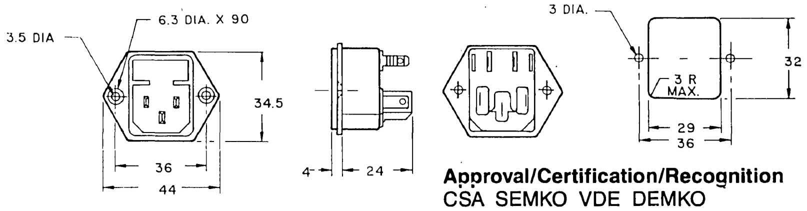
Approval/Certification/Recognition
CSA SEV SECV OVE UL SEMKO VDE

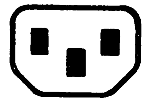
For mating International Cords and Cordsets, see our ad in Section 6000.

PANEL
COMPONENTS
CORPORATION
P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

From Panel Components Corporation



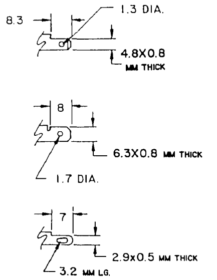

3.5 DIA
6.3 DIA. X 90
34.5
36
44
4
24
3 DIA.
3 R MAX.
32
29
36



8843.SP.FSG.60
with 6.3 × 0.8 mm (.250 × .032 inch) solder/quick disconnect tab terminals

8843.SP.FSM.60
with 4.8 × 0.8 mm (.187 × .032 inch) solder/quick disconnect tab terminals

8843.SP.Z.60
with soldering tabs

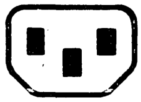

8.3
1.3 DIA.
4.8X0.8 MM THICK
8
6.3X0.8 MM THICK
1.7 DIA.
7
2.9x0.5 MM THICK
3.2 MM LG.

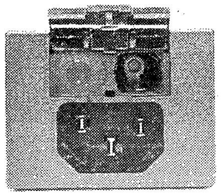
Approval/Certification/Recognition
CSA SEMKO VDE DEMKO
NEMKO SEV KEMA OVE UL

Recommended for new applications: General purpose combination single fuseholder/power cord receptacle rated at 6 amps, 65°C, for use on electrical equipment to be sold in international markets. Fuseholder is touchproof in accordance with international product safety requirements and accommodates one international 5 × 20 mm fuse with space for a spare fuse. Fuse connections are externally accessible and isolated from power connections. Contacts are formed from brass strip stock and nickel plated.

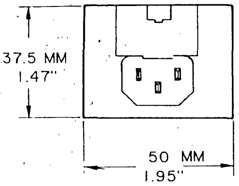
Insulator is molded from a polyamide-type thermoplastic. Weight is 14 grams.

International Combicon™





Single Fuse

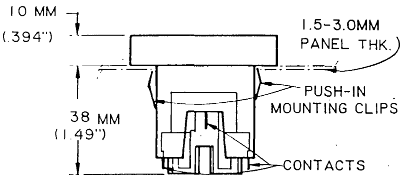

37.5 MM
1.47"
50 MM
1.95"

Double Fuse Models Also Available

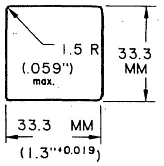
The International Combicon™ combines two functions: a **universal** IEC 320 AC power connector and a fuseholder which accepts **either** the North American standard ¼ × 1¼ inch fuse or the international 5 × 20 mm fuse. The Combicon makes it easy to adapt your product to any major North American or international wall plug and fuse requirement. Push-in and screw-mounting models are available.

Fuse carriers ordered separately; see below.
Materials:
Contacts: Nickel-plated brass
Body: UL-94 V-0 glass reinforced PBTP
Approvals and current rating: SEV, VDE — 6A/250V
UL CSA DEMKO KEMA OVE NEMKO
SEMKO — 10A/250V

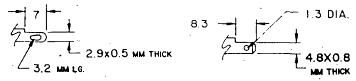
Part No.	Description	Weight w/o fuse carrier
83010150	Single fused Combicon with contacts	42.6 grams
83010170	Single fused Combicon with 4.8 mm (.187") quick disconnects	42.6 grams


10 MM
(.394")
1.5-3.0MM
PANEL THK.
38 MM
(1.49")
PUSH-IN
MOUNTING CLIPS
CONTACTS

MOUNTING HOLE


1.5 R
(.059")
max.
33.3
MM
33.3 MM
(1.3"+0.019)

SOLDER CONTACTS: 4.8 MM Q.D.'s:

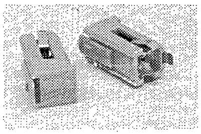

7
2.9x0.5 MM THICK
3.2 MM LG.
8.3
1.3 DIA.
4.8X0.8 MM THICK

Combicon Fuse Carriers

(Fuse carriers ordered separately)

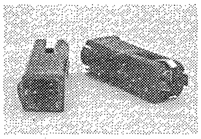
Color-coded fuse carriers:
Red - International 5 × 20 mm fuse
Gray - North American 6.3 × 32 mm (¼ × 1¼") fuse

Materials:
Fuse carrier: UL-94 V-2 unreinforced polycarbonate
Contacts: Nickel-plated brass



International
5 × 20 mm fuse

Part No.	Description	Weight w/o fuse
83010130	Red fuse carrier for 5 × 20 mm fuse	2.3 grams



North American
¼ × 1¼" fuse

Part No.	Description	Weight w/o fuse
83010140	Gray fuse carrier for 6.3 × 32 mm (¼ × 1¼") fuse	1.6 grams

PANEL COMPONENTS CORPORATION P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

INTERNATIONAL Plugs, Sockets, Socket Strips

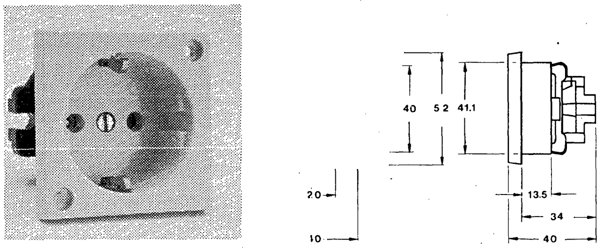
INTERNATIONAL Plugs, Sockets and Socket Strips

Plugs are also available for each of the socket standards listed below. Sockets can be used in test and burn-in racks designed for equipment that is being exported.

Contact us for a complete catalog of our line of international plugs, sockets and socket strips.

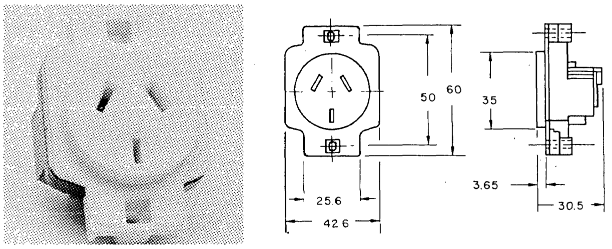
Most models stocked.

Continental European



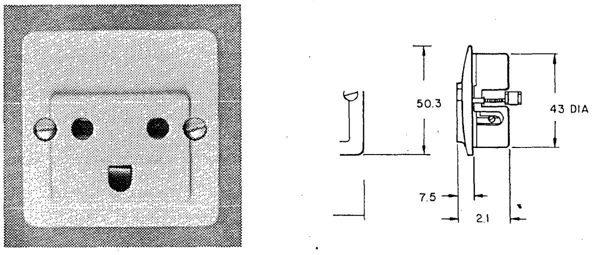
Model 88010610 (Prev. 1061): "Schuko" socket with square face plate.
Current rating: 16 amps/250 volts
Approvals: VDE, KEMA
Color: Ivory

Australian



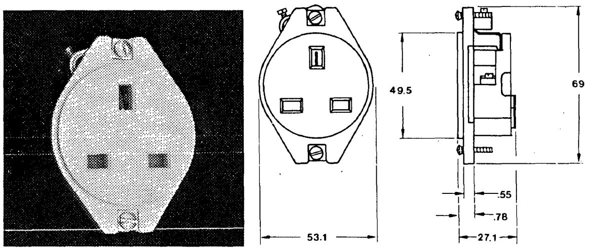
Model 88010512: This "low-profile" Australian socket replaces our old "high-profile" model 88010510.
Current rating: 10 amps/250 volts
Approval: EANSW
Color: White

Danish



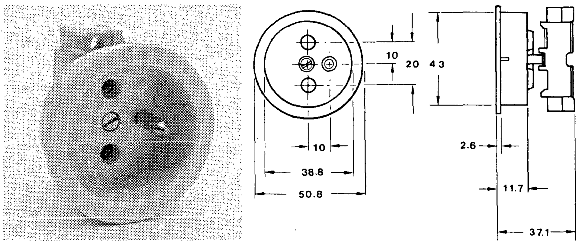
Model 88010540 (Prev. 1054): Danish socket. (Prior to January 1, 1981, Denmark used the "Schuko" German socket standard.)
Note: Although the Schuko plug (German, see our model 88010610) can be plugged into Danish socket, this presents an extreme safety hazard because the plug will not be grounded to the socket.
Current rating: 10 amps/250 volts
Approval: DEMKO
Color: Gray

British



Model 88010620 (Prev. 1062): British socket for mounting in round panel cutout conforms to BS 1363. Line and neutral contacts are shuttered to minimize the possibilities of accidental entry of an object other than the mating plug.
Current rating: 13 amps/250 volts
Color: White

French

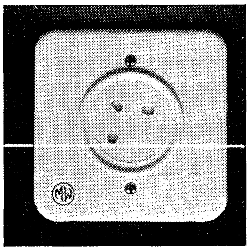


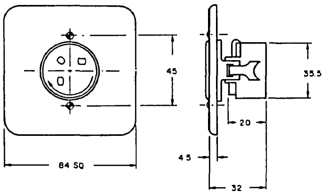
Model 88010550: French socket (mates with all PCC Continental European cords).
Current rating: 16 amps/250 volts
Color: Ivory

PANEL COMPONENTS CORPORATION P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

From Panel Components Corporation

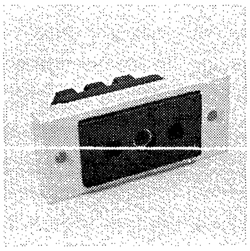
Israeli

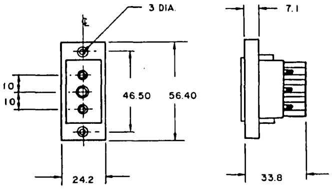




Model 88010580: Israeli socket.
Current rating: 16A/250V
Approval: SII
Color: White

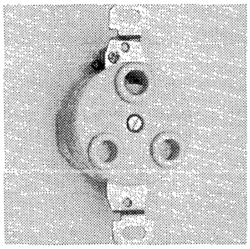
Italian

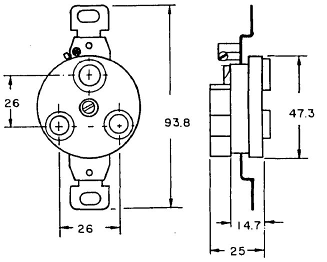




Model 88010570: Italian socket; comes with mounting bracket and hardware.
Current rating: 10A/250V (16A/250V socket also available)
Approval: IMQ
Color: Brown/Beige

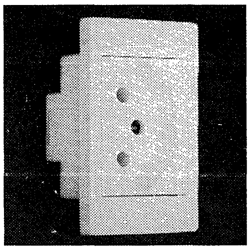
South African

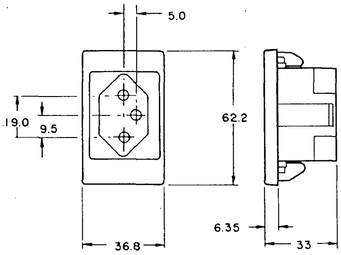




Model 88010560 (Prev. 1056): South African socket. Line and neutral contacts are shuttered to minimize the possibilities of accidental entry of an object other than mating plug. Complies with SABS 164.
Current rating: 16 amps/250 volts
Approval: SABS
Color: Ivory

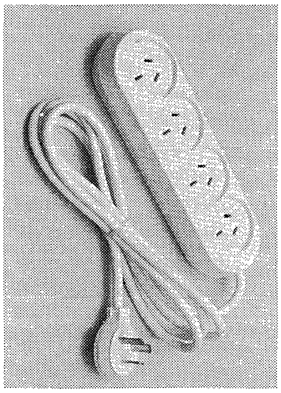
Swiss





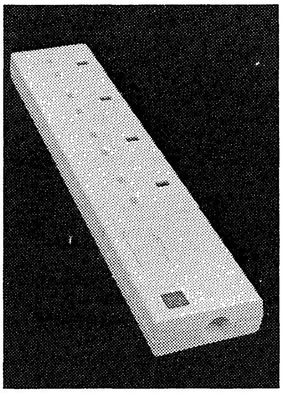
Model 88010530 (Prev. 1053): Swiss socket. It can be mounted directly on a panel, using a mounting system that does not require screws.
Currect rating: 10 amps/250 volts
Approval: SEV
Color: Ivory

Australian



Model 85010020: Australian socket strip.
Current rating: 10A/250V
Color: White

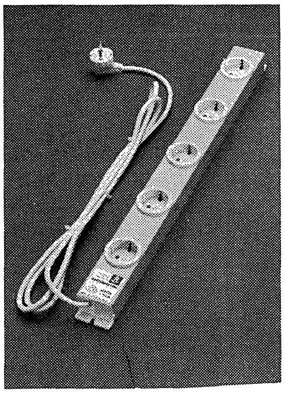
British



Model 85010321: British socket strip conforms to BS 1363. Each socket is shuttered to minimize the possibility of accidental entry of an object other than the mating plug.
Note: Cord is not provided. Made of impact resistant thermoplastic.
Current rating: 13 amps/250 volts
Number of sockets: 4
Circuit protection: 13A fuse (BS 1362)
Color: Black

European Continental

"Schuko" German



Model 85023050 (Prev. 3.002.305.2): German socket strip without switch rated at 16 amps. Cable length is 2.5 meters with VDE-approved Schuko plugs.
Color: Orange
Note: Models with rocker switch or circuit breaker also available.

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Interpower™ INTERNATIONAL Socket Strip

The Interpower™ International Socket Strip incorporates seven of the world's primary socket standards in one device. Use it in burn-in racks or test labs where products with international cords or cordsets are being prepared for export. Or, use it for receiving inspection on international cords and cordsets.

These sockets are included: "Schuko" German, Danish, Italian, South African, Swiss, Australia/New Zealand, and British. Table and rack mounting styles are available.

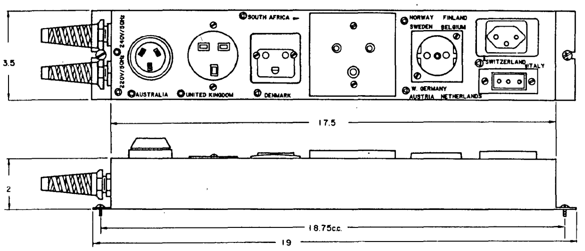
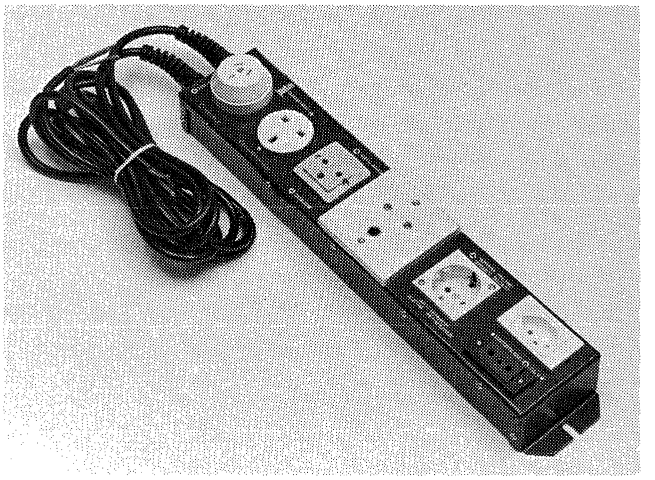
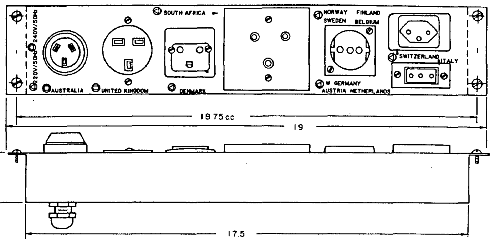
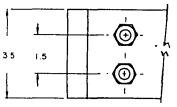
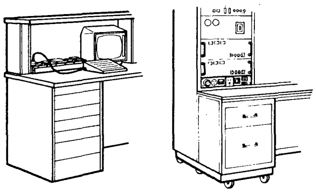

3.5
220V/50Hz
240V/50Hz
SOUTH AFRICA
NORWAY FINLAND
SWEDEN BELGIUM
SWITZERLAND
ITALY
AUSTRALIA
UNITED KINGDOM
DENMARK
W. GERMANY
AUSTRIA NETHERLANDS
17.5
2
18.75cc
19

Table Mounting Model
P/N 85010100




SOUTH AFRICA
NORWAY FINLAND
SWEDEN BELGIUM
SWITZERLAND
ITALY
220V/50Hz
240V/50Hz
AUSTRALIA
UNITED KINGDOM
DENMARK
W. GERMANY
AUSTRIA NETHERLANDS
18.75cc
19
2
17.5





Rack Mounting Model
P/N 85010110

Installation to Power Source:

The International Socket Strip is equipped with two unterminated power cords – one for connection to a 220VAC/50Hz power source; the other to a 240VAC/50Hz power source. The conductor size is 1.5mm^2 which is slightly larger than 16 AWG (16 AWG = 1.23mm^2). Each cord is 2.5 meters long and clearly marked as to voltage. The jacket and primary insulation are stripped and ready for installation to the appropriate power source. The primary insulation is color coded in accordance with international standards: green/yellow (ground); brown (line); blue (neutral).

Internal Wiring

220VAC/50Hz circuit

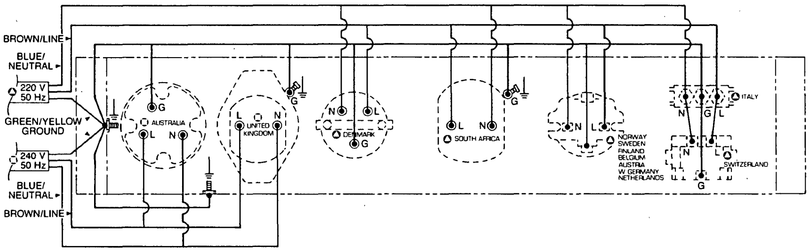
The cord marked "220VAC/50Hz" supplies power to these sockets:

Socket standard	Socket rating
"Schuko" (German)	16A
Danish	10A
Italian	10A
South African	16A
Swiss	10A

240VAC/50Hz circuit

The cord marked "240VAC/50Hz" supplies power to these sockets:

Socket standard	Socket rating
Australia/New Zealand	10A
United Kingdom	13A


BROWN/LINE
BLUE/ NEUTRAL
220 V 50 Hz
GREEN/YELLOW GROUND
240 V 50 Hz
BLUE/ NEUTRAL
BROWN/LINE
G
L
N
AUSTRALIA
UNITED KINGDOM
DENMARK
SOUTH AFRICA
NORWAY SWEDEN FINLAND BELGIUM AUSTRIA W. GERMANY NETHERLANDS
ITALY
SWITZERLAND

Each circuit is rated at 16 amps maximum for all of the sockets combined.

Testing

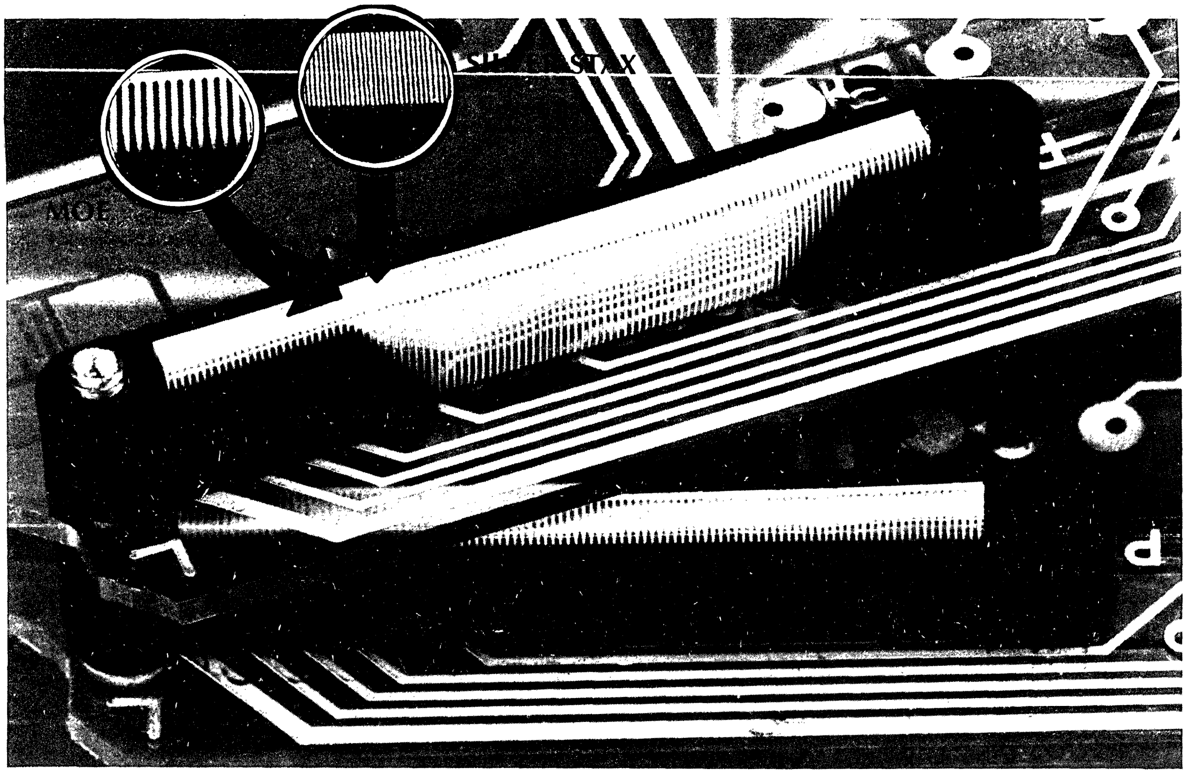
In addition to visual inspection at all manufacturing stages, each socket of both circuits is checked for correct polarity and continuity. The entire socket strip is then hi-pot tested at 2500 VAC; this test is done on each circuit between ground and line and neutral shorted together.

Delivery: Call PCC Customer Service Department for stock level.

PANEL COMPONENTS CORPORATION P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

PARALLEL BOARD CONNECTOR™

PBC Series



- Connective densities as low as .15 mil centers
- Surface mount low profile connections
- Remateable for ease of assembly / disassembly
- Multi-board stacking
- Establishes reliable, gas tight contacts between any parallel substrates such as PWBs, hybrids, and flat panel displays
- Zero insertion force

DESCRIPTION

Parallel Board Connectors (PBCs) create reliable contacts between closely-spaced paths on printed circuit boards. Clamping the elastomeric elements between two or more printed wire boards yields low resistance connections, without soldering.

PCBs are available with two types of elastomeric elements — Silver STAX and MOEs (Metal-on-Elastomer). Silver STAX are composed of alternating layers of high conductivity silicone rubber and non-conductive rubber. The MOEs, the element for lowest resistance applications, consist of gold on nickel on copper traces on silicone rubber cores.

The connector housing separates the printed circuit boards, aligns corresponding traces, and positions the elastomeric elements. Redundant traces on the elastomeric connector ensure reliable contact while eliminating the need for precise placement of the element.

Several boards can be stacked and interconnected simultaneously with common mounting screws. Individual boards can be easily removed and replaced in a minimum of time.

As contact is made just to surface traces without the necessity for plated through holes, the matching footprints can be at any position on the printed wiring board.

Gas-tight seals exclude harsh environments over a temperature range of -55°C to 125°C. Silicone rubber's superior electrical properties ensure low capacitance and low dielectric loss over the entire temperature range at up to 100% relative humidity.

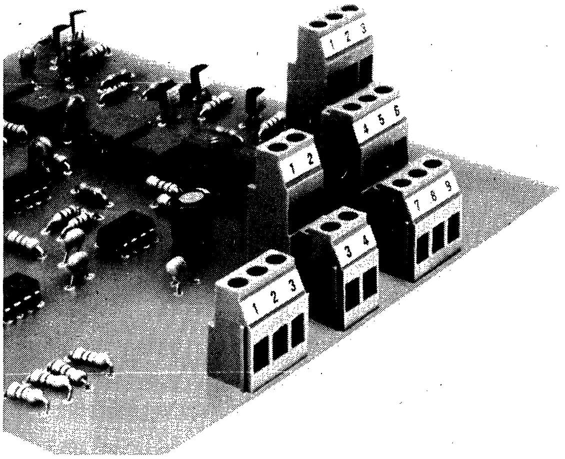
PCK**ELASTOMERICS,**INC.

2940 Turnpike Drive, Unit 17, Hatboro, PA 19040
Phone: (215) 672-0787, or (215) 672-4741
TWX: 510 665 6822

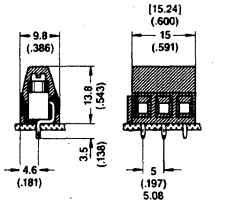
PCB Terminal Blocks

Multi-Position Screw Clamp Terminal Blocks
for 5mm and 5.08mm pin spacing

PHOENIX CONTACT



MKDS 1.5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15
(.591)
9.8
(.386)
13.8
(.543)
3.5
(.138)
4.6
(.181)
5
(.197)
5.08
[.200]

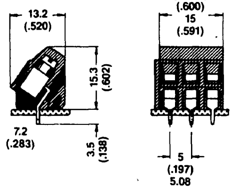
AWG 14 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKDS 1.5/2	2	17 15 02 2	50
MKDS 1.5/3	3	17 15 03 5	50
5.08mm pin spacing			
MKDS 1.5/2-5.08	2	17 15 72 1	50
MKDS 1.5/3-5.08	3	17 15 73 4	50
MKDS 1.5/4-5.08	4	17 15 74 7	50
MKDS 1.5/8-5.08	8	17 15 78 9	50
MKDS 1.5/10-5.08	10	17 15 80 2	50
MKDS 1.5/12-5.08	12	17 15 82 8	50

SMKDS 1.5

Angled terminal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(.591)
13.2
(.520)
15.3
(.602)
7.2
(.283)
3.5
(.138)
5
(.197)
5.08
[.200]

AWG 14 Amps 10 Volts 300

Pin Dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
SMKDS 1.5/2	2	17 16 02 1	50
SMKDS 1.5/3	3	17 16 03 4	50
5.08mm pin spacing			
SMKDS 1.5/2-5.08	2	17 16 72 0	50
SMKDS 1.5/3-5.08	3	17 16 73 3	50

PCB Terminal Blocks

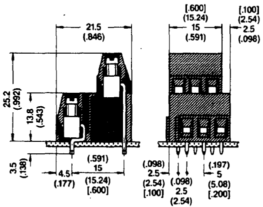
The Phoenix PCB Terminal Block line features the broadest selection of types available—screw clamp, single and multiple positions, double and triple level, fuse, quick connect, pluggable, spring and disconnecting types in horizontal, vertical and angled wire entry versions.

Phoenix PCB Blocks are modular, handle a wide range of wire sizes from 6 AWG to 28 AWG, and are UL and CSA approved. All Phoenix Terminal Blocks feature captive screws and copper clamping bodies for corrosion resistance and greater conductivity.

SA UL 300 volt rating

MKKDS 1.5

Double-level terminal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(.591)
[.100]
(2.54)
2.5
(.098)
21.5
(.846)
25.2
(.992)
13.8
(.543)
3.5
(.138)
4.5
(.177)
(.591)
15
(15.24)
[.600]
(.098)
2.5
(2.54)
[.100]
(.098)
2.5
(2.54)
[.100]
(.197)
5
(5.08)
[.200]

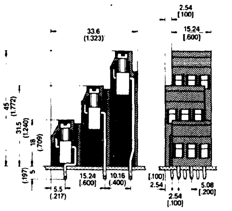
AWG 14 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKKDS 1.5/2	2	17 25 01 2	50
MKKDS 1.5/3	3	17 25 02 5	50
5.08mm pin spacing			
MKKDS 1.5/2-5.08	2	17 25 03 8	50
MKKDS 1.5/3-5.08	3	17 25 04 1	50

MK3DS 3

Triple level terminal block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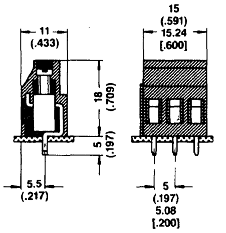
33.6
(1.323)
15.24
[.600]
45
(1.772)
31.5
(1.240)
18
(.709)
5.5
(.217)
15.24
[.600]
10.16
[.400]
[.100]
2.54
2.54
[.100]
5.08
[.200]

AWG 12 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
Not available with 5mm spacing			
5.08mm pin spacing			
MK3DS 3/2.508	2	17 23 01 4	50
MK3DS 3/3-5.08	3	17 23 02 7	50

MKDS 3


15
(.591)
15.24
[.600]
11
(.433)
18
(.709)
5
(.197)
5.5
(.217)
5
(.197)
5.08
[.200]

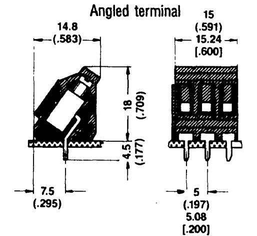
AWG 12 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKDS 3/2	2	17 11 02 6	50
MKDS 3/3	3	17 11 03 9	50
MKDS 3/4	4	17 11 04 2	50
MKDS 3/8	8	17 11 08 4	50
MKDS 3/12	12	17 11 12 3	50
5.08mm pin spacing			
MKDS 3/2-5.08	2	17 11 72 5	50
MKDS 3/3-5.08	3	17 11 73 8	50

SMKDS 3

Angled terminal


14.8
(.583)
15
(.591)
15.24
[.600]
18
(.709)
4.5
(.177)
7.5
(.295)
5
(.197)
5.08
[.200]

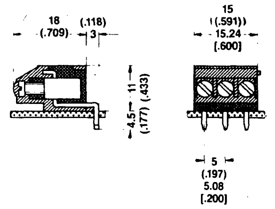
AWG 12 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
SMKDS 3/2	2	17 13 02 4	50
SMKDS 3/3	3	17 13 03 7	50
5.08 pin spacing			
SMKDS 3/2-5.08	2	17 13 72 3	50
SMKDS 3/3-5.08	3	17 13 73 6	50

MKDSF 3

With angled solder pin


18
(.709)
(.118)
3
15
(.591)
15.24
[.600]
11
(.433)
4.5
(.177)
5
(.197)
5.08
[.200]

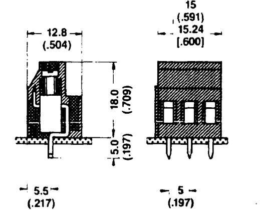
AWG 12 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKDSF 3/2	2	17 12 02 5	50
MKDSF 3/3	3	17 12 03 8	50
MKDSF 3/4	4	17 12 04 1	50
MKDSF 3/8	8	17 12 08 3	50
MKDSF 3/12	12	17 12 12 2	50
5.08mm pin spacing			
MKDSF 3/2-5.08	2	17 12 72 4	50
MKDSF 3/3-5.08	3	17 12 73 7	50

MKDSP 3

With test connection


15
(.591)
15.24
[.600]
12.8
(.504)
18.0
(.709)
5.0
(.197)
5.5
(.217)
5
(.197)
5.08
[.200]

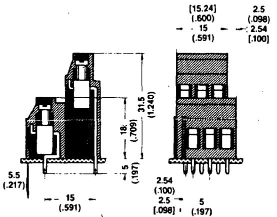
AWG 12 Amps 10 Volts 300

Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKDSP3/2	2	17 14 02 3	50
MKDSP3/3	3	17 14 03 6	50
5.08mm pin spacing			
MKDSP3/2-5.08	2	17 14 72 2	50
MKDSP/3-5.08	3	17 14 72 5	50

MKKDS 3

Double-level terminal


[15.24]
(.600)
15
(.591)
2.5
(.098)
2.54
[.100]
31.5
(1.240)
18
(.709)
5
(.197)
5.5
(.217)
15
(.591)
2.54
(.100)
2.5
[.098]
5
(.197)
5.08
[.200]

AWG 12 Amps 10 Volts 300

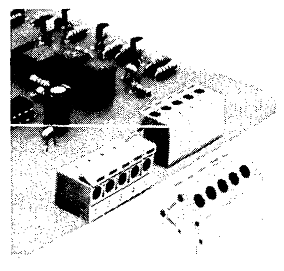
Pin dimensions 0.9 x 0.9 (.035 x .035)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKKDS 3/2	2	17 21 02 9	50
MKKDS 3/3	3	17 21 03 2	50
5.08mm pin spacing			
MKKDS 3/2-5.08	2	17 21 72 8	50
MKKDS 3/3-5.08	3	17 21 73 1	50

PCB Terminal Blocks

Spring Actuated Terminal Blocks for 5mm & 5.08mm pin spacing

PHOENIX CONTACT

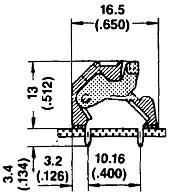


Phoenix spring-actuated terminal blocks are available in horizontal, vertical, single, multiple, low profile and various other configurations giving you easy wire access from any direction. No special tools are required to make connections. The Phoenix spring clamp design allows for termination of either solid or stranded wires.

Phoenix spring actuated terminal blocks will take up to a 16 AWG wire and are rated for up to 10 amps at 300 volts.

300 volt rating

MFKDS

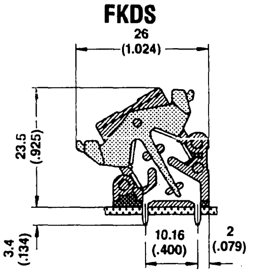

16.5
(.650)
13
(.512)
3.4
(.134)
3.2
(.126)
10.16
(.400)

AWG 16 Amps 10 Volts 300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
Mini Spring Terminal		
MFKDS-5.08	17 90 11 5	50
End Terminal		
MFKDSA-7.62	17 90 13 1	50

FKDS


26
(1.024)
23.5
(.925)
3.4
(.134)
10.16
(.400)
2
(.079)

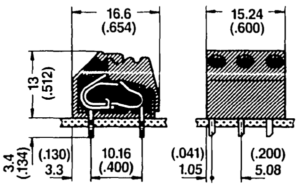
AWG 16 Amps 10 Volts 300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
Spring Terminal		
FKDS-5.08	17 90 01 8	50
End Terminal		
FKDSA-7.62	17 90 21 2	50

MFKDSP

With test connection

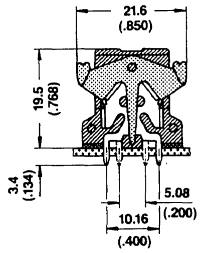

16.6
(.654)
15.24
(.600)
13
(.512)
3.4
(.134)
(.130)
3.3
10.16
(.400)
(.041)
1.05
(.200)
5.08

AWG 16 Amps 10 Volts 300

Terminal width 10.16 (.400) 15.24 (.600)
20.32 (.800)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	POS	PART NO.	PKG.
MFKDSP/2-5.08	2	17 90 28 3	50
MFKDSP/3-5.08	3	17 90 29 6	50
MFKDSP/4-5.08	4	17 90 64 9	50

FKDS/V

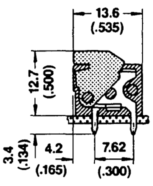

21.6
(.850)
19.5
(.768)
3.4
(.134)
5.08
(.200)
10.16
(.400)

AWG 16 Amps 10 Volts 300

Terminal width 5.08 (.200) x 7.62 (.300)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
Spring Terminal		
FKDSV-5.08/SA 5.08	17 90 41 6	50
FKDSV-5.08/SA 10.16	17 90 42 9	50
End Terminal		
FKDSVA-7.62/SA 5.08	17 90 43 2	50
FKDSVA-7.62/SA 10.16	17 90 44 5	50

FFKDS/H

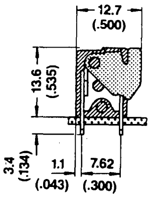

13.6
(.535)
12.7
(.500)
3.4
(.134)
4.2
(.165)
7.62
(.300)

AWG 16 Amps 10 Volts 300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
Spring Terminal		
FFKDS/H-5.08	17 90 33 5	50
End Terminal		
FFKDSA/H-7.62	17 90 35 1	50

FFKDS/V1


12.7
(.500)
13.6
(.535)
3.4
(.134)
1.1
(.043)
7.62
(.300)

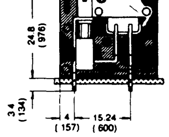
AWG 16 Amps 10 Volts 300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5 x 1 (.020 x .039)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
Spring Terminal		
FFKDS/V1-5.08	17 90 31 9	50
End Terminal		
FFKDSA/V1-7.62	17 90 36 4	50

KDS 3-MT

knife disconnect terminal block with test socket


27
(1 063)
11
(433)
24.8
(976)
3.4
(134)
4
(157)
15.24
(600)

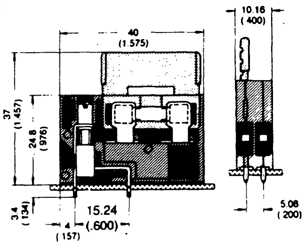
AWG 12 Amps 10 Volts 300

Terminal width 5.08 (.200)
Pin dimensions 1.1 x 0.8 (.043 x .031)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
KDS 3-MT	17 80 01 5	50

KDS 3-Si

fuse terminal block


10.16
(400)
40
(1.575)
37
(1.457)
24.8
(976)
3.4
(134)
4
(157)
15.24
(.600)
5.08
(200)

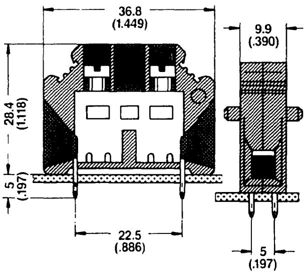
AWG 12 Amps 10 Volts 300

Terminal width 10.16 (.400)
Pin dimensions 1.1 x 0.8 (.043 x .031)
Hole diameter 1.3 (.051)

TYPE	PART NO.	PKG.
KDS 3-Si	17 80 11 2	50

KDS 10

High current terminal


36.8
(1.449)
9.9
(.390)
28.4
(1.118)
5
(.197)
22.5
(.886)
5
(.197)

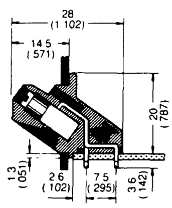
AWG 6 Amps 61 Volts 300

Terminal width 9.9 (.390)
Pin dimensions 1 x 0.9 (.039 x .035)
Hole diameter 1.5 (.059)

TYPE	PART NO.	PKG.
KDS10	17 04 20 0	50
KDS10 PE	17 04 30 3	50

DMKDS 2.5

panel feed thru


28
(1 102)
14 5
(571)
20
(787)
1 3
(051)
2 6
(102)
7 5
(295)
3 6
(142)

AWG 14 Amps 10 Volts 300

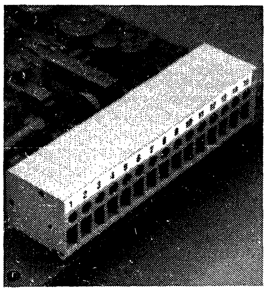
Terminal width 5.0 (.197)
Pin dimensions 1.1 x 0.7 (.043 x .028)
Hole diameter 1.4 (.055)

TYPE	PART NO.	PKG.
DMKDS 2.5	17 40 00 0	50

PCB Terminal Blocks

Special PC Board Terminal Blocks for 5mm & 5.08mm pin spacing

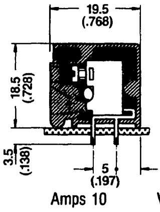
PHOENIX CONTACT



Phoenix Front 1.5 offers both parallel and perpendicular wire access to the printed circuit board. In each version the wire is inserted in the same direction as the screwdriver used to make the connection. Front and rear wiring in addition to feed-thru panel applications are simplified with the new Front 1.5 series.

Front 1.5H

Horizontal screwdriver/wire entry


19.5
(.768)
18.5
(.728)
3.5
(.138)
5
(.197)

AWG 14 Amps 10 Volts 300

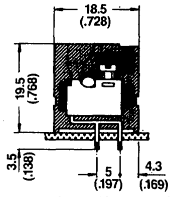
Terminal width 5.0 (.197) 7.5(.295) with cover

Pin dimensions	1 x 0.8 (.039 x .031)
Hole diameter	1.3 (.051)

TYPE	PART NO.	PKG.
Front 1.5H/SA-5	17 00 00 8	50
End Cover D-Front 1.5H	17 00 02 4	50

Front 1.5V

Terminal with vertical screwdriver/wire access


18.5
(.728)
19.5
(.768)
3.5
(.138)
5
(.197)
4.3
(.169)

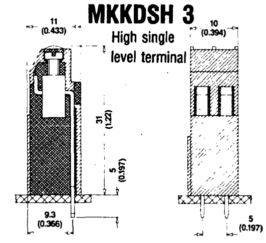
AWG 14 Amps 10 Volts 300

Terminal width 5.0(.197) 7.5(.295) with cover

Pin dimensions	1 x 0.8 (.039 x .031)
Hole diameter	1.3 (.051)

TYPE	PART NO.	PKG.
Front 1.5V/SA5	17 00 03 7	50
End Cover D-Front 1.5V	17 00 01 1	50

MKKDSH 3


11
(0.433)
10
(0.394)
31
(1.22)
5
(0.197)
9.3
(0.366)
5
(0.197)

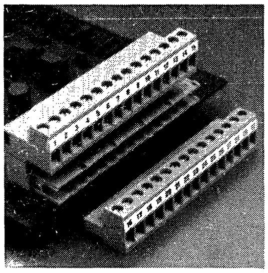
High single level terminal

AWG 12 Amps 10 Volts 300

Pin dimensions	0.9 x 0.9 (.035 x .035)
Hole diameter	1.3 (.051)

TYPE	POS	PART NO.	PKG.
5.0mm pin spacing			
MKKDSH 3/2	2	17 21 04 5	50
Not available in 3 pos. or 5.08mm pin spacing			

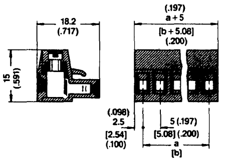
Pluggable PCB Terminal Blocks



The two piece MSTB terminal block combines the Phoenix wire clamping technique with the ease of PC Board connector pluggability. The MSTB series is UL recognized for factory and field wiring applications and CSA certified for 10 amps at 300 volts. It accepts a wide range of wires from #30 to #14 AWG. The MSTB line is available with 2 thru 24 positions in horizontal, vertical, low profile, and double level configurations.

MSTB 1.5/..ST

Connector for use with Headers, 2-24 Positions

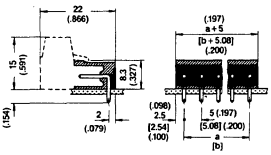

18.2
(.717)
15
(.591)
(.197)
a+5
[b+5.08]
(.200)
(.098)
2.5
[2.54]
(.100)
5 (.197)
[5.08] (.200)
a
[b]

AWG 14 Amps 10 Volts 300

Spacing 5.0 (.197) or 5.08 (.200)

MSTB 1.5/..G

Horizontal Header 2-24 Positions

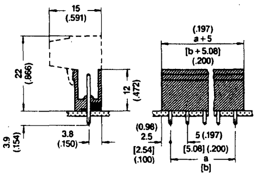

22
(.866)
15
(.591)
8.3
(.327)
3.9
(.154)
2
(.079)
(.197)
a+5
[b+5.08]
(.200)
(.098)
2.5
[2.54]
(.100)
5 (.197)
[5.08] (.200)
a
[b]

Amps 10 Volts 300

Pin spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)

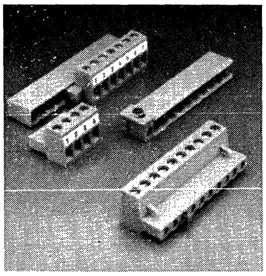
MSTBV 1.5/..G

Vertical Header 2-24 Positions


15
(.591)
22
(.866)
12
(.472)
3.9
(.154)
3.8
(.150)
(.197)
a+5
[b+5.08]
(.200)
(0.98)
2.5
[2.54]
(.100)
5 (.197)
[5.08] (.200)
a
[b]

Amps 10 Volts 300

Pin spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)



ACCESSORIES

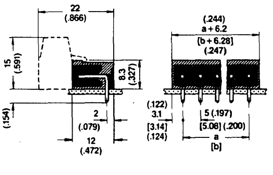
17 55 47 7 MSTB-BL polyamide keying cap fits over pin in header.

17 59 98 1 MSTB-BF polyamide mounting ear with screw and nut for open-ended headers.

17 59 99 4 CS-MSTB polyamide keying pin uses one connector position.

MSTBA 1.5/..G

Horizontal Header with Closed Ends, 2-24 Positions

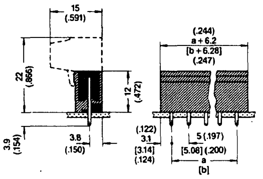

22
(.866)
15
(.591)
8.3
(.327)
3.9
(.154)
2
(.079)
12
(.472)
(.244)
a+6.2
[b+6.28]
(.247)
(.122)
3.1
[3.14]
(.124)
5 (.197)
[5.08] (.200)
a
[b]

Amps 10 Volts 300

Pin spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)

MSTBVA 1.5/..G

Vertical Header with Closed Ends, 2-24 Positions


15
(.591)
22
(.866)
12
(.472)
3.9
(.154)
3.8
(.150)
(.244)
a+6.2
[b+6.28]
(.247)
(.122)
3.1
[3.14]
(.124)
5 (.197)
[5.08] (.200)
a
[b]

Amps 10 Volts 300

Pin spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)

MSTB DIMENSIONS

No. of positions	a	b
2	5 (.197)	5.08 (.200)
3	10 (.394)	10.16 (.400)
4	15 (.591)	15.24 (.600)
5	20 (.787)	20.32 (.800)
6	25 (.984)	25.40 (1.000)
7	30 (1.181)	30.48 (1.200)
8	35 (1.378)	35.56 (1.400)
9	40 (1.575)	40.64 (1.600)
10	45 (1.772)	45.72 (1.800)
11	50 (1.969)	50.80 (2.000)
12	55 (2.165)	55.88 (2.200)
13	60 (2.362)	60.96 (2.400)
14	65 (2.559)	66.04 (2.600)
15	70 (2.756)	71.12 (2.800)
16	75 (2.953)	76.20 (3.000)
17	80 (3.150)	81.28 (3.200)
18	85 (3.346)	86.36 (3.400)
19	90 (3.543)	91.44 (3.600)
20	95 (3.740)	96.52 (3.800)
21	100 (3.937)	101.60 (4.000)
22	105 (4.134)	106.68 (4.200)
23	110 (4.331)	111.76 (4.400)
24	115 (4.528)	116.84 (4.600)

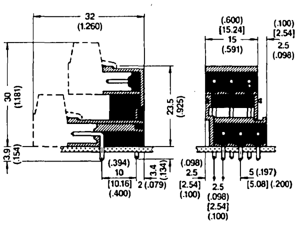
PCB Terminal Blocks

Pluggable PCB Terminal Blocks for 5mm & 5.08mm Pin Spacing

PHŒNIX CONTACT

MDSTB 1.5/..G

Horizontal Double Level
Header 2 (4) or 3 (6) Positions

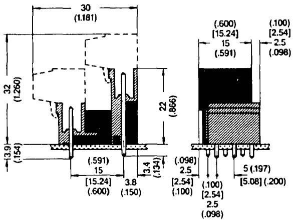

32 (1.260)
30 (1.181)
3.9 (.154)
23.5 (.925)
(.394) 10 [10.16] (.400)
2 (.079)
3.4 (.134)
(.600) [15.24] 15 (.591)
(.100) [2.54] 2.5 (.098)
(.098) 2.5 [2.54] (.100)
2.5 (.098) [2.54] (.100)
5 (.197) [5.08] (.200)

Amps 10 Volts 300

spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)

MDSTBV 1.5/..G

Vertical Double Level
Header 2 (4) or 3 (6) Positions

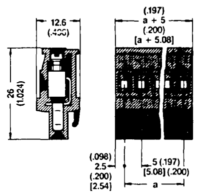

30 (1.181)
32 (1.260)
3.9 (.154)
22 (.866)
(.591) 15 [15.24] (.600)
3.8 (.150)
3.4 (.134)
(.600) [15.24] 15 (.591)
(.100) [2.54] 2.5 (.098)
(.098) 2.5 [2.54] (.100)
(.100) [2.54] 2.5 (.098)
5 (.197) [5.08] (.200)

Amps 10 Volts 300

spacing	5.0 (.197) or 5.08 (.200)
Pin dimensions	1 x 1 (.039 x .039)
Hole diameter	1.4 (.055)

MVSTBW 1.5/..ST

Low Profile for Use with Headers
2-24 Positions "Bottom" Wire Entry

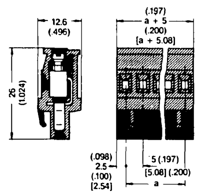

12.6 (.496)
(.197) a + 5 (.200) [a + 5.08]
26 (1.024)
(.098) 2.5 (.200) [2.54]
5 (.197) [5.08] (.200)
a

AWG 14 Amps 10 Volts 300

spacing	5.0 (.197) or 5.08 (.200)
Stripping length	7 (.276)

MVSTBR 1.5/..ST

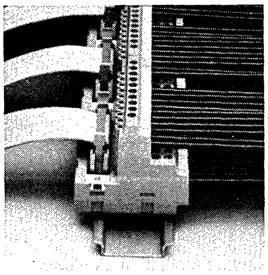
Low Profile for Use with Headers
2-24 Positions "Top" Wire Entry


12.6 (.496)
(.197) a + 5 (.200) [a + 5.08]
26 (1.024)
(.098) 2.5 (.100) [2.54]
5 (.197) [5.08] (.200)
a

AWG 14 Amps 10 Volts 300

spacing	5.0 (.197) or 5.08 (.200)
Stripping length	7 (.276)

Flat Cable Interface Modules

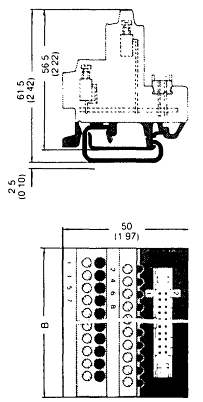


The FLK and FLKM modules allow for interfacing between flat ribbon cable and up to #12 AWG discrete wires. The discrete wire connections are made via the proven Phoenix screw clamp terminal blocks which are rated for field and factory wiring.
The FLKM-D is used for the interfacing of cables equipped with 'D' Subminiature connectors to discrete wires.

All modules mount on any available DIN rail and can be installed individually or along with any type of Phoenix terminal block. Custom units can be made available on request.

FLK 20, FLK 26

20 and 26 positions only


61.5 (2.42)
56.5 (2.22)
2.5 (0.10)
50 (1.97)
B

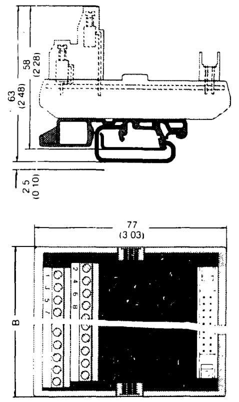
AWG 12 Amps 1 Volts 60

TYPE	PART NO.	PKG.
FLK 20	22 80 01 9	10
FLK 26	22 80 05 1	10

TYPE	DIM B MM	DIM B IN
FLK 20	60.0	2.36
FLK 26	75.2	2.96

FLKM 10 . . . 64

Available with 10 through 64 positions


63 (2.48)
58 (2.28)
2.5 (0.10)
77 (3.03)
B

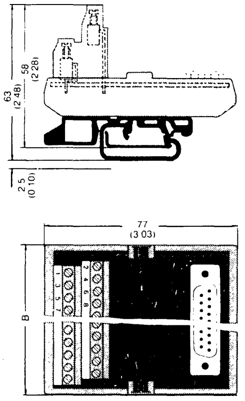
AWG 12 Amps 1 Volts 60

TYPE	PART NO.	PKG.
FLKM 10	22 81 01 8	1
FLKM 14	22 81 02 1	1
FLKM 16	22 81 03 4	1
FLKM 20	22 81 04 7	1
FLKM 26	22 81 05 0	1
FLKM 34	22 81 06 3	1
FLKM 40	22 81 07 6	1
FLKM 50	22 81 08 9	1
FLKM 60	22 81 09 2	1
FLKM 64	22 81 10 2	1

TYPE	DIM B MM	DIM B IN
FLKM 10	45.0	1.77
FLKM 14	45.0	1.77
FLKM 16	67.5	2.66
FLKM 20	67.5	2.66
FLKM 26	90.0	3.54
FLKM 34	112.5	4.43
FLKM 40	112.5	4.43
FLKM 50	135.0	5.31
FLKM 60	180.0	7.09
FLKM 64	180.0	7.09

FLKM-D . . . SUB

Available with 9 through 50 positions


63 (2.48)
58 (2.28)
2.5 (0.10)
77 (3.03)
B

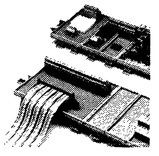
AWG 12 Amps 2.5 Volts 125

TYPE	PART NO.	PKG.
FLKM-D 9 SUB/S	22 81 12 8	1
FLKM-D 15 SUB/S	22 81 13 1	1
FLKM-D 25 SUB/S	22 81 14 4	1
FLKM-D 37 SUB/S	22 81 11 5	1
FLKM-D 50 SUB/S	22 81 15 7	1
FLKM-D 9 SUB/B	22 81 18 6	1
FLKM-D 15 SUB/B	22 81 19 9	1
FLKM-D 25 SUB/B	22 81 20 9	1
FLKM-D 37 SUB/B	22 81 21 2	1
FLKM-D 50 SUB/B	22 81 22 5	1

TYPE	DIM B MM	DIM B IN
FLKM-D 9 SUB/S	45.0	1.77
FLKM-D 15 SUB/S	67.5	2.66
FLKM-D 25 SUB/S	90.0	3.54
FLKM-D 37 SUB/S	112.5	4.43
FLKM-D 50 SUB/S	112.5	4.43
FLKM-D 9 SUB/B	45.0	1.77
FLKM-D 15 SUB/B	67.5	2.66
FLKM-D 25 SUB/B	90.0	3.54
FLKM-D 37 SUB/B	112.5	4.43
FLKM-D 50 SUB/B	112.5	4.43

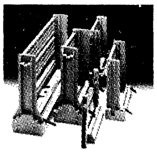
PHOENIX TERMINAL BLOCKS

Selection without equal for design flexibility



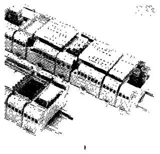
Modular Interface Components

Phoenix universal modules are multi-purpose electronic circuit and component carriers. Mounting on all types of DIN rails, they range from simple octal sockets for relays to interfaces for microprocessor outputs with solid state relays and fuses. In addition there are flat cable IDC interfaces, from 10 to 64 positions, subminiature connector interfaces, from 9 to 50 positions, and many other configurations. Size and variety is only limited by the designer's imagination. Special covers make the contents of these modules touch and contamination-proof. Custom designs are available.



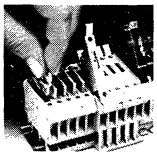
Plug-in Card Blocks

Phoenix plug-in card blocks will accept single or double Eurocards and are designed in accordance with DIN 41612 and DIN 41617 specifications. The SKBI block is a total system with card guides, clamping and releasing latches and receptacle sizes to accept 32, 48, 64 or 128 position Eurocards. The SKBD card edge block handles single-sided PCB's from 8 to 20 positions.



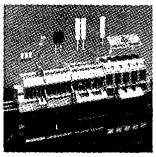
Electronic Control Systems Modules EM

EM electronic control modules include relay, diode array, varistor, LED indicator, fuse holder and custom circuit modules. All are rail mounted, eliminating the need for many off-rail mounted components and PC boards.



Fuse Blocks & Component Holders

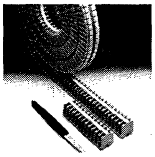
For applications that dictate using fuses, Phoenix offers a variety of fuse terminal blocks. If your design requires electronic components such as diodes, resistors, capacitors, etc., Phoenix features many configurations of terminal blocks to house these components.



UK, Universal Feed-Through 600V & 300V

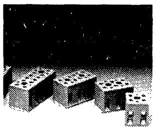
Universal Terminal Blocks are feed-through blocks with mounting feet which allow the block to be snap mounted or removed from all DIN rail types—C, flat or mini. This versatility reduces the need for stocking many different types of terminal blocks.

The versatility of the UK terminal block can be expanded by using the Phoenix accessory line.



Panel or Rail Mounted BK

BK Strip Terminal Blocks are supplied in continuous strips which can be custom cut to any length, and can be panel or rail mounted.
With a 600 volt rating, each terminal block has two walls eliminating the need for end covers. The Phoenix open construction design allows for excellent visibility of the wire connection points and easy screwdriver use.



Direct Mount G5

This series of compact terminal blocks can be mounted directly in a piece of equipment without additional hardware. Each has a fully enclosed polyamide 6.6 housing and requires one or two screws for mounting. Groups with any number of wiring positions can be formed by interlocking the built-in tongues and grooves.

PHŒNIX CONTACT

Call or write Phoenix Contact
P.O. Box 4100, Harrisburg, PA 17111
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In Canada, call 416-890-2820

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Mayer Electric
Norcross, GA 30071
404-447-6800

Arizona
Sterling Electronics
Phoenix, AZ 85034
602-268-2121

Arkansas
Sterling Electronics
Tulsa, OK 74145
918-663-2410

California
Omega Supply
Concord, CA 94520
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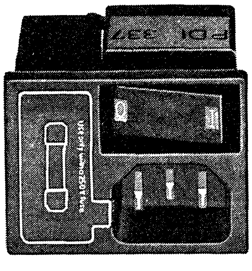
RFI/EMI Filtered Power Entry Modules

PDI-337

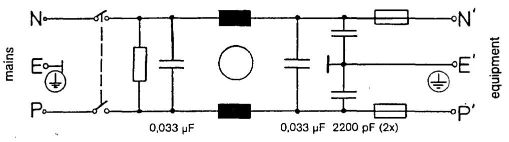


Line filters PDI 337 are a combination of IEC-connector, two-pole ON/OFF switch and a fuse holder that accepts both European 5x20 mm or 3AG American fuses in line and neutral. The top-quality filter-circuit protects electronic devices like computers, terminals and type-writers from common mode and differential mode interferences. Snap-in mounted.

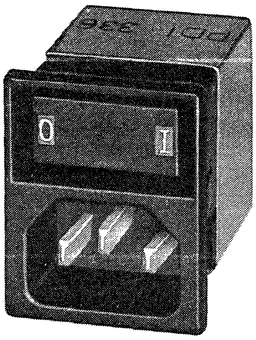
Technical data

Operatingvoltage	250 V / 50 Hz 110 V / 60 Hz
Rated current	1 A / 2 A / 3 A / 4 A / 6 A
Leakage current	<0,5 mA / 250 VAC
Temperature range	−25° C — +85° C
Test voltage (VDE 0565)	1,8 kV / 50 Hz — 2 s

Circuit



PDI-336

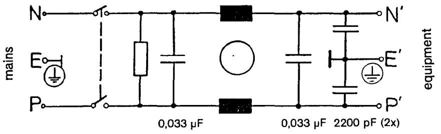


Line filters PDI 336 have an IEC-plug, 2-pole ON/OFF switch and a high quality filter circuit. They protect electronic equipment against malfunction due to fast common mode and differential mode interferences. On the load-side there are quick connect connectors 6.3 x 0.8 mm. Snap-in mounting.

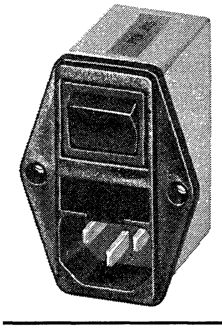
Technical data

Operatingvoltage	250 V / 50 Hz 110 V / 60 Hz
Rated current	1 A / 2 A / 3 A / 4 A / 6 A
Leakage current	<0,5 mA / 250 VAC
Temperature range	−25° C — +85° C
Test voltage (VDE 0565)	1,8 kV / 50 Hz — 2 s

Circuit



PDI-375

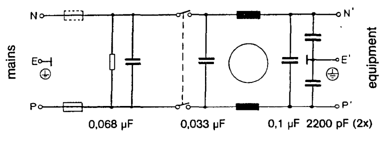


The combi-filter PDI 375 offers reduced mounting, and lowest inventory costs and protects electronic equipment from common and differential mode line interferences in the range of 10kHz up to 30MHz. The filter is equipped with IEC-plug, one or two fuses 5 x 20mm, a 2-pole ON/OFF switch and a completely enclosed metal housing.

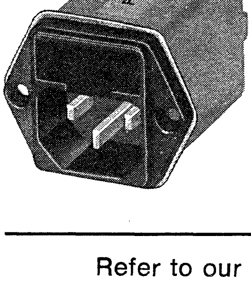
Technical data

Operatingvoltage	250 V / 50 Hz 110 V / 60 Hz
Rated current	1 A / 2 A / 4 A
Leakage current	<0,5 mA / 250 VAC
Temperature range	−25° C — +85° C
Test voltage (VDE 0565)	1,8 kV / 50 Hz — 2 s

Circuit



PDI-365

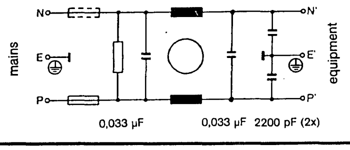


The line filters PDI 365 save cost and space by combining an IEC-plug with one or two fuses and a top-quality filter circuit (IEC 601 prescribes fusing of both lines!). A compact closed metal housing as used in all PDI main filters avoids input of high-frequent noise and prortects sensitive equipment.

Technical data

Operatingvoltage	250 V / 50 Hz 110 V / 60 Hz
Rated current	1 A / 2 A / 4 A
Leakage current	<0,5 mA / 250 VAC
Temperature range	−25° C — +85° C
Test voltage (VDE 0565)	1,8 kV / 50 Hz — 2 s

Circuit



Refer to our page in the Filter Section for additional Power Dynamics Filter Entry Modules.

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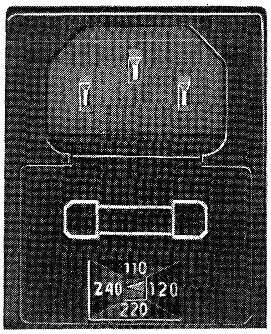
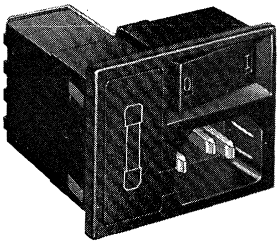
IEC POWER RECEPTACLES/CONNECTORS



G2SF
(42R40)

UL
CSA
VDE

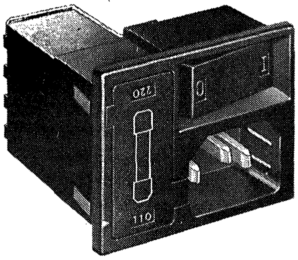
Integral combination IEC Connector, Fuse Holder & Voltage Selector. The voltage selector is designed to switch to four different voltages & provides a simple means to change transformer primary connections. Fuse Holder accepts either single or double IEC 5x20mm or U.S. ¼x1¼ fuses for maximum versatility in product applications. Fuse connections are externally accessible & isolated from power connections. Rated 6 amp & 10 amp. Connectors are available in Quick connect or Solder terminals & three physical mounting configurations.



GWS
(42R37)

UL
VDE
CSA
SEV

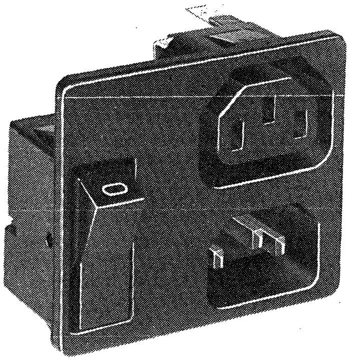
Integral combination IEC power cord connector, fuse holder and on/off switch. Designed to eliminate, discrete purchase, inventory and assembly of individual components. Meets all international safety requirements. Fuse holder accepts either Single or Double American or European fuses for maximum versatility in product applications, (not interchangeable). Fuse connections are externally accessible and isolated from power connections. Rated 6 amp and 10 amp, single or double pole snap action on/off switch. Terminal connections are Solder Lug or Quick connect, available in five terminal sizes.



GWSS
(42R39)

UL
VDE
CSA
SEV

Same features as 42R37 but with Voltage Selector. Changes voltages by rotating fuse cartridge. Meets all international safety requirements. Fuse holder accepts 3AG American or 5 x 20mm European fuses.



G2
(44R03)

UL
CSA
VDE

Integral combination male inlet IEC Connector/ female outlet Connector & On/Off Power Switch. Designed to eliminate discrete purchase, inventory & assembly of individual components. Meets all international safety requirements. Unit allows for a cost effective method of providing auxiliary power to peripheral equipment. The switch is Rated 6 amp & 10 amp, 250 volts single or double pole and is labeled with the international 1/O On/Off markings.

Fuses are not included with unit

AVAILABLE WITH QUICK CONNECT, SCREW & SOLDER TERMINALS

Any Mechanical Configurations Available in Combination with Any Electrical Configuration

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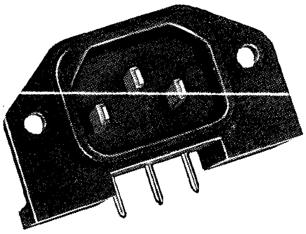
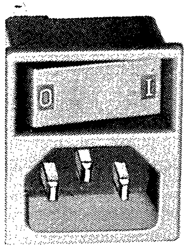
IEC POWER RECEPTACLES/CONNECTORS



GRS
(42R65)

UL
VDE
CSA
SEV
SEMKO
NEMKO
DEMKO

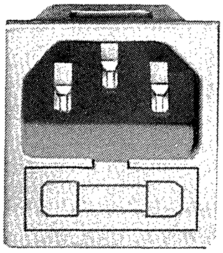
Combination Power Cord Connector with PRINTED CIRCUIT TERMINALS. Conforms with all international safety requirements. Rated 6 amp, 250V: 65°C to 120°C operating temperature. An exceptionally popular unit for Automated Assembly Operations.



GWI
(42R36)

UL
VDE
CSA
SEV

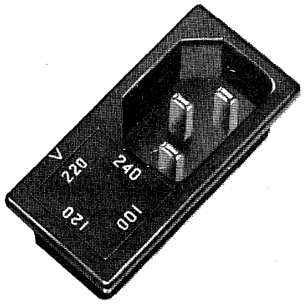
Combination power cord connector with single or double pole on/off snap action power switch. Conforms with all international product safety requirements. Designed to eliminate discrete purchase, inventory, and assembly of connector and switch. Terminal connections are Solder or Quick connect, available in five terminal sizes. Rated 6 amp and 10 amp, single pole or double pole power switch.



G2S
(42R35)

UL
VDE
CSA
SEV

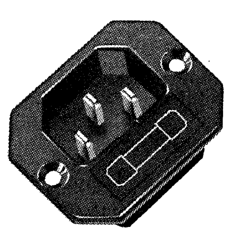
Combination single or double fuse holder power cord connector for domestic and international markets. Fuse holder is touch proof in accordance with international product safety requirements. Accepts either American or European fuse for maximum versatility in product applications. Fuse connections are externally accessible and isolated from power connections. Solder Lug and Quick connect, (terminal configurations) available in five sizes. Rated 6 amp and 10 amp with single or double fuse versions in each current rating.



GSS
(42R34)
(42R38)

UL
VDE
CSA
SEV
SEMKO
NEMKO

Integral combination IEC power cord connector/Fuse Holder/Voltage Selector. Meets all international safety requirements, and can be used throughout the world without modification at time of installation. Designed to switch voltages 100, 120, 220, 240 by removing fuse cartridge and rotating to desired voltage then snapping the cartridge back into connector housing. Fuse holder is touch proof in accordance with international product safety requirements. Series 42R34 accepts one International 5X20 mm fuse. Series 42R38 accepts one standard 3 AG American type fuse. Rated @ 6 amp and 10 amp from 65°C to 120°C operating temperature. Screw or Snap-in mount configurations.



GSI
(42R31)
(42R32)
(42R33)

UL
VDE
CSA
SEV
SEMKO
NEMKO

Combination single fuse holder/power cord connector for domestic and international markets. Fuse holder is touch proof in accordance with international product safety requirements. Accommodates one international 5X20 mm fuse with space for a spare fuse. Terminal connections: Screw, quick connect, or Solder Lug.

Rated @ 6 amp and 10 amp; 65°C to 120°C operating temperature. Fuse connections are externally accessible and isolated from power connections. Screw or snap-in mount and five mounting configurations.

Fuses are not included with unit

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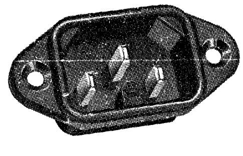
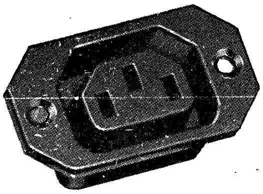
IEC POWER RECEPTACLES/CONNECTORS



GST3
(42R01)
(42R02)
(42R03)

UL
VDE
CSA
SEV
SEMKO
NEMKO
DEMKO

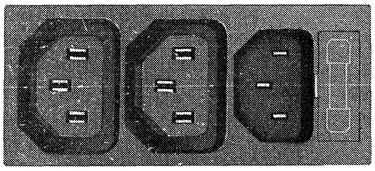
General purpose power cord connector. Screw, Quick connect, or Solder Lug, terminal configuration. Rated @ 6 amp and 10 amp, from 65°C to 175°C operating temperature. Designed for versatile mounting, units are available in screw or snap-in panel mount and five mounting configurations.



GSD4
(43R02)
(43R03)
(43R04)

UL
VDE
CSA

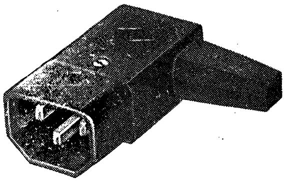
General purpose female power cord connector. Three terminal configurations: Screw, Quick connect, and Solder Lug. Rated 6 amp and 10 amp. Designed for versatile mounting; available in screw or snap-in panel mount and three mounting configurations.



GSI/GSD4
(COMBINATION)
(44R01)

Exceptionally versatile combination Fuse Connector. Combining our single male fuse connector (GSI) with our female connector (GSD4), allowing for a selection of 1 male outlet with from 1 to 6 female outlets. Rated 6 amp. Simple snap-in mounting.

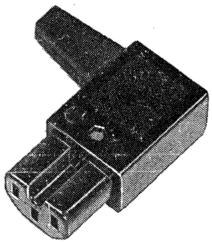
ALSO AVAILABLE WITHOUT INTEGRAL FUSE HOLDER



GST4
(42R04)

VDE

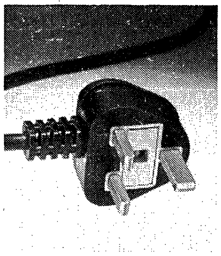
Male power cord plug with 6 amp and 10 amp ratings. Contains integral cable clamp strain relief and internal screw type connections. Available in three mounting angle configurations.



GSD3
(43R01)

VDE
SEV
SEMKO
NEMKO
DEMKO

Female power cord plug with 6 amp and 10 amp rating from 65°C to 175°C operating temperature. Integral cable clamp strain relief and internal screw type connection. Available in three mounting angle configurations.



CORD SETS

UL	UTE
CSA	VDE
BSI	MQ
SECV	KEMA
OVE	NEMKO
CEBEC	SEMKO
FEI	SEV

Approved by 14 international safety agencies. Consistent with all cataloged IEC Connectors.

Approvals listed refer to all PDI Power Cords.

Fuses are not included with unit

AVAILABLE WITH QUICK CONNECT, SCREW & SOLDER TERMINALS

An Mechanical Configurations Available in Combination with Any Electrical Configuration

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

Power Dynamics, Inc.

P.O. Box 539, 59 Lakeside Avenue, West Orange, NJ 07052 • (201) 736-5722 • TWX: 136567 (PDI) • Intl. Telex: 666173 (PDI)

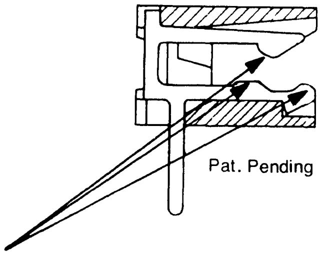
LCD CONNECTORS

Positive contact over extended periods of time at higher operating temperatures. (Replaces "obsolete" plastic contacts that may be influenced by contact pressure.)

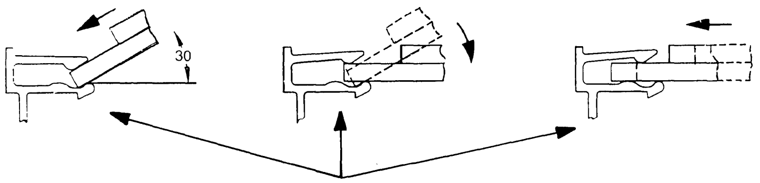
Unique Prong Type contacts provide pressure and reaction with single metal unit.

MATERIALS: Connector Body: Glass filled polycarbonate Contacts: Tin-plated Brass alloy

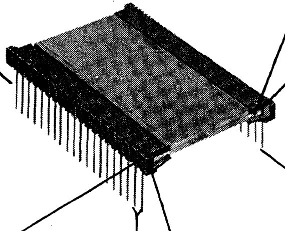
CROSS SECTION



Triple supports provide minimum plug-in pressure regardless of number of contacts. Spring mounted by rotary movement.



No injury can occur to contact surface or plating during plugging-in of display; the ultimate in contact reliability.



Up to 45 contacts available. Additional contacts available.

For LCD glass thickness of .04 through .05 ±.004. (Other thicknesses available).

LCD's do not require beveled edge on glass borders. Although LCD's are sharp, they cannot damage Power Dynamics' unique Connector Contacts.

Wide range of standard soldering pin lengths (.12, .19, .29, .41).

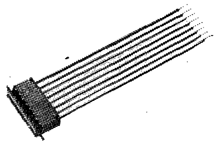
Molded-in contacts insure long contact life and reliability under harsh environmental conditions (as opposed to conventional type exposed contacts).

Molded shoulders insure against longitudinal movement under the most severe shock and vibration conditions. (No epoxy or bezel required for LCD retention.)

Contact pin spacing of .10.

.05 SPACING AVAILABLE (From 40 to 100 Contacts)

LCD CONNECTORS ALSO AVAILABLE FOR FLAT CABLE CONNECTIONS

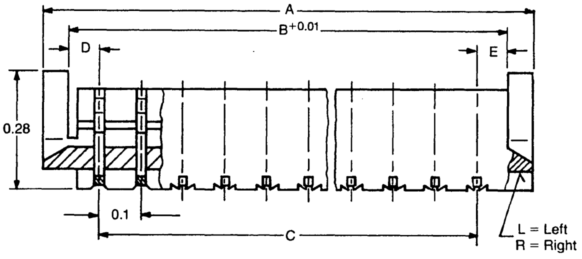


31R50
8 Pin
For Active
Chip on Glass
(C.O.G.) Usage

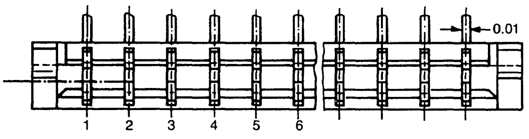
EXAMPLE & ORDERING CODE

31R30 - 2 1 1 1 001

TERMINAL LENGTH
Dimensions "L"
.12 = 1
.19 = 2
.29 = 3
.41 = 4



Tolerance from contact to contact ±0.004 (non-cumulative).



Patent Pending

No. of Chambers	No. of Contacts	Empty Chambers*	Dimensions A	B	C	D	E	Versions
20	20		2.13	2.01	1.90	0.05	0.05	001
26	20	1, 2, 3 24, 25, 26	2.87	2.76	2.50	0.13	0.13	002
26	26		2.87	2.76	2.50	0.13	0.13	003
26	25	1	2.87	2.76	2.50	0.13	0.13	004
26	25	26	2.87	2.76	2.50	0.13	0.13	005
29	29		3.13	3.01	2.80	0.10	0.10	006
31	31		3.32	3.20	3.00	0.10	0.10	007
36L	34	1, 2	3.82	3.70	3.50	0.08	0.12	008
36R	34	35, 36	3.82	3.70	3.50	0.12	0.08	009
36L	36		3.82	3.70	3.50	0.08	0.12	010
36R	36		3.82	3.70	3.50	0.12	0.08	011
45	45		4.61	4.50	4.40	0.05	0.05	012
11	9	1, 11	1.22	1.11	1.00	0.05	0.05	013

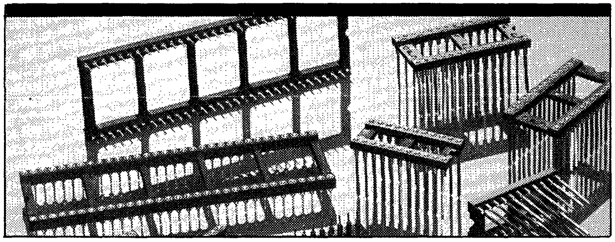
* Note: Other arrangements of empty chambers available.

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

recicontact, inc.

SERIES USO/UWW

OPEN FRAME LOW PROFILE DIP SOCKETS
SOLDER TAIL/WIRE WRAP TAIL



FEATURES:

Free-standing contacts provide excellent convection cooling.

High reliability and performance at a low cost.

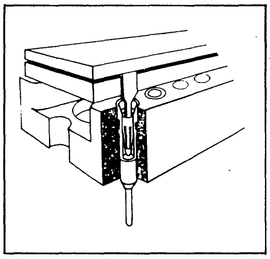
Accommodates 6 thru 64 flat lead DIP IC's or 0,41/.016 to 0,51/.021 diameter round leads maintaining high retention.

Continuous grid spacing for maximum use of PC board real estate.

Available in .018 diameter solder tail in a variety of lengths or in a .025 square tail in 3-level, 2-level or 1-level of wrap.

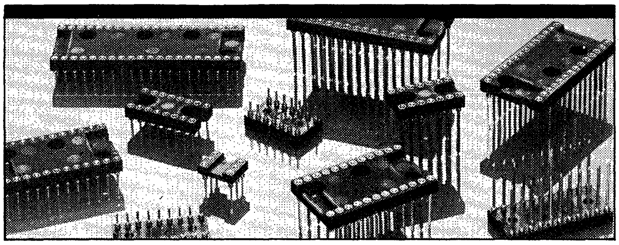
MATERIALS:

Insulator—See General Notes*
Machined socket terminals: See General Notes*



SERIES SO/WW

CLOSED FRAME LOW PROFILE DIP SOCKETS
SOLDER TAIL/WIRE WRAP TAIL



FEATURES:

High reliability and performance at a low cost.

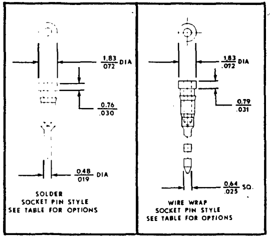
Accommodates 6 thru 40 flat lead DIP IC's or 0,41/.016 to 0,51/.021 diameter round leads maintaining high retention.

Continuous grid spacing for maximum use of PC board real estate.

Available in .018 diameter solder tail in a variety of lengths or in a .025 square tail in 3-level, 2-level or 1-level of wrap.

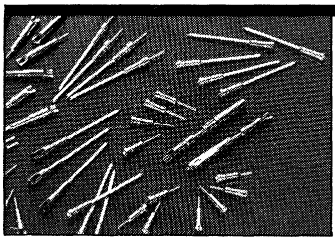
MATERIALS:

Insulator—See General Notes*
Machined socket terminals: See General Notes*

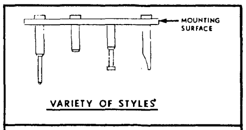

1,83 / 072 DIA
0.76 / .030
0.48 / 019 DIA
SOLDER
SOCKET PIN STYLE
SEE TABLE FOR OPTIONS
1,83 / .072 DIA
0,79 / .031
0,64 / .025 SQ.
WIRE WRAP
SOCKET PIN STYLE
SEE TABLE FOR OPTIONS

SERIES 3000

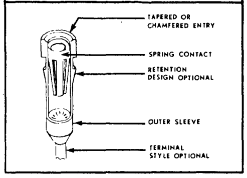
Standard Dip-Socket Pin



PRECICONTACT MIL-C-39029/56 SOCKETS AND MIL-C-39029/58 PINS HAVE QPL APPROVAL.


MOUNTING SURFACE

VARIETY OF STYLES*


TAPERED OR CHAMFERED ENTRY
SPRING CONTACT
RETENTION DESIGN OPTIONAL
OUTER SLEEVE
TERMINAL STYLE OPTIONAL

FEATURES:

Wide variety of sockets and terminals in solder or wire-wrap tails.

High reliability sockets feature four-leaf closed entry, inner contact (BeCu per QQ-C-533) and machined outer sleeve (Brass per QQ-B-626).

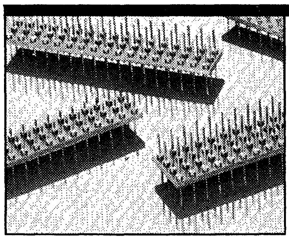
Various styles available such as bifurcated, stitch-weld and feed-thru.

OTHER SOCKET ASSEMBLIES

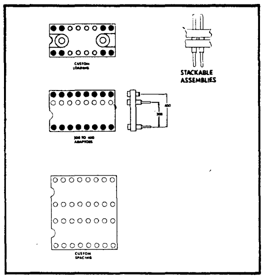
SERIES DSO/DWW *(Dual)*
SERIES SSO/SWW *(Single)*
SOLDER TAIL/WIRE WRAP TAIL
(SNAP-A-PART)
SERIES UH-HiTemp
Low Profile Machined Socket Assemblies
HIGH TEMPERATURE (OPEN FRAME) 65°C to 250°C

SERIES CSO
Socket Terminal Carrier Assemblies (Optional Mounting)
L.E.D. SERIES
Display Sockets
(Right Angle Display)

CUSTOM SOCKETS

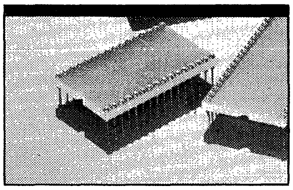


Our custom capability is as diverse as your requirements and we design to your specs efficiently and economically.


CUSTOM LOADING
STACKABLE ASSEMBLIES
300 TO 400 ADAPTORS
400
300
CUSTOM SPACING

SERIES LSI

Adapter Sockets



For socketing LSI dual-in-line and quad-in-line circuits with up to 64 pins on .900" spacing.

ADAPTERS

SERIES SD/WD
Solder Cup Adapter
SOLDER TAIL/WIRE WRAP TAIL

SERIES SC/WC
Feed-thru Pin Adapter
SOLDER TAIL/WIRE WRAP TAIL

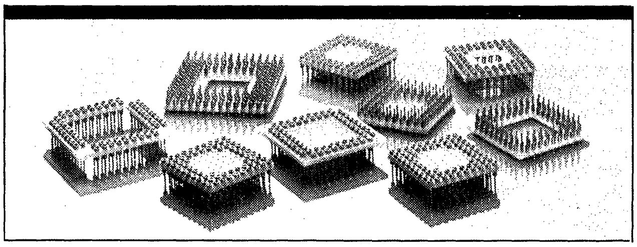
SERIES SB/WB
Slotted Pin Adapter
(WITH FLAT) SOLDER TAIL/WIRE WRAP TAIL

SERIES SA/WA
Slotted Pin Adapter
SOLDER TAIL/WIRE WRAP TAIL

PRECICONTACT, INC., 835 WHEELER WAY, P.O. BOX 798, LANGHORNE, PA 19047. 215-757-1202. TELEX: 83-4253.

Precicontact, inc.

PIN GRID ARRAY SOCKETS



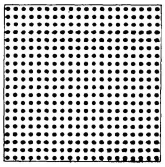
FEATURES:

Select from a large variety of configurations. Solder or wire-wrap tail styles. Special grid design upon request. Tapered entry design of contact assembly insures low component insertion and withdrawal forces.

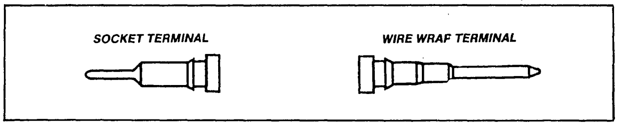
MATERIALS:

Insulator—Glass epoxy, .062 thick.
Machined socket terminals: See General Notes*

OVER 80 DESIGNS
FROM 12 TO 400 PINS

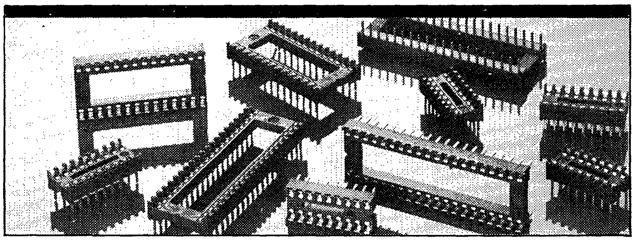


X-2020-400
400 PIN
2.000 SQ.



SERIES LSO

LOW PROFILE DIP SOCKETS
(STAMPED AND FORMED CONTACTS)



FEATURES:

Dual side wipe contacts for high reliability and constant low contact resistance.

Stackable end-to-end and side-to-side for high board density.

6 thru 40 positions.

Large target area, with tapered lead-in ramps, for easy DIP insertion.

Very Low Cost.

Housing standoffs and open frame design facilitate board cleaning.

Continuous operating temperature range −55° to 125°C.

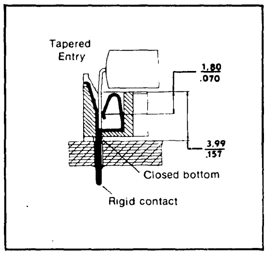
Rigid contact-terminals for easy PC-Board mounting.

MATERIALS:

Insulator—See General Notes*

Contact:
Phos. Bronze, tin-lead plating. Beryllium Copper also available

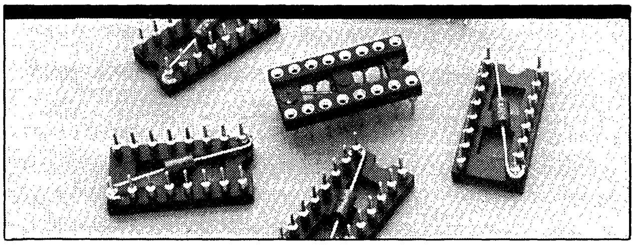
PLATINGS:
Tin
Selective Gold also available



SERIES USCAC/UWCAC

Hush Socket™

OPEN FRAME LOW PROFILE SOCKET



FEATURES:

Free-standing spring contacts provide excellent convection cooling. Provides filtering capability in the same space as a conventional socket.

Reduces need for external capacitors and reduces PC board real estate.

High reliability and performance at a low installed cost.

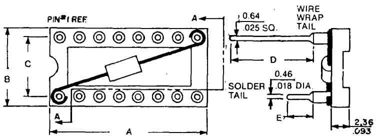
Available in solder tail and wire-wrap configurations with various tail lengths.

MATERIALS:

Insulator—See General Notes*
Machined socket terminals: See General Notes*
Capacitors—Monolythic ceramic capacitors, X7R formulation, well-suited for decoupling & filtering

SPECIFICATIONS:

Available capacitance in MFD.'s as follows:
.01, .015, .022, .047, .1
Capacitor tolerance—±10%
Working voltage—50VDC
Temperature rating −55°C to +125°C (−67°F to +257°F)

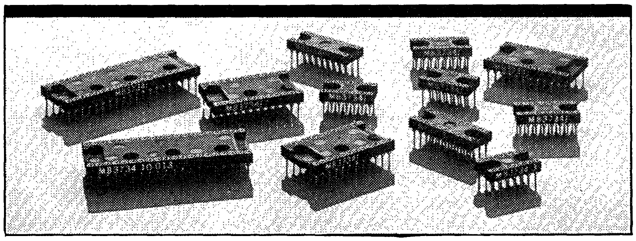


Consult factory for special applications.

SERIES SO-M

Military Approved Socket Assemblies

MIL-S-83734



FEATURES:

High reliability and performance at a low cost. Accommodates 6 thru 40 flat lead DIP IC's or 0,41/.016 to 0,51/.021 diameter round leads maintaining high retention.

Continuous grid spacing for maximum use of PC board real estate.

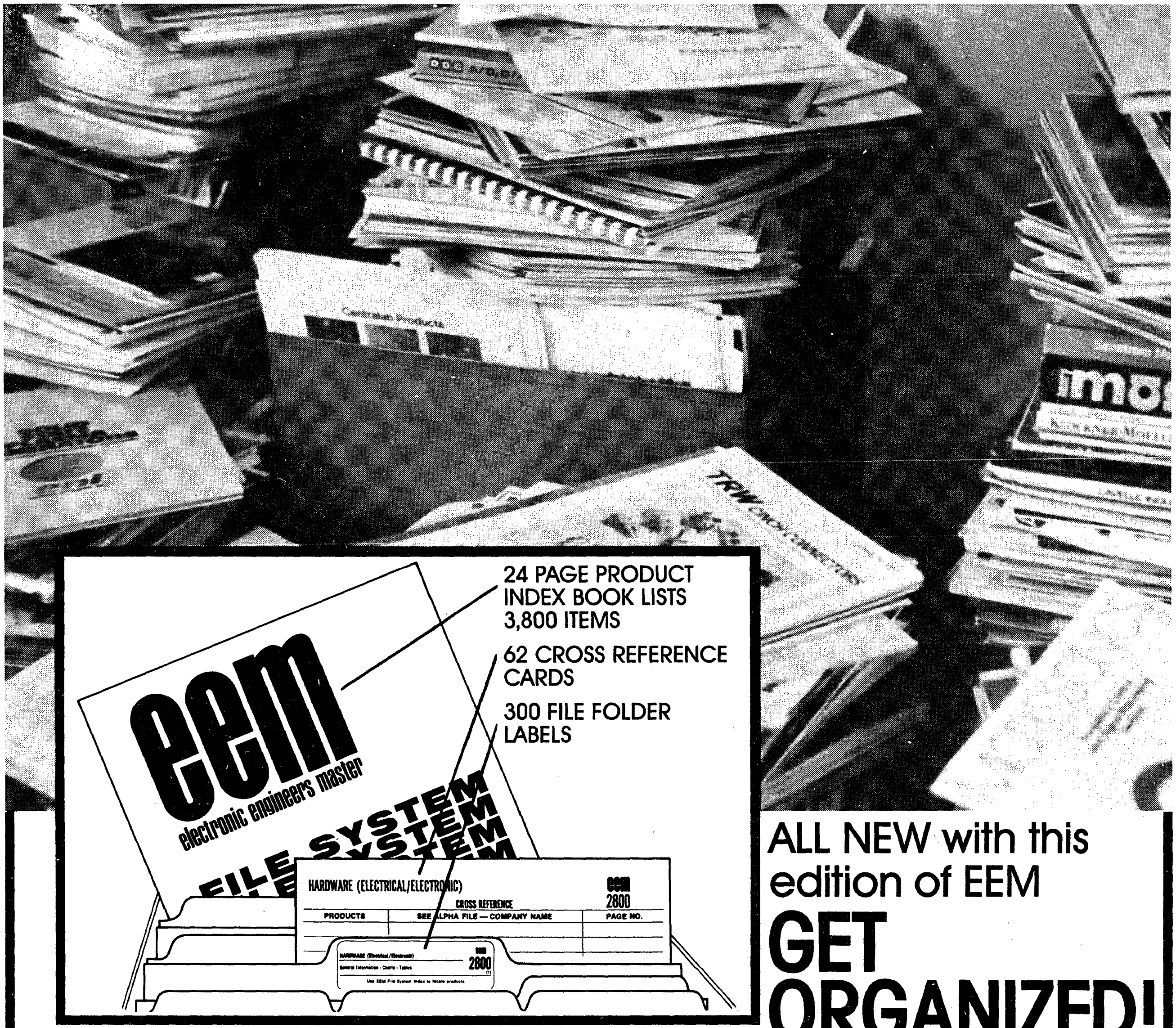
MATERIALS:

Insulator—See General Notes*
Machined socket terminals: See General Notes*

GENERAL NOTES ABOUT PRECICONTACT SOCKETS

Low profile Precicontact sockets are designed to meet MIL-S-83734. All socket assemblies (except Series LSO) feature four-leaf inner contact springs assembled into closed-entry, machined sockets that accept short IC leads. Inner contacts are BeCu, gold over nickel per MIL-S-45204; outer sleeves are brass, gold-over-nickel, or tin-plated. Standard insulator material is thermoplastic polyester, UL-rated 94V-O, except where noted. Contact design eliminates solder or flux wicking problems.

PRECICONTACT, INC., 835 WHEELER WAY, P.O. BOX 798, LANGHORNE, PA 19047. 215-757-1202. TELEX: 83-4253.


24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
62 CROSS REFERENCE CARDS
300 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
2800
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.

ALL NEW with this edition of EEM

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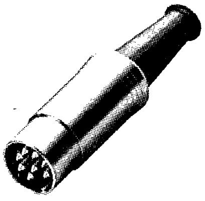
645 stewart ave., garden city, ny 11530

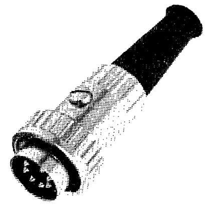
PREH ELECTRONIC INDUSTRIES, INC.
5665 WEST HOWARD ST., NILES, IL 60648
(312) 647-8338 TELEX: 297112 PEIUR.

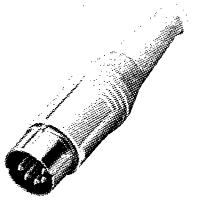
DIN CIRCULAR CONNECTORS

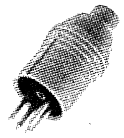
Preh circular DIN connectors are rugged, miniaturized connectors designed to provide reliable interconnections to peripheral equipment, test and measurement instrumentation, medical equipment, control devices, etc. Originally designed for audio applications they range from 3 to 8 contacts per connector at operating power up to 3A/34V. Preh connectors are available in nickel plated die cast Zinc alloy bodies for applications requiring durability and also in plastic bodies where durability is not a problem. Insert material is molded phenolic. Female "tuning fork" type contacts are silver plated while male pins are tinned. Connectors and contacts can be custom plated to customer specification.

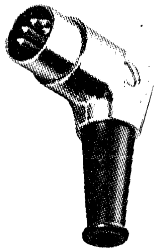
PLUGS

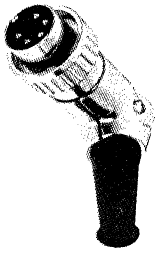

CORD PLUG
Extended Barrel
Series 71408
For cable-to-cable or cable-to-panel applicatons not requiring "locking" type connection.


CORD PLUG
Locking
Series 71430
Cable-to-cable or cable-to-panel termination with 30° locking ring. Heavy duty cable clamp with flexible black cable sleeve.

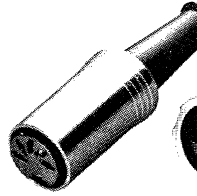

CORD PLUG
Cable & Sleeve
Series 71428
Economical connector for applications not requiring the metal bodies. Standard color is gray with gray cable sleeve.

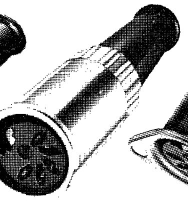

CORD PLUG
Plastic Shell
No Sleeve
Series 71414
Useful in limited access applications. Standard color is gray with gray cable sleeve.

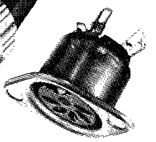

RIGHT ANGLE
8 Position Barrel
Series 71432
Right angle configuration for limited space applications. Barrel can be set for 8 cable approach angles.

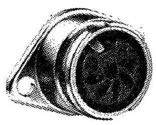

RIGHT ANGLE
8 Position Barrel
Locking
Series 71434
Right angle design 8 position barrel and locking ring. Polarized body and grounding contact insure proper connection.

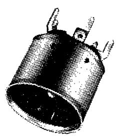
RECEPTACLES

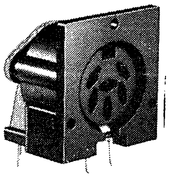

CORD RECEPTACLE
Series 71502
For normal cable-to-cable or cable-panel applications. Nickel plated, die cast metal shell with flexible black cable sleeve.

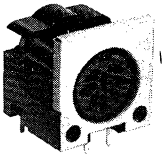

CORD RECEPTACLE
Locking
Series 71506
Mates with males equipped with 30° locking rings. Die cast body with nickel plated finish.

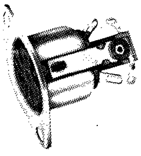

PANEL MOUNT
Series 71200
Receptacle designed to mate with males having shielded or extended bodies. Drawn metal recessed shell includes grounding contact.


PANEL MOUNT
Locking
Series 71206
Extended die cast shell has locking flange for males with 30° locking rings. Automatic grounding protects equipment.

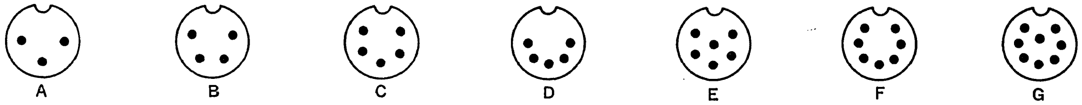

BOARD MOUNT
Series 71204
Direct mounting to PC boards. Drawn metal shell automatically grounds to protect equipment.


BOARD MOUNT
Series 71222
Mounts directly to PC board, mating plugs connect at 90° to board surface. Black plastic body with grounding contact.


BOARD MOUNT
EMI/RFI
Shielded
Series 71222
Metal flange on face is used as a common ground between mated connectors to board and chassis. Provides 360° shielding.


PANEL MOUNT
Disconnect
Contact
Series 71210
Shell carries an insulated "disconnect" contact that is activated by the mating plug.

PIN AND CONTACT CONFIGURATIONS



PLUGS

PIN ARRANGEMENT	Straight Cord Series 71408	Straight Cord Locking Series 71430	Straight Cord Plastic Shell Series 71428	Cord Plug Plastic Shell Series 71414	Right Angle Series 71432	Right Angle Locking Series 71434		
A - 3 Pins at 180°	71408-030	71430-030	71428-030	71414-030	71432-030	71434-030		
B - 4 Pins at 210°	71408-040	71430-040	71428-040	71414-040	71432-040	71434-040		
C - 5 Pins at 240°	71408-250	71430-250	71428-250	71414-250	71432-250	71434-250		
D - 5 Pins at 180°	71408-050	71430-050	71428-050	71414-050	71432-050	71434-050		
E - 6 Pins at 240°	71408-060	—	71428-060	71414-060	71432-060	—		
F - 7 Pins at 270°	71408-070	71430-070	71428-070	—	71432-070	—		
G - 8 Pins at 270°	71408-080	71430-080	71428-080	—	71432-080	—		

RECEPTACLES

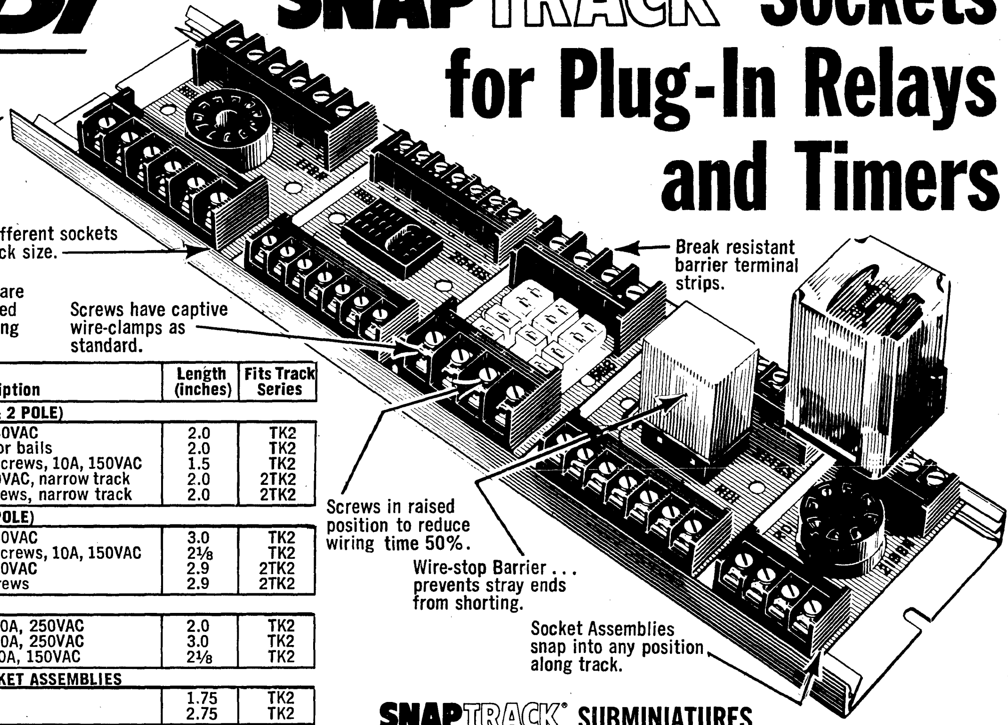
PIN ARRANGEMENT	Straight Cord Series 71502	Straight Cord Locking Series 71506	Panel Mt. Recessed Series 71200	Panel Mt. Locking Series 71206	PC Mt. Series 71204	90° PC Mt. Series 71222	90° PC — Shielded Series 71222	Disconnect Series 71210
A - 3 Pins at 180°	71502-030	71506-030	71200-030	71206-030	71204-030	71222-030	71222-034	71210-030
B - 4 Pins at 210°	71502-040	71506-040	71200-040	71206-040	71204-040	71222-040	71222-041	71210-040
C - 5 Pins at 240°	71502-250	71506-250	71200-150	71206-050	71204-051	71222-059	71222-153	71210-050
D - 5 Pins at 180°	71502-050	71506-050	71200-050	71206-051	71204-050	71222-054	71222-152	—
E - 6 Pins at 240°	71502-060	—	71200-060	—	71204-060	71222-061	71222-064	—
F - 7 Pins at 270°	71502-070	71506-070	71200-070	71206-070	71204-070	71222-070	71222-071	71210-070
G - 8 Pins at 270°	71502-080	71506-080	71200-080	71206-080	71204-080	71222-081	71222-084	—

PEI is a wholly owned subsidiary of Preh Elektrofeinmechanische Werke, Bad Neustadt a/d Saale, West Germany with offices and plants in Germany, Austria, Portugal, and Singapore.

AUGAT® RDI®

Quality and Innovation

SNAPTRACK® Sockets for Plug-In Relays and Timers



PVC non-conductive track up to 48″ long. Mounts quickly.

Over 50 different sockets fit one track size.

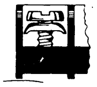
Screws have captive wire-clamps as standard.

Break resistant barrier terminal strips.

Screws in raised position to reduce wiring time 50%.

Wire-stop Barrier . . . prevents stray ends from shorting.

Socket Assemblies snap into any position along track.



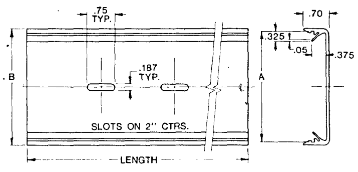
All SNAPTRACK assemblies are shipped with screws in raised position which reduces wiring time as much as 50%.

RDI Cat. No.	Description	Length (inches)	Fits Track Series
OCTAL (8 PIN) SOCKET ASSEMBLIES (1 & 2 POLE)			
608BR	#8 Screws, 10A, 250VAC	2.0	TK2
208BR	#4 Screws, holes for bails	2.0	TK2
218BR	Space Saver — #4 Screws, 10A, 150VAC	1.5	TK2
708BR	#6 Screws, 10A, 250VAC, narrow track	2.0	2TK2
708BRA	#6 Binder Head Screws, narrow track	2.0	2TK2
11 PIN ROUND SOCKET ASSEMBLIES (3 POLE)			
611BR	#8 Screws, 10A, 250VAC	3.0	TK2
211BR	Space Saver — #4 Screws, 10A, 150VAC	2⅛	TK2
711BR	#6 Screws, 10A, 250VAC	2.9	2TK2
711BRA	#6 Binder Head Screws	2.9	2TK2
SQUARE BASE SOCKETS (2, 3 & 4 POLE)			
608BS	2PDT, #8 Screws, 10A, 250VAC	2.0	TK2
611BS	3PDT, #8 Screws, 10A, 250VAC	3.0	TK2
211BS	3PDT, #4 Screws, 10A, 150VAC	2⅛	TK2
10 AMP/250VAC RATED MINIATURE SOCKET ASSEMBLIES			
622BS	2PDT, #6 Screws	1.75	TK2
624BS	4PDT, #6 Screws	2.75	TK2
MINIATURE RELAY SOCKET ASSEMBLIES, 5A, 150VAC			
214BS	4PDT, #4 Screws	2.5	TK2
814BS	4PDT, #3 Screws, mini track	2¼	8TK2
SUB-MINIATURE RELAY SOCKET ASSEMBLIES, 5A, 150VAC			
202BS	2PDT, #4 Screws	1.5	TK2
802BS	2PDT, #3 Screws, mini track	2.0	8TK2
204BS	4PDT, #4 Screws	2.5	TK2
804BS	4PDT, #3 Screws, mini track	2.25	8TK2
206BS	6PDT, #4 Screws	3.75	TK2
806BS	6PDT, #3 Screws, mini track	3.0	8TK2
SPECIALTY SOCKET, FUSE AND TERMINAL BLOCK ASSEMBLIES			
220BR	20 Pin Round, #4 Screws, latch	3.5	TK2
BT6	Double Terminal Block, 6 #8 Screws	3.0	TK2
2BT8	Double Terminal Block, 8 #4 Screws	2.38	TK2
6BF-2	2 sets 3AG Fuse clips, #6 Screws	1.2	TK2
6BF-3	3 sets 3AG Fuse clips, #6 Screws	1.75	TK2
816DP	16 pin DIP socket, #3 Screws	2.25	8TK2
820FC	20 pin flat cable connector, w/o strain relief, #3 Screws	2.75	8TK2
820FCB	Same but with strain relief	2.75	8TK2

Order SNAPTRACK® mounting track separately. See below.

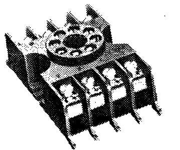
SNAPTRACK® MOUNTING CHANNEL

Nominal P.C.B. Width Dim. A (Inches)	Overall Track Width Dim. B (Inches)	RDI Cat. No. (48″ lg.)
2.187	2.30	8TK2-48
2.75	2.90	2TK2-48
3.00	3.16	TK2-48
3.25	3.40	3TK2-48
4.00	4.15	6TK2-48
Split-Apart		4TK2-48

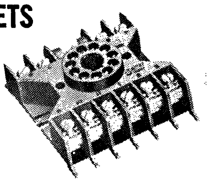


To specify lengths of 6, 12, or 24 inches, substitute 6, 8, 12 or 24 in place of "48". Example: TK2-24 is 24 inches long. Custom cutting available. Contact factory.

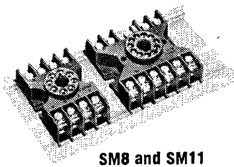
SM SERIES SOCKETS



Cat. No. SM8 Octal (DPDT) socket assembly



Cat. No. SM11, 11-pin (3PDT) socket assembly

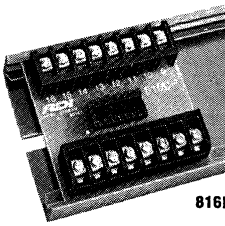


SM8 and SM11 in a 2TK2 Series SNAPTRACK™ mounting channel

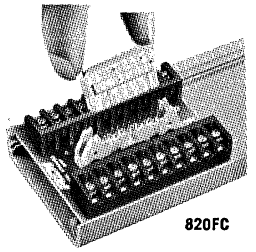
MOLDED SOCKET ASSEMBLIES

SM8-001	Octal, #6 Binder Head Screws	1.63	2TK2
SM8	Octal, #6 Wireclamp Screws	1.63	2TK2
SM11-001	11 Pin, #6 Binder Head Screws	2.34	2TK2
SM11	11 Pin, #6 Wireclamp Screws	2.34	2TK2

SNAPTRACK® SUBMINIATURES

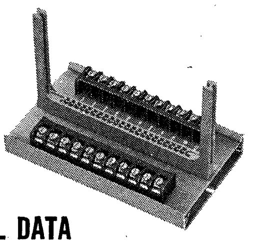


816DP



820FC

SNAPTRACK® EDGE CONNECTOR PANEL MOUNTING SYSTEMS



822PCB

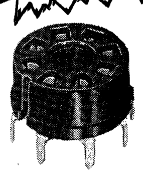
ORDERING AND DIMENSIONAL DATA

Number Pins Out	RDI Catalog Number	Dimensions (Inches)				Fits SNAPTRACK Series
		A P.C. Card Width	B Overall Length	C Overall Height	D Track Width	
22	22PCB	4.5	5	3$\frac{9}{16}$	3.16	TK
22	822PCB	4.5	5	3$\frac{9}{16}$	2.30	8TK
22	822PC	3.58	4½	3$\frac{9}{16}$	2.30	8TK
22	22PC	3.58	4½	3⅛	3.16	TK
44	44PCA	4.5	7½	3$\frac{9}{16}$	3.16	TK
44	44PCB	4.5	7½	3$\frac{9}{16}$	3.16	TK

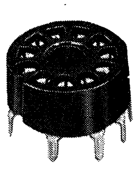
Now Featuring Phosphor Bronze Contacts Standard

SOCKETS FOR P.C. BOARDS

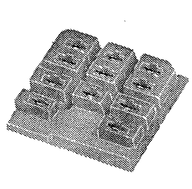
8R & 11R are molded of polyester, 8S and 11S are nylon.



8-pin (Octal)



11-pin Round



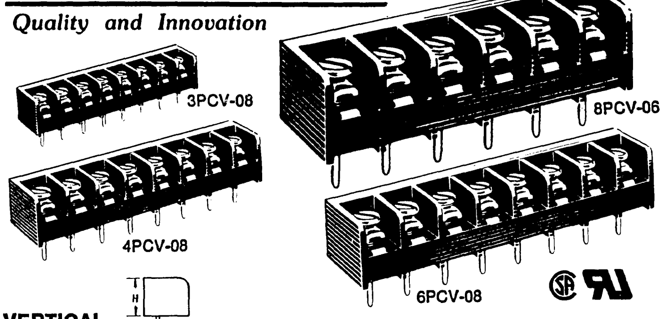
8S - 2PDT Relays
11S - 3PDT Relays

RDI/Reed Devices Inc. a subsidiary of AUGAT
525 Randy Road, Carol Stream, Illinois 60188 • Phone 312/682-4100 • TWX: 910-252-2118

Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

AUGAT® RDI®

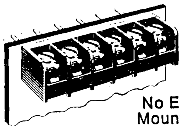
Quality and Innovation


3PCV-08
8PCV-06
4PCV-08
6PCV-08

Tri-Barrier Terminal Blocks for PCB's

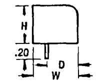
RESILIENT THERMOPLASTIC

- Back Barrier safeguards components from field wiring, stops shorting of adjacent wires.
- Wire-clamping plate screws secure 2 different gauge wires without wire lugs.
- Stand offs allow cleaning flux from top side of pcb.
- Screws in wire-ready raised position.
- UL grade (94V-0) polypropylene.



No Extra Mounting Required

VERTICAL MOUNT



3PCV .250″ C-C, H = .50″, W = .55″ 5 AMPS, 150 V.

4PCV .325″ C-C, H = .50″, W = .60″ 15 AMPS, 150V.

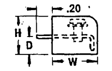
6PCV .375″ C-C, H = .60″, W = .70″ 20 AMPS, 300V.

8PCV .4375″ C-C, H = .70″, W = .80″ 25 AMPS, 300V.

RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)
3PCV-04	1.07	4PCV-04	1.38	6PCV-02	.83	8PCV-02	.95
3PCV-05	1.32	4PCV-05	1.71	6PCV-03	1.21	8PCV-03	1.38
3PCV-06	1.57	4PCV-06	2.03	6PCV-04	1.58	8PCV-04	1.82
3PCV-07	1.82	4PCV-07	2.36	6PCV-05	1.96	8PCV-05	2.26
3PCV-08	2.07	4PCV-08	2.68	6PCV-06	2.33	8PCV-06	2.70
3PCV-09	2.32	4PCV-09	3.01	6PCV-07	2.71	8PCV-07	3.13
3PCV-10	2.57	4PCV-10	3.33	6PCV-08	3.08	8PCV-08	3.57
				6PCV-09	3.46	8PCV-09	4.01
				6PCV-10	3.83	8PCV-10	4.45

Available to 32 positions — Available to 30 positions — Available to 28 positions — Available to 26 positions

RIGHT ANGLE MOUNT



3PCR .250″ C-C, H = 50″, W = .55″, D = .23″ 5 AMPS, 150V.

4PCR .325″ C-C, H = .50″, W = .60″, D = .23″ 15 AMPS, 150V.

6PCR .375″ C-C, H = .60″, W = 70″, D = .27″ 20 AMPS, 300V.

8PCR .4375″ C-C, H = .70″ W = .80″, D = .32″ 25 AMPS, 300V.

RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)
3PCR-02	.57	4PCR-02	.73	6PCR-02	.83	8PCR-02	.95
3PCR-03	.82	4PCR-03	1.06	6PCR-03	1.21	8PCR-03	1.38
3PCR-04	1.07	4PCR-04	1.38	6PCR-04	1.58	8PCR-04	1.82
3PCR-05	1.32	4PCR-05	1.71	6PCR-05	1.96	8PCR-05	2.26
3PCR-06	1.57	4PCR-06	2.03	6PCR-06	2.33	8PCR-06	2.70
3PCR-07	1.82	4PCR-07	2.36	6PCR-07	2.71	8PCR-07	3.13
3PCR-08	2.07	4PCR-08	2.68	6PCR-08	3.08	8PCR-08	3.57
3PCR-09	2.32	4PCR-09	3.01	6PCR-09	3.46	8PCR-09	4.01
3PCR-10	2.57	4PCR-10	3.33	6PCR-10	3.83	8PCR-10	4.45

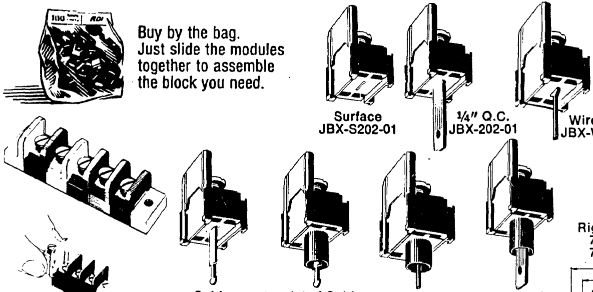
Available to 32 positions — Available to 30 positions — Available to 28 positions — Available to 26 positions

All also available with solder-turret & wire-wrap terminals & surface mount.

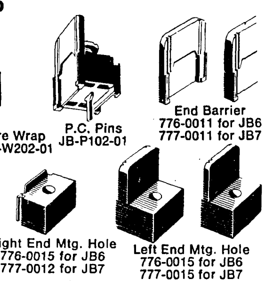
RDI JELLY BEANS®

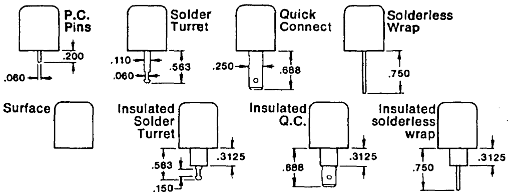
BULK-PAK, READ TO ASSEMBLE — factory assembled, too

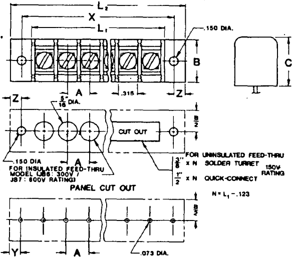
COLOR CODE IN 9 COLORS


100 RDI
Surface
JBX-S202-01
¼″ Q.C.
JBX-202-01
Wire Wrap
JBX-W202-01
Solder
JBX-T202-01
Insulated Solder
JBX-T302-01
Insulated
Wire Wrap
JBX-W302-01
Insulated Q.C.
JB-Q302-01

Buy by the bag.
Just slide the modules
together to assemble
the block you need.


P.C. Pins
JB-P102-01
End Barrier
776-0011 for JB6
777-0011 for JB7
Right End Mtg. Hole
776-0015 for JB6
777-0012 for JB7
Left End Mtg. Hole
776-0015 for JB6
777-0015 for JB7


P.C. Pins
.200
.060
Solder Turret
.110
.060
.563
Quick Connect
.250
.688
Solderless Wrap
.750
Surface
Insulated Solder Turret
.563
.150
.3125
Insulated Q.C.
.688
.3125
Insulated solderless wrap
.750
.3125


L₂
X
L₁
.150 DIA.
B
C
A
.315
Z
5/16 DIA.
B/2
CUT OUT
.150 DIA
FOR INSULATED FEED-THRU MODEL JB6: 300V / JB7: 600V RATING
FOR UNINSULATED FEED-THRU
3/8″ x N SOLDER TURRET
1/2″ x N QUICK-CONNECT
150V RATING
N = L₁ − .123
PANEL CUT OUT
Y
.073 DIA.

Terminal Block Series	A Center-to-Center Spacing	B Width	C Height	L_1 Overall Length	L_2 Overall Length With Mtg. Foot	X Centers End Mounting Holes	Y	Z
JB6	.375	.625	.750	.375(N)+.095	.375(N)+.690	.375(N+1)	.218	.157
JB7	.4375	.700	.800	.4375(N)+.150	.4375(N)+.818	.4375(N+1)	.281	.187

100 module Bulk Pack includes 10 ends

Terminal Configuration	Spacing ⅜ in. C-C	Spacing 7⁄16 in. C-C
Printed circuit pins*	JB6-P102-01	JB7-P102-01
Solder-turret†	JB6-T202-01	JB7-T202-01
Insulated solder-turret†	JB6-T302-01	JB7-T302-01
Quick-connect†	JB6-Q202-01	JB7-Q202-01
Insulated quick-connect†	JB6-Q302-01	JB7-Q302-01
Solderless wrap†	JB6-W202-01	JB7-W202-01
Insulated solderless wrap†	JB6-W302-01	JB7-W302-01
Surface mount†	JB6-S202-01	JB7-S202-01
Extra end barriers pak of 25	776-0011	777-0011
Extra right end mounting hole, pak of 25	776-0012	777-0012
Extra left end mounting hole, pak of 25	776-0015	777-0015

* Including 10 end barriers
† Including 10 left and right end mounting holes.

To order colors, add following code to Cat. No. 1 White (natural), 2 Red, 3 Blue, 4 Green, 5 Orange, 6 Yellow, 7 Purple, 8 Brown. Black, standard no code. Ex.: JB6-102-01 is black JB6-102-01-2 is red.

SPECIFICATIONS

BARRIER MATERIAL: Flame Retardant Nyon, U.L. 94V-0 flammability, working temperature of 105°C, black color standard. Colors on special order.

TERMINALS: Bright acid-tin plated brass.

SCREWS: Cadmium plated 6-32 steel undercut binderhead. Brass and screws with wire clamp plates available on special order.

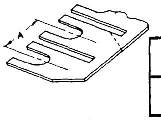
RATING: JB6 Series: 20 Amperes, 300 Volts.
JB7 Series: 20 Amperes, 600 Volts.

WIRE RANGE: 12-22 AWG.

APPROVALS: UL recognized File No. E54800. Guide XCFR2. CSA certified, File No. LR30811, Guide 184-N-90.

ACCESSORIES FOR ALL JB SERIES BLOCKS

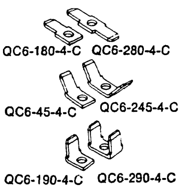
JUMPERS



To Fit Series	"A" (Inches)	Catalog No. 2 positions
JB6	⅜	J6-2
JB7	7⁄16	J7-2

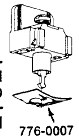
TOP HARDWARE

3⁄16″ and ¼″ Quick connect tabs available in bulk and installed. Shown are Cat. Nos. for bulk (100 pcs), ¼″ tab.

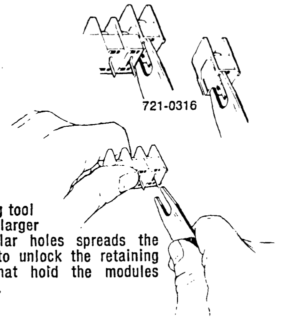

QC6-180-4-C
QC6-280-4-C
QC6-45-4-C
QC6-245-4-C
QC6-190-4-C
QC6-290-4-C

RETAINING CLIPS

Spring metal retaining clips fit around insulating barrel to mount blocks to panels without the need for mounting holes.



TAKE APART TOOL



Inserting tool into the larger rectangular holes spreads the plastic to unlock the retaining barbs that hold the modules together.

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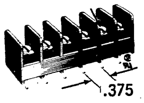
AUGAT® RDI

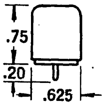
Quality and Innovation

Terminal Blocks for PCB's

JC6 SERIES



Insulated feed thrus with solder, wire-wrap and quick connect terminals also available.



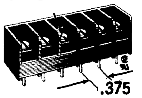
CENTERLINE TERMINALS

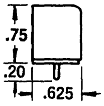
JC6 SERIES 20 AMPS, 300V

Catalog Number	Length (Inches)
JC6-P102-02	.81
JC6-P102-03	1.19
JC6-P102-04	1.56
JC6-P102-05	1.94
JC6-P102-06	2.31
JC6-P102-07	2.69
JC6-P102-08	3.06
JC6-P102-09	3.44
JC6-P102-10	3.81

Available to 28 positions

BC6 SERIES





- Directly interchangeable with conventional blocks
- Wire clamp screws, standard
- Resilient barriers
- Integral standoffs for easy flux removal
- Full range of terminal styles
- Avalable 2 thru 28 positions
- Available offset terminal

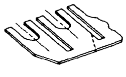
TRI-BARRIER-CENTERLINE

TERMINALS
BC6 SERIES 20 AMPS, 300V

Catalog Number	Length (Inches)
BC6-P104-02	.81
BC6-P104-03	1.19
BC6-P104-04	1.56
BC6-P104-05	1.94
BC6-P104-06	2.31
BC6-P104-07	2.69
BC6-P104-08	3.06
BC6-P104-09	3.44
BC6-P104-10	3.81

Available to 28 positions

JUMPERS



J6 Series Jumper

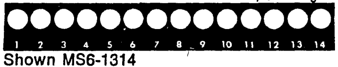
For connecting adjacent terminals. Available in two thru nine positions. To order: Catalog Number J6-2 is a two position jumper, J6-3 is three positions, and so on.

MARKER STRIPS

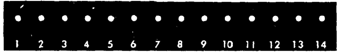
Alternate to hot stamping for terminal identification. U.L. grade vinyl with silk screened epoxy ink.

Catalog Number Code
MS6 — 1314

Pin Spacing	Print Style		No. Position
6 .375	0. No Printing	1. PC Pin, no end mtg	02 = 2
	1. Bot. Forward	2. PC Pin, end mtg	03 = 3
	2. Top Forward	3. Insul., no end mtg	10 = 10
	3. Bot. Reverse	4. Insul., end mtg	
	4. Top Reverse	5. Surface, end mtg	



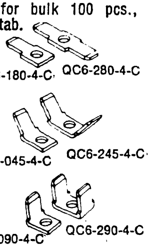
Shown MS6-1314



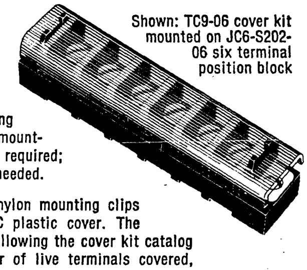
Shown: MS6-1114

TOP HARDWARE

Quick connect tabs available in single and double tab, 3/16" and 1/4" wide. Cat. Nos. shown are for bulk 100 pcs., 1/4" tab.



COVER KITS



Shown: TC9-06 cover kit mounted on JC6-S202-06 six terminal position block

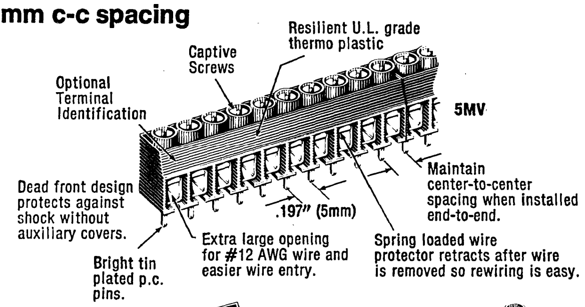
Used to protect against accidental shorting of terminal screws. End mounting feet on the block are required; specify when feature is needed.

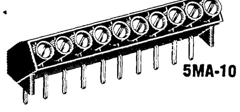
Cover kit includes two nylon mounting clips and the translucent PVC plastic cover. The two digit dash number following the cover kit catalog number specifies number of live terminals covered, not total number of plastic positions. Order TC9-XX for JC6 series, TC2-XX for BC6 series.

Example: TC9-04 specifies a cover kit for a terminal block with end mounting holes. Would fit JC6-P2022-04 block.

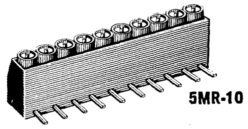
Subminiature Blocks

5mm c-c spacing


Resilient U.L. grade thermo plastic
Captive Screws
Optional Terminal Identification
5MV
Maintain center-to-center spacing when installed end-to-end.
Dead front design protects against shock without auxiliary covers.
.197" (5mm)
Extra large opening for #12 AWG wire and easier wire entry.
Spring loaded wire protector retracts after wire is removed so rewiring is easy.
Bright tin plated p.c. pins.



5MA-10



5MR-10

No. of Terminals	L - Length		Catalog Number		
	(inches)	(mm)	Standard	45° Angle	Right Angle
2	.394	10	5MV-02	5MA-02	5MR-02
3	.591	15	5MV-03	5MA-03	5MR-03
4	.787	20	5MV-04	5MA-04	5MR-04
5	.984	25	5MV-05	5MA-05	5MR-05
6	1.181	30	5MV-06	5MA-06	5MR-06
7	1.378	35	5MV-07	—	5MR-07
8	1.575	40	5MV-08	5MA-08	5MR-08
9	1.773	45	5MV-09	—	5MR-09
10	1.969	50	5MV-10	5MA-10	5MR-10
12	2.362	60	5MV-12	5MA-12	5MR-12
13	2.561	65	5MV-13	—	5MR-13
15	2.955	75	5MV-15	—	5MR-15
18	3.543	90	5MV-18	5MA-18	5MR-18
20	3.937	100	5MV-20	5MA-20	5MR-20
22	4.331	110	5MV-22	5MA-22	5MR-22
24	4.724	120	5MV-24	5MA-24	5MR-24

GENERAL SPECIFICATIONS

Rating: 15 Amperes, 250 Volts U.L., 10A, 300V. or 15A, 150V. CSA.

Air Gap: 4mm minimum

Breakdown Voltage: 3000 Volts, Minimum

Barrier Material: Polyamid 6/6, U.L. approved, UL 94V-0, flammability classification, 105°C, green.

Terminals: Box type with spring loaded wire protector, brass, bright-tin plated.

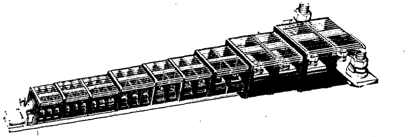
Screws: M2.5, steel, passivated zinc plated.

Wire Range: 12-22 AWG.

Approvals: Creepage and air distance designed to VDE 0110. U.L. recognized and CSA certification.

Power Blocks

rail mount, all fit one size, heavy duty track



@ 600V	Description	Cat. No.
15 amps	Block, 1.38w x 1.34h x .35Th	F-15
20 amps	Block, 1.38w x 1.44h x .41Th	F-20
35 amps	Block, 1.38w x 1.44h x .47Th	F-25
45 amps	Block, 1.77w x 1.61h x .61Th	F-35
60 amps	Block, 1.77w x 1.73h x .73Th	F-60
70 amps	Block, 1.89w x 1.87h x .83Th	F-80
125 amps	Block, 2.38w x 2.09h x 1.06Th	F-125
200 amps	Block, 2.95w x 2.36h x 1.77Th	F-200
300 amps	Block, 2.95w x 2.36h x 1.77Th	F-300
400 amps	Block, 3.54w x 2.76h x 2.28Th	F-400
600 amps	Block, 7.07w x 2.76h x 2.28Th	F-600

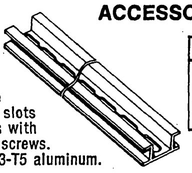
Models F-15 thru F-125 require one end barrier per group. Aluminum track 39.37" long is BLF-1000. Covers and marker strips available.

ACCESSORIES

MOUNTING RAIL

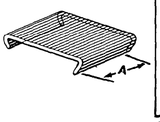
All blocks fit this one size rail.

Heavy duty gauge with pre-punched slots on .79 in. centers with clearance for #8 screws. Extruded of A6063-T5 aluminum.



Cat. No.	Length	Std. Pack
BLF-1000	1 Meter (39in.)	10
BLF-24	24 in.	10
BLF-12	12 in.	10
BLF-6	6 in.	10

PROTECTION COVERS

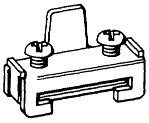


Cat. No.	For Series	"A" Dim.	Std. Pack
CF-15	F-15,-20, -25	1 meter[1]	10
CF-35	F-35 & -60	1 meter[1]	10
CF-80	F-80	1 meter[1]	10
CF-125	F-125	1 meter[1]	10
CF-200	F-200 & -300	width of block	10
CF-400	F-400 & -600	width of block	10

Clear Polycarbonate

[1] Cut to desired length.

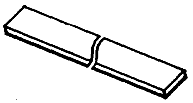
LOCKING BRACKET



Cat. No.	Std. Pack
FK-1	10

Two required per rail length.
Cold rolled steel, zinc dichromate plated.

MARKER STRIPS



Cat. No.	For Series	Std. Pack
NPF	F15,20, 25, 225 60, 80 and 125	10

White PVC, 0.8mm thick, .9 meter long. Marker strips are standard on F-200, -300, -400 and -600.

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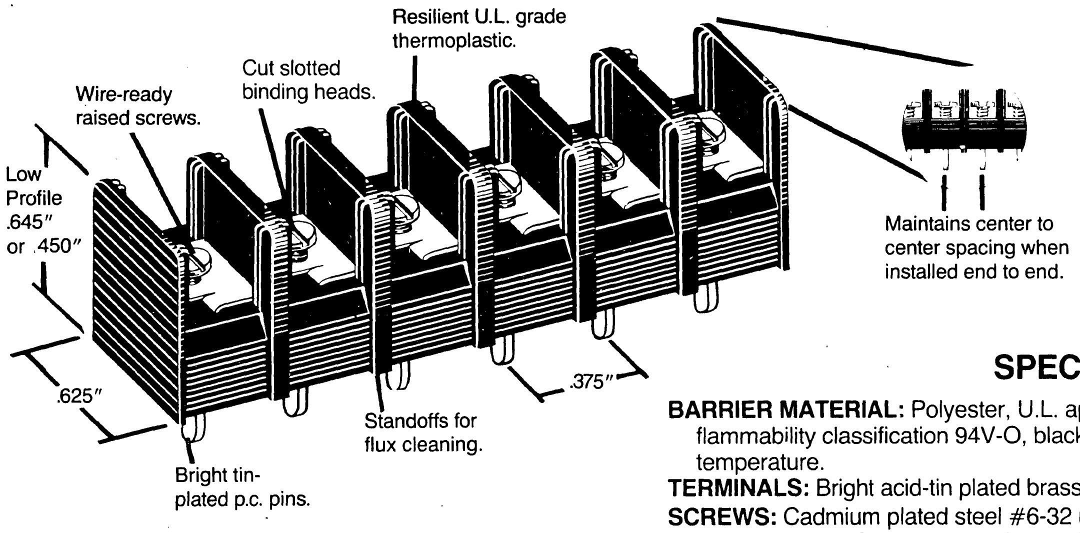
Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

AUGAT® **RDI**®

Quality and Innovation

Barrier Terminal Blocks Models LC6 and MC6


Resilient U.L. grade thermoplastic.
Cut slotted binding heads.
Wire-ready raised screws.
Low Profile .645″ or .450″
.625″
.375″
Standoffs for flux cleaning.
Bright tin-plated p.c. pins.
Maintains center to center spacing when installed end to end.

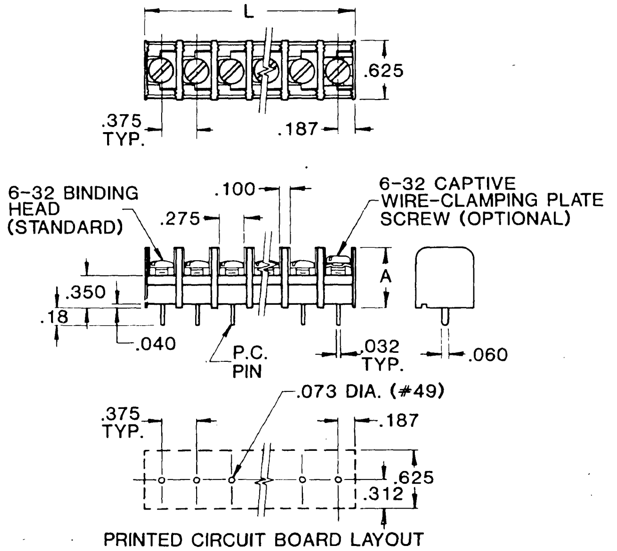
Choice of two low profile barriers:

.645 and .450 inches

GENERAL SPECIFICATIONS

BARRIER MATERIAL: Polyester, U.L. approved flammability classification 94V-O, black, 130°C operating temperature.
TERMINALS: Bright acid-tin plated brass.
SCREWS: Cadmium plated steel #6-32 under-cut binding head standard. Steel screws with captive wire-clamp washers. Brass screws available as an option.
RATING: LC6 Series: 20 Amperes, 300 Volts, U.L. & CSA. MC6 Series: 20 Amperes, 250 Volts, U.L. & CSA.
WIRE RANGE: 12-22 AWG.
APPROVALS: U.L. recognized, File No. E54800, Guide XCFR2. C.S.A. certified, File No. LR30811, Guide 184-N-90. VDE 0110 acceptable.

DIMENSIONS


L
.625
.375 TYP.
.187
6-32 BINDING HEAD (STANDARD)
.100
.275
6-32 CAPTIVE WIRE-CLAMPING PLATE SCREW (OPTIONAL)
A
.350
.18
.040
P.C. PIN
.032 TYP.
.060
.073 DIA. (#49)
.375 TYP.
.187
.625
.312
PRINTED CIRCUIT BOARD LAYOUT

	'A' DIM.
LC6 SERIES	.645
MC6 SERIES	.450

'L'= .375 x N

ORDERING INFORMATION

Number of Terminal Postions	All Positions Filled		
	L Length (inches)	300 Volt 20 Ampere Catalog No.	250 Volt 20 Ampere Catalog No.
2	.75	LC6-P102-02	MC6-P102-02
3	1.125	LC6-P102-03	MC6-P102-03
4	1.50	LC6-P102-04	MC6-P102-04
5	1.875	LC6-P102-05	MC6-P102-05
6	2.25	LC6-P102-06	MC6-P102-06
7	2.625	LC6-P102-07	MC6-P102-07
8	3.00	LC6-P102-08	MC6-P102-08
9	3.375	LC6-P102-09	MC6-P102-09
10	3.75	LC6-P102-10	MC6-P102-10
11	4.125	LC6-P102-11	MC6-P102-11
12	4.50	LC6-P102-12	MC6-P102-12
13	4.875	LC6-P102-13	MC6-P102-13
14	5.25	LC6-P102-14	MC6-P102-14
15	5.625	LC6-P102-15	MC6-P102-15
16	6.00	LC6-P102-16	MC6-P102-16
17	6.375	LC6-P102-17	MC6-P102-17
18	6.75	LC6-P102-18	MC6-P102-18
19	7.125	LC6-P102-19	MC6-P102-19
20	7.50	LC6-P102-20	MC6-P102-20
21	7.875	LC6-P102-21	MC6-P102-21
22	8.25	LC6-P102-22	MC6-P102-22
23	8.625	LC6-P102-23	MC6-P102-23
24	9.00	LC6-P102-24	MC6-P102-24
25	9.375	LC6-P102-25	MC6-P102-25
26	9.75	LC6-P102-26	MC6-P102-26
27	10.125	LC6-P102-27	MC6-P102-27
28	10.50	LC6-P102-28	MC6-P102-28

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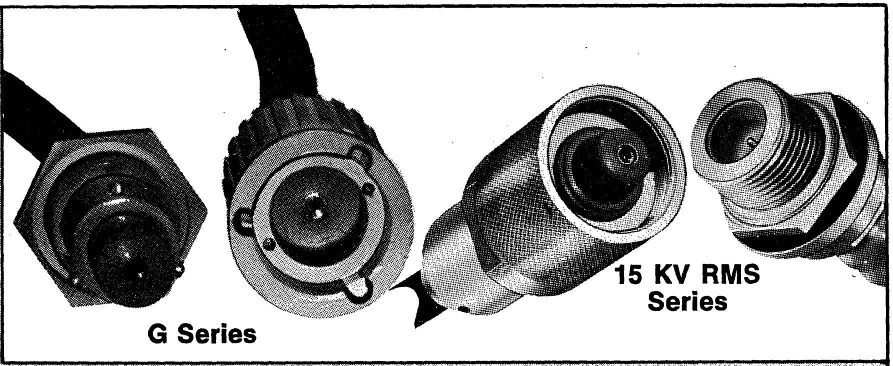
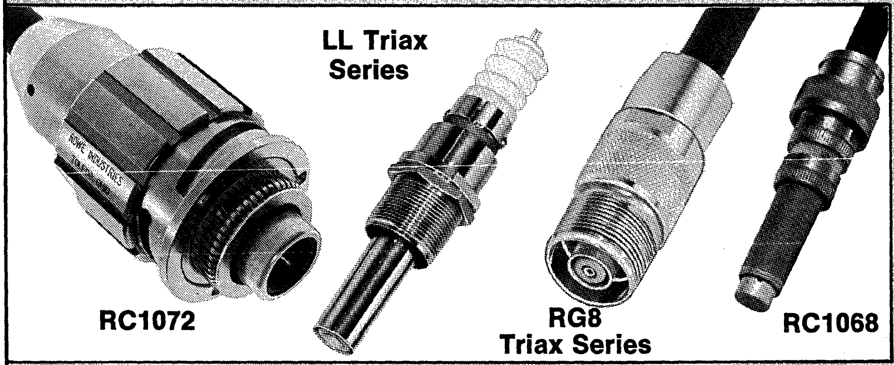
Rowe
Coaxial
Connectors and Cable Assemblies

Employ high-voltage, corona-free design techniques. They are ideal for use in pulse as well as DC voltage applications, through 150 KV. A wide variety of molded-on or field assembly types are offered. Available in quick disconnect or screw couplings.


G Series
15 KV RMS Series

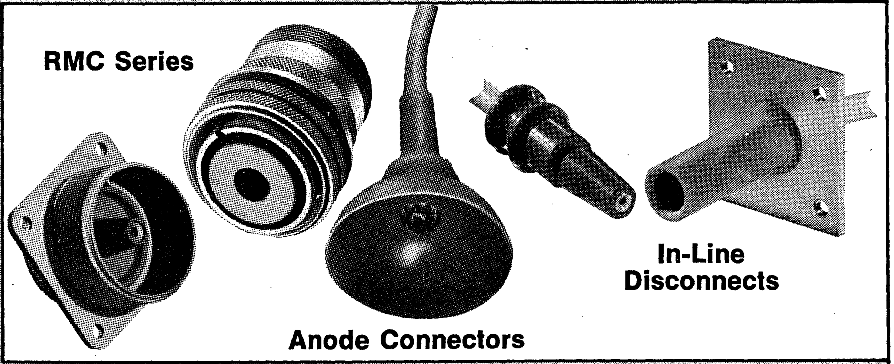

LL Triax Series
RC1072
RG8 Triax Series
RC1068

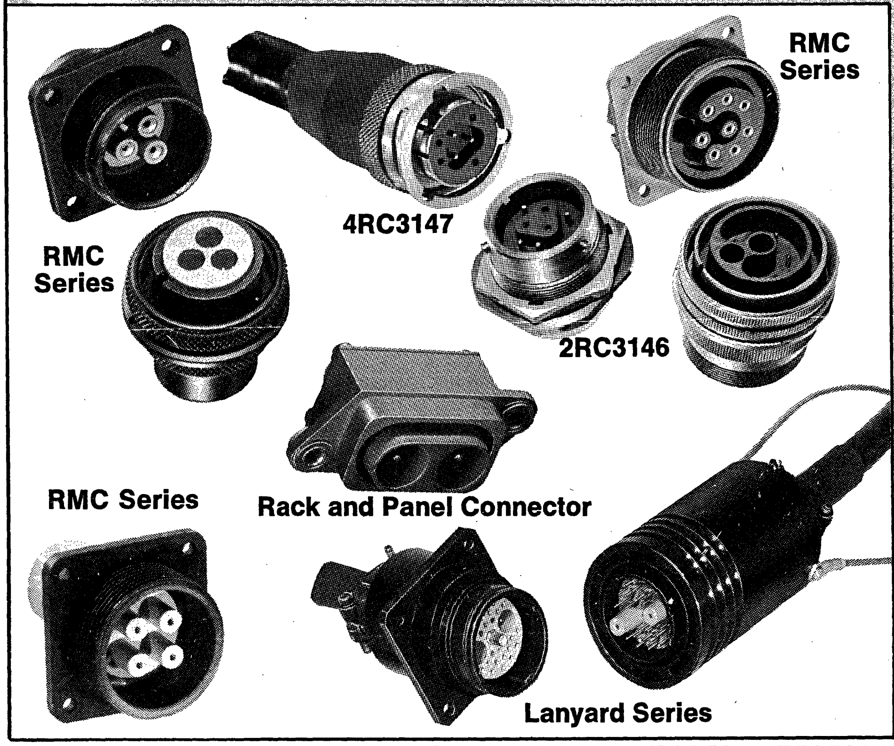
Rowe
Triaxial
Connectors and Cable Assemblies

A full spectrum of both molded-on and field assembly types are available for a wide variety of cable types such as the triaxial version of RG-8, up through and including specialized construction for operation in excess of 100 KV.

Rowe
Single Contact
Connectors and Cable Assemblies

Offered is an extensive listing of single contact high-voltage assemblies, which include anode connectors, in-line disconnects and others which are used unshielded to solve your simple high-voltage interconnection problems.


RMC Series
In-Line Disconnects
Anode Connectors


RMC Series
4RC3147
RMC Series
2RC3146
RMC Series
Rack and Panel Connector
Lanyard Series

Rowe
Multiple Contact
Connectors and Cable Assemblies

Offer contact arrangements from one to thirty contacts, panel receptacles, cable plugs, rack and panel combinations, in-line types and many others. Both field assemblies and molded-on types are standard in this line.

Rowe Industries has designed and developed over 700 specialized interconnections for which tooling is available.

World's Leader in High-Voltage

(through 200 KV)

Corona-Free

CONNECTORS and CABLE ASSEMBLIES

ROWE INDUSTRIES

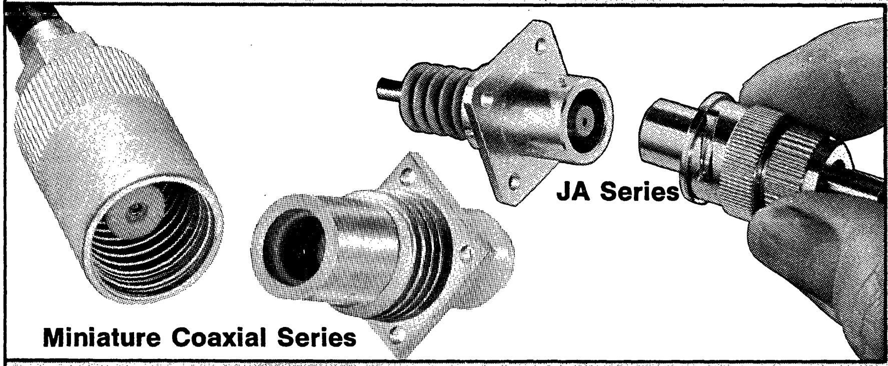
CONNECTORS • CABLE ASSEMBLIES • ELECTRONIC PRODUCTS

DEPT. 261 • 6225 BENORE ROAD • TOLEDO, OHIO 43612 • (419) 729-9761
WEST COAST OFFICE: (415) 969-4831 OR (213) 235-2070
EAST COAST OFFICE: (617) 273-3888

DESIGN — DEVELOPMENT — MANUFACTURING

For reliable high voltage and all temperature wire and cable, see Rowe's ad in the Wire/Cable/Harnesses Section.

FOR YOUR COMMERCIAL, INDUSTRIAL OR MILITARY DESIGN NEEDS

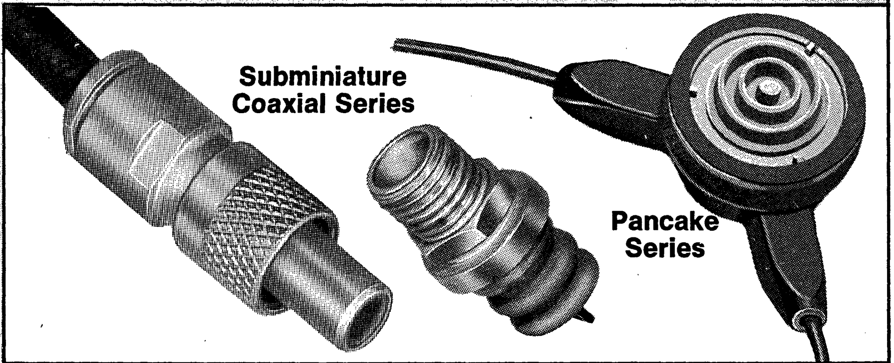


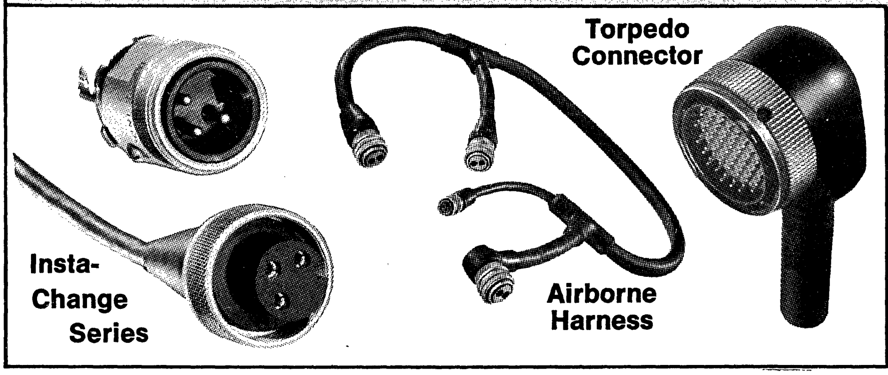
Rowe Miniature Coaxial Connectors and Cable Assemblies

Employ the same high-voltage design techniques as the coaxial series, but are much smaller in size for use in restricted spaces. Available in quick disconnect and screw couplings (the JA Series can be adapted to such standard type cables as RG 58 and RG 59).

Rowe Subminiature Coaxial Connectors and Cable Assemblies

Are ideally suited for use where space is at a premium. Employing the traditional Rowe high capability features, the subminiature sizes offer unusually high voltage operating capabilities, through 20 KV.

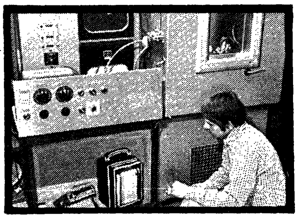


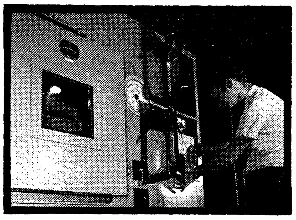


Rowe Low-Voltage, Molded-On Connectors and Cable Assemblies

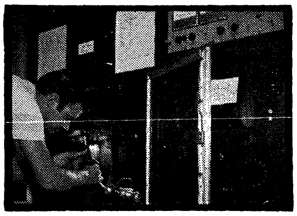
For use in severe environments. We can mold your STD connectors to cable for an environmental seal and provide a molded strain relief. Our exclusive Insta-Change series was designed for factory, mining, nuclear and oil well use.

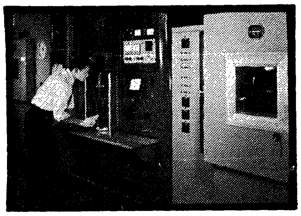
ROWE knows Specialized Interconnections

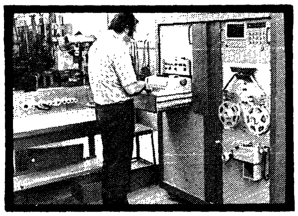

Life testing facilities.

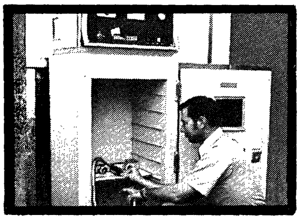

High altitude pressure chamber.

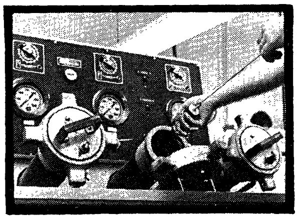
RFI-EMI-EMP test chamber.


High voltage, corona and dielectric test chamber.


Humidity chamber.


DIT-MCO computerized random access testing.


X-Ray equipment.


Hydrostatic pressure testing.

We're specialists in complete interconnection systems and, in particular, connectors and cable assemblies for extreme environments and unique applications. In fact, we've designed and manufactured hundreds of different connectors and cable assemblies for nuclear instrumentation and control, high voltage, corona-free thru 200 KV+, underwater instrumentation, geophysical, high and low temperatures, corrosive environments, high altitude and deep space, high and low pressures and other sophisticated military and industrial systems.

Rowe engineers design and specify custom products to meet exacting requirements and Rowe craftsmen produce them to the highest quality standards. In addition, we operate one of the most complete testing facilities in the industry. Our destructive and non-destructive testing capability includes:

Electrical Testing
Dielectric strength, corona measurement, RFI/EMI and DIT-MCO computer controlled circuit testing.

Mechanical and Physical Testing
Plating verification thru microscopic analysis, shock and vibration, hydrostatic pressure and helium leak, tensile strength, contact force measurement, optical comparitor equipment, complete x-ray lab.

Environmental Testing
Altitude thru 150,000 feet, temperature, humidity, corrosive atmospheres, accelerated life combining various conditions simultaneously.

Quality Control
Rowe's quality control and inspection systems meet or exceed MIL-Q-9858, ISR-1, NRC's 10CFR50 appendix B and standards of all aerospace and industrial firms.

With so many interconnections to choose from, chances are that we've already developed the one that meets your needs. If not, we'll custom design one for you.

Rowe Industries, Dept. 241/6100 Benore Rd, Toledo, OH 43612

Gentlemen: Please send technical literature I've checked. Thank you.

- ☐ Corona: simple techniques to eliminate it
- ☐ H.V. In-Line Disconnects and Anode Connectors thru 60 KV
- ☐ Rowe multi-contact H.V. connectors
- ☐ Sub-Miniature H.V. coax connectors thru 15 KV
- ☐ RG cable H.V. connectors (JA Series)
- ☐ Miniature Coax Connectors thru 30 KV
- ☐ Corona-free coax connectors thru 20 KV
- ☐ Corona-free high pulse coax connectors thru 40 KV
- ☐ 75 KV coax connectors (R75 Series)
- ☐ Lanyard/Umbilical Connectors
- ☐ Triaxial Connectors thru 30 KV
- ☐ Triaxial Connectors thru 55 KV
- ☐ Molded-On Interconnections
- ☐ Low-Voltage Multi-Pin Connectors (Insta-Change Series)
- ☐ High-Voltage Cable & Wire
- ☐ "All-Temp" High Temperature Wire and Cable
- ☐ SRML, SF-2, SFF-2, Aircraft & Locomotive

Print Name ______________________

Company ______________________

Address ______________________

City ______________ Zip ________

ROWE

ROWE INDUSTRIES

CONNECTORS • CABLE ASSEMBLIES • ELECTRONIC PRODUCTS
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EEM PRODUCT SELECTION GUIDES

**Use the EEM Product Selection Guides.
There are 34 Guides in this edition of EEM.
See page 2 (A•2, B•2, C•2, D•2) of each
volume to locate the Product Selection Guides
that pertain to your needs.**

enclosures · capacitors · circuit boards · coils,
chokes, inductors · connectors, electronic · sockets/
terminals · crystals · oscillators · crystal filters
delay lines · panel hardware · displays · lamps/
lights · cooling equipment · filters · generators ·
multimeters · panel meters · oscilloscopes · gra
phic recorders [illegible] connections · microwave
components [illegible] /
drives · [illegible] power supplies, dc · power
supplies, ac · [illegible] · relays ·
solenoids · resistors · potentiometers/trimmers
controls/rhe[illegible] ·
switches · [illegible] transducers/en
coders · transformers · wire & cable · enclosures
capacitors · circuit boards · coils, chokes, induc
tors · connectors, electronic · sockets/terminals

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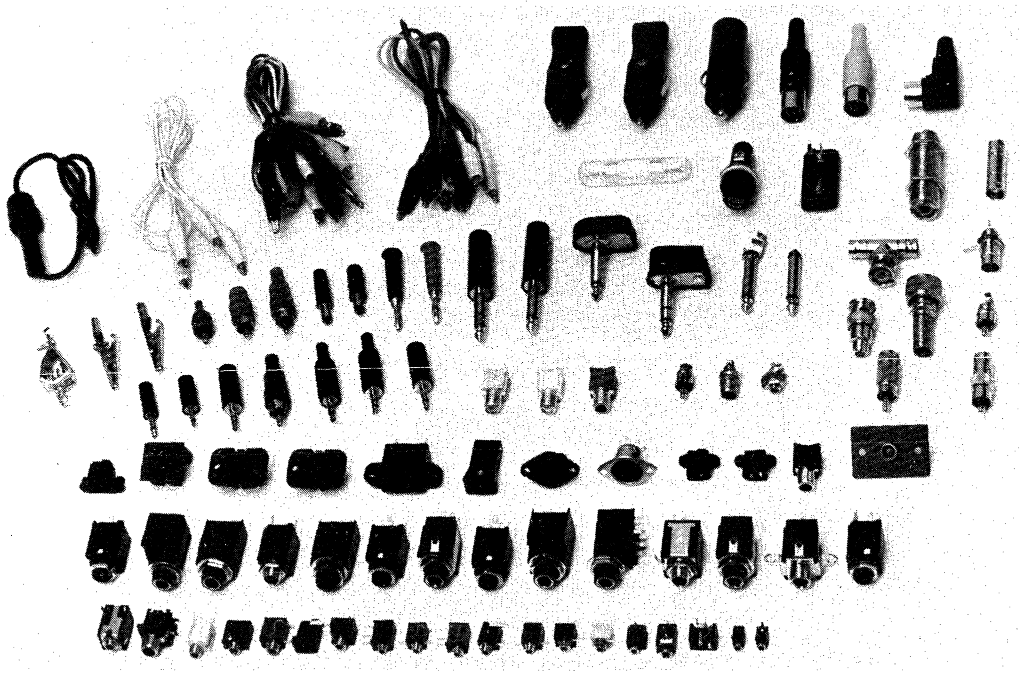
INTERNATIONAL CORPORATION

DEPT. EM, 287 NORTHERN BOULEVARD
GREAT NECK, NEW YORK 11021
(516) 466-0911
CABLE: "SHOGYONEWYORK"
TELEX: 12218 + 4758024
FAX: (516) 466-0922

The products illustrated and listed are only a small representation of the full range of items available.



PLUGS, JACKS and CONNECTORS

PHONE PLUGS

Straight or right angle, with or without handle, 2.1mm, 2.5mm, 3.5mm or 6.3mm diameters. Produced for soldering, crimping or molding.

DC POWER PLUGS

Available straight or right angle in short or long barrel versions, 2.1mm or 2.5mm diameters. Designed for all types of power supplies.

PIN DIN TYPE PLUGS

Male or female, 2-8 pins in any array. Produced with or without handle, in any color. Also available premolded, crimped or soldered to cable in a variety of materials and lengths.

RCA PHONO PLUGS

With removable plastic or metal handles. Right angle or straight, male or female, either crimping, soldering or molding types may be specified.

BANANA PLUGS

Specifically for test lead sets. Produced in a variety of colors, sizes and shapes.

AUDIO JACKS and SOCKETS

A wide selection in any combination of 2 or 3 conductor, mono or stereo, open or closed circuits, open or closed frame. Produced in microminiature, subminiature and miniature sizes with extra low profile and minimum width. Mountings are panel, chassis or PC board.

AUTOMOTIVE PLUGS

Cigarette plugs and mating sockets, with or without fuses. Phenolic/bakelite or rubberized plastic with optional finger grips.

DC POWER JACKS

Mating with all types of power supplies, right angle or vertical, chassis or PC board mount. Pins are long or short in 2.1mm and 2.5mm diameters.

DIN SOCKETS

A full line for many applications available in 2-8 pins, shielded or unshielded for right angle, vertical or PC mounting. Standardized for use with all types of display terminals.

AC SOCKETS

UL/CSA and VDE approved for US and European use. Two or three pin configuration, panel and chassis mounting or in-line positioning.

COAXIAL

Plugs, jacks and adaptors, single or double type push-on, crimp or solder connections of BNC, UHF or "F" type to specified cable.

ALLIGATOR and BATTERY CLIPS

With or without boots or molded handles in 5 to 30 amp ratings. All colors available.

FUSE HOLDERS

For chassis, panel or in-line mounting, crimped or soldered. UL approved units are available.

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2450/2950/4750/5600/6000

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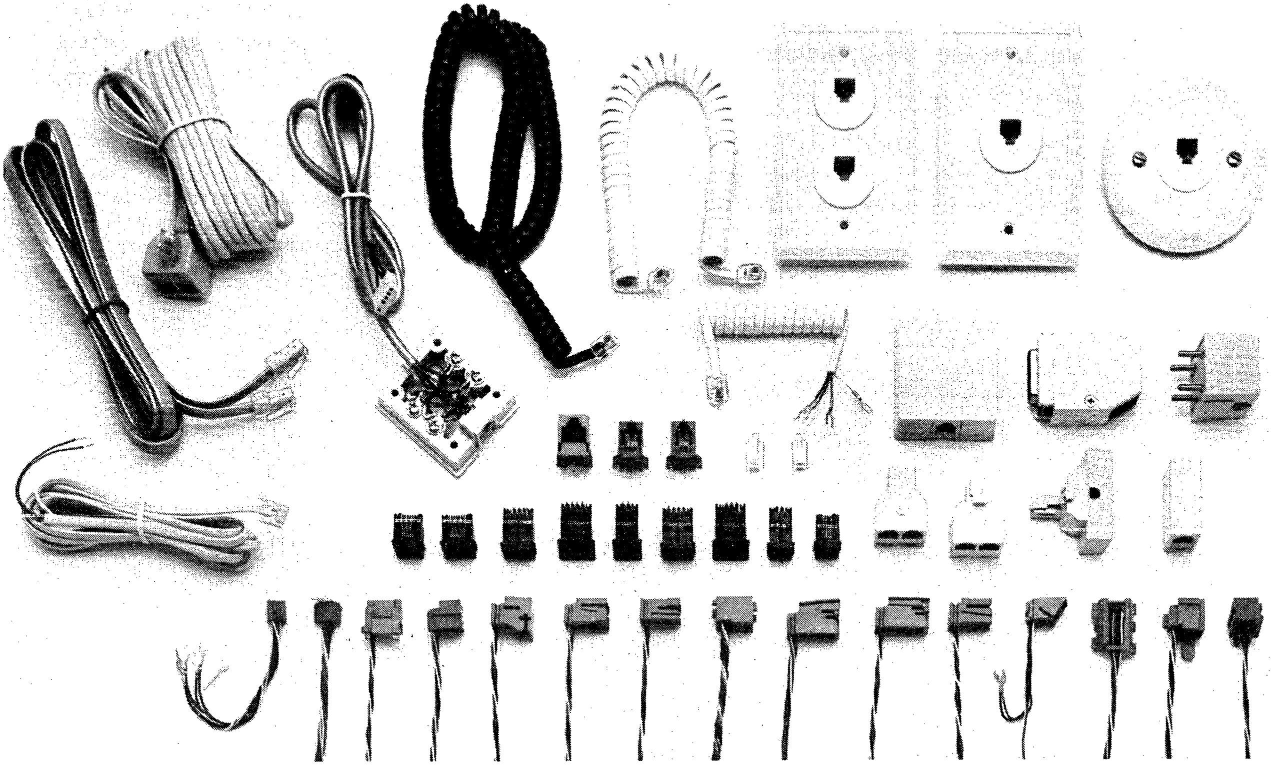

MODULAR JACKS, CONNECTORS and ACCESSORIES

MODULAR JACKS

Ideal for any telecommunication application. Available with PC pins or lead wires, keyed or unkeyed with spade lugs or any specified termination. May be ordered with perpendicular, parallel flange or flangeless mounting and 4, 6 or 8 positions with any number of contacts. Manufactured to industry standards in flame retardant materials and offered with 15U, 30U or 50U hard gold plating. Can mate with handsets or line cords.

MODULAR CONNECTORS

An extensive line of modular adaptors, duplex and triplex adaptors, in-line couplers, retrofit plugs, wall-mount surface jacks, circular wall jacks. Manufactured in standard or special colors and all industry standards.

HANDSET and LINE CORDS

May be ordered to your specifications — any length, with or without shielding, tinsel or stranded/solid copper wire, color coding and with any termination including modular plugs, spade lugs or special connectors. Coiled cords can be produced to any extended or retracted length.

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2450/2950/4750/5600/6000

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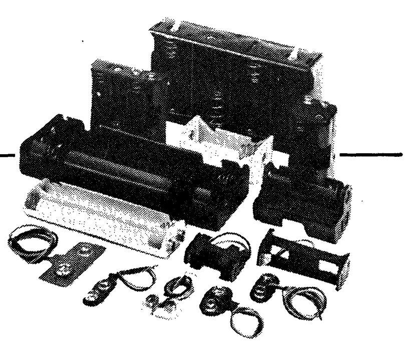
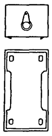


BATTERY HOLDERS, SNAPS & HANDSTRAPS

Standard lead length, 4". Also available with solder lugs. Dimensions shown are in millimeters.

The products illustrated and listed are only a small representation of the full range of items available.

D Cells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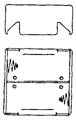
for one cell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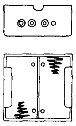
for two cells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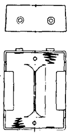
for two cells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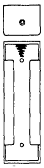
for two cells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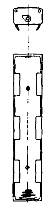
for two cells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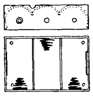
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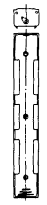
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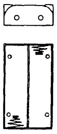
for four cells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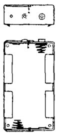
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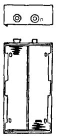
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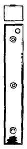
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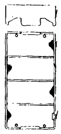
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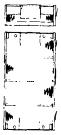
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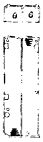
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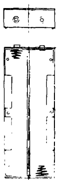
for six cells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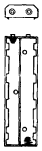
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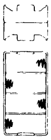
for eight cells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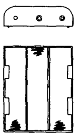
for eight cells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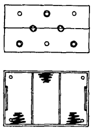
for six cells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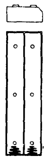
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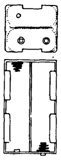
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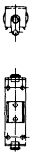
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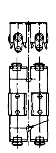
for one cell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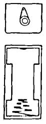
for two cells

C Cells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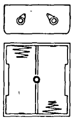
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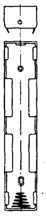
for two cells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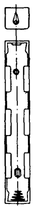
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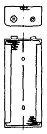
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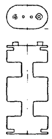
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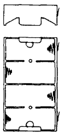
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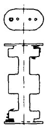
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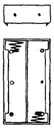
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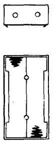
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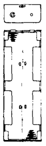
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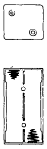
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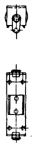
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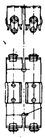
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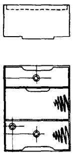
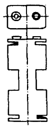
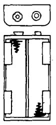
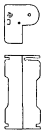
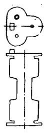

BH-39
for two C cells and one 9V battery

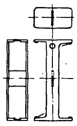
AA Cells

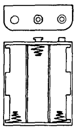

BH-40
for two cells

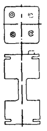

BH-41
for two cells

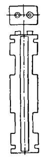

BH-42
for three cells

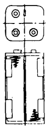

BH-43
for three cells

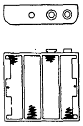

BH-44
for two cells

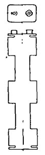

BH-45
for three cells

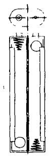

BH-46
for four cells

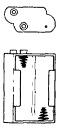

BH-47
for four cells

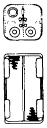

BH-48
for four cells

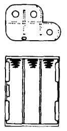

BH-49
for four cells

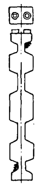

BH-50
for four cells

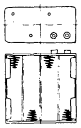

BH-51
for four cells

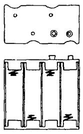

BH-52
for four cells

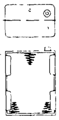

BH-53
for four cells

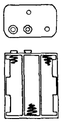

BH-54
for five cells

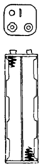

BH-55
for six cells

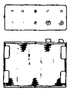

BH-56
for eight cells

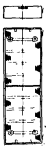

BH-57
for eight cells

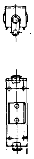

BH-58
for six cells


BH-59
for six cells


BH-60
for eight cells


BH-61
for ten cells


BH-62
for ten cells


BH-63
for one cell

Battery Snaps Standard head length, 4"

SN-1 for BH-14

SN-2 for BH-16

SN-3 for BH-24

SN-4 for BH-24

SN-5 for lantern battery

SN-6 for 9V battery

SN-7 for 9V battery

SN-8 for 9V battery

SN-9 for 9V battery

SN-10 unmounted snaps

SN-11 separate snaps for 9V battery

SN-12 separate snaps for lantern battery

SN-14A for 9V battery

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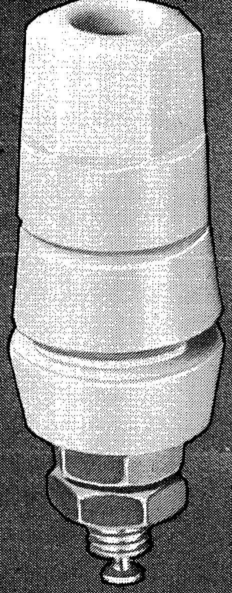

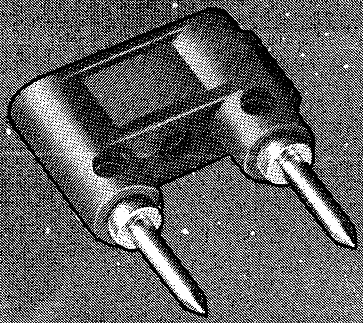

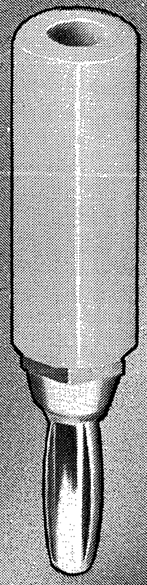

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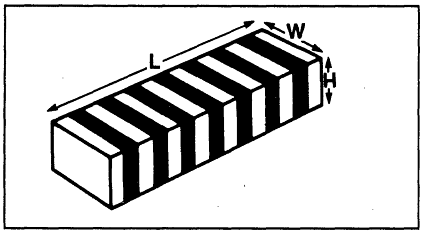
ELASTOMERIC CONNECTORS

Shin-Etsu Polymer

SP America, Inc.
1181 North Fourth Street, San Jose CA 95112
(408) 947-0311 TWX 910-338-2220

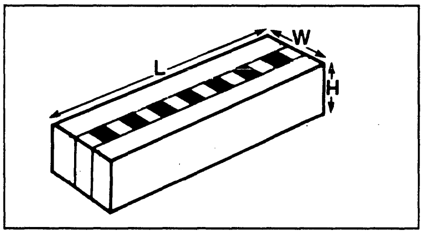


S The S-Connector consists of alternating segments of conducting and insulating solid silicone rubber. It is most often used for connections in LCD watches and clocks, calculators, and measuring instruments.

More than one conducting segment makes contact at a time. The S-Connector's small pitch means that less time-consuming precision alignment is required during assembly.

SPECIFICATIONS

Pitch	0.25mm (.010"), 0.18 (.007) 0.1 (.004), 0.05 (.002), 0.03 (.001)
Length	370mm (14.569") max
Height	0.5mm (.020") min
Width	0.3mm min

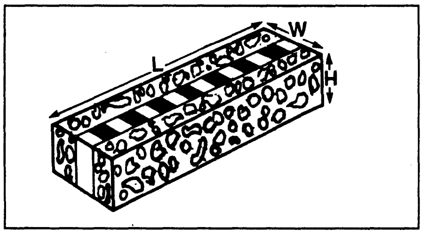


SS The SS-Connector consists of a narrow strip S-Connector material, supported on both sides with soft yet solid silicone rubber. The SS-Connector is used without a retainer, and requires only slight pressure to make a reliable contact because of the soft silicone rubber.

This connector is ideal for connections between PCBs and LCDs and other devices.

SPECIFICATIONS

Pitch	0.25mm (.010"), 0.18 (.007) 0.1 (.004)
Length	370mm (14.569") max
Height	0.8mm (.032") min
Width	1.5, 1.8, 2.0, 2,3, 2.6, 3.0, 3.5, 4.0mm

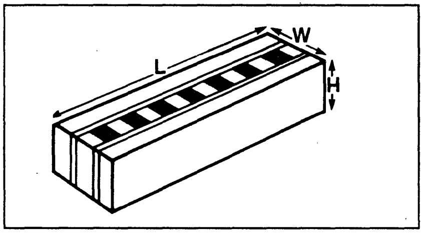


SG The SG-Connector consists of a narrow strip of S-Connector material, supported on both sides by sponge silicone rubber. The soft, closed-cell sponge forms a seal over electrodes, protecting them from humidity and harsh environments.

The soft sponge requires only slight pressure for a reliable connection, making the SG-Connector ideal for use between PCBs and large flat panel displays.

SPECIFICATIONS

Pitch	0.25mm (.010"), 0.18 (.007) 0.1 (.004)
Length	370mm (14.569") max
Height	0.8mm (.032") min
Width	1.5, 1.8, 2.0, 2,3, 2.6, 3.0, 3.5, 4.0mm

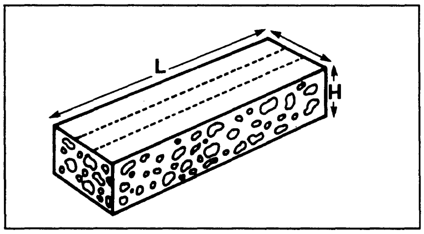


SSK The SSK-Connector consists of alternating layers of conducting and insulating silicone rubber. These soft connectors have a minimum pitch of only 0.03mm, allowing the highest density connections possible with elastomeric interconnectors.

The soft sponge silicone requires only slight pressure for a reliable connection, making the SSK-Connector ideal for use between PCBs and large LCDs with high-density displays.

SPECIFICATIONS

Pitch	0.1mm (.004"), 0.05 (.002) 0.03 (.001)
Length	370mm (14.569") max
Height	0.8mm (.032") min
Width	1.5, 1.8, 2.0, 2,3, 2.6, 3.0, 3.5, 4.0mm

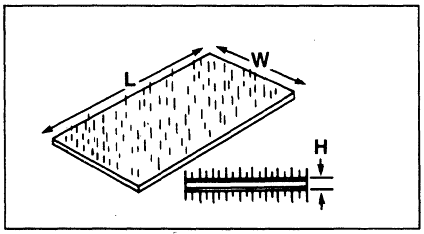


H The H-Connector consists of two rows of conductive rubber segments embedded uniformly within insulating sponge rubber. The soft sponge rubber insulation protects electrodes from damage caused by humidity and harsh environments.

The H-Connector can be ordered in lengths ideal for large flat panel displays. Connectors with four rows of conductors are also available on special order.

SPECIFICATIONS

Pitch	0.4mm (.016")
Length	250mm (9.842") max
Height	1.0mm (.394") min
Width	1.5, 1.8, 2.0, 2,3, 2.6, 3.0, 3.5, 4.0mm



AF The AF-Connector consists of thousands of conductive carbon fibers, embedded randomly throughout an insulating sheet. The fibers protrude several microns above each surface, making easy connections with high-density electrodes.

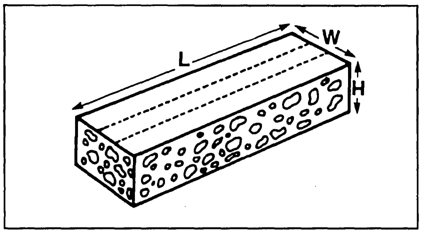
SPECIFICATIONS

Conductors per inch^2:	60,000
Thickness	0.2mm (typical), 0.3mm
Size of sheet	200 × 200mm (7.874" × 7.874") max

ELASTOMERIC CONNECTORS

Shin-Etsu Polymer

SP America, Inc.
1181 North Fourth Street, San Jose CA 95112
(408) 947-0311 TWX 910-338-2220

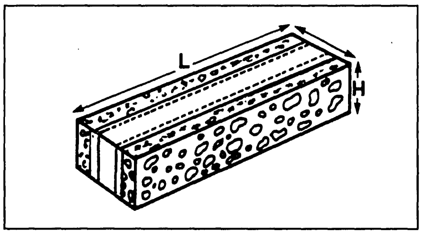


HL The HL-Connector consists of two rows of conductors composed of silver/carbon in a polymer base placed uniformly within insulating sponge rubber. The sponge insulation completely protects electrodes from harsh environments.

The HL-Connector provides low resistance connections between PCBS and PCBS, and PCBS and other devices.

SPECIFICATIONS

Pitch	0.4mm (.016″)
Length	250mm (9.842″) max
Height	1.0mm (.039″) min
Width	1.5, 2.0 2,3, 2.6, 3.0, 3.5, 4.0mm

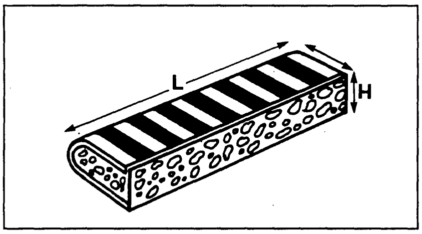


G The G-Connector consists of two rows of metal filaments embedded in solid silicone. This in turn is placed between two layers of soft sponge silicone. The sponge rubber insulation not only acts as a support, but protects electrodes from humidity and harsh environments.

This interconnector can be used for such low resistance applications as PCB to PCB, PCB to LSI, and PCB to flat panel displays.

SPECIFICATIONS

Pitch	0.2mm (.008″)
Length	250mm (9.842″) max
Height	1.5mm (.059″) min
Width	2.0 2,3, 2.6, 3.0, 3.5, 4.0, 5.0mm

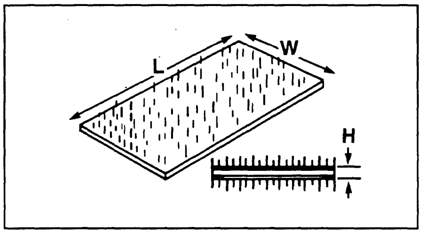


NE The NE-Connector uses gold-plated copper foil wrapped around silicone sponge rubber. It offers the low resistance of metallic foil, combined with enough flexibility to make contact with low pressure.

Designed for use as a PCB to PCB connector, the NE-Connectors are also ideally suited for connections between PCBS and LEDS, PDPS, ELS and fluorescent displays.

SPECIFICATIONS

Pitch	0.4mm (.016″), 0.2 (.008)
Length	200mm (7.874″) max
Height × Width	2.0 × 2.4, 2.3 × 2.9, 2.5 × 3.0, 3.5 × 3.0, 3.8 × 3.0, 3.0 × 3.6, 3.5 × 4.2, 3.8 × 3.5, 4.0 × 4.8mm

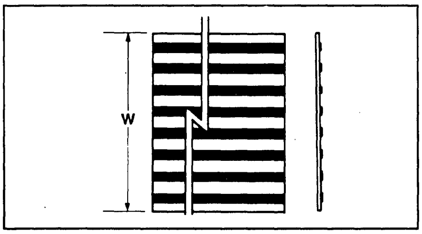


MAF The MAF-Connector consists of gold or nickel/boron-plated metal fibers, implanted perpendicularly in a silicone rubber insulating sheet. The fibers protrude several microns above each surface, connecting electrodes on both sides of the sheet.

Designed for use as a leadless LSI connector, the MAF is also ideally suited for connections between PCBS and other devices.

SPECIFICATIONS

Number of conductors per inch²:, 5,000	(0.3–0.4t)
Thickness	0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8mm
Size of sheet	50 × 200mm (2.0″ × 7.874″) max



J The J-Connectors are a series of ribbon cable connectors consisting of conductive carbon, carbon/silver, or metal traces printed on a sheet, which is then coated at its ends with a hot melt adhesive.

The adhesive assures equalized pressure of the traces to electrodes and affords high peel strength bond. The traces can also be printed in custom configurations.

SPECIFICATIONS

Pitch	Carbon trace 0.6mm (.024″) min
Pitch	Silver-Carbon trace 0.4mm (.016″) min
Pitch	Metal trace 0.4mm (.016″) min
Length	300mm (11.811″) max
Width	200mm (7.874″) max
Thickness	0.09mm (.004″)

For all sorts of interconnection tasks, Shin-Etsu has a conductive elastomer ideally suited for your application. For example, using Shin-Etsu self-supporting interconnectors (models H, SG, etc.), you can reduce assembly costs by eliminating expensive retainer frames. Shin-Etsu soft interconnectors are simply compressed between components.

Shin-Etsu also has low resistance elastomers (models HL, G, NE, etc.) for PCB-to-PCB interconnection.

Shin-Etsu elastomers shield electrodes from atmospheric moisture, contamination and corrosion.

For complete technical specifications on these and other elastomeric interconnectors, contact our sales engineers at SP America. Ask for the catalog describing our entire line of elastomeric interconnectors.

eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M

MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O

OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P

PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

Z

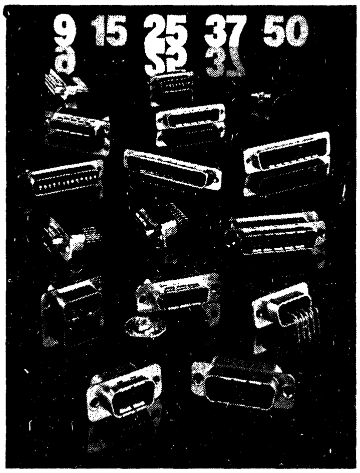
ZIF zero insertion force

SPECTRUM CONTROL INC.

IN STOCK

EMI FILTERED D SUBMINIATURE CONNECTORS

a cost effective way to comply with FCC, MIL-STD-461 A/B, VDE regulations



Spectrum's distributor stocked filtered connector product line is described in detail over the next few pages. All dimensions are shown in inches (metric equivalents in millimeters are in parentheses). Decimal tolerances, unless otherwise specified, are ±.015. All electrical engagement areas (plug and receptacle) are gold plated copper alloy. All terminations (printed circuit board right angle, solderless wire wrap and solder cup) are solderable. Shells are tinned aluminum. Insulators and right angle brackets are UL rated 94 V-0. Radio frequency ground contact from the connector shell to the mating connector is assured by a patented* coaxial spring contact on the pin side of the plug, the socket side of the receptacle and both pin and socket sides of the adaptor. EMI filter types specified are either Pi-Section (Pi) or Feed-through (FT).

*U.S. Patent 4516815

EMI FILTER PERFORMANCE

Filter Designation	Filter Circuits	Capacitance		3 dB Max Cut-Off Frequency (MHz)	Dielectric W'Standing Voltage	Contact Rating	Contact Resist.	Working Voltage DC	Minimum Insertion Loss — Decibels (dB)							
		Value	Tolerance					-55°C to ±125°C	5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	Pi	310 pF	±20%	17	300V	5A	.010 Max.	100V	—	—	—	5	10	18	39	52
C	Pi	1000pF	+100 -0%	3.2	300V	5A	.010 Max.	100V	—	5	9	15	25	43	65	70
E	Pi	4000 pF	+100 -0%	0.8	150V	5A	.010 Max.	100V	8	13	18	31	46	60	75	75
F	FT	830 pF	±20%	6.4	600V	5A	.010 Max.	200V	—	3	6	12	17	23	30	35

Engineering Bulletin 27-0027-53 describes Spectrum's complete filtered D connector.

SPECTRUM'S COMPUTERIZED STOCKING PROGRAM ENSURES THAT THE PRODUCTS IN THIS CATALOG ARE AVAILABLE "OFF-THE-SHELF" FROM AUTHORIZED DISTRIBUTORS

ASCHBACHER & ASSOCIATES
Dayton, OH
(513) 252-7785

METUCHEN CAPACITORS
Perth Amboy, NJ
(201) 442-0500

SUMMIT DISTRIBUTORS
Buffalo, NY
(716) 887-2800

Rochester, NY
(716) 334-8110

Dania, FL
(305) 920-6253

NEWARK ELECTRONICS
Chicago, IL
(312) 784-5100

CYPRESS ELECTRONICS, INC.
San Jose, CA
(408) 945-8400
Toll Free 1-800-538-5112

Torrance, CA
(213) 533-6005

SEE SPECTRUM'S EMI FILTERS AND CAPACITORS IN EEM SECTION 2700 PAGES A•1635 TO A•1637

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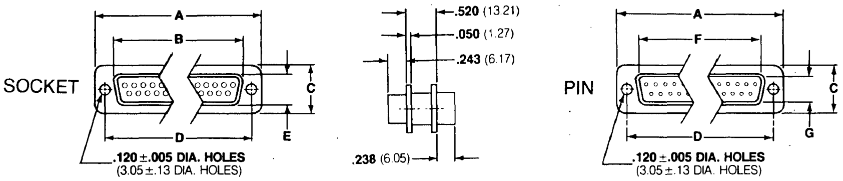
EMI FILTERED D SUBMINIATURE CONNECTORS

EMI FILTERED CONNECTOR ADAPTOR: PIN/SOCKET (PLUG/RECEPTACLE)

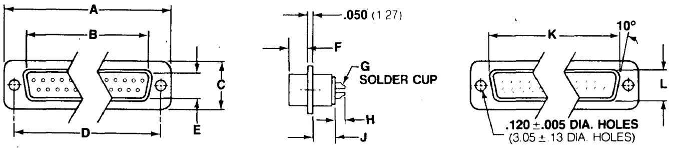


SHELL SIZE	PART NUMBER	FILTER TYPE	A	B	C	D	E	F	G
9	56-705-001 56-705-003 56-705-005 56-705-008	A C E F	1.213 (30.81)	.640 (16.26)	.494 (12.55)	.984 (24.99)	.308 (7.82)	.666 (16.92)	.329 (8.36)
15	56-715-001 56-715-003 56-715-005 56-715-007	A C E F	1.541 (39.14)	.968 (24.59)	.494 (12.55)	1.312 (33.32)	.308 (7.82)	.994 (25.25)	.329 (8.36)
25	56-725-001 56-725-003 56-725-005 56-725-019	A C E F	2.088 (53.04)	1.508 (38.30)	.494 (12.55)	1.852 (47.04)	.308 (7.82)	1.534 (38.96)	.329 (8.36)
37	56-735-001 56-735-003 56-735-005 56-735-008	A C E F	2.729 (69.32)	2.156 (54.76)	.494 (12.55)	2.500 (63.50)	.308 (7.82)	2.182 (55.42)	.329 (8.36)
50*	56-745-001 56-745-003 56-745-005 56-745-006	A C E F	2.635 (66.93)	2.062 (52.37)	.605 (15.37)	2.406 (61.11)	.420 (10.67)	2.079 (52.81)	.436 (11.07)

This versatile new idea fills a variety of needs. Several OEM's are using the product to avoid costly system redesign while some consumers of personal computers are using the adaptor to eliminate troublesome field 'glitches'. The adaptor also features a coaxial grounding system to insure that proper filtering is achieved.

IN STOCK

SOLDER CUP TERMINATION: PIN CONTACT (PLUG)



SHELL SIZE	PART NUMBER	FILTER TYPE		A	B	C	D	E	F	G	H	J	K	L
9	56-701-011 56-701-013 56-701-015 56-701-040	A C E F	PIN	1.213 (30.81)	.666 (16.92)	.494 (12.55)	.984 (24.99)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	.757 (19.23)	.420 (10.67)
15	56-711-011 56-711-013 56-711-015 56-711-040	A C E F	PIN	1.541 (39.14)	.994 (25.25)	.494 (12.55)	1.312 (33.32)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	1.085 (27.56)	.420 (10.67)
25	56-721-011 56-721-013 56-721-015 56-721-045	A C E F	PIN	2.088 (53.04)	1.534 (38.96)	.494 (12.55)	1.852 (47.04)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	1.625 (41.28)	.420 (10.67)
37	56-731-011 56-731-013 56-731-015 56-731-040	A C E F	PIN	2.729 (69.32)	2.182 (55.42)	.494 (12.55)	2.500 (62.50)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	2.273 (57.73)	.420 (10.67
50*	56-741-011 56-741-013 56-741-015 56-741-039	A C E F	PIN	2.635 (66.93)	2.079 (52.81	.605 (15.37)	2.406 (61.11)	.436 (11.07)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	2.170 (55.12)	.527 (13.39)

See page 4 for performance characteristics of filter types.

*Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations as depicted.

For Panel Cutouts see page 8.

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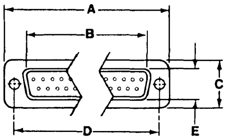
EMI FILTERED D SUBMINIATURE CONNECTORS

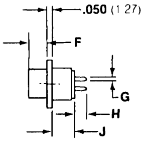
SOLDERLESS WIRE WRAP:

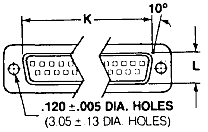
SOCKET CONTACT (RECEPTACLE)

PIN CONTACT (PLUG)

IN STOCK







SHELL SIZE	PART NUMBER	FILTER STYLE		A	B	C	D	E	F	G	H	J	K	L
9	56-703-011 56-703-013 56-703-015 56-703-025	A C E F	SOCKET	1.213 (30.81)	.640 ((16.26) OUTSIDE	.494 (12.55)	.984 (24.99)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (64 SQ)	.250 (6.35)	.375 (9.53)	.757 (19.23)	.420 (10.67)
	56-701-017 56-701-019 56-701-021 56-701-031	A C E F	PIN	1.213 (30.81)	.666 (16.92) INSIDE	.494 (12.55)	.984 (24.99)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	.757 (19.23)	.420 (10.67)
15	56-713-011 56-713-013 56-713-015 56-713-024	A C E F	SOCKET	1.541 (39.14)	.968 (24.59) OUTSIDE	.494 (12.55)	1.312 (33.32)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	1.085 (27.56)	.420 (0.67)
	56-711-018 56-711-020 56-711-022 56-711-031	A C E F	PIN	1.541 (39.14)	.994 (25.25) INSIDE	.494 (12.55)	1.312 (33.32)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	1.085 (27.56)	.420 (10.67)
25	56-723-012 56-723-014 56-723-016 56-723-026	A C E F	SOCKET	2.088 (53.04)	1.508 (38.30) OUTSIDE	.494 (12.55)	1.852 (47.04)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	1.625 (41.28)	.420 (10.67)
	56-721-024 56-721-026 56-721-027 56-721-036	A C E F	PIN	2.088 (53.04)	1.534 (38.96) INSIDE	.494 (12.55)	1.852 (47.04)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	1.625 (41.28)	.420 (10.67)
37	56-733-011 56-733-013 56-733-015 56-733-024	A C E F	SOCKET	2.729 (69.32)	2.156 (54.76) OUTSIDE	.494 (12.55)	2.500 (63.50)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	2.273 (57.73)	.420 (10.67)
	56-731-018 56-731-020 56-731-022 56-731-031	A C E F	PIN	2.729 (69.32)	2.182 (55.42) INSIDE	.494 (12.55)	2.500 (62.50)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	2.273 (57.73)	.420 (10.67)
50*	56-743-011 56-743-013 56-743-015 56-743-024	A C E F	SOCKET	2.635 (66.93)	2.062 (52.37) OUTSIDE	.605 (15.37)	2.406 (61.11)	.420 (10.67) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	2.170 (55.12)	.527 (13.39)
	56-741-017 56-741-019 56-741-021 56-741-030	A C E F	PIN	2.635 (66.93)	2.079 (52.81) INSIDE	.605 (15.37)	2.406 (61.11)	.436 (11.07) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	2.170 (55.12)	.527 (13.39)

The wrap post termination tail will accommodate #28 or #30 AWG rigid wire.

See page 4 for performance characteristics of filter types.

* Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations as depicted.

For Panel Cutouts see page 8.

THE PRODUCTS ON THIS PAGE ARE IN STOCK AT SPECTRUM AUTHORIZED DISTRIBUTORS

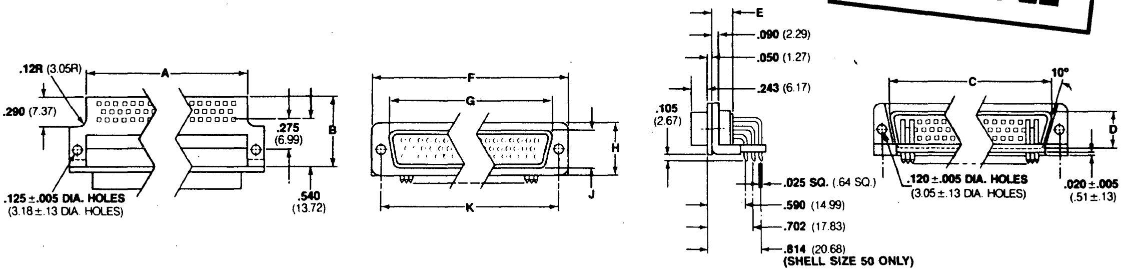
EMI FILTERED D SUBMINIATURE CONNECTORS

PRINTED CIRCUIT RIGHT ANGLE MOUNT:

SOCKET CONTACT (RECEPTACLE)

PIN CONTACT (PLUG)

IN STOCK



SHELL SIZE	PART NUMBER	FILTER STYLE		A	B	C	D	E	F	G	H	J	K
9	56-704-001 56-704-003 56-704-005 56-704-007	A C E F	SOCKET	.618 (15.70)	.740 (18.80)	.757 (19.23)	.420 (10.67)	.375 (9.53)	1.213 (30.81)	.640 (16.26) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	.984 (24.99)
	56-702-001 56-702-003 56-702-005 56-702-007	A C E F	PIN	.618 (15.70)	.740 (18.80)	.757 (19.23)	.420 (10.67)	.358 (9.09)	1.213 (30.81)	.666 (16.92) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	.984 (24.99)
15	56-714-001 56-714-003 56-714-005 56-714-006	A C E F	SOCKET	.942 (23.93)	.740 (18.80)	1.085 (27.56)	.420 (10.67)	.375 (9.53)	1.541 (39.14)	.968 (24.59) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	1.312 (33.32)
	56-712-001 56-712-003 56-712-005 56-712-007	A C E F	PIN	.942 (23.93)	.740 (18.80)	1.085 (27.56)	.420 (10.67)	.358 (9.09)	1.541 (39.14)	.994 (25.25) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	1.312 (33.32)
25	56-724-001 56-724-003 56-724-005 56-724-008	A C E F	SOCKET	1.490 (37.85)	.740 (18.80)	1.625 (41.28)	.420 (10.67)	.375 (9.53)	2.088 (53.04)	1.508 (38.30) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	1.852 (47.04)
	56-722-001 56-722-003 56-722-005 56-722-008	A C E F	PIN	1.490 (37.85)	.740 (18.80)	1.625 (41.28)	.420 (10.67)	.358 (9.09)	2.088 (53.04)	1.534 (38.96) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	1.852 (47.04)
37	56-734-001 56-734-003 56-734-005 56-734-006	A C E F	SOCKET	2.142 (54.41)	.740 (18.80)	2.273 (57.73)	.420 (10.67)	.375 (9.53)	2.729 (69.32)	2.156 (54.76) OUTSIDE	.494 (12.55)	.308 (8.36) OUTSIDE	2.500 (63.50)
	56-732-001 56-732-003 56-732-005 56-732-006	A C E F	PIN	2.142 (54.41)	.740 (18.80)	2.273 (57.73)	.420 (10.67)	.358 (9.09)	2.729 (69.32)	2.182 (55.42) INSIDE	494 (12.55)	.329 (8.36) INSIDE	2.500 (63.50)
50*	56-744-001 56-744-003 56-744-005 56-744-006	A C E F	SOCKET	2.038 (51.77)	.850 (21.84)	2.170 (55.12)	.527 (13.39)	.375 (9.53)	2.635 (66.93)	2.062 (52.37) OUTSIDE	.605 (15.37)	.420 (10.67) OUTSIDE	2.406 (61.11)
	56-742-001 56-742-003 56-742-005 56-742-006	A C E F	PIN	2.038 (51.77)	.850 (21.84)	2.170 (55.12)	.527 (13.39)	.358 (9.09)	2.635 (66.93)	2.079 (52.81) INSIDE	.605 (15.37)	.436 (11.07) INSIDE	2.406 (61.11)

See page 4 for performance characteristics of filter types.
*Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations.
For Panel Cutouts see page 8.

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EMI FILTERED D SUBMINIATURE CONNECTORS

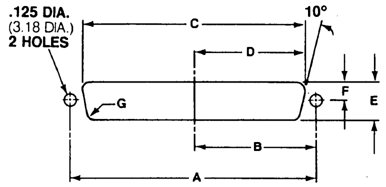
IN STOCK

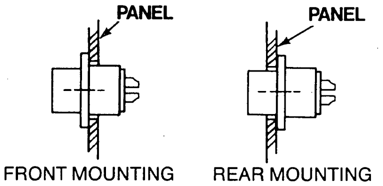
MOUNTING CONSIDERATIONS

PANEL CUTOUTS

Shell Size	Mounting Method*	A ±.005(0,13)	B ±.005(0,13)	C ±.005(0,13)	D ±.005(0,13)	E ±.005(0,13)	F ±.005(0,13)	G ±.002(0,05)
9	Front Mounting	.984(24,99)	.492(12,49)	.777(19,74)	.388(9,87)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	.984(24,99)	.492(12,49)	.660(16,76)	.330(8,38)	.360(9,14)	.180(4,57)	.110(2,79)
15	Front Mounting	1.312(33.32)	.656(16,66)	1.105(28,07)	.552(14,03)	.440(11,18)	220(5,59)	.150(3,81)
	Rear Mounting	1.312(33,32)	.656(16,66)	.988(25,10)	.494(12,55)	.360(9,14)	.180(4,57)	.110(2,79)
25	Front Mounting	1.852(47,04)	.926(23,52)	1.645(41,78)	.822(20,89)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	1.852(47,04)	.926(23,52)	1.528(38,81)	.764(19,41)	.360(9,14)	.180(4,57)	.110(2,79)
37	Front Mounting	2.500(63,50)	1.250(31,75)	2,293(58,24)	1.146(29,12)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	2.500(63,50)	1.250(31,75)	2.176(55,27)	1.088(27,63)	.360(9,14)	.180(4,57)	.110(2,79)
50	Front Mounting	2.406(61,11)	1.203(30,55)	2.190(55,63)	1.095(27,81)	.550(13,97)	.275(6,98)	.150(3,81)
	Rear Mounting	2.406(61,11)	1.203(30,55)	2.082(52,88)	1.042(26,47)	.470(11,94)	.235(5,97)	.110(2,79)

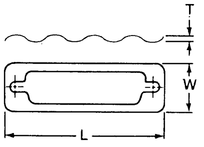
*When Rear Mounting Pin (Plug) Connector use Front Mounting Panel Cutout

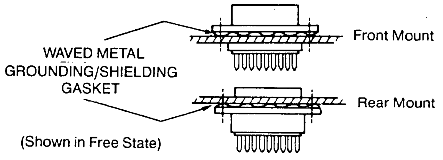




WAVED METAL GASKETS . . . FOR COMPLETE EMI PROTECTION

Shell Size	Mounting Configuration	L	W	T Free State	T Compressed	Spectrum Control Part No
9	FRONT - PIN	1 213(30.81)	600(15.24)	030(0.76)	005(0.13)	572019-00100-70
	FRONT - SOCKET					
	REAR - PIN					
	REAR - SOCKET	1 213(30.81)	.600(15.24)	030(0.76)	.005(0 13)	572019-00105-70
15	FRONT - PIN	1 541(38.46)	.600(15.24)	030(0 76)	005(0 13)	572019-00101-70
	FRONT - SOCKET					
	REAR - PIN					
	REAR - SOCKET	1 541(38.46)	600(15 24)	030(0 76)	005(0 13)	572019-00106-70
25	FRONT - PIN	2 088(53.04)	600(15.24)	030(0.76)	005(0 13)	572019-00102-70
	FRONT - SOCKET					
	REAR - PIN					
	REAR - SOCKET	2.088(53.04)	.600(15.24)	030(0 76)	005(0 13)	572019-00107-70
37	FRONT - PIN	2 729(69.32)	600(15 24)	030(0 76)	005(0 13)	572019-00103-70
	FRONT - SOCKET					
	REAR - PIN					
	REAR - SOCKET	2 729(69.32)	600(15.24)	030(0.76)	005(0 13)	572019-00108-70
50	FRONT - PIN	2 635(66.93)	710(18.03)	.030(0.76)	005(0 13)	572019-00104-70
	FRONT - SOCKET					
	REAR - PIN					
	REAR - SOCKET	2 635(66 93)	710(18.03)	030(0 76)	.005(0.13)	572019-00109-70





Proper mounting of any EMI filter — including the EMI filtered D Subminiature — is critical to the achievement of electromagnetic compatibility. The mounting surface for grounding the connector must be free from paint or any other insulating material. The sketches above indicate the use of one of Spectrum's EMI gaskets to fill any tolerance gaps and adjust for irregularities in the flatness of the mounting surface.

Spectrum Control fabricates a full line of gasket and shielding materials for EMI purposes, as well as environmental needs. Indicate front or rear mounting by part number described above.

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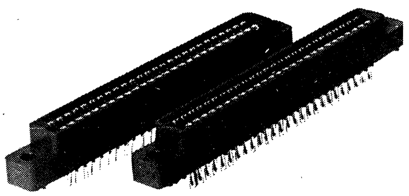
Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

EZ SERIES—LOW PROFILE DIP SOLDER| EYELET



FEATURES

- Insulation Resistance: 5,000 Megohms
- Solvent Resistance: Perchloroethylene Freon 113, Freon 11, Trichloroethylene
- Rated Voltage (At sea level): 600 VDC, 800 VDC, 1800 VDC, for contact centers of .100, .125, .156, respectively
- Current Rating: 3 amperes

MATERIALS

- Insulator: Glass filled thermoplastic polyester (Blue Valox*) or polyphenylene sulfide (green Ryton*)
- Contacts: Copper alloy contacts with gold over nickel plating on contact surface; tin/lead or gold over nickel on the tail

* (Trademarks: General Electric Valox, Philips 66 Ryton)

- Voltage Drop: 30 MV at rated current
- Contact Resistance: 10 milliohms maximum
- Operating Temperature: −65°C to +125°C For Standard Valox with Phosphor Bronze
- Board Insertion Force: 16 ozs maximum per contact pair using .062 steel test blade
- Board Withdrawal Force: 1 oz minimum per contact pair using .062 steel test blade
- Accommodates .062 PC board
- Bifurcated full bellows contacts

POLARIZATION KEYS

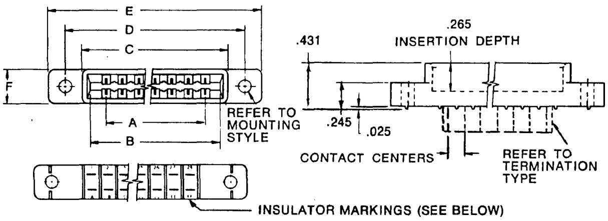
- P/N PLA-K1 for .100 centers between contact key
- P/N PLA-K1 for .125 centers between contact key
- P/N PLM-K1 for .156 centers between contact key
- P/N PLM-K2 for .156 centers in position key

DIMENSIONS

	Part Number†	No. of Contacts	Contact ID TYPE	A	B	C	D	E	F	G
.100 CONTACT CENTERS	EZC05D	5/10	1	0.400	0.600	0.775	1.075	1.375	.330	.100
	EZC06D _ _	6/12	1	0.500	0.700	0.875	1.175	1.475	.330	.100
	EZC08D _ _	8/16	1	0.700	0.900	1.075	1.375	1.675	.330	.100
	EZC10D _ _	10/20	1	0.900	1.100	1.275	1.575	1.875	.330	.100
	EZC12D _ _‡	12/24	1	1.100	1.300	1.475	1.775	2.075	.330	.100
	EZC13D _ _	13/26	1	1.200	1.400	1.575	1.875	2.175	.330	.100
	EZC15D _ _	15/30	1	1.400	1.600	1.775	2.075	2.375	.330	.100
	EZC18D _ _	18/36	1	1.700	1.900	2.075	2.375	2.675	.330	.100
	EZC19D _ _	19/38	1	1.800	2.000	2.175	2.475	2.775	.330	.100
	EZC20D _ _	20/40	1	1.900	2.100	2.275	2.575	2.875	.330	.100
	EZC22D _ _	22/44	1	2.100	2.300	2.475	2.775	3.075	.330	.100
	EZC25D _ _	25/50	1	2.400	2.600	2.775	3.075	3.375	.330	.100
	EZC26D _ _	26/52	1	2.500	2.700	2.875	3.175	3.475	.330	.100
	EZC28D _ _	28/56	1	2.700	2.900	3.075	3.375	3.675	.330	.100
	EZC30D _ _	30/60	1	2.900	3.100	3.275	3.575	3.875	.330	.100
	EZC31D _ _	31/62	1	3.000	3.200	3.375	3.675	3.975	.330	.100
	EZC35D _ _	35/70	1	3.400	3.600	3.775	4.075	4.375	.400	.100
	EZC36D _ _	36/72	1	3.500	3.700	3.875	4.175	4.475	.400	.100
	EZC40D _ _	40/80	1	3.900	4.100	4.275	4.575	4.875	.400	.100
	EZC43D _ _	43/86	1	4.200	4.400	4.575	4.875	5.175	.400	.100
	EZC44D _ _	44/88	1	4.300	4.500	4.675	4.975	5.275	.400	.100
	EZC49D _ _‡	49/98	1	4.800	5.000	5.175	5.475	5.775	.400	.100
	EZC50D _ _	50/100	1	4.900	5.100	5.275	5.575	5.875	.400	.100
	EZC60D _ _	60/120	1	5.900	6.100	6.275	6.575	6.875	.400	.100
.125 CONTACT CENTERS	EZA06D _ _	6/12	2	0.625	0.875	1.035	1.295	1.575	.330	.125
	EZA10D _ _	10/20	2	1.125	1.375	1.535	1.795	2.075	.330	.125
	EZA14D _ _‡	14/28	2	1.625	1.875	2.035	2.295	2.575	.330	.125
	EZA15D _ _	15/30	2	1.750	2.000	2.160	2.420	2.700	.330	.125
	EZA18D _ _	18/36	2	2.125	2.375	2.535	2.795	3.075	.330	.125
	EZA22D _ _	22/44	2	2.625	2.875	3.035	3.295	3.575	.330	.125
	EZA28D _ _	28/56	2	3.375	3.625	3.785	4.045	4.325	.330	.125
	EZA30D _ _	30/60	2	3.625	3.875	4.035	4.295	4.575	.330	.125
	EZA31D _ _	31/62	2	3.750	4.000	4.160	4.420	4.700	.330	.125
	EZA35D _ _	35/70	4	4.250	4.500	4.660	4.920	5.200	.330	.125
	EZA36D _ _	36/72	4	4.375	4.625	4.785	5.045	5.325	.330	.125
	EZA37D _ _‡	37/74	2	4.500	4.750	4.910	5.170	5.450	.330	.125
	EZA40D _ _	40/80	2	4.875	5.125	5.285	5.545	5.825	.370	.125
	EZA43D _ _	43/86	2	5.250	5.500	5.660	5.920	6.200	.370	.125
	EZA44D _ _	44/88	2	5.375	5.625	5.785	6.045	6.325	.370	.125
	EZA49D _ _‡	49/98	2	6.000	6.250	6.410	6.670	6.950	.370	.125
	EZA50D _ _	50/100	2	6.125	6.375	6.535	6.795	7.075	.370	.125
.156 CONTACT CENTERS	EZM06D _ _	6/12	3	0.780	1.100	1.220	1.533	1.783	.325	.156
	EZM08D _ _	8/16	3	1.092	1.412	1.532	1.845	2.095	.325	.156
	EZM10D _ _	10/20	3	1.404	1.724	1.844	2.157	2.407	.325	.156
	EZM11D _ _	11/22	3	1.560	1.880	2.000	2.313	2.563	.325	.156
	EZM12D _ _	12/24	3	1.716	2.036	2.156	2.469	2.719	.325	.156
	EZM15D _ _	15/30	3	2.184	2.504	2.624	2.937	3.187	.325	.156
	EZM18D _ _	18/36	3	2.652	2.972	3.092	3.405	3.655	.325	.156
	EZM22D _ _	22/44	3	3.276	3.596	3.716	4.029	4.280	.325	.156
	EZM24D _ _	24/48	3	3.588	3.908	4.028	4.341	4.591	.325	.156
	EZM25D _ _	25/50	3	3.744	4.064	4.184	4.497	4.747	.325	.156
	EZM28D _ _	28/56	4	4.212	4.532	4.652	4.964	5.215	.438	.156
	EZM36D _ _	36/72	4	5.460	5.780	5.906	6.219	6.463	.438	.156
	EZM43D _ _	43/86	4	6.552	6.872	7.000	7.302	7.555	.500	.156

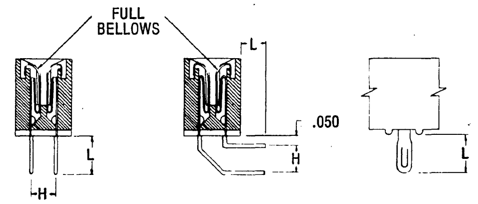
† For complete part number, add termination type and mounting style from PART NUMBER CODING (e.g.: EZC22DRTH).

‡ Consult Factory for availability.



CONTACT ID TYPE	INSULATOR MARKINGS LETTERS G, I, 0 & Q NOT USED
1	B 1 2 .... 23 24 .... 45 46 .... B A 1 2 .... 23 24 .... 45 46 .... A
2	1 2 .... 23 24 .... 45 46 .... A B .... a b .... AA BB ....
3	1 2 .... 23 24 .... 45 46 .... A B .... AA BB .... a b ....
4	1 2 .... 23 24 .... 45 46 .... $\overline{A}$ $\overline{B}$ .... $\overline{A}$ $\overline{B}$ .... a b ....

TERMINATION TYPE



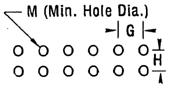
DIP SOLDER (RT, RK, RY, RX, RU, RJ)

RIGHT ANGLE (RA)

EYELET (RE)

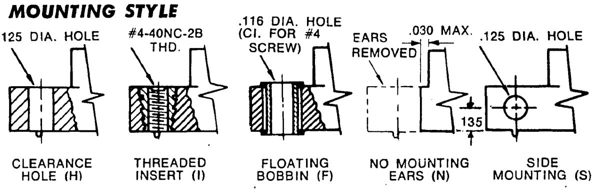
.100 & .125 Centers			
CODE	H	L	M
RT	.140	.200	.043
RY	.140	.440	.043
RX	.200	.185	.043
RJ	.250	.165	.043
RA	.156	.125	.043
RE	.140	.200	N/A

.156 Centers			
CODE	H	L	M
RT	.140	.137	.051
RK	.140	.225	.051
RY	.140	.422	.051
RX	.200	.137	.051
RU	.200	.225	.051
RA	.156	.125	.051
RE	.140	.225	N/A



PCB LAYOUT

MOUNTING STYLE



PART NUMBER CODING

EXAMPLE: E Z C 22 D RT H

MATERIALS
E = Valox/Phospher Bronze (Standard)
R = Ryton/Phospher Bronze (Special)
H = Valox/Beryllium Copper (Special)
A = Ryton/Beryllium Copper (Special)

PLATING

	Contact Surface	Termination
Z =	.000010 Gold	.000100 Tin/Lead
X =	.000030 Gold	.000100 Tin/Lead
G =	.000010 Gold	.000005 Gold
Y =	.000030 Gold	.000005 Gold

MOUNTING (SEE ABOVE) — H, I, F, N, or S

TERMINATION TYPE (SEE TABLE) RA, RE, RT, RK, RY, RX, RU, or RJ

READOUT — D = Dual

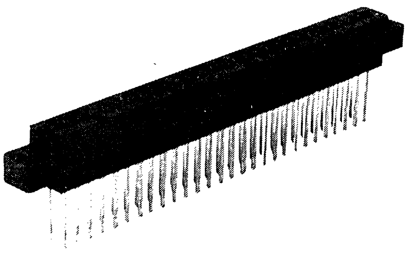
NUMBER OF POSITION — 06 thru 60

CONTACT CENTERS — C = .100, A = .125, M = .156

SULLINS ELECTRONICS CORPORATION / P.O. Box 189, E. San Marcos, CA 92069 / (619) 744-0125 / TWX 910-322-1472

Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

EZ SERIES—HIGH PROFILE DIP SOLDER/WIRE WRAP*



FEATURES

- Insulation Resistance: 5,000 Megohms
- Solvent Resistance: Perchloroethylene Freon 113, Freon 11, Trichloroethylene
- Rated Voltage (At set level): 600 VDC, 800 VDC, 1800 VDC, for contact centers of .100, .125, .156, respectively
- Current Rating: 3 amperes

MATERIALS

- Insulator: Glass filled thermoplastic polyester (Blue Valox)
- Contacts: Phosphor Bronze contacts with gold or tin/lead over nickel plating

* Trademark of Gardner Denver

- Voltage Drop: 30 MV at rated current
- Contact Resistance: 10 milliohms maximum
- Operating Temperature: −65°C to +125°C
- Board Insertion Force: 16 ozs maximum per contact pair using .062 steel test blade
- Board Withdrawal Force: 1 oz minimum per contact pair using .062 steel test blade
- Accommodates .062 PC board
- Bifurcated bellows contacts

POLARIZATION KEYS

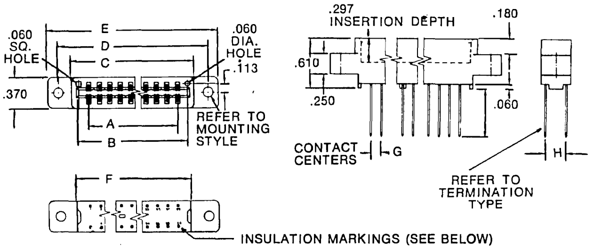
- P/N PLC-K1 (Order separately) for between contact polarization

DIMENSIONS

	Part Number*	No. of Contacts	Contact ID TYPE	A	B	C	D	E	F	G	H
.100 CONTACT CENTERS	EZC 08D	8/16	5	0.700	0.900	0.960	1.275	1.635	0.950	.100	.200
	EZC 10D _ _	10/20	5	0.900	1.100	1.260	1.575	1.835	1.150	.100	.200
	EZC 12D _ _	12/24	5	1.100	1.300	1.460	1.775	2.035	1.350	.100	.200
	EZC 15D _ _	15/30	5	1.400	1.600	1.760	2.075	2.335	1.650	.100	.200
	EZC 17D	17/34	5	1.600	1.700	1.860	2.175	2.535	1.850	.100	.200
	EZC 18D _ _	18/36	5	1.700	1.900	2.060	2.375	2.635	1.950	.100	.200
	EZC 20D _ _	20/40	5	1.900	2.100	2.260	2.575	2.835	2.150	.100	.200
	EZC 22D _ _	22/44	5	2.100	2.300	2.460	2.775	3.035	2.350	.100	.200
	EZC 25D _ _	25/50	5	2.400	2.600	2.760	3.075	3.335	2.650	.100	.200
	EZC 28D _ _	28/56	5	2.700	2.900	3.060	3.375	3.635	2.950	.100	.200
	EZC 30D _ _	30/60	5	2.900	3.100	3.260	3.575	3.835	3.150	.100	.200
	EZC 31D _ _	31/62	5	3.000	3.200	3.360	3.675	3.935	3.250	.100	.200
	EZC 35D _ _	35/70	5	3.400	3.600	3.760	4.075	4.335	3.650	.100	.200
	EZC 36D _ _	36/72	5	3.500	3.700	3.860	4.175	4.435	3.750	.100	.200
	EZC 40D _ _	40/80	5	3.900	4.100	4.260	4.575	4.835	4.150	.100	.200
	EZC 43D _ _	43/86	5	4.200	4.400	4.560	4.875	5.135	4.450	.100	.200
	EZC 44D _ _	44/88	5	4.300	4.500	4.660	4.975	5.235	4.550	.100	.200
	EZC 49D _ _	49/98	5	4.800	5.000	5.160	5.475	5.735	5.050	.100	.200
	EZC 50D _ _	50/100	5	4.900	5.100	5.260	5.575	5.835	5.150	.100	.200
	EZC 55D _ _**	55/110	5	5.400	5.600	5.760	6.075	6.335	5.650	.100	.200
	EZC 60D _ _	60/120	5	5.900	6.100	6.260	6.575	6.835	6.150	.100	.200
	EZC 61D _ _	61/122	5	6.000	6.200	6.360	6.675	6.935	6.250	.100	.200
	EZC 65D _ _	65/130	5	6.400	6.600	6.760	7.075	7.335	6.650	.100	.200
	EZC 70D _ _	70/140	5	6.900	7.100	7.260	7.575	7.835	7.150	.100	.200
.125 CONTACT CENTERS	EZA 06D _ _	6/12	5	0.625	0.875	1.035	1.295	1.555	0.875	.125	.250
	EZA 10D _ _	10/20	5	1.125	1.375	1.535	1.795	2.055	1.375	.125	.250
	EZA 14D _ _**	14/28	5	1.625	1.875	2.035	2.295	2.555	1.875	.125	.250
	EZA 15D _ _	15/30	5	1.750	2.000	2.160	2.420	2.680	2.000	.125	.250
	EZA 18D _ _	18/36	5	2.125	2.375	2.535	2.795	3.055	2.375	.125	.250
	EZA 22D _ _	22/44	5	2.625	2.875	3.035	3.295	3.555	2.875	.125	.250
	EZA 24D _ _**	24/48	5	2.875	3.125	3.285	3.545	3.805	3.125	.125	.250
	EZA 28D _ _	28/56	5	3.375	3.625	3.785	4.045	4.305	3.625	.125	.250
	EZA 30D _ _	30/60	5	3.625	3.875	4.035	4.295	4.555	3.875	.125	.250
	EZA 31D _ _	31/62	5	3.750	4.000	4.160	4.420	4.680	4.000	.125	.250
	EZA 32D _ _	32/64	5	3.875	4.125	4.285	4.545	4.805	4.125	.125	.250
	EZA 35D _ _	35/70	5	4.250	4.500	4.660	4.920	5.180	4.500	.125	.250
	EZA 36D _ _	36/72	5	4.375	4.625	4.785	5.045	5.305	4.625	.125	.250
	EZA 40D _ _	40/80	5	4.875	5.125	5.285	5.545	5.805	5.125	.125	.250
	EZA 43D _ _	43/86	5	5.250	5.500	5.660	5.920	6.180	5.500	.125	.250
	EZA 44D _ _	44/88	5	5.375	5.625	5.785	6.045	6.305	5.625	.125	.250
	EZA 49D _ _	49/98	5	6.000	6.250	6.410	6.670	6.930	6.250	.125	.250
	EZA 50D _ _	50/100	5	6.125	6.375	6.535	6.795	7.055	6.375	.125	.250
.156 CONTACT CENTERS	EZM06D _ _	6/12	6	0.780	1.102	1.221	1.534	1.784	1.030	.156	.200
	EZM08D _ _**	8/16	6	1.092	1.414	1.533	1.846	2.096	1.342	.156	.200
	EZM10D _ _	10/20	6	1.404	1.726	1.845	2.158	2.408	1.654	.156	.200
	EZM12D _ _	12/24	6	1.716	2.038	2.157	2.470	2.720	1.966	.156	.200
	EZM15D _ _	15/30	6	2.184	2.506	2.625	2.938	3.188	2.434	.156	.200
	EZM18D _ _	18/36	6	2.652	2.974	3.093	3.406	3.656	2.902	.156	.200
	EZM20D _ _**	20/40	6	2.964	3.286	3.405	3.718	3.968	3.214	.156	.200
	EZM22D _ _	22/44	6	3.276	3.598	3.717	4.030	4.330	3.526	.156	.200
	EZM24D _ _	24/48	6	3.588	3.910	4.029	4.342	4.642	3.838	.156	.200
	EZM25D _ _	25/50	6	3.744	4.066	4.185	4.498	4.748	3.994	.156	.200
	EZM28D _ _	28/56	7	4.212	4.534	4.653	4.966	5.216	4.462	.156	.200
	EZM30D _ _	30/60	6	4.524	4.846	4.965	5.278	5.528	4.774	.156	.200
	EZM31D _ _	31/62	7	4.680	5.002	5.121	5.434	5.684	4.930	.156	.200
	EZM36D _ _	36/72	8	5.460	5.782	5.901	6.214	6.464	5.710	.156	.200
	EZM40D _ _	40/80	8	6.084	6.406	6.525	6.838	7.088	6.334	.156	.200
	EZM43D _ _	43/86	8	6.552	6.874	6.993	7.306	7.556	6.802	.156	.200

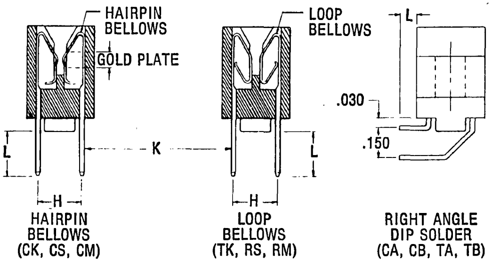
* For complete part number, add termination type and mounting style from PART NUMBER CODING (e.g.: EZA40DRMH).

** Consult factory for availability.

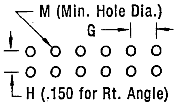


CONTACT ID TYPE	INSULATOR MARKINGS LETTERS G, I, O & Q NOT USED
5	1 3 .... 45 47 .... 89 91 .... 2 4 .... 46 48 .... 90 92 ....
6	1 2 .... 23 24 .... 45 46 .... A B .... A B .... a b ....
7	1 2 .... 23 24 .... 45 46 .... A B .... A B .... a b ....
8	A B .... A B .... a b .... 1 2 .... 23 24 .... 45 46 ....

TERMINATION AND BELLOWS TYPE

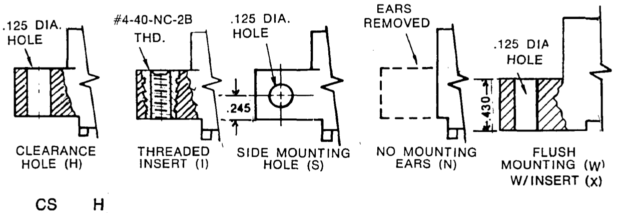


HAIRPIN	LOOP	TERMINATION	K	L	M
CK	TK	Dip Solder	.026 Round	.190	.030
CS	RS	Dip Solder	.025 Square	.190	.040
CM	RM	Wire Wrap	.025 Square	.560	.040
CA	TA	Right Angle	.025 Square	.100	.043
CB	TB	Right Angle	.025 Square	.180	.043



PCB LAYOUT

MOUNTING STYLE



PART NUMBER CODING

EXAMPLE: E Z C 22 D CS H

MATERIALS
E = Valox/Phospher Bronze

PLATING

Contact Surface	Termination
Z = .000010 Gold	.000100 Tin/Lead
X = .000030 Gold	.000100 Tin/Lead
G = .000010 Gold	.000005 Gold
Y = .000030 Gold	.000005 Gold

CONTACT CENTERS
C = .100, A = .125, M = .156

MOUNTING (SEE ABOVE)—H, I, S, N, W or X

TERMINATION TYPE (SEE TABLE)

Hairpin Bellows	Loop Bellows
CS = .025 x .025 dip solder	RS = .025 x .025 dip solder
CK = .026 round dip solder	TK = .026 round dip solder
CM = .025 x .025 wire wrap	RM = .025 x .025 wire wrap
CA = right angle dip solder	TA = right angle dip solder
CB = right angle dip solder	TB = right angle dip solder

READOUT — D = Dual

NUMBER OF POSITION — 06 thru 70

SULLINS ELECTRONICS CORPORATION / P.O. Box 189, E. San Marcos, CA 92069 / (619) 744-0125 / TWX 910-322-1472

Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

D-SUBMINIATURE

FEATURES

- All plastic, right angle, female receptacle.
- 9, 15, 25 and 37 positions.
- Standard footprint.
- Selective plating with 10 or 30 micro-inches of gold.
- Large cavity lead-in designed for blind mating.

GENERAL SPECIFICATIONS

MATERIALS

Insulator: Black, glass filled thermoplastic polyester Valox UL94V-0.

Contacts: Phosphor Bronze.

ELECTRICAL

Insulation Resistance: 5000 Megaohms.

Dielectric Withstanding Voltage: 1500 VAC minimum.

Current Rating: 5 Amperes.

Contact Resistance: 10 milliohms maximum at rated current.

ENVIRONMENTAL

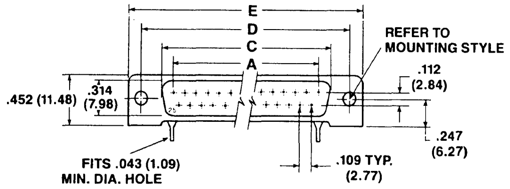
Solvent Resistance: Perchloroethylene, Freon 113, Freon 11, Trichloroethylene.

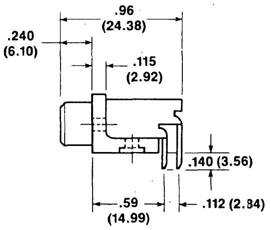
Operating Temperature: −65°C to +125°C.

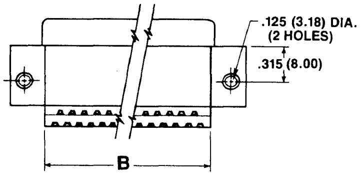
DIMENSIONS

Part Number†	Number of Contacts	INCHES MILLIMETER				
		A	B	C	D	E
DZFO9PDA___	9	.436 11.07	.624 15.85	.646 16.41	.984 24.99	1.224 31.09
DZF15PDA___	15	.763 19.38	.952 24.18	.974 24.74	1.312 33.22	1.552 39.42
DZF25PDA___	25	1.308 33.22	1.492 37.90	1.514 38.46	1.852 47.04	2.092 53.14
DZF37PDA___	37	1.962 49.83	2.140 54.36	2.162 54.91	2.500 63.50	2.740 69.60

† For complete part number add mounting style from Part Number Coding (e.g. DZF09PDAH)

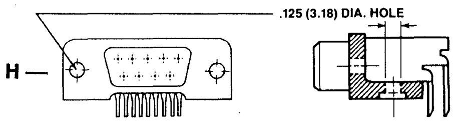

E
D
C
A
REFER TO MOUNTING STYLE
.112 (2.84)
.452 (11.48)
.314 (7.98)
.247 (6.27)
FITS .043 (1.09) MIN. DIA. HOLE
.109 TYP. (2.77)

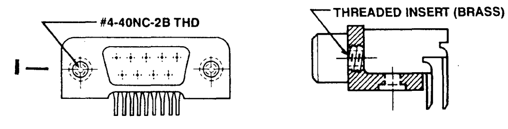

.96 (24.38)
.240 (6.10)
.115 (2.92)
.140 (3.56)
.59 (14.99)
.112 (2.84)

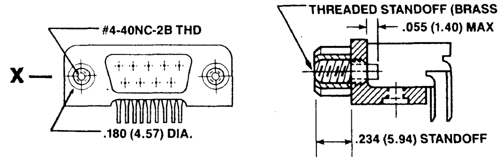

.125 (3.18) DIA. (2 HOLES)
.315 (8.00)
B

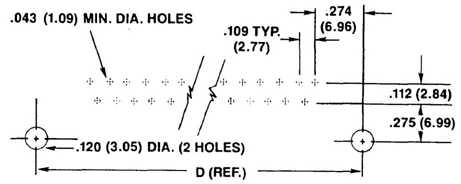
MOUNTING STYLE

H — Standard Mounting
.125 Dia. Clearance Hole
I — Threaded Insert
X — Threaded Standoff


H —
.125 (3.18) DIA. HOLE


I —
#4-40NC-2B THD
THREADED INSERT (BRASS)


X —
#4-40NC-2B THD
.180 (4.57) DIA.
THREADED STANDOFF (BRASS)
.055 (1.40) MAX
.234 (5.94) STANDOFF


.043 (1.09) MIN. DIA. HOLES
.109 TYP. (2.77)
.274 (6.96)
.112 (2.84)
.275 (6.99)
.120 (3.05) DIA. (2 HOLES)
D (REF.)

PC BOARD PATTERN

PART NUMBER CODING

D Z F 25 P DA H -M000

D-SUBMINIATURE CONNECTOR — D

CONTACT FINISH — Z

Contact Surface	Termination
Z = .000010 Gold	.000100 Tin
X = .000030 Gold	.000100 Tin

CONTACT CENTERS — F
F = .109

NUMBER OF CONTACTS — 25
09, 15, 25, 37

MODIFICATION — -M000
(Omit For Standard)

MOUNTING STYLE* — H
H = .125 Hole
I = Threaded Insert
X = Threaded Standoff

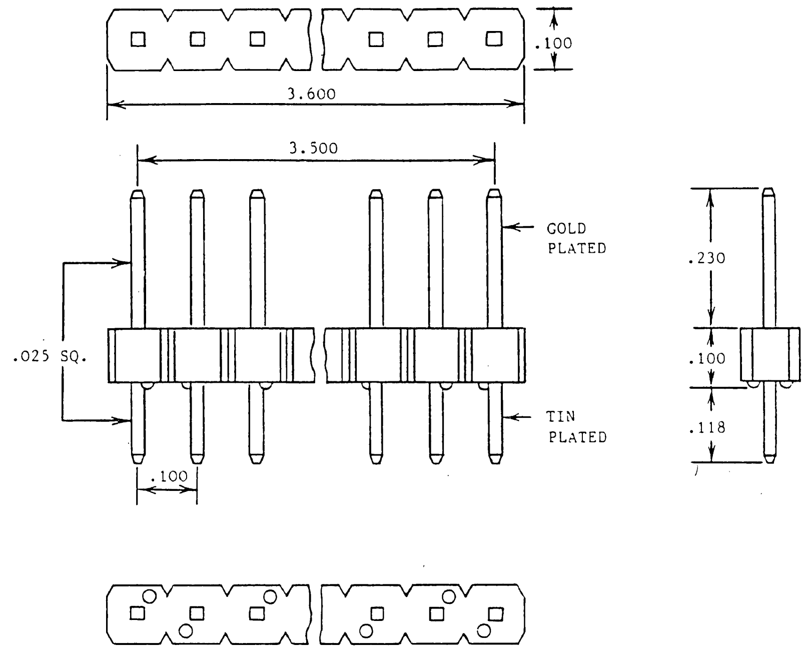
TERMINATION TYPE — DA
DA = Right Angle

INSULATOR CONFIGURATION — P
P = All Plastic

* Consult Factory For Availability Of Mounting Syles Not Listed

Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

.025 POST HEADERS UNSHROUDED, SINGLE ROW, STRAIGHT



This is Sullins newest connector available in 36 positions. Breakable strips of dual and single row contacts. These straight pin headers are available with numerous head and tail lengths, as well as several plating options. All designed to give you high reliability at low prices.

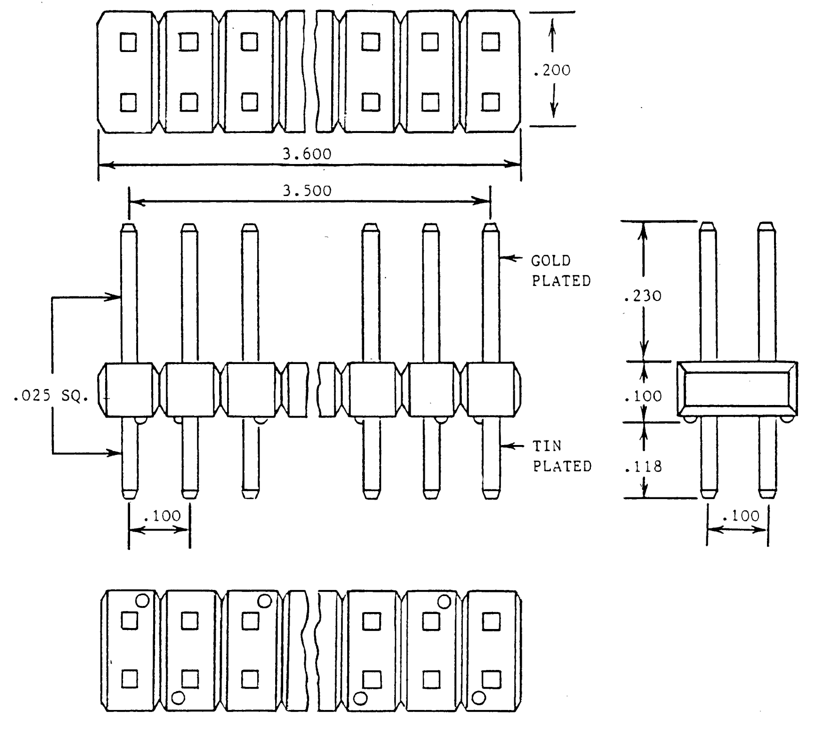
NOTES:

1.0 This specification covers the requirements for a single 36 position .025 sq. post header
2.0 Insulation Material: Black thermoplastic polyester.
3.0 Contact Material: CA510, phosphor bronze grade A
4.0 Plating: Z=.000010 gold on contact surface, .00010 tin on tail. .00050 nickel underplate. X=.000030 gold on contact surface, .00010 tin on tail. .00050 nickel underplate
5.0 Temperature To 125 degrees C. continuous
6.0 UL Flammability Rating: 94V-0
7.0 Voltage Rating: 600 VDC minimum at sea level
8.0 Current Rating: 3 amperes
9.0 Insulation Resistance: 1000 megohms (min)
10.0 Not drawn to scale

Right angle, unshrouded assemblies are available.

ORDER P/N; PZC36SAAN

.025 POST HEADERS UNSHROUDED, DUAL ROW, STRAIGHT



NOTES:

1.0 This specification covers the requirements for a dual 36/72 position .025 sq. post header
2.0 Insulator Material: Black thermoplastic polyester
3.0 Contact Material: CA510, phosphor bronze grade A
4.0 Plating: Z=.000010 gold on contact surface. .000100 tin on tail. .00050 nickel underplate X=.000030 gold on contact surface. .000100 tin on tail. .00050 nickel underplate
5.0 Temperature: To 125 degrees C. Continuous
6.0 UL Flammability Rating: 94V-0
7.0 Voltage Rating: 600 VDC minimum at sea level
8.0 Current Rating: 3 amperes
9.0 Insulation Resistance: 100 megohms (min)
10.0 Not drawn to scale

Right angle, unshrouded assemblies are available.

ORDER P/N; PZC36DAAN

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

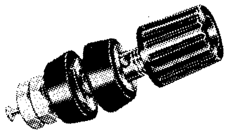
TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms .... **A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code .... **D**•1087
Batteries, Product Selection Guide .... **D**•1413
Batteries & Fuel Cells, Characteristics .... **D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **C**•1003
Capacitors, Basic Formulas .... **A**•1093
Capacitors, Miniglossary .... **A**•1066
Capacitors, Product Selection Guide .... **A**•1003
Circuit Boards (Printed) Product Selection Guide .... **C**•1099
Coils, Chokes, Inductors, Product Selection Guide .... **A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum .... **C**•1863
Connectors, Miniglossary .... **C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide .... **C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude .... **A**•1309
Delay Lines, Product Selection Guide .... **A**•1459
Discrete Semiconductors, Product Selection Guide .... **A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **B**•1015
EBCDIC Code .... **D**•1092
Encapsulation, Miniglossary .... **C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **C**•1623
Filters, Product Selection Guide .... **A**•1583
Instruments, Graphic Recording Product Selection Guide .... **D**•1401
Instruments, Panel Meters, Product Selection Guide .... **D**•1329
Instruments, Test & Measuring Product Selection Guide .... **D**•1175
Interconnection Systems, Product Selection Guide .... **C**•1699
Keyboards & Keypads, Product Selection Guide .... **B**•1705
Logofinder & Trademark Directories .... **B**•901
Microwave Components, Product Selection Guide .... **A**•1701
Military Qualified Products Lists .... **B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **B**•1129
Opto Semiconductors, Miniglossary .... **B**•1214
Oscilloscopes, Product Selection Guide .... **D**•1385
Panel Hardware, Product Selection Guide .... **C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **A**•1991
Power Supplies, Miniglossary .... **D**•1462
Power Supplies, AC, Product Selection Guide .... **D**•1877
Power Supplies, DC, Product Selection Guide .... **D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **B**•1225
Relay Contact Forms .... **B**•1317
Relays, Electromechanical, Miniglossary .... **B**•1308
Relays, Product Selection Guide .... **B**•1261
Resistor Color Codes .... **A**•1828
Resistors, Product Selection Guide .... **A**•1785
Servo Components, Miniglossary .... **D**•1985
Solenoids, Product Selection Guide .... **B**•1463
Switches, Product Selection Guide .... **B**•1477
Thermal Components, Product Selection Guide .... **B**•1741
Thermal Conductivity of Dielectrics at Room Temperature .... **B**•1744
Thyristors/High Power Diodes, Miniglossary .... **A**•2076
Transducers & Encoders, Product Selection Guide .... **B**•1777
Transformers, Product Selection Guide .... **A**•2099
Wire & Cable, Product Selection Guide .... **C**•1743
Wire Gauges—Diameter, Area, Copper Weight .... **C**•1844

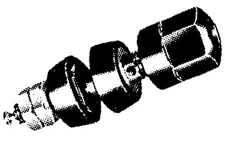
5-way® BINDING POSTS

5 WAYS TO CONNECT ● GOLD-PLATED BRASS PARTS ● RANGE OF COLORS



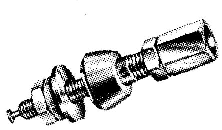
FLUTED NUT TYPES

Plastic parts of standard (not miniature) size types molded of Lexan polycarbonate resin; brass parts are gold-plated. Rated for 30 amperes, 1000 volts working.



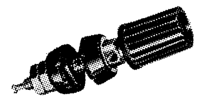
HEX NUT TYPES

Rated for 30 amperes, 1000 volts working. Brass parts gold-plated; plastic parts are of nylon compounded to meet military specifications MIL-P-20693A, Type IV.



GROUNDING TYPE

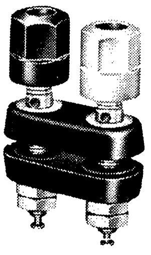
For making rapid connections to ground. Made of finely machined brass nickel-plated and polished. Panel grounding collar frozen to shaft has "D" type shoulder for locking in keyed panel hole.



MINIATURE TYPES

Fluted nut design. Rated for 15 amperes, 1000 volts working. Nylon parts meet military specification MIL-P-20693A, Type IV. Limited clearances between insulated and current-carrying parts on BP21 types minimize possibility of accidental contact.

DOUBLE ASSEMBLY TYPES

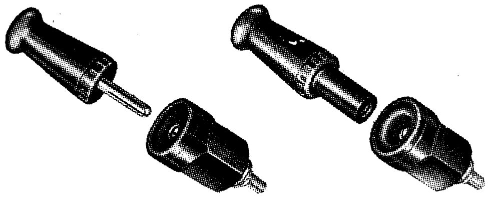


For instrument and equipment panels requiring binding posts mounted on ¾" centers. Rated for a current capacity of 30 amperes and a working voltage of 1000 volts. Brass parts are gold-plated; panel insulators in black only. Self-contained assembly makes mounting more accurate, faster and easier than two individual binding posts and gives maximum strength where connections are frequently made.

STYLE	TYPE
Fluted Nut – Standard	DF31*
Hex Nut – Standard	DF30*
Grounding – All Metal	GP30NC
Fluted Nut – Miniature	DF21*
Fluted Nut – Mini Ltd. Clear.	BP21*
DOUBLE ASSEMBLY TYPE	
Black & Red Hex Nut	DF30-2-BRC

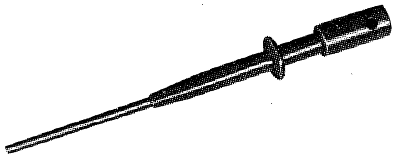
*Indicate color desired: red, white, blue, black, yellow or green.

SUPERCON®
ELECTRICAL CONNECTORS



Nylon plastic parts; gold-plated brass current-carrying parts. Wiring connections to the same plug can be either soldered or solderless. Plug cable-fastening screws permit a wide range of cable sizes. Plug grips are of a simple, two-piece threaded construction for quick assembly. All receptacle plastic parts are molded of the same color to permit more rapid and accurate circuit identification front and back of panel when installed. The 25, 50 and 100 ampere types are listed by Underwriters' Laboratories, Inc. In red, black, white, blue, green or yellow.

5-WAY™
TEST PROBES



For test connections to PC boards and other electronic components. Design allows connections by hooking onto component leads or by plugging into Superior Electric 207146-001-JB terminals or others having 0.080" diameter receptacles. For plug-in, conductor holds firmly to inside of receptacle under spring tension. When used for hook-on, probe clamps to component lead or wire wrapping pin with approximately 16 oz. force. Conductor beryllium copper tempered to spring hardness. Insulating parts durable nylon plastic capable of withstanding 250°F without deforming. Available in red, black, white, blue, green or yellow.

THE SUPERIOR ELECTRIC COMPANY

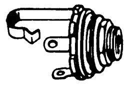
1000 Middle Street / Bristol, Connecticut 06010 / Telephone: (203) 582-9561

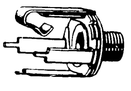
Switchcraft®
A **Raytheon** Company

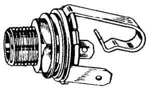
Littel-Jax PHONE JACKS

Quality phone jacks that mate with standard .25 in. (6.35 mm) or .21 in. (5.33 mm) phone plugs. Notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly holds mating plug. Minimum space requirements. Mounts in single .375 in. (9.52 mm) hole, panels up to .156 in. (3.96 mm) thick, except L-11 and L-12A in panels up to .25 in. (6.35 mm) thick. PC-12A; std. .25 in. (6.35 mm) dia. bushing.

Littel-Jax PHONE JACKS with QUICK CONNECT TERMINALS. Littel-Jax jacks, Nos. FA-11 & FAL-11 with quick connect terminals accept AMP FASTON* 205 Series receptacles. Mounts in .375 in. (9.52 mm) dia. holes on 1.375 in. (34.92 mm) centers (min.) Locknut and washer supplied. *Trademark of AMP INC.


C-11


PC-12A


FA-11

TWO CONDUCTOR TYPES

Part No.	Schematic No.	Typical Mating Plug	MIL-Type	Description
11	I	250	—	Open circuit
C-11	I	440,445, 470[1]	MIL Type JJ-034, Part No. M641/6-1	With locating pin (non-turn device)
FA-11	I	250	—	AMP FASTON 205 Series. Quick connect terminals.
FAL-11	I	250	—	.375 in. (9.52 mm) lg. bushing. Quick connect terminals.
L-11	I	250	—	.375 in. (9.52 mm) lg. bushing
S-11	I	S-250	—	.210 in. (5.33 mm) I.D. bushing
12A	III	250	—	Tip shunt
C-12A	III	440, 445, 470[1]	MIL Type JJ-089, Part No. M641/12-1	—
L-12A	III	250	—	.375 in. (9.52 mm) lg. bushing
S-12A	III	S-250	—	.210 in. (5.33 mm) I.D. bushing
PC-12A	III	250	—	P.C. board mtg.
13	V	250	—	Isolated "make" circuit
13A	VI	250	—	Transfer circuit
13E	IX	250	—	Isolated "break" circuit

NOTE: [1] Mating Plugs — PJ-055B, M642/4-1; PJ-055R, M642/4-2; PJ-055M, 642/4-3.

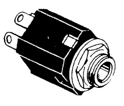
THREE CONDUCTOR TYPES

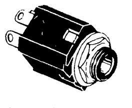
Part No.	Schematic No.	Typical Mating Plug	MIL-Type	Description
12B	IV	267	—	Double open circuit
C-12B	IV	480 (PJ-068, M642/5-1)	MIL Type JJ-033, Part No. M641/5-1	—
L-12B	IV	267	—	.375 in. (9.52 mm) lg. bushing
S-12B	IV	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
13B	VII	267	—	Tip shunt
S-13B	VII	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
14B	XII	267	—	Double closed circuit

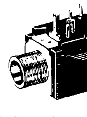
Hi-D Jax ENCLOSED PHONE JACKS

Series 110: Smaller, compact phone jacks mate with std. .25 in. (6.35 mm) phone plugs. Molded body protects integral silver-plated springs. Low contact resistance; low electrical leakage and low capacity between springs. Mounts on .625 in. (15.88 mm) center in single .375 in. (9.52 mm) hole in panels up to .156 in. (3.96 mm) thick, depth behind panel 1.094 in. (27.79 mm). All jacks with "M" prefix designed and adjusted to mate with telephone and MIL-std. plugs. Jacks with PC terms, mount to single, double-sided and multilayer boards up to .094 in. (2.39 mm) thick. Standoff shoulders; mounting hardware supplied.

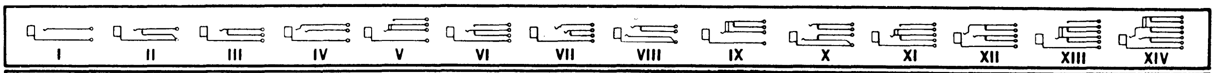
Series RN-110: Right angle jack, saves mounting space on PC boards for commercial and telephone/MIL applications. Available in 2- and 3-cond. types with or without shunt circuits; all mate with .25 in. (6.35 mm) dia. COMMERCIAL or TELEPHONE/MIL plug finger configurations. Right angle jack permits tip of mating plug to be inserted parallel with PC board. Can be mtd. on PC boards, combined PC board and panel/chassis, or panel/chassis only. Jack bushing mounts through .375 in. (9.52 mm) dia. hole in panels or chassis up to .141 in. (3.58 mm) thick. Mtg. centers .625 in. (15.88 mm) min. Washer & locknut supplied.

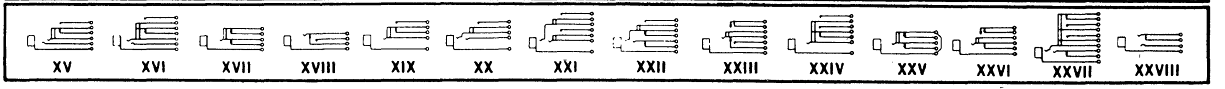

SERIES 110


SERIES N-110


SERIES RN-110

SCHEMATICS

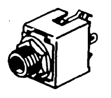




Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

Switchcraft®
A **Raytheon** Company

"Tini-D Jax" MINIATURE ENCLOSED PHONE JACKS

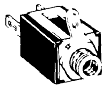

PC-142A

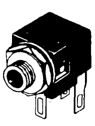
Small, completely enclosed 2-cond. molded phone jack. Phenolic housing protects bifurcated beryllium copper springs from bending during mounting. Mounts on .375 in. (9.52 mm) centers in .25 in. (6.35 mm) dia. hole in panels up to .125 in. (3.18 mm) thick. Depth behind panel .625 in. (15.88 mm).

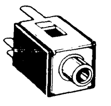
Part No.	Description	Schematic No.	Typical Mating Plug
142A	Bushing mount	III	750
PC-142A	PC board mount[1]		

NOTE: [1] Threaded bushing for conventional mounting and special spring terminals that "snap-in" PC boards up to .125 in. (3.18 mm) thick.

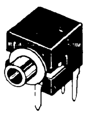
"Micro-D Jax" SUBMINIATURE ENCLOSED PHONE JACK


MDSL-2A


MDSL-2A-RA


MDPC-2A

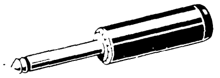
"Super-small," shunted, fully enclosed jack — only .312 in. (7.92 mm) x .344 in. (8.74 mm) x .688 in. (17.48 mm). 1-piece molded body locks all internal parts in place. Mates with Switchcraft Micro-Plug phone plugs. PC terminals have standoff shoulders. Nos. MDSL-2A & MDSL-2A-RA have #10-48 threaded bushing; mounting washer & locknut supplied.

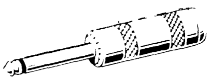

MDPC-2A-RA

Part No.	Schematic No.	Typical Mating Plug	Cond.	Terminals	Mounting In. (mm)
MDSL-2A	III	850, 851	2	Solder lug	Mounts thru .203 (5.16) hole, in panels up to .063 (1.6) thick. Singly or in rows on .350 (8.89) min. centers. Adjacent sleeves touch when mtd. on .315 (8.00) centers.
MDPC-2A	III	850, 851	2	PC	Mounts singly or in rows on .315 (8.00) min. centers or .350 (8.89) min. centers
MDSL-2A-RA	III	850, 851	2	Solder lug	Same as Part No. MDSL-2A except right angle solder lug terms. for min. space. Behind panel clearance .382 (9.70)
MDPC-2A-RA	III	850, 851	2	PC	Same as Part No. MDPC-2A except right angle PC terms. Above PC board clearance .345 (8.76)

Littel-Plug PHONE PLUGS

Phone plugs fit std. .25 in. (6.35 mm) phone jacks. Solder terminal plugs have built-in cable clamp. Shielded metal handles are nickel-plated brass or durable molded plastic: 1.688 in. (42.88 mm) long x .5 in. (12.7 mm) dia. Max. cable dia.: 2.97 in. (7.54 mm).


No. 250

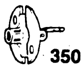

No. 280

THREE CONDUCTOR

260	Screw terminals, black handle.	12B
S-260	Screw terminals, black handle, .206 in. (5.23 mm) dia. sleeve & tip.	S-12B
267	Combination cable clamp & solder lugs, black handle.	12B
269	Same as 267 except red handle.	12B
290	Screw terminals, shielded handle.	12B
297	Same as 267 except shielded handle.	12B

TWO CONDUCTOR

Part No.	Description	Typical Mating Littel-Jax Jacks
240	Screw terminals, black handle.	11
C-240	Screw terminals with integral cord clamp, black handle.	11
245	Screw terminals, red handle.	11
C-245	Same as C-240 except red handle.	11
250	Solder lugs, black handle.	11
255	Solder lugs, red handle	11
270	Screw terminals, shielded handle.	11
C-270	Same as C-240 except shielded handle.	11
280	Solder lugs, shielded handle.	11
288	Special shielded type. Wide insulator between tip-sleeve; use in 3-cond. jack to perform a 2-cond. function without shorting.	11
S-250	Solder lugs, black handle, .206 in. (5.23 mm) dia. sleeve and tip.	S-11
S-280	Same as S-250 except shielded handle.	S-11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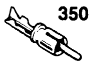
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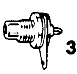
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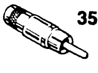
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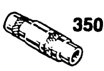
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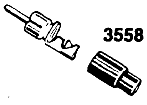
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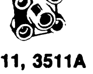
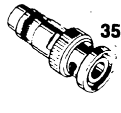

3511, 3511A
3512, 3512A


3513

PHONO JACKS AND PLUGS

Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. 3501MC has .375 in. (9.52 mm) O.D. shell and cable clamp. 3501FP for front panel mount in .25 in. (6.35 mm) hole in panels up to .125 in. (3.18 mm) thick. 3501FR for rear panel mount in .375 in. (9.52 mm) hole in panels up to .203 in. (5.16 mm) thick. 3502 has unique cable clamp with .406 in. (10.31 mm) O.D. shielded removable handle. 3503 extension jack has shielded removable handle .406 in. (10.31 mm) O.D. with cable clamp.

Series 3558 are phono plugs with cable clamp and "snap-on" color-coded plastic handles in red, black and white.

Series 3511, 4 Leaf Clover Jax, molded phono Jack with dual contact surfaces for low shunt resistance. Open and closed circuit types. Mates with all Switchcraft phono plugs.

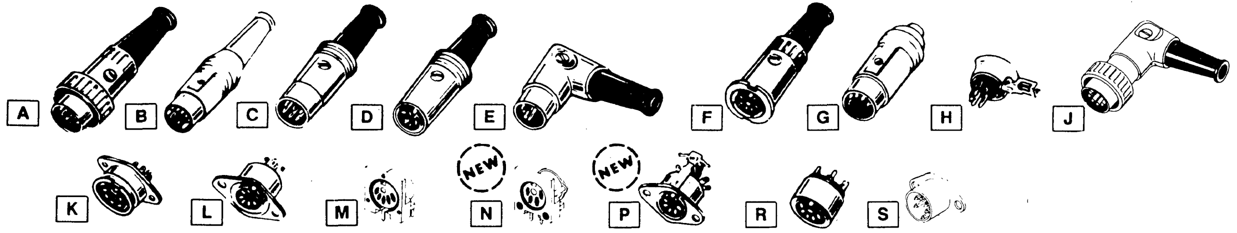
Part No.	Description
3501F	Phono jack
3501M	Plug, less cable clamp
3501MC	Plug with cable clamp
3501FP	—
3501FR	Phono jack
3502	Plug
3503	Extension Plug
3558-1	Plug, red handle
3558-2	Plug, black handle
3558-5	Plug, white handle
3511	Phono jack, open circuit
3511A	Phono jack, open circuit grounded
3512	Phono jack, closed circuit
3512A	Phono jack, closed circuit grounded
3513	Phono Jack-to-BNC Connector Adapter

Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

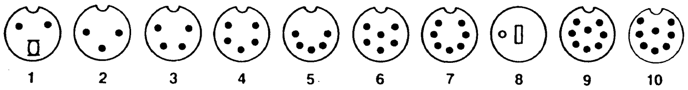
Switchcraft®
A **Raytheon** Company

CIRCULAR DIN CONNECTORS

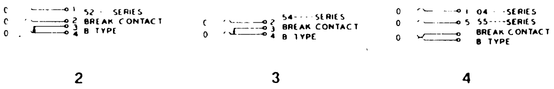
Designed for low level circuitry, for unlimited use in computer, commercial, industrial, consumer and military applications. Exact replacements for plugs and receptacles, used on most foreign built recorders, radios and dictation equipment. Also used extensively for computer keyboard, I/O and peripheral applications. "Switchcraft/DIN" 2 to 8 contact connectors include male and female plugs and receptacles with bright nickel-plated barrels & plastic snap-on shells. Lock-ring coupling, silver plated contact pins for low contact resistance, contact friction coupling for low mechanical interference noise, exclusive "automatic" grounding and polarization provisions. Full line of receptacles offer thru panel, PC board and surface mounting. Positioning "Ground Key-Rib" or "Ground Contact" — electrically integral with the connector shell — is provided in each plug and receptacle (except those with plastic housing or shells) to ground or shield the connector shell. Right angle PC board mount for common ground use also available.



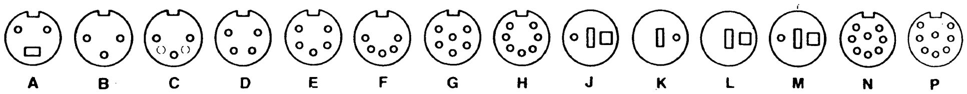
PIN ARRANGEMENTS

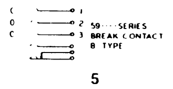


SCHEMATIC CIRCUITS



CONTACT ARRANGEMENTS



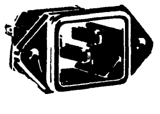


MOLDED CABLES WITH DIN PLUGS

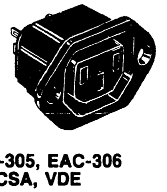
Switchcraft's versatile system of molded cable assemblies and mating receptacles meets the increased demand for modern, miniature connectors for a wide range of electrical/electronic applications. Connectors are DIN circular type and are fully field-proven in electronic applications. Strict requirements of FCC 20780 docket are fully addressed in offering fully shielded links.

The system comprises male and female plugs, locking and non-locking, with from 3 to 8 pins/contacts. Units are fully molded and protected with a rugged handle and advanced design cable relief. A complete range of mating receptacles is also available.

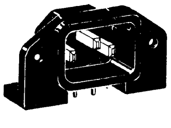
EUROPEAN AC RECEPTACLES



EAC-301, EAC-302
UL, CSA, VDE



EAC-305, EAC-306
UL, CSA, VDE
(CERTIFICATE OF COMPLIANCE; EAC-305 only)



EAC-303
UL, CSA, VDE

Receptacles mate with European power plugs. Choose from panel/chassis or PC mount types. U.L. and C.S.A. listed types. Rating 6 A, 250 V AC or 15 A, 250 V AC. No. EAC-301 is VDE approved; No. EAC-305 has VDE Certificate of Compliance.

Part No. EAC-301 — Grounding types, 3 pin male receptacle. 6 A, 250 V AC; U.L. C.S.A., VDE listed. Mates with Switchcraft power cords Nos. P-2392, P-2720, P-2721, P-2722, P-2725, P-2727, P-2728; Belden SPH-386; or equiv. Rear mounts in 1.201 in. (30.51 mm) x .875 in. (22.22 mm) hole or front mounts in 1.08 in. (27.43 mm) x .785 in. (19.94 mm) hole in chassis/panel with 2, #5 screws or .125 in. (3.18 mm) dia. rivets (not supplied). Longer grounding pin allows ground circuit to "make" before power circuit, and "break" after power circuit disconnects. Pins .045 in. (1.14 mm) x .157 in. (3.99 mm) and terminals: silver plated.

Part No. EAC-302 — Same as EAC-301, except 15 A, 250 V AC rating: U.L. & C.S.A. listed. Mates with Switchcraft power cords Nos. P-2723, P-2724; Belden SPH-386; or equiv.

Part No. EAC-303 — Grounding type 3-pin male receptacle with right-angle housing and pins for PC board mtg. Ground lug (solder type) also supplied. .136 in. (3.45 mm) dia. housing holes also permit panel/chassis mount. 6 A, 250 V AC rating: U.L. & C.S.A. listed. Same rear mount as No. EAC-301. Pin terminals silver-plated brass. Mates with same cords as Nos. EAC-301.

Part No. EAC-305 — Grounding type, 3-contact female receptacle Rated: 6 A, 250 V AC: U.L. & C.S.A. listed. Front panel/chassis mount in 1.275 in. (32.39 mm) x 1.56 in. (39.62 mm) hole with 2, #5 screws or .125 in. (3.18 mm) rivets (not supplied). Mates with Switchcraft power cords Parts Nos. P-2721, P-2725; Belden SPH-388: or equiv. Contacts/terminals: brass.

No. EAC-306 — Similar to EAC-305, except 15 A, 250 V AC rating U.L. & C.S.A. listed.

Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

Switchcraft®
A **Raytheon** Company

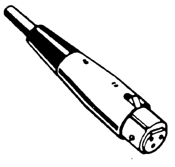
"Q-G" AUDIO CONNECTORS WITH COMPLETE GROUNDING PROVISIONS!

Switchcraft "Quick-Ground" connectors feature a separate "Ground-Terminal" electrically integral with connector shell. Ground continuity between mating plugs automatically accomplished through exclusive "Ground Contactors". Possible loss of insert screw is eliminated by new "Captive-Design" insert screw. Socket and pin assemblies utilize "wedge-action" to insure firm, reliable positioning in connector shell. Inserts are easily removable for wiring & soldering. High impact thermosetting plastic material insures long reliable insert assy. life. Female connectors have latch lock feature to hold connectors firmly together. Plugs and receptacle mechanically keyed for proper mating. "Q-G" (*) Series 3-, 4-, 5-, 6-, and 7-pin/contact connectors offer 4-, 5-, 6-, 7-, & 8-pin contact versatility when "Ground-Terminal" is used. Used interchangeably with Switchcraft QGP connectors (page 41): 3- and 4-contact (Amphenol 91-850 and Excellite 91-450 Series, and Cannon XLR-3, XLR-4): 5-contact (Cannon XLR-5 and Amphenol Excellite 91-450 Series).

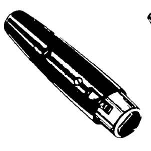
Cord plug part no. suffix "L" indicates strain relief accepts cables from .25 in. (6.35 mm) to .328 in. (8.33 mm) dia.; other plugs accept cables up to .25 in. (6.35 mm) dia. (*) Number of insert contacts or pins must be specified to complete part number.

Part number with suffix "B" indicates cord plug with "Black-Velvet" black finish (minimizes glare and permits stable "through-connector" shielding). Suffix "D" indicates type with "FAS-DISCONNECT" detent feature. U.S. Patent 3,219,961; Canadian Patent No. 761,114 (June 13, 1967)

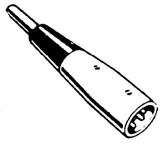
PLUGS



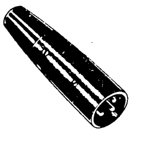
A(*)F



A(*)FB

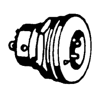


A(*)M

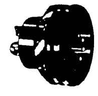


A(*)MB

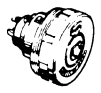
RECEPTACLES



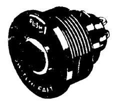
Series B(*)M



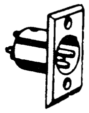
Series B(*)MB



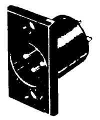
Series B(*)F



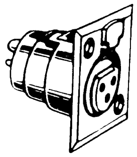
Series B(*)FB



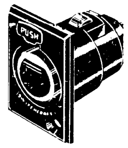
Series D(*)M



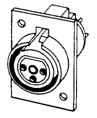
Series D(*)MB



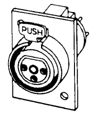
Series D(*)F, D(*)FD



Series D(*)FB



Y3FD



Y3FPC

Specifications:

ELECTRICAL

(QG Connectors Only)

Contact Resistance: 50 milliohm max., per pole
Current Rating: 3 pole–15A; 4 pole–10 A, 5 & 6 pole–7.5 A; 7 pole–5 A.
Insulation Resistance: 1,000 megohms, min.
Dielectric Withstanding Voltage: 1,000 V (rms)
Capacitance: 2 Pf between pins and 4 Pf between pins and shell, max. (A3M & A3F).

MECHANICAL

(QG Connectors Only)

Insertion/Withdrawal Forces: 7 lb. max., 5 lb. nominal, insertion; 7 lb. max., 5 lb. nominal, withdrawal.

MATERIAL

QG Connectors

Shell: Die-cast zinc. Satin nickel finish on all shells, except a black, electrically conductive, chrome plate finish on "Black-Velvet" shells.
Insert Insulation: High-impact, molded thermo-setting plastic.
Socket Contacts: Phosphor bronze, silver plated, chromate dipped; bifurcated on 3-contact type.
Pin Contacts: Brass, silver plated, chromate dipped, Resists tarnishing, and provides excellent electrical conductivity.
Latchlock: High-strength die-cast zinc.
Latch Release: Steel, nickel plated.
Latch Detent: Formed stainless steel.
Insert Screw: Stainless steel.
Cable Relief Bushing: Neoprene.
Mounting Nut and Washer: Brass, nickel plated. (Black, electrically conductive chrome plate finish for "Black Velvet" receptacles).
Mounting Wall Plates: Cold-rolled steel, with stainless steel finish.

QGP Connectors

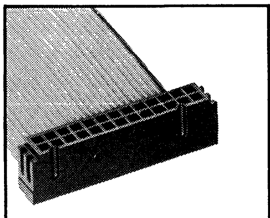
Shell: Die-cast zinc, non-reflective Vel-Tone finish.
Insert Insulation: High strength, reinforced thermoset plastic.
Socket Contacts: Phosphor bronze, 50 microinch gold (over 50 microinch nickel) plated.
Pin Contact: Brass, 50 microinch gold (over 50 microinch nickel) plated.
Latchlock: Die-cast zinc, non-reflective nickel finish.
Latch Release: Steel, nickel plated.
Cable Relief Bushing: Flexible gray neoprene.
Barrel: (Female connectors only) Stainless steel.
Mounting Screws: Stainless steel, passivated, non-reflective finish.
Spanner Nut: (QGP-3-28) Die-cast zinc, nickel plated.
Nut: (QGP-3-29) Brass, nickel plated.
Washer: (QGP-3-29) Steel, nickel plated.

SYMBEX

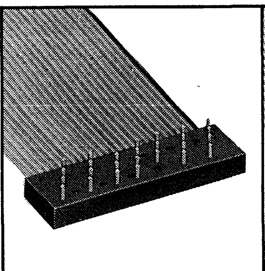
IDC INTERCONNECT SYSTEMS

The only flat cable/connector systems with molded-in quality, reliability and convenience...Cable and contacts are integrally molded into the connector body to form a one-piece interconnect system.

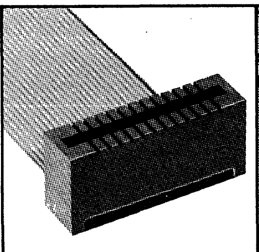
TERMINATIONS



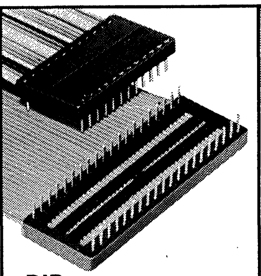
Sockets
hi-profile • low-profile • with tab key • without tab key
sizes-10, 14, 16, 20, 26, 34, 36, 40, 42, 50, 60



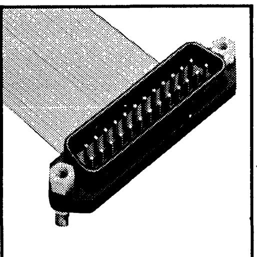
PCB/Transition
sizes-10, 20, 26, 34, 40, 50



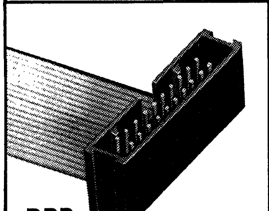
Card-edge
with ears • without ears
sizes-20, 26, 34, 40, 50



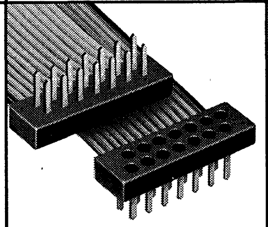
DIP
sizes-14, 16, 24, 40



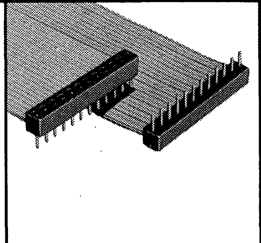
D-Sub Min
male • female
sizes-09, 15, 25, 37



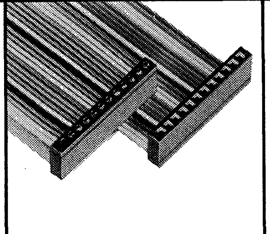
DRP
(Dual Row Plug)
with ears • without ears • with tab keys • without tab keys
sizes-10, 14, 16, 20, 26, 34, 40, 50



DRB
(Dual Row Board)
sizes-10, 14, 16, 20, 24, 26, 34, 36, 40, 42, 50, 60



SRB
(Single Row Board)
sizes-08, 09, 11, 12, 14, 20



SRS
(Single Row Socket)
sizes-02, 05, 07, 08, 10, 11, 12, 14, 16, 20, 24, 32

All terminations feature integral strain-relief • Choose gold or nickel-silver contacts • Daisy chains and custom configurations available

FOR ASSISTANCE CALL:

EAST

TOLL FREE 800-321-7075 except Ohio

Alabama	205-533-1735
Florida	813-754-1329
	305-565-5075
Georgia	404-448-6554
Massachusetts	617-828-8114
New Jersey	609-983-0932
	201-871-0020
New York	212-594-4090
	516-957-7339
	716-633-7970
	716-586-4012
	914-758-8375
	315-458-1321
	716-227-0839
	607-967-7192
North Carolina	919-467-8486
Pennsylvania	215-322-8040

MIDWEST

TOLL FREE 800-321-7075 except Ohio

Arkansas	501-255-7379
Illinois	815-455-3362
Indiana	317-359-4742
	219-833-3522
Louisiana	504-271-1976
Michigan	616-983-0862
	313-851-0820
Minnesota	612-934-5812
Missouri	314-647-2400
	816-229-0001
Ohio	216-333-0400
	614-863-5686
Ohio (factory)	**216-354-0925**
Oklahoma	918-455-4276
Texas	713-776-8468
	214-739-5833
	512-244-3068
	713-266-1604
Wisconsin	414-628-4016

WEST

TOLL FREE
800-824-4129 (W and SW)
800-824-4220 (W and SW)
800-822-8160 (CA only)
800-822-8163 (CA only)

Arizona	602-438-1547
California (factory)	**916-893-5010**
	714-527-2822
	213-404-3881
	408-988-8833
	619-566-6580
Colorado	303-795-3600
Oregon	503-787-3509
Utah	801-487-0843
Washington	206-364-0200

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SYMBEX

Ulti•Mate-D™ D-Sub Min Cable Assemblies

for RS-232, RS-449, RS-442A, RS-443A, and other EMC applications.

Symbex designed the Ulti•Mate-D series from scratch, rather than retrofit a dated connector style to comply with recent emission control requirements. The result is a series of EMC-D Assemblies tested to exceed RS-232 and RS-449 standards and FCC Docket 20780, Part 15, Subpart J specifications.

Standard Features:

- All styles available in 9, 15, 25, and 37 position sizes
- All industry standard dimensions
- Male and Female types
- Selective gold or non-gold contacts
- Cable lengths and wiring patterns to your specifications
- High Normal Force retention
- Screw/nut retention systems, optional
- 100% factory tested

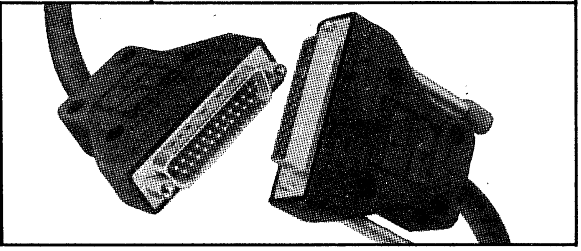
Three Styles:

	SPS — Special Purpose Shielded — 60 dB rating exceeds FCC requirements	**GPS** — General Purpose Shielded — 30 dB rating meets RS-232 and RS-449 standards	**GPU** — General Purpose **Unshielded** for use in non-critical environments
Connector Specs	• Metal Shrouds and Backshells • Terminated drain wire (optional) • Terminated cable braid • Unique spring clips	• Metal Shrouds and Backshells • Terminated Drain wire • Unique spring clips	• Plastic Backshells • Metal Shrouds
Shielding	Double sided aluminum foil 85% tinned copper braid Tinned copper drain wire (optional)	Double sided aluminum foil Tinned copper drain wire (optional)	No Shielding

Cable Styles/Specs

U.L. Style	**2464**	**2448**
Capacities (pF/ft.)	27	14
Working Voltage	300V	30V
Impedance (OHMS)	50-75	90-120
Temperature Rating	80°C	60°C

Conductors — 24 AWG tinned copper
Jacket — Black, .035″ thickness



FOR ASSISTANCE CALL:

EAST

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except Ohio

Alabama	205-533-1735
Florida	813-754-1329 305-565-5075
Georgia	404-448-6554
Massachusetts	617-828-8114
New Jersey	609-983-0932 201-871-0020
New York	212-594-4090 516-957-7339 716-633-7970 716-586-4012 914-758-8375 315-458-1321 716-227-0839 607-967-7192
North Carolina	919-467-8486
Pennsylvania	215-322-8040

MIDWEST

TOLL FREE 800-321-7075
except Ohio

Arkansas	501-255-7379
Illinois	815-455-3362
Indiana	317-359-4742 219-833-3522
Louisiana	504-271-1976
Michigan	616-983-0862 313-851-0820
Minnesota	612-934-5812
Missouri	314-647-2400 816-229-0001
Ohio	216-333-0400 614-863-5686
Ohio (factory)	**216-354-0925**
Oklahoma	918-455-4276
Texas	713-776-8468 214-739-5833 512-244-3068 713-266-1604
Wisconsin	414-628-4016

WEST

TOLL FREE
800-824-4129 (W and SW)
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Arizona	602-438-1547
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Colorado	303-795-3600
Oregon	503-787-3509
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Washington	206-364-0200

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TECKNIT® a TWP company
INTERCONNECTION PRODUCTS

ZEBRA® CONNECTORS FOR LIQUID CRYSTAL DISPLAYS

SERIES 1000/2000—HIGH RESISTANCE CONNECTORS

Series 1000/2000 ZEBRA® Connectors (see Figure 1) have alternating parallel layers of conductive carbon-filled and non-conductive silicone rubber. They make reliable connections by being deflected between contacting surfaces. Series 1000/2000 ZEBRA® Connectors are used for connecting any LCD from small displays for watches to large area displays for instruments. Table A shows the different types of Series 1000/2000 ZEBRA® Connectors available. Table B shows performance characteristics of Series 1000/2000 ZEBRA®.

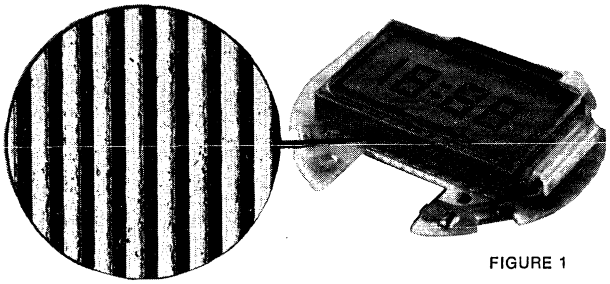


FIGURE 1

Series	LCD Contact Spacing Center-to-Center*	PITCH: Sum of the Thickness of an Adjacent Conductive and non-Conductive Layer		Conductive Layer per inch	Individual Conductive and Insulating Layer Thickness		Available Lengths
	Minimum	Nominal	Maximum	Minimum	Minimum	Maximum	
1006	0.030 in. 0.75 mm	0.010 in. 0.25 mm	0.014 in. 0.35 mm	100	0.002 in. 0.05 mm	0.008 in. 0.20 mm	8.00 in. 203 mm
1002	0.010 in. 0.25 mm	0.004 in. 0.10 mm	0.006 in. 0.15 mm	240	0.001 in 0.025 mm	0.004 in. 0.10 mm	1.00 in. 25.4 mm
2002	0.015 in. 0.38 mm	0.005 in. 0.125 mm	0.007 in. 0.175 mm	200	0.001 in. 0.025 mm	0.005 in. 0.125 mm	6.00 in. 152.4 mm

* This space will assure at least one conductive layer between opposing contacting pads, and at least one insulating layer between adjacent pads.
TABLE A

Series 1000/2000 Zebra Connectors	Temperature Range		Current Carrying Capacity 0.035″ x 0.035″ pad	Resistance Between Layers
	Minimum	Maximum		
All Series 1000/2000 ZEBRAS	-55°F -50°C	260°F 125°C	0.050 amps	10^{12} ohms

TABLE B

TECKNIT 135 BRYANT AVENUE / CRANFORD, NJ 07016 / (201) 272-3850

TECKNIT® a TWP company
INTERCONNECTION PRODUCTS

Figure 2 shows the three dimensions of the Series 1000/2000 ZEBRA® Connector. When ordering, the three dimensions should be specified within the limits shown in Table C.

For best overall performance, Series 1000/2000 ZEBRA Connectors must be ordered and used with a ratio of H/W equal to or greater than 1.5

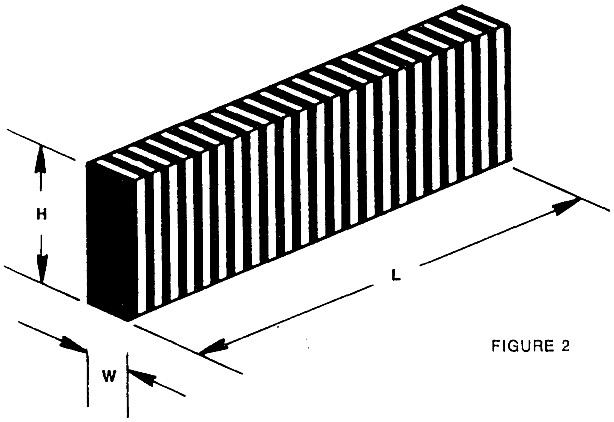


FIGURE 2

SERIES 1000/2000

Configuration	Inches		Millimeters	
LENGTH = L	Min. .250 to 1.000 — ±0.007 1.001 to 2.000 — ±0.015 2.001 to 3.000 — ±0.020 3.001 to 4.000 — ±0.025 4.001 to 6.000 — ±0.030 6.001 to 8.000 — ±0.035		6.35 to 25.40 — ±0.18 25.43 to 50.80 — ±0.38 50.81 to 76.20 — ±0.51 76.21 to 101.60 — ±0.64 101.61 to 154.40 — ±0.76 154.42 to 203.20 — ±0.89	
WIDTH = W	L = 0.250 to 4.000	L = 4.001 to 8.000	L = 6.35 to 101.60	L = 101.61 to 203.20
	0.010 to 0.070 — ±0.003 0.071 to 0.110 — ±0.004 Over 0.110 consult factory	0.020 to 0.070 — ±0.005 0.071 to 0.110 — ±0.006 Over 0.110 consult factory	0.510 to 1.780 — ±0.080 1.790 to 2.800 — ±0.010 Over 2.800 consult factory	0.510 to 1.780 — ±0.187 1.790 to 2.800 — ±0.152 Over 2.800 consult factory
HEIGHT = H	0.050 to 0.200 — ±0.005 0.201 to 0.250 — ±0.006 0.251 to 0.300 — ±0.007 Over 0.300 consult factory		1.27 to 5.08 — ±0.13 5.09 to 6.35 — ±0.15 6.36 to 7.62 — ±0.18 Over 7.62 consult factory	

TABLE C

INSULATING BARRIER

Series 1000/2000 ZEBRA Connectors are available with insulating barriers on one or two sides. Properties of insulating barriers are shown in Table D.

SERIES 1000/2000 ZEBRA INSULATING BARRIER

Description	Insulating Barrier
Color (one only)	White (For colors other than white, contact factory)
Hardness, Durometer A	30
Dielectric Strength volts/mil.	500
Resistance, ohms	10^{12}
Insulating Barrier Width (B) in.*	0.002 ±0.001
(B) mm	0.050 ±0.025

* The tolerance of W_1 will be equal to the sum of the tolerances of W (see Figure 3)
TABLE D

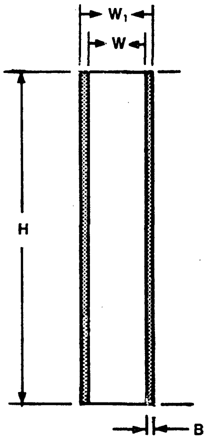


FIGURE 3

TECKNIT® a TWP company

INTERCONNECTION PRODUCTS

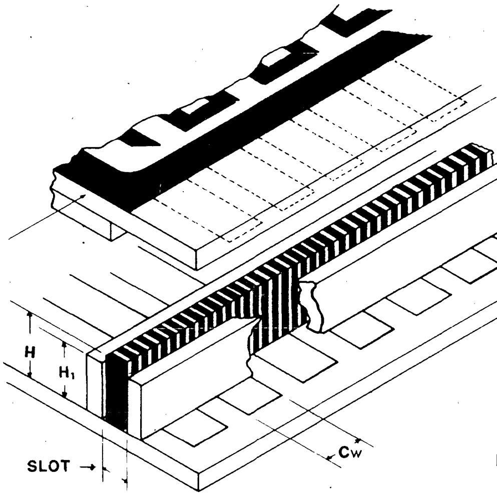


FIGURE 4

NOMINAL RESISTANCE CALCULATION

To calculate the resistance of the Series 1000/2000 ZEBRA® Connector use the following formula:

$$R = \frac{12 \times H}{C_W \times W} = \text{ohms}$$

Where: C_W = Contact pad width in inches
H = ZEBRA height in inches
W = ZEBRA width in inches

FORCE DEFLECTION

Series 1000/2000 ZEBRA® Connectors should be deflected 5% to 25% of H. To caluculate F - Force for deflection, use the following formula:

$F = 8\ DWL = \text{lbs.}$ (Metric $F = 0.56\ DWL = \text{kgs}$)

Where: $D = \frac{H - H_1}{H} \times 100\%$ (Deflection in percent)
H = Height of ZEBRA Connector in inches/cm
H_1 = Deflected height of ZEBRA Connector in inches/cm
L = Length of ZEBRA in inches/cm
W = Width of ZEBRA in inches/cm

Example:
For typical digital watch LCD, the ZEBRA Connector would have the following configurations:

$H = 0.060''/0.152\text{cm}$
$W = 0.030/0.0762\text{cm}$
$L = 0.550''/1.397\text{cm}$
For $D = 10\%$
$F = 9DWL$
$F = 9(10)\ (0.030)\ (0.550) = 1.49$ lbs.
Also $F = 0.63 \times 10 \times 0.0782 \times 1.397 = 0.67$ kgs

METRIC:

$R = \frac{30 \times h}{C_W \times W}$ where H, C_W and W are in cm

For $C_W = 0.035''/0.089\text{cm}$

$$R = \frac{30 \times 0.152}{0.089 \times 0.0762} = 672 \text{ ohms}$$

ZEBRA® CONNECTORS FOR DOT MATRIX LCD

Many LCD dot matrix displays have contact pads on the underside of the front plane facing the PC board and on top of the back plane facing away from the PC board. Connection to the front plane is made by sandwiching the self-supporting ZEBRA® Connector between the display and PC board. The ZEBRA STEP is used to connect the leads on the back plane, at level 1, with the PC board, at level 2, See Figure 14.

Dot matrix LCD's have been used successfully in electronic instruments and electronic toys and games. (For design information consult TECKNIT® Design Guide DG01-0001.)

ZEBRA STEP CONFIGURATION

The ZEBRA STEP is made from a Series 1006 ZEBRA Connector, consisting of alternating parallel layers of conductive and non-conductive silicone rubber. It is formed into a step configuration and backed with an insulating pad of silicone rubber. See Figures 6 and 7.

The ZEBRA STEP connector is available in standard size to accommodate a 2″/50.8mm x 2″/50.8mm dot matrix LCD. It is used with center-to-center contact pad spacing of 0.030″/0.762mm. For non-standard sizes, which are also available, please contact the TECKNIT Sales Department.

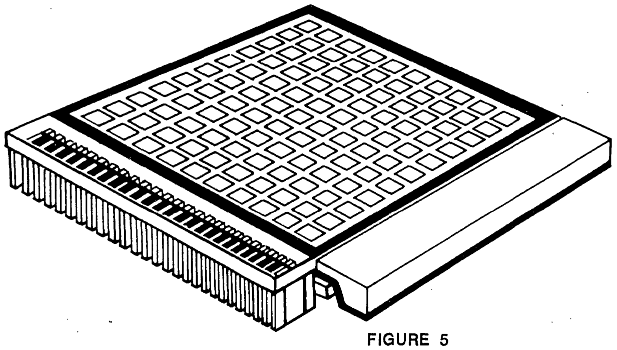
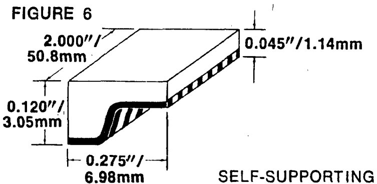


FIGURE 5

FIGURE 6



ZEBRA STEP
SERIES 1006

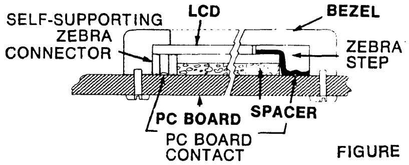


FIGURE 7

TECKNIT® a TWP company
INTERCONNECTION PRODUCTS

SELF-SUPPORTING CONNECTOR

The Self-supporting ZEBRA® Connector is a standard 1006 ZEBRA connector element supported by a soft, non-conductive silicone rubber on one or two sides. The silicone rubber creates a larger width that eliminates need for a holder, and yet the force required for deflection is very low. Only 1.0 to 2.0 lbs. force per linear inch is required for proper contact. The standard Self-Supporting ZEBRA Connector has 0.020″/0.508mm wide ZEBRA Connector element and is available in three different widths to accommodate LCD's with glass lip overhang of 0.600″/1.52mm minimum.

It is used to connect LCD's to printed circuit boards and eliminates bowing of the printed circuit board due to the low force required to make contact.

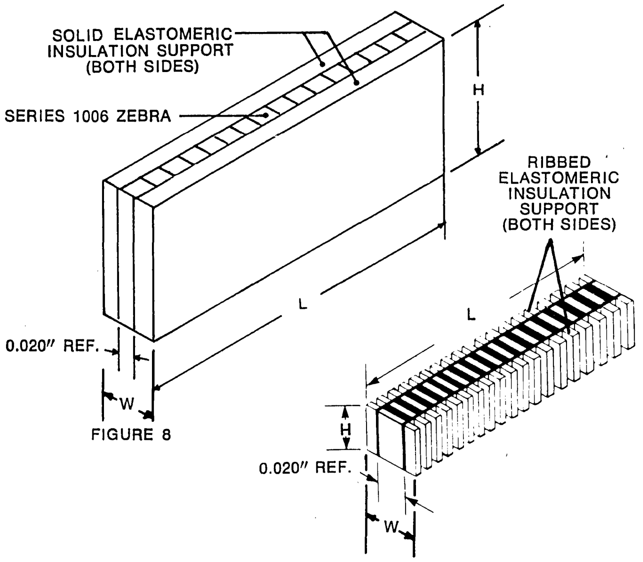

SOLID ELASTOMERIC INSULATION SUPPORT (BOTH SIDES)
SERIES 1006 ZEBRA
H
RIBBED ELASTOMERIC INSULATION SUPPORT (BOTH SIDES)
L
L
0.020″ REF.
W
H
0.020″ REF.
W

FIGURE 8

ORDERING INFORMATION

Figure 8 shows the three dimensions of a typical 1006 Self-Supporting ZEBRA Connector. Tables E and F gives the available sizes and tolerances.

Connecting Element	1006 ZEBRA
LCD Contact Spacing, Center-to-Center, in./mm minimum	0.030/0.762
Nominal Resistance, ohms	8000 H ohms

TABLE H

STANDARD SOLID SELF-SUPPORTING ZEBRA CONNECTOR SIZES

		ZS-060	ZS-070	ZS-100	ZS-120	Tolerance
Height (Standard)	Inches:	0.050 to 0.200	0.050 to 0.200	0.050 to 0.200	0.050 to 0.200	±0.005
	mm:	1.27 to 5.03	1.27 to 5.03	1.27 to 5.03	1.27 to 5.03	±0.127
Width (Standard)	Inches:	0.060 ± 0.006	0.070 ± 0.006	0.100 ± 0.007	0.120 ± 0.008	
	mm:	1.524 ± 0.152	1.78 ± 0.152	2.54 ± 0.178	3.04 ± 0.203	
Length (Standard)	Inches:	1.00 to 2.5	1.00 to 2.5	1.00 to 2.5	1.00 to 2.5	±0.015
	mm:	25.4 to 63.5	25.4 to 63.5	25.4 to 63.5	25.4 to 63.5	±0.381
	Inches:	2.6 to 8.0	2.6 to 8.0	2.6 to 8.0	2.6 to 8.0	±0.030
	mm:	66.04 to 203	66.04 to 203	66.04 to 203	66.04 to 203	±0.762

TABLE E

STANDARD RIBBED SELF-SUPPORTING ZEBRA CONNECTOR SIZES

1006		Ribbed 060	Ribbed 085	Ribbed 100	Ribbed 140	Tolerance
HEIGHT (Standard)	Inches	0.050 to 0.200	0.050 to 0.200	0.050 to 0.200	0.050 to 0.200	±0.005″
	mm	1.27 to 5.08	1.27 to 5.08	1.27 to 5.08	1.27 to 5.08	±0.127″
WIDTH (Standard)	Inches	0.060 ±0.005	0.085 ±0.006	0.100 ±0.006	0.140 ±0.008	
	mm	1.524 ±0.127	2.16 ± 0.152	2.54 ±0.152	3.55 ±0.203	
LENGTH (Standard)	Inches	1.00 to 2.5	1.00 to 2.5	1.00 to 2.5	1.00 to 2.5	±0.015″
	mm	25.4 to 63.5	25.4 to 63.5	25.4 to 63.5	25.4 to 63.5	±0.381″
	Inches	2.6 to 6.0	2.6 to 6.0	2.6 to 6.0	2.6 to 5.0	±0.025″
	mm	66.04 to 152.4	66.04 to 152.4	66.04 to 152.4	66.04 to 127	±0.635″

Contact factory for special tolerances. This connector will allow one conductive layer between opposing contacts of 0.030″/0.762mm minimum center-to-center.
TABLE F

TECKNIT® a TWP company
INTERCONNECTION PRODUCTS

LCD CONNECTOR ASSEMBLIES

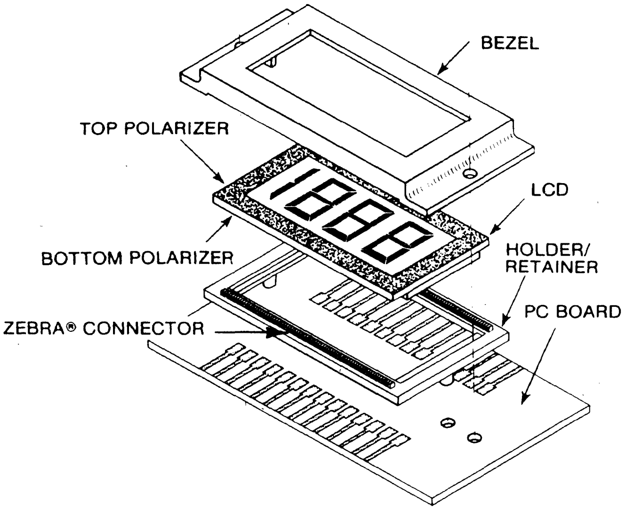
DESCRIPTION

TECKNIT® LCD Connector Assemblies with clear bezels provide an attractive and reliable way of mounting LCD's onto a PC Board. Electrical connection between LCD and PC Board contact surfaces is made by a Series 1006 ZEBRA® Connector which consists of alternating parallel layers of conductive and non-conductive silicone rubber. Because the LCD is mounted on rubber components, the assembly provides shock and vibration protection for the display. The clear bezel provides an extra measure of protection for the LCD.

ASSEMBLY

The Connector assembly consists of a holder/retainer, two ZEBRA® Connectors, viewing area mask, and a bezel. Assembly is simple: place the holder/retainer on the PC board using the locating studs for alignment, insert the ZEBRA Connectors, LCD, and secure the bezel with two screws. The LCD Connectors are available in two configurations: one for Dual Inline displays where the viewing area is in the center, and one for Single Inline displays where the viewing area is offset toward the top. The same bezel is used for both formats; however, the masks and holder/retainer are selected to match the LCD.

The operating temperature range for the Connector assembly exceeds that for the LCD; the ZEBRA® Connectors provide a gas-tight seal of the contact surfaces to assure reliable operation in hostile environments. The bezel protects the LCD polarizer from scratches and may be used directly in the window provided in the instrument or clock case.



STANDARD ASSEMBLIES

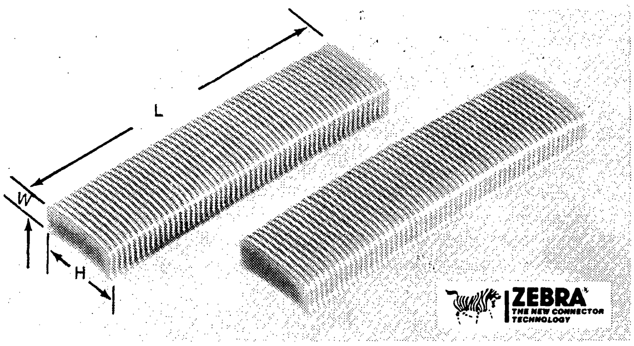
LCD SIZE	TECKNIT PART NO.
.540"/13.72mm x .940"/23.88mm	09-10050
1.2"/30.5mm x 2.0"/50.8mm	09-19137
1.2"/30.5mm x 2.75"/69.85mm	09-19143
1.5"/38.1mm x 2.75"/69.85mm	09-10067
1.5"/38.1mm x 3.695"/93.85mm	09-10075

TECKNIT® a TWP company
INTERCONNECTION PRODUCTS

SERIES 7000/8000 — LOW RESISTANCE CONNECTORS

DESCRIPTION

The ZEBRA Series 7000/8000 elastomeric connector elements are "D"-shaped, low durometer silicone elastomer core around which flat metallic conductors are vulcanized in a row parallel to each other. The tips of the metallic conductors are turned upward so that point contact can be effected; in addition, contact is made to the flat area when the connector element is positioned between two printed circuit boards. The point contact will penetrate surface oxides or contaminants which might be present on the surface of the contact pads, thus assuring reliable electrical connection on two planes. Also available are standard board to board assemblies which include connector and holder.



SERIES 7000 DIMENSIONAL SPECIFICATIONS

CONNECTOR DIMENSIONS*	MINIMUM		MAXIMUM	
Height "H"	0.100″ ±0.005″	2.54mm ±.127mm	0.500″ ±0.015″	12.70mm ±.381mm
Width "W"	0.060″ ±0.005″	1.52mm ±.127mm	0.125″ ±0.010″	3.18mm ±.254mm
Length "L"	0.100″ ±0.005″	2.54mm ±.127mm	2.00″ ±0.015″	50.8mm ±.381mm

Note: For good design practice and low deflection force requirements, the height "H" should be twice the width "W".

SERIES 7000 MATERIALS

Conductive Elements	Tin-plated copper alloy wire.
Wire Size and Spacing	0.002″ ×0.005″ flat wire on 0.015″ center-to-center spacing. (Min. 66 wires/inch.)
Connector Body	Nonconductive blue color silicone rubber. UL-94-HB rating, 500 volts/mil dielectric strength, 35 ±5 Shore A durometer.

SERIES 8000 DIMENSIONAL SPECIFICATIONS

CONNECTOR DIMENSIONS*	MINIMUM		MAXIMUM	
Height "H"	0.150″ ±0.005″	3.81mm ±.127mm	0.500″ ±0.015″	12.70mm ±.381mm
Width "W"	0.060″ ±0.005″	1.52mm ±.127mm	0.125″ ±0.010″	3.18mm ±.254mm
Length "L"	0.100″ ±0.005″	2.54mm ±.127mm	4.00″ ±0.015″*	101.6mm ±.381mm

Note: For good design practice and low deflection force requirements, the height "H" should be twice the width "W". *(Over 4″ contact factory)

SERIES 8000 MATERIALS

Conductive Elements	Gold plated copper wire, gold 0.00001″, nickel 0.00005″. (Other wires available.)
Wire Size and Spacing	A. 0.002″ x 0.005″ flat wire on 0.010″ center-to-center spacing. (Min. 100 wires/in.) B. 0.002″ x 0.004″ flat wire on 0.0075″ center-to-center spacing. (Min. 133 wires/in.)
Connector Body	Nonconductive tan color silicone rubber. UL-94-HB rating, 500 volts/mil. dielectric strength
Film	0.001″ thick polyamide dielectric strength of film ASTM-D-149, 2000 volts/mil.

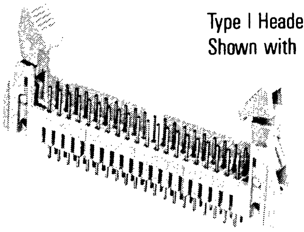
PERFORMANCE CHARACTERISTICS

Parameter	Conditions and Performance
Contacts Resistance	Less than 25 milliohms on 0.025″ wide contact pads; 0.100 amperes DC, Kelvin-type four-probe test method.
Insulation Resistance	Minimum 10^{12} ohms between adjacent conductive elements.
Current Carrying Capacity	Maximum 500 milliamperes per contacting wire.
Capacitance	Maximum 0.100 picofarads per adjacent pad at 1 MHz and 0.100″ high ("H").
Inductance	Maximum 7 nanohenries per adjacent pad at 1 MHz and 0.100″ high ("H").
Repeated Actuations	300 actuations without appreciable change in contact resistance (deflection of 15%).
Deflection	8% to 20%. Recommended deflection 10 to 15% of original height.
Deflection Force/Inch	4 lbs. per linear inch for 15% deflection for a 0.062″ ("W") × 0.285 ("H") connector.
Operating Temperature Range	−20°C min., 125°C max.
Salt Spray Test	MIL-STD-202E, method 101D, condition B. 5% salt solution 95°F, 48 hours. There was no evidence of blistering or peeling of the contact material.
Temperature Cycling	MIL-STD-202E, method 102A, condition D, −55°C, 25°C, 125°C. There was no change in the physical properties of the specimens.
Humidity (Steady State)	MIL-STD-202E, method 103B, condition C modified. 95% RH room temperature. There was no appreciable change in contact resistance after 500 hours exposure.
Corrosive Environment	1,000 hours exposure at 1 ppm H_2S and 1 ppm SO_2, 60°C and 75% RH. Slight change in contact resistance; no evidence of contact peeling or blistering.

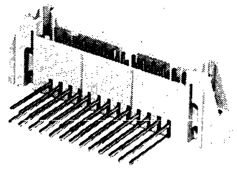
TECKNIT 135 BRYANT AVENUE / CRANFORD, NJ 07016 / (201) 272-3850

TRW Flat Cable Connectors

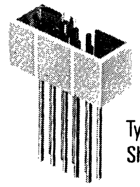
Header Assemblies



Type I Header.
Shown with Latches



Type II Header.
Shown With
Right Angle Tails



Type III Header—Low Profile.
Shown With Wire Wrap Tails

Headers, available in nine sizes, mechanically and electrically interconnect the sockets to printed circuit boards. Mating is positive and audible.

Pin headers are available in straight or right angle configurations, three or four wall units, with or without ejector latches, and in a low profile version.

TRW Flat Cable Headers are intermateable and intermountable with other competitive systems. 9 sizes: 10, 14, 16, 20, 26, 34, 40, 50 and 60.

Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 500 V rms (@sea level)

Insulation Resistance: >1 x 10^9 Ohms

Environmental

Temperature Rating:–55°C to +150°C

Mechanical

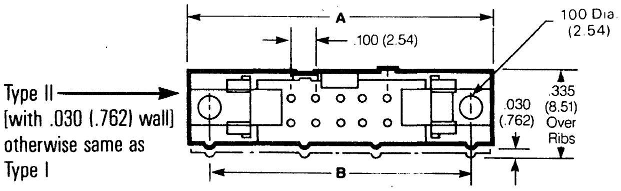
Durability: 500 mating cycles

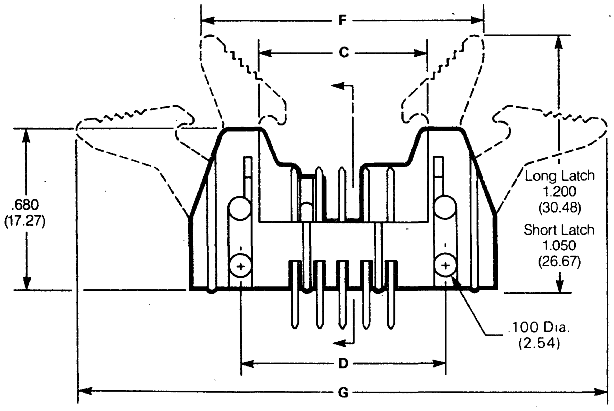
Color: Standard grey

Plating: Gold over nickel in contact area with gold flash or tin on tails

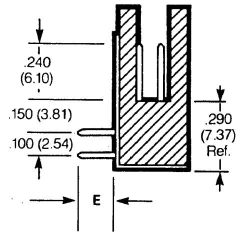
Contact Material: Copper alloy

Insulation Material: Glass filled polyester, UL 94V-0 rated

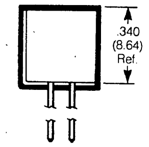




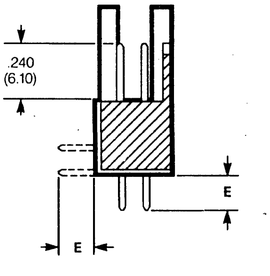
Type II



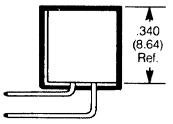
Type III Low Profile



Type I



Type III Low Profile
Right Angle



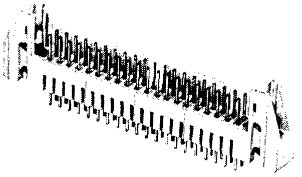
Dimensions

Number of Contacts	A		B		C		D		E	F		Long Latch G max.		Short Latch G max.	
	in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	in.	mm	in.	mm
10	1.260	32.00	1.100	27.94	.700	17.78	.860	21.84	Wire Wrap .610 ±.015 (15.49 ±.381) Solder .155 ±.010 (3.94 ±.254) .092 ±.010 (2.34 ±.254)	1.235	31.37	2.595	65.91	2.295	58.29
14	1.460	37.08	1.300	33.02	.900	22.86	1.060	26.92		1.435	36.45	2.795	70.99	2.495	63.37
16	1.560	39.62	1.400	35.56	1.000	25.40	1.160	29.46		1.535	38.99	2.895	73.53	2.595	65.91
20	1.760	44.70	1.600	40.64	1.200	30.48	1.360	34.54		1.735	44.07	3.095	78.61	2.795	70.99
26	2.060	52.32	1.900	48.26	1.500	38.10	1.660	42.16		2.035	51.69	3.395	86.23	3.095	78.61
34	2.460	62.48	2.300	58.42	1.900	48.26	2.060	52.32		2.435	61.85	3.795	96.39	3.495	88.77
40	2.760	70.10	2.600	66.04	2.200	55.88	2.360	59.94		2.735	69.47	4.095	104.01	3.795	96.39
50	3.260	82.80	3.100	78.74	2.700	68.58	2.860	72.64		3.235	82.17	4.595	116.71	4.295	109.09
60	3.760	95.50	3.600	91.44	3.200	81.28	3.360	84.34		3.735	94.87	5.095	129.41	4.795	121.79

TRW Flat Cable Connectors

Male Headers Type I
Three Sided

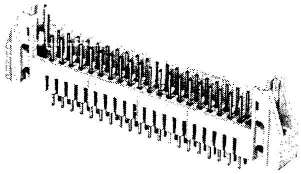
Straight PC Tails
.092" (2.34mm) Tail Length
for .062" (1.57mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-304-5	H10-304-TL	H10-204-5	H10-204-TL	H10-104-5	H10-104-TL
14	H14-304-5	H14-304-TL	H14-204-5	H14-204-TL	H14-104-5	H14-104-TL
16	H16-304-5	H16-304-TL	H16-204-5	H16-204-TL	H16-104-5	H16-104-TL
20	H20-304-5	H20-304-TL	H20-204-5	H20-204-TL	H20-104-5	H20-104-TL
26	H26-304-5	H26-304-TL	H26-204-5	H26-204-TL	H26-104-5	H26-104-TL
34	H34-304-5	H34-304-TL	H34-204-5	H34-204-TL	H34-104-5	H34-104-TL
40	H40-304-5	H40-304-TL	H40-204-5	H40-204-TL	H40-104-5	H40-104-TL
50	H50-304-5	H50-304-TL	H50-204-5	H50-204-TL	H50-104-5	H50-104-TL
60	H60-304-5	H60-304-TL	H60-204-5	H60-204-TL	H60-104-5	H60-104-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

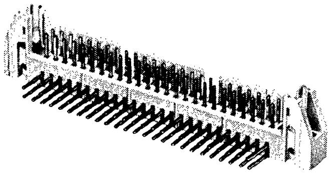
Straight PC Tails
.155" (3.94mm) Tail Length
for .125" (3.17mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-305-5	H10-305-TL	H10-205-5	H10-205-TL	H10-105-5	H10-105-TL
14	H14-305-5	H14-305-TL	H14-205-5	H14-205-TL	H14-105-5	H14-105-TL
16	H16-305-5	H16-305-TL	H16-205-5	H16-205-TL	H16-105-5	H16-105-TL
20	H20-305-5	H20-305-TL	H20-205-5	H20-205-TL	H20-105-5	H20-105-TL
26	H26-305-5	H26-305-TL	H26-205-5	H26-205-TL	H26-105-5	H26-105-TL
34	H34-305-5	H34-305-TL	H34-205-5	H34-205-TL	H34-105-5	H34-105-TL
40	H40-305-5	H40-305-TL	H40-205-5	H40-205-TL	H40-105-5	H40-105-TL
50	H50-305-5	H50-305-TL	H50-205-5	H50-205-TL	H50-105-5	H50-105-TL
60	H60-305-5	H60-305-TL	H60-205-5	H60-205-TL	H60-105-5	H60-105-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

Right Angle PC Tails
.092" (2.34mm) Tail Length
for .062" (1.57mm) PCB



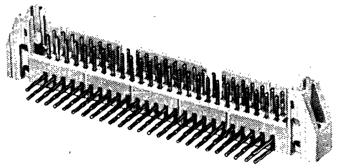
Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-301-5	H10-301-TL	H10-201-5	H10-201-TL	H10-101-5	H10-101-TL
14	H14-301-5	H14-301-TL	H14-201-5	H14-201-TL	H14-101-5	H14-101-TL
16	H16-301-5	H16-301-TL	H16-201-5	H16-201-TL	H16-101-5	H16-101-TL
20	H20-301-5	H20-301-TL	H20-201-5	H20-201-TL	H20-101-5	H20-101-TL
26	H26-301-5	H26-301-TL	H26-201-5	H26-201-TL	H26-101-5	H26-101-TL
34	H34-301-5	H34-301-TL	H34-201-5	H34-201-TL	H34-101-5	H34-101-TL
40	H40-301-5	H40-301-TL	H40-201-5	H40-201-TL	H40-101-5	H40-101-TL
50	H50-301-5	H50-301-TL	H50-201-5	H50-201-TL	H50-101-5	H50-101-TL
60	H60-301-5	H60-301-TL	H60-201-5	H60-201-TL	H60-101-5	H60-101-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

TRW Flat Cable Connectors

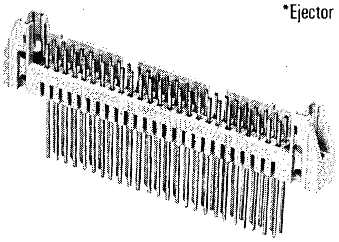
Male Headers Type I
Three Sided

Right Angle PC Tails
.155" (3.94mm) Tail Length
for .125" (3.17mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-302-5	H10-302-TL	H10-202-5	H10-202-TL	H10-102-5	H10-102-TL
14	H14-302-5	H14-302-TL	H14-202-5	H14-202-TL	H14-102-5	H14-102-TL
16	H16-302-5	H16-302-TL	H16-202-5	H16-202-TL	H16-102-5	H16-102-TL
20	H20-302-5	H20-302-TL	H20-202-5	H20-202-TL	H20-102-5	H20-102-TL
26	H26-302-5	H26-302-TL	H26-202-5	H26-202-TL	H26-102-5	H26-102-TL
34	H34-302-5	H34-302-TL	H34-202-5	H34-202-TL	H34-102-5	H34-102-TL
40	H40-302-5	H40-302-TL	H40-202-5	H40-202-TL	H40-102-5	H40-102-TL
50	H50-302-5	H50-302-TL	H50-202-5	H50-202-TL	H50-102-5	H50-102-TL
60	H60-302-5	H60-302-TL	H60-202-5	H60-202-TL	H60-102-5	H60-102-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

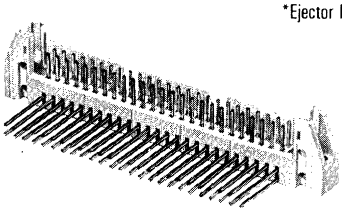


Straight with .025" (.635mm) Square x .610" (15.49mm) Long Wire Wrap Tails

Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-306-5	H10-306-TL	H10-206-5	H10-206-TL	H10-106-5	H10-106-TL
14	H14-306-5	H14-306-TL	H14-206-5	H14-206-TL	H14-106-5	H14-106-TL
16	H16-306-5	H16-306-TL	H16-206-5	H16-206-TL	H16-106-5	H16-106-TL
20	H20-306-5	H20-306-TL	H20-206-5	H20-206-TL	H20-106-5	H20-106-TL
26	H26-306-5	H26-306-TL	H26-206-5	H26-206-TL	H26-106-5	H26-106-TL
34	H34-306-5	H34-306-TL	H34-206-5	H34-206-TL	H34-106-5	H34-106-TL
40	H40-306-5	H40-306-TL	H40-206-5	H40-206-TL	H40-106-5	H40-106-TL
50	H50-306-5	H50-306-TL	H50-206-5	H50-206-TL	H50-106-5	H50-106-TL
60	H60-306-5	H60-306-TL	H60-206-5	H60-206-TL	H60-106-5	H60-106-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

Right Angle with .025" (.635mm) Square x .610" (15.49mm) Long Wire Wrap Tails



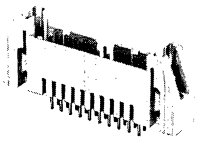
Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-303-5	H10-303-TL	H10-203-5	H10-203-TL	H10-103-5	H10-103-TL
14	H14-303-5	H14-303-TL	H14-203-5	H14-203-TL	H14-103-5	H14-103-TL
16	H16-303-5	H16-303-TL	H16-203-5	H16-203-TL	H16-103-5	H16-103-TL
20	H20-303-5	H20-303-TL	H20-203-5	H20-203-TL	H20-103-5	H20-103-TL
26	H26-303-5	H26-303-TL	H26-203-5	H26-203-TL	H26-103-5	H26-103-TL
34	H34-303-5	H34-303-TL	H34-203-5	H34-203-TL	H34-103-5	H34-103-TL
40	H40-303-5	H40-303-TL	H40-203-5	H40-203-TL	H40-103-5	H40-103-TL
50	H50-303-5	H50-303-TL	H50-203-5	H50-203-TL	H50-103-5	H50-103-TL
60	H60-303-5	H60-303-TL	H60-203-5	H60-203-TL	H60-103-5	H60-103-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

TRW Flat Cable Connectors

Male Headers Type II
Four Sided

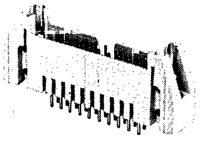
Straight PC Tails
.092" (2.34mm) Tail Length
for .062" (1.57mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-604-5	H10-604-TL	H10-504-5	H10-504-TL	H10-404-5	H10-404-TL
14	H14-604-5	H14-604-TL	H14-504-5	H14-504-TL	H14-404-5	H14-404-TL
16	H16-604-5	H16-604-TL	H16-504-5	H16-504-TL	H16-404-5	H16-404-TL
20	H20-604-5	H20-604-TL	H20-504-5	H20-504-TL	H20-404-5	H20-404-TL
26	H26-604-5	H26-604-TL	H26-504-5	H26-504-TL	H26-404-5	H26-404-TL
34	H34-604-5	H34-604-TL	H34-504-5	H34-504-TL	H34-404-5	H34-404-TL
40	H40-604-5	H40-604-TL	H40-504-5	H40-504-TL	H40-404-5	H40-404-TL
50	H50-604-5	H50-604-TL	H50-504-5	H50-504-TL	H50-404-5	H50-404-TL
60	H60-604-5	H60-604-TL	H60-504-5	H60-504-TL	H60-404-5	H60-404-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

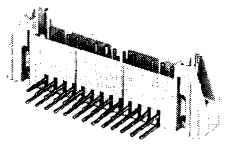
Straight PC Tails
.155" (3.94mm) Tail Length
for .125" (3.17mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-605-5	H10-605-TL	H10-505-5	H10-505-TL	H10-405-5	H10-405-TL
14	H14-605-5	H14-605-TL	H14-505-5	H14-505-TL	H14-405-5	H14-405-TL
16	H16-605-5	H16-605-TL	H16-505-5	H16-505-TL	H16-405-5	H16-405-TL
20	H20-605-5	H20-605-TL	H20-505-5	H20-505-TL	H20-405-5	H20-405-TL
26	H26-605-5	H26-605-TL	H26-505-5	H26-505-TL	H26-405-5	H26-405-TL
34	H34-605-5	H34-605-TL	H34-505-5	H34-505-TL	H34-405-5	H34-405-TL
40	H40-605-5	H40-605-TL	H40-505-5	H40-505-TL	H40-405-5	H40-405-TL
50	H50-605-5	H50-605-TL	H50-505-5	H50-505-TL	H50-405-5	H50-405-TL
60	H60-605-5	H60-605-TL	H60-505-5	H60-505-TL	H60-405-5	H60-405-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

Right Angle PC Tails
.092" (2.34mm) Tail Length
for .062" (1.57mm) PCB



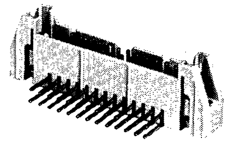
Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-601-5	H10-601-TL	H10-501-5	H10-501-TL	H10-401-5	H10-401-TL
14	H14-601-5	H14-601-TL	H14-501-5	H14-501-TL	H14-401-5	H14-401-TL
16	H16-601-5	H16-601-TL	H16-501-5	H16-501-TL	H16-401-5	H16-401-TL
20	H20-601-5	H20-601-TL	H20-501-5	H20-501-TL	H20-401-5	H20-401-TL
26	H26-601-5	H26-601-TL	H26-501-5	H26-501-TL	H26-401-5	H26-401-TL
34	H34-601-5	H34-601-TL	H34-501-5	H34-501-TL	H34-401-5	H34-401-TL
40	H40-601-5	H40-601-TL	H40-501-5	H40-501-TL	H40-401-5	H40-401-TL
50	H50-601-5	H50-601-TL	H50-501-5	H50-501-TL	H50-401-5	H50-401-TL
60	H60-601-5	H60-601-TL	H60-501-5	H60-501-TL	H60-401-5	H60-401-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

TRW Flat Cable Connectors

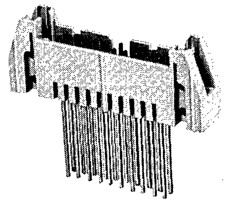
Male Headers Type II
Four Sided

Right Angle PC Tails
.155" (3.94mm) Tail Length
for .125" (3.17mm) PCB



Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-602-5	H10-602-TL	H10-502-5	H10-502-TL	H10-402-5	H10-402-TL
14	H14-602-5	H14-602-TL	H14-502-5	H14-502-TL	H14-402-5	H14-402-TL
16	H16-602-5	H16-602-TL	H16-502-5	H16-502-TL	H16-402-5	H16-402-TL
20	H20-602-5	H20-602-TL	H20-502-5	H20-502-TL	H20-402-5	H20-402-TL
26	H26-602-5	H26-602-TL	H26-502-5	H26-502-TL	H26-402-5	H26-402-TL
34	H34-602-5	H34-602-TL	H34-502-5	H34-502-TL	H34-402-5	H34-402-TL
40	H40-602-5	H40-602-TL	H40-502-5	H40-502-TL	H40-402-5	H40-402-TL
50	H50-602-5	H50-602-TL	H50-502-5	H50-502-TL	H50-402-5	H50-402-TL
60	H60-602-5	H60-602-TL	H60-502-5	H60-502-TL	H60-402-5	H60-402-TL

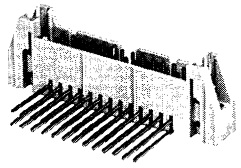
*Ejector latches may be purchased separately. Two (2) required per header connector.



Straight with .025" (.635mm) Square x .610" (15.49mm) Long Wire Wrap Tails

Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-606-5	H10-606-TL	H10-506-5	H10-506-TL	H10-406-5	H10-406-TL
14	H14-606-5	H14-606-TL	H14-506-5	H14-506-TL	H14-406-5	H14-406-TL
16	H16-606-5	H16-606-TL	H16-506-5	H16-506-TL	H16-406-5	H16-406-TL
20	H20-606-5	H20-606-TL	H20-506-5	H20-506-TL	H20-406-5	H20-406-TL
26	H26-606-5	H26-606-TL	H26-506-5	H26-506-TL	H26-406-5	H26-406-TL
34	H34-606-5	H34-606-TL	H34-506-5	H34-506-TL	H34-406-5	H34-406-TL
40	H40-606-5	H40-606-TL	H40-506-5	H40-506-TL	H40-406-5	H40-406-TL
50	H50-606-5	H50-606-TL	H50-506-5	H50-506-TL	H50-406-5	H50-406-TL
60	H60-606-5	H60-606-TL	H60-506-5	H60-506-TL	H60-406-5	H60-406-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.



Right Angle with .025" (.635mm) Square x .610" (15.49mm) Long Wire Wrap Tails

Number of Contacts	Distributor Part No.					
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-603-5	H10-603-TL	H10-503-5	H10-503-TL	H10-403-5	H10-403-TL
14	H14-603-5	H14-603-TL	H14-503-5	H14-503-TL	H14-403-5	H14-403-TL
16	H16-603-5	H16-603-TL	H16-503-5	H16-503-TL	H16-403-5	H16-403-TL
20	H20-603-5	H20-603-TL	H20-503-5	H20-503-TL	H20-403-5	H20-403-TL
26	H26-603-5	H26-603-TL	H26-503-5	H26-503-TL	H26-403-5	H26-403-TL
34	H34-603-5	H34-603-TL	H34-503-5	H34-503-TL	H34-403-5	H34-403-TL
40	H40-603-5	H40-603-TL	H40-503-5	H40-503-TL	H40-403-5	H40-403-TL
50	H50-603-5	H50-603-TL	H50-503-5	H50-503-TL	H50-403-5	H50-403-TL
60	H60-603-5	H60-603-TL	H60-503-5	H60-503-TL	H60-403-5	H60-403-TL

*Ejector latches may be purchased separately. Two (2) required per header connector.

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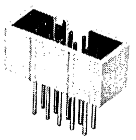
TRW Flat Cable Connectors

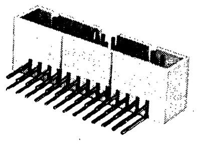
Male Headers Type III
Four Sided-Low Profile

Straight PC Tails



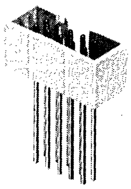
Number of Contacts	Distributor Part No.			
	.092" (2.34mm) tail length		.155" (3.94mm) tail length	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-704-5	H10-704-TL	H10-705-5	H10-705-TL
14	H14-704-5	H14-704-TL	H14-705-5	H14-705-TL
16	H16-704-5	H16-704-TL	H16-705-5	H16-705-TL
20	H20-704-5	H20-704-TL	H20-705-5	H20-705-TL
26	H26-704-5	H26-704-TL	H26-705-5	H26-705-TL
34	H34-704-5	H34-704-TL	H34-705-5	H34-705-TL
40	H40-704-5	H40-704-TL	H40-705-5	H40-705-TL
50	H50-704-5	H50-704-TL	H50-705-5	H50-705-TL
60	H60-704-5	H60-704-TL	H60-705-5	H60-705-TL

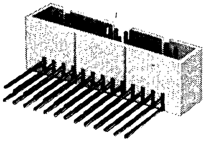
Right Angle PC Tails



Number of Contacts	Distributor Part No.			
	.092" (2.34mm) tail length		.155" (3.94mm) tail length	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-701-5	H10-701-TL	H10-702-5	H10-702-TL
14	H14-701-5	H14-701-TL	H14-702-5	H14-702-TL
16	H16-701-5	H16-701-TL	H16-702-5	H16-702-TL
20	H20-701-5	H20-701-TL	H20-702-5	H20-702-TL
26	H26-701-5	H26-701-TL	H26-702-5	H26-702-TL
34	H34-701-5	H34-701-TL	H34-702-5	H34-702-TL
40	H40-701-5	H40-701-TL	H40-702-5	H40-702-TL
50	H50-701-5	H50-701-TL	H50-702-5	H50-702-TL
60	H60-701-5	H60-701-TL	H60-702-5	H60-702-TL

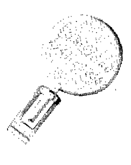
Straight and Right Angle with .025" (.635mm) Square x .610" (15.49mm) Long Wire Wrap Tails





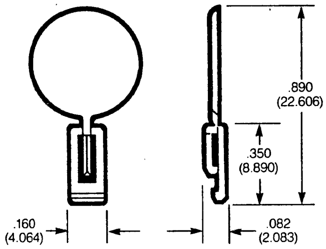
Number of Contacts	Distributor Part No.			
	Straight		Right Angle	
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails
10	H10-706-5	H10-706-TL	H10-703-5	H10-703-TL
14	H14-706-5	H14-706-TL	H14-703-5	H14-703-TL
16	H16-706-5	H16-706-TL	H16-703-5	H16-703-TL
20	H20-706-5	H20-706-TL	H20-703-5	H20-703-TL
26	H26-706-5	H26-706-TL	H26-703-5	H26-703-TL
34	H34-706-5	H34-706-TL	H34-703-5	H34-703-TL
40	H40-706-5	H40-706-TL	H40-703-5	H40-703-TL
50	H50-706-5	H50-706-TL	H50-703-5	H50-703-TL
60	H60-706-5	H60-706-TL	H60-703-5	H60-703-TL

Polarizing Key

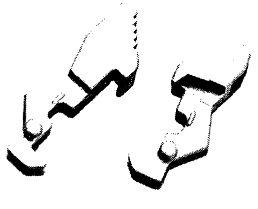


The polarizing key permits fast, fool-proof keying of header and socket. It assures proper alignment of headers to prevent equipment damage and pin or signal loss.

Dist. Part No. FCPK-886

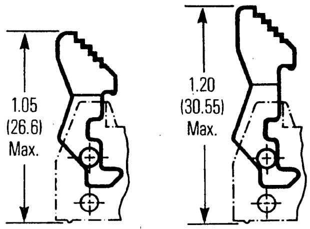


Ejector Latches



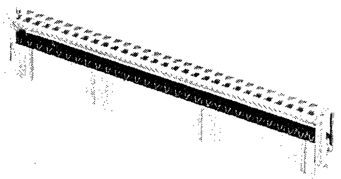
For use with Type I and Type II only.

Type	Dist. Part No.
Long Ejector Latch	LL-885
Short Ejector Latch	SL-884



TRW Flat Cable Connectors

Socket Connector Assembly



Socket Connectors control wire strain by the unique, one-piece cover/strain relief design. An exceptional feature is test probe access holes, which permit contact testing without interfering with connector function. The cover/strain relief is pre-assembled as an integral part of the connector assembly.

The two contact styles available are a double beam and a low cost single beam style. A 64-contact DIN style socket is also available. Intermates with competitive strain relief systems with addition of TRW "Cover Add-On"

9 sizes: 10, 14, 16, 20, 26, 34, 40, 50 and 60

Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 500 V rms (@sea level)

Insulation Resistance: >1 x 10^9 Ohms at 500 VDC

Environmental

Temperature Rating: –55°C to +105°C

Mechanical

Insulation Material: Glass filled polyester, UL 94V-0 rated

Contact Material: Copper alloy

Contact Plating: Gold over nickel in contact area with gold flash or tin on tails and all tin for commercial applications.

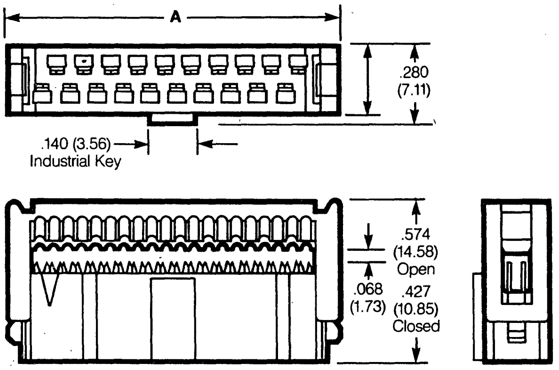
Contact Configuration: —double beam
—single beam

Wire Accommodation: 28 AWG stranded, Color: Standard grey

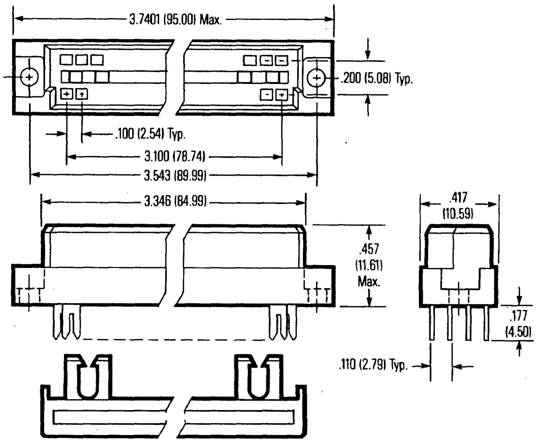
Dimensions

No. of Contacts	A		B	
	in.	mm	in.	mm
10	.680	17.27	.400	10.16
14	.880	22.35	.600	15.24
16	.980	24.89	.700	17.78
20	1.180	29.97	.900	22.86
26	1.480	37.59	1.200	30.48
34	1.880	47.75	1.600	40.64
40	2.180	55.37	1.900	48.26
50	2.680	68.07	2.400	60.96
60	3.180	80.77	2.900	73.66

Socket Connector



Socket Connector (DIN Style)

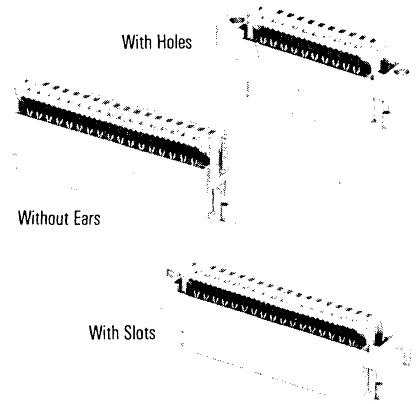


Ordering Information

Number of Contacts	Distributor Part No.								
	Tin on Tails Double Beam		Tin on Tails Single Beam		All Tin on Tails Single Beam		Gold Flash on Tails Double Beam		
	With Industrial Key	Without Industrial Key	With Industrial Key	Without Industrial Key	With Industrial Key	Without Industrial Key	With Industrial Key	Without Industrial Key	Cover Add-On
10	FCS10-102-2	FCS10-202-2	FCS10-102-1	FCS10-202-1	FCS10-102-T	FCS10-202-T	FCS10-102	FCS10-202	FCSC-981
14	FCS14-102-2	FCS14-202-2	FCS14-102-1	FCS14-202-1	FCS14-102-T	FCS14-202-T	FCS14-102	FCS14-202	FCSC-982
16	FCS16-102-2	FCS16-202-2	FCS16-102-1	FCS16-202-1	FCS16-102-T	FCS16-202-T	FCS16-102	FCS16-202	FCSC-983
20	FCS20-102-2	FCS20-202-2	FCS20-102-1	FCS20-202-1	FCS20-102-T	FCS20-202-T	FCS20-102	FCS20-202	FCSC-984
26	FCS26-102-2	FCS26-202-2	FCS26-102-1	FCS26-202-1	FCS26-102-T	FCS26-202-T	FCS26-102	FCS26-202	FCSC-985
34	FCS34-102-2	FCS34-202-2	FCS34-102-1	FCS34-202-1	FCS34-102-T	FCS34-202-T	FCS34-102	FCS34-202	FCSC-986
40	FCS40-102-2	FCS40-202-2	FCS40-102-1	FCS40-202-1	FCS40-102-T	FCS40-202-T	FCS40-102	FCS40-202	FCSC-987
50	FCS50-102-2	FCS50-202-2	FCS50-102-1	FCS50-202-1	FCS50-102-T	FCS50-202-T	FCS50-102	FCS50-202	FCSC-988
60	FCS60-102-2	FCS60-202-2	FCS60-102-1	FCS60-202-1	FCS60-102-T	FCS60-202-T	FCS60-102	FCS60-202	FCSC-990
64 DIN Type	43-2647	—	—	—	—	—	—	—	—

TRW Flat Cable Connectors

Edge Connector Assembly



Edge Connectors in this system are available in eight sizes. The narrow width allows a closer spacing than standard, for increasing daughter board density. They are available with or without mounting ears, in compact or standard mounting dimensions. For use in competitive mounting center applications, the slot version may be required.

8 sizes: 10, 16, 20, 26, 34, 40, 50 and 60. Termination caps are required to prevent contacts from pushing out during cable termination.

Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 500 V rms (@sea level)

Insulation Resistance: >1 x 10^9 Ohms at 500 VDC

Environmental

Temperature Rating: –55°C to +105°C

Mechanical

Insulation Material: Polyphenylene oxide, UL 94V-0 rated

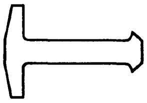
Contact Material: Copper alloy

Contact Plating: Gold over nickel in contact area with gold flash or tin on tails

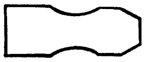
Contact Spacing: Mating .100″ centers, IDC .050″ centers

Wire Accommodation: 28 AWG stranded, Color: Standard grey

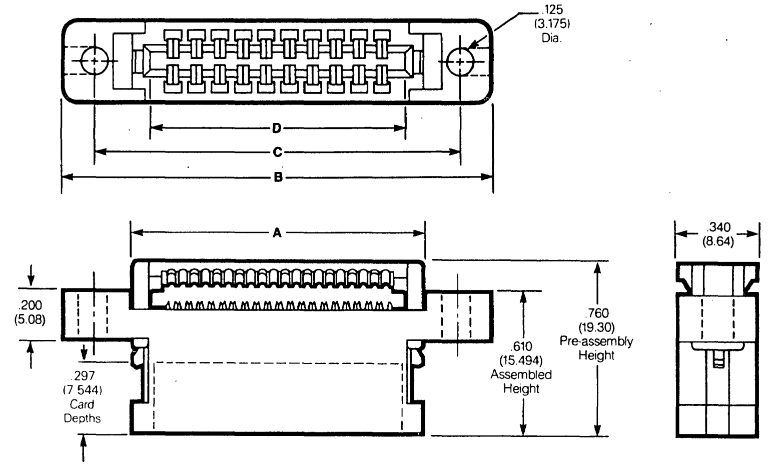
Polarizing Keys



In Contact Key
Distributor Part No.—50-PK5



Between-Contact Key
Distributor Part No.—50-PK3



Dimensions

No. of Contacts	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
10	.768	19.51	1.335	33.91	1.075	27.31	.600	15.24
16	1.068	27.13	1.635	41.53	1.375	34.93	.900	22.86
20	1.268	32.21	1.835	46.61	1.575	40.01	1.100	27.94
26	1.568	39.83	2.135	54.23	1.875	47.63	1.140	28.96
34	1.968	49.99	2.535	64.39	2.275	57.79	1.800	45.72
40	2.268	57.61	2.835	72.01	2.575	65.41	2.100	53.34
50	2.768	70.31	3.335	84.71	3.075	78.11	2.600	66.04
60	3.268	83.00	3.835	97.41	3.575	90.81	3.100	78.74

Number of Contacts	Distributor Part No.						
	With Holes		W/O Ears		With Slots		
	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Gold Flash on tails	Tin on tails	Termination Caps
10	FCE10-101	FCE10-101-1	FCE10-102	FCE10-102-1	FCE10-103	FCE10-103-1	FC-EP1-10
16	FCE16-101	FCE16-101-1	FCE16-102	FCE16-102-1	FCE16-103	FCE16-103-1	FC-EP1-16
20	FCE20-101	FCE20-101-1	FCE20-102	FCE20-102-1	FCE20-103	FCE20-103-1	FC-EP1-20
26	FCE26-101	FCE26-101-1	FCE26-102	FCE26-102-1	FCE26-103	FCE26-103-1	FC-EP1-26
34	FCE34-101	FCE34-101-1	FCE34-102	FCE34-102-1	FCE34-103	FCE34-103-1	FC-EP1-34
40	FCE40-101	FCE40-101-1	FCE40-102	FCE40-102-1	FCE40-103	FCE40-103-1	FC-EP1-40
50	FCE50-101	FCE50-101-1	FCE50-102	FCE50-102-1	FCE50-103	FCE50-103-1	FC-EP1-50
60	FCE60-101	FCE60-101-1	FCE60-102	FCE60-102-1	FCE60-103	FCE60-103-1	FC-EP1-60

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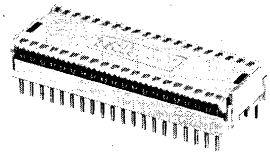
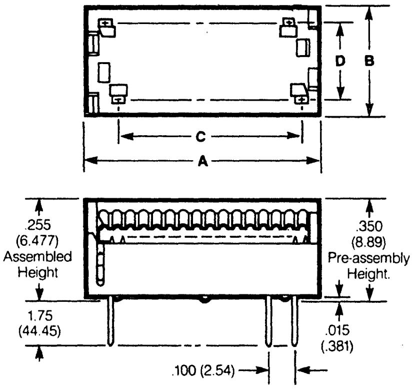
TRW Flat Cable Connectors

DIP And D-Subminiature Connectors



DIP Plugs for this system come in seven sizes. They can be permanently soldered to the PC board, or used to plug into standard DIP sockets.

7 sizes; 8, 14, 16, 18, 22, 24, and 40



Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 500 V rms (@ sea level)

Environmental

Temperature Rating: –55°C to +150°C

Mechanical

Insulation Material: Polyphenylene oxide (PPO), UL 94V-0 rated

Contact Material: Copper alloy

Contact Plating: Gold over nickel in contact area with gold flash or tin on tails

Termination: Soldered to PC board or plugs into standard IC socket

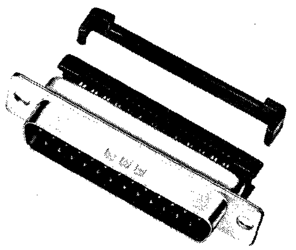
Color: Standard grey

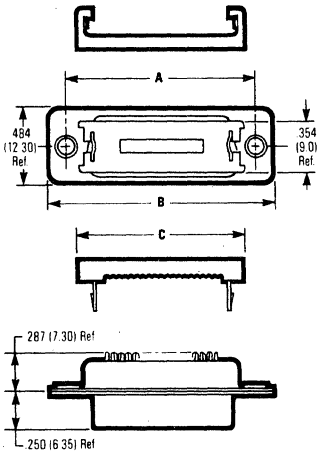
Ordering Information

Number of Contacts	Distributor Part No.	
	Gold/Nickel	Tin
8	FCD-8	FCD-8-1
14	FCD-14	FCD-14-1
16	FCD-16	FCD-16-1
18	FCD-18	FCD-18-1
22	FCD-22	FCD-22-1
24	FCD-24	FCD-24-1
40	FCD-40	FCD-40-1

Dimensions

No. of Contacts	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
8	.475	12.07	.400	10.16	.300	7.62	.300	7.62
14	.775	19.69	.400	10.16	.600	15.29	.300	7.62
16	.875	22.23	.400	10.16	.700	17.78	.300	7.62
18	.975	24.77	.400	10.16	.800	20.32	.300	7.62
22	1.175	29.85	.500	12.70	1.000	25.40	.400	10.16
24	1.275	32.39	.700	17.78	1.100	27.99	.600	15.24
40	2.075	52.71	.700	17.78	1.900	48.26	.600	15.24





D-Subminiature Connectors are available in four sizes with conductive tin-plated or yellow chromate metal body shells. The metal shells are suitable for EMI/RFI shielding. Compatible with 0.050″ standard pitch flat cable.

Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 1,000 V rms

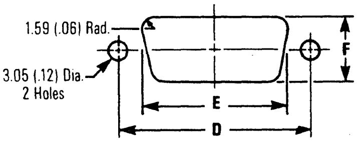
Insulation Resistance: >1 x 10^9 Ohms at 500 VDC

Environmental

Temperature Rating: –25°C to +105°C

Mechanical

Contact Housing: Glass filled polyester (UL 94V-0) encased in steel shell with conductive tin plating and indents, or yellow chromate without indents.



Contact Material: Copper alloy

Contact Plating: Gold over nickel

Wire Accommodation: 28 AWG stranded and 30 AWG solid

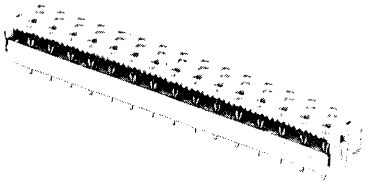
Number of Contacts	Distributor Part No.	
	Conductive Tin	Yellow Chromate
9 Plug 9 Socket	FC-9PT FC-9ST	FC-9P FC-9S
15 Plug 15 Socket	FC-15PT FC-15ST	FC-15P FC-15S
25 Plug 25 Socket	FC-25PT FC-25ST	FC-25P FC-25S
37 Plug 37 Socket	FC-37PT FC-37ST	FC-37P FC-37S

Number of Contacts	Optional Strain Reliefs
9	FCSR-9
15	FCSR-15
25	FCSR-25
37	FCSR-37

Number of Contacts	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
9	.984	24.99	1.203	30.56	.799	20.30	.904	25.00	.781	19.84	.444	11.28
15	1.312	33.32	1.531	38.89	1.126	28.60	1.312	33.32	1.109	28.18	.444	11.28
25	1.852	47.04	2.078	52.78	1.669	42.40	1.852	47.04	1.648	41.88	.444	11.28
37	2.500	63.50	2.719	69.06	2.315	58.80	2.500	63.50	2.301	58.45	.444	11.28

TRW Flat Cable Connectors

Printed Circuit Board Connector (PCB)



PCB Connectors are available in nine sizes 10, 14, 16, 20, 26, 34, 40, 50 and 60. These may be permanently soldered to the circuit board.

Electrical

Current Rating: 1 Amp per contact

Withstanding Voltage: 500 V rms (@sea level)

Insulation Resistance: >1 x 10^9 Ohms at 500 VDC

Environmental

Temperature Rating: −55°C to +150°C

Mechanical

Insulation Material: Polyphenylene oxide (PPO), UL 94V-0 rated

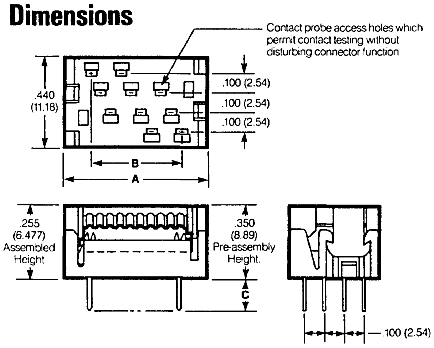
Contact Material: Copper alloy

Contact Plating: Gold over nickel in contact area with gold flash or tin on tails

Termination: Soldered to PC board

Color: Standard grey

Dimensions


Contact probe access holes which permit contact testing without disturbing connector function
.440 (11.18)
.100 (2.54)
.100 (2.54)
.100 (2.54)
B
A
.255 (6.477) Assembled Height
.350 (8.89) Pre-assembly Height.
C
.100 (2.54)

Number of Contacts	A		B		C ±.010 (2.54)	
	in.	mm	in.	mm	in.	mm
10	.700	17.78	.450	11.63	.100/.156	2.54/3.96
14	.800	20.32	.550	13.97	.100/.156	2.54/3.96
16	1.000	25.40	.750	19.05	.100/.156	2.54/3.96
20	1.200	30.48	.950	24.13	.100/.156	2.54/3.96
26	1.500	38.10	1.250	31.75	.100/.156	2.54/3.96
34	1.900	48.26	1.260	32.00	.100/.156	2.54/3.96
40	2.200	55.88	1.950	49.53	.100/.156	2.54/3.96
50	2.700	68.58	2.450	62.23	.100/.156	2.54/3.96
60	3.200	81.28	2.950	74.93	.100/.156	2.54/3.96

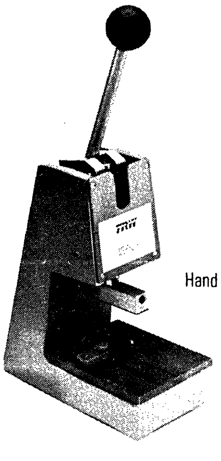
Ordering Information

Number of Contacts	Distributor Part No.			
	.100" (2.54mm) tail length	.156" (3.96mm) tail length	.100" (2.54mm) tail length	.156" (3.96mm) tail length
	Gold Flash on tails	Gold Flash on tails	Tin on tails	Tin on tails
10	PCB10-101	PCB10-102	PCB10-101-1	PCB10-102-1
14	PCB14-101	PCB14-102	PCB14-101-1	PCB14-102-1
16	PCB16-101	PCB16-102	PCB16-101-1	PCB16-102-1
20	PCB20-101	PCB20-102	PCB20-101-1	PCB20-102-1
26	PCB26-101	PCB26-102	PCB26-101-1	PCB26-102-1
34	PCB34-101	PCB34-102	PCB34-101-1	PCB34-102-1
40	PCB40-101	PCB40-102	PCB40-101-1	PCB40-102-1
50	PCB50-101	PCB50-102	PCB50-101-1	PCB50-102-1
60	PCB60-101	PCB60-102	PCB60-101-1	PCB60-102-1

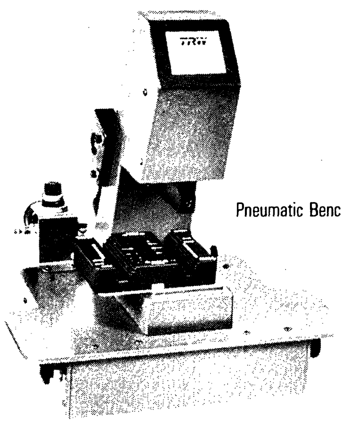
Tools

The rugged, easy to use TRW Cinch hand operated or pneumatic bench presses are designed for large volume installation of insulation displacing connectors to round conductor cables on .050" centers.

A complete series of interchangeable base plates is available to terminate the entire range of TRW flat cable connectors.



Hand Operated Tool



Pneumatic Bench Press

Description	Dist. Part No.
Pneumatic Bench Press	FC-AIR-257
Hand Operated Bench Press	FC-BP-242
Socket Connector Platen	FC-SP-241
Edge Connector Platen	FC-EP-243
DIP Connector Platen	FC-DIP-244
PCB Connector Platen	FC-PCB-245
D-Sub Connector Platen	FC-DSP-474
DIN Connector Platen	FC-DIN

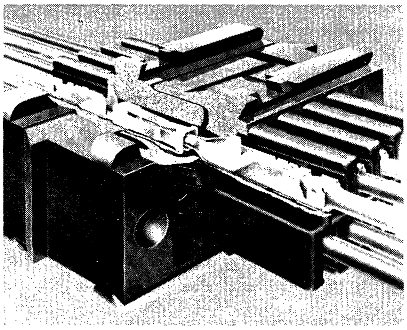
TRW SUPER D* Connector System

Exclusive new plastic D-Subminiature connector. Available in 9, 15, 25 and 37 contact sizes. Connectors available with plain mounting holes, with threaded bushings, with latch blocks, and with latch blocks and threaded bushings.

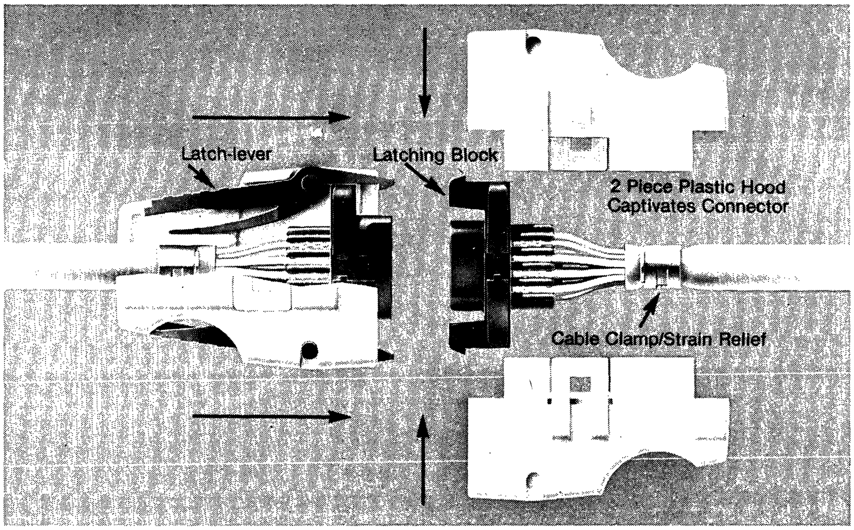
Connectors are captivated in two-piece, snap-on grey hoods. Hoods are available with latches or with filler ends.

Contact material: Copper base alloy.
Contact plating: Gold on contact mating area and gold on contact terminating area, with copper underplate.
Termination: Insulation displacement with one of three TRW Cinch terminating tools. Stranded wire 24-26 AWG with .045″ diameter max. PVC insulation is displaced and wire is driven into termination to form four positive contacts on each conductor. See tooling section.
Metal stay band/strain relief: .036″ (9.14mm) steel.
Polarization: D or keystone shape insures one way mating.
Hoods: Molded phenylene oxide.
Wire strain relief: One required for 9 contact size. Two required for other sizes.
Withstanding voltage rating: 1000 volts RMS AC—sea level. 1400 volts DC.
Current rating: 3 AMPS.
EIA standards: Surpasses EIA STD. RS449 for 9 and 37 contacts interface for DTE and DCE equipment. Also meets RS232 for 25 contact size.
MIL-C-24308: Super D is designed to meet applicable performance requirements of MIL-C-24308.

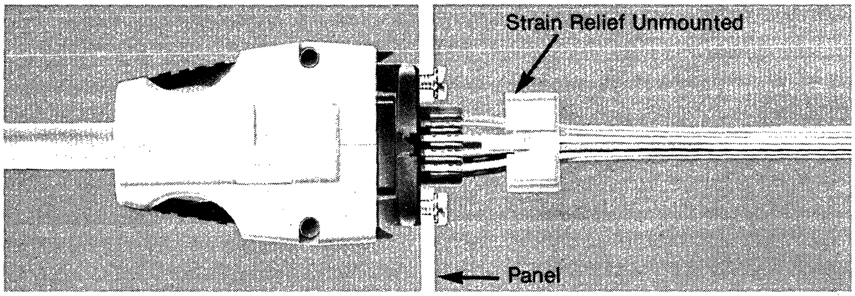
UL Recognized



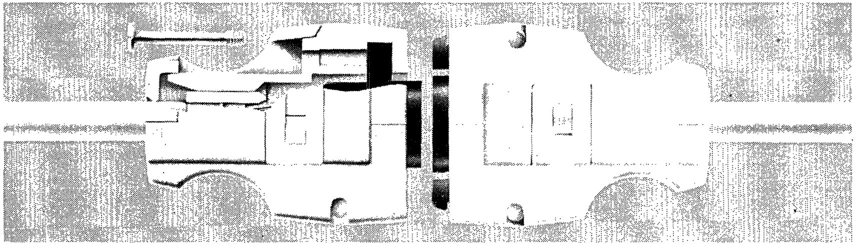
Insulation displacement termination
Fast 4-point insulation displacement termination with TRW Cinch tooling.


Latch-lever
Latching Block
2 Piece Plastic Hood Captivates Connector
Cable Clamp/Strain Relief

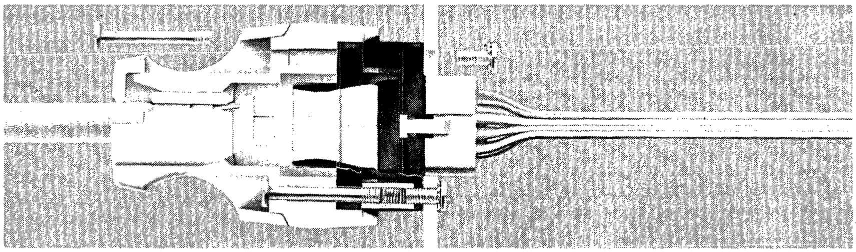
Cable to cable—Latch-N-Lock
Captivate connector without latching blocks in grey hood with latch levers. Captivate connector with latching blocks in a grey hood with filler inserts. Push together to mate. To disconnect, depress latch lever and pull apart.



Cable to panel Latch-N-Lock
Screw mount connector with latch blocks to panel. Snap in strain relief. Captivate connector without latch blocks in grey hood with latch levers. Push together for mating.



Cable to cable screw lock
Captivate connector without latching blocks in grey filler insert hood with screws. Captivate connector with latching blocks and threaded bushings in grey filler insert hood. Mate connectors and tighten screws.

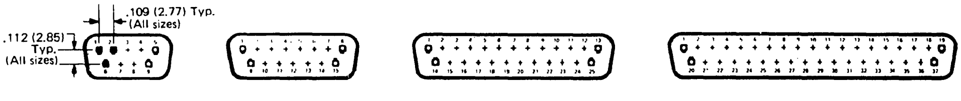


Cable to panel screw mount
Screw mount connector with latch blocks and threaded bushings. Snap-on strain relief. Captivate mating connector without latching blocks in grey filler insert hood with screws. Mate and tighten screws.

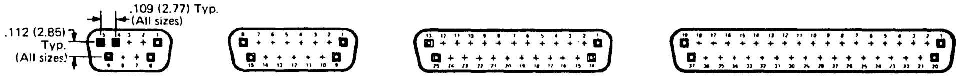
*Trademark TRW Inc.

TRW SUPER D Connector System

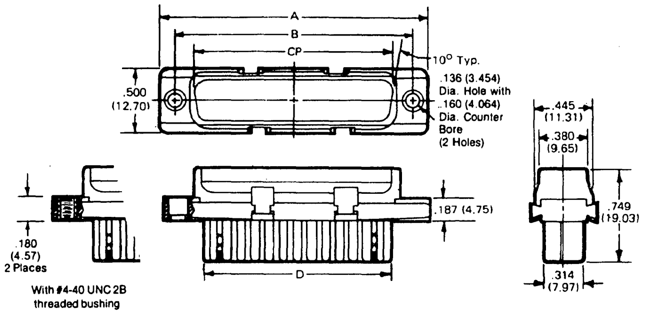
Plug contact arrangement—mating side


.109 (2.77) Typ.
(All sizes)
.112 (2.85)
Typ.
(All sizes)

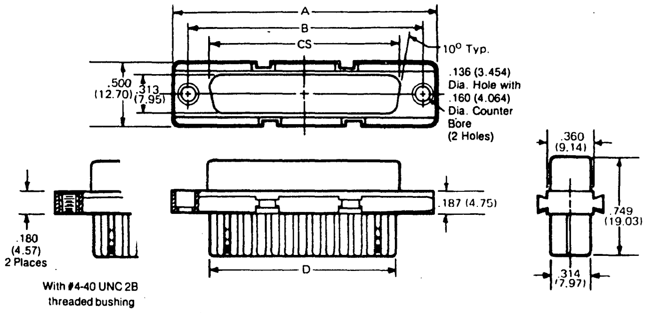
Socket contact arrangement—mating side


.109 (2.77) Typ.
(All sizes)
.112 (2.85)
Typ.
(All sizes)

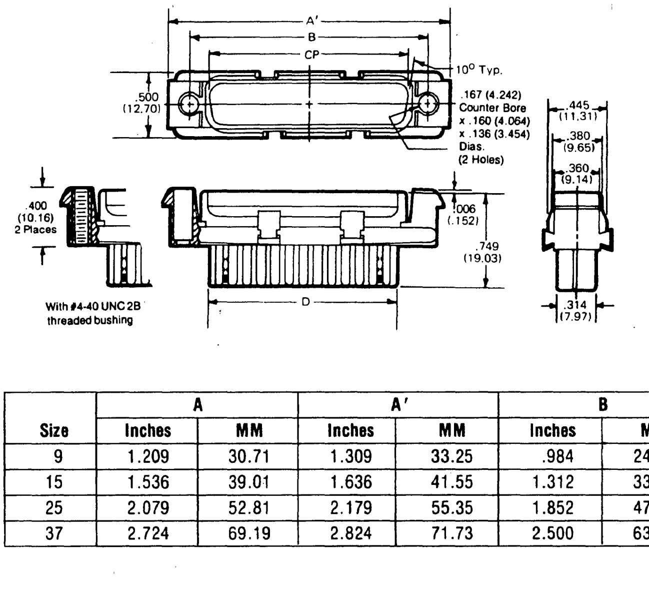
Super D plug plain


A
B
CP
10° Typ.
.136 (3.454) Dia. Hole with .160 (4.064) Dia. Counter Bore (2 Holes)
.500 (12.70)
.445 (11.31)
.380 (9.65)
.187 (4.75)
.749 (19.03)
.180 (4.57) 2 Places
D
.314 (7.97)
With #4-40 UNC 2B threaded bushing

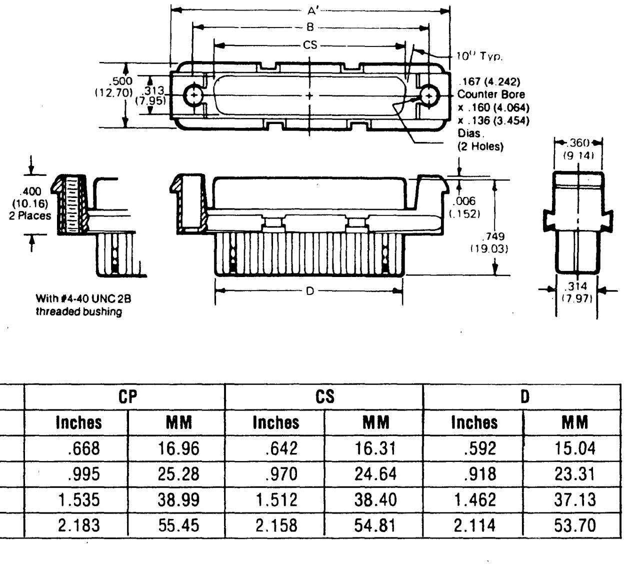
Super D socket plain


A
B
CS
10° Typ.
.136 (3.454) Dia. Hole with .160 (4.064) Dia. Counter Bore (2 Holes)
.500 (12.70)
.313 (7.95)
.360 (9.14)
.187 (4.75)
.749 (19.03)
.180 (4.57) 2 Places
D
.314 (7.97)
With #4-40 UNC 2B threaded bushing

Super D plug w/latching blocks

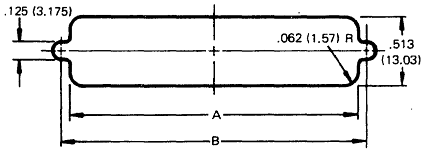

A'
B
CP
10° Typ.
.167 (4.242) Counter Bore x .160 (4.064) x .136 (3.454) Dias. (2 Holes)
.500 (12.70)
.445 (11.31)
.380 (9.65)
.360 (9.14)
.400 (10.16) 2 Places
.006 (.152)
.749 (19.03)
D
.314 (7.97)
With #4-40 UNC 2B threaded bushing

Super D socket w/latching blocks


A'
B
CS
10° Typ.
.167 (4.242) Counter Bore x .160 (4.064) x .136 (3.454) Dias. (2 Holes)
.500 (12.70)
.313 (7.95)
.360 (9.14)
.400 (10.16) 2 Places
.006 (.152)
.749 (19.03)
D
.314 (7.97)
With #4-40 UNC 2B threaded bushing

	A		A'		B		CP		CS		D	
Size	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM
9	1.209	30.71	1.309	33.25	.984	24.99	.668	16.96	.642	16.31	.592	15.04
15	1.536	39.01	1.636	41.55	1.312	33.32	.995	25.28	.970	24.64	.918	23.31
25	2.079	52.81	2.179	55.35	1.852	47.04	1.535	38.99	1.512	38.40	1.462	37.13
37	2.724	69.19	2.824	71.73	2.500	63.50	2.183	55.45	2.158	54.81	2.114	53.70

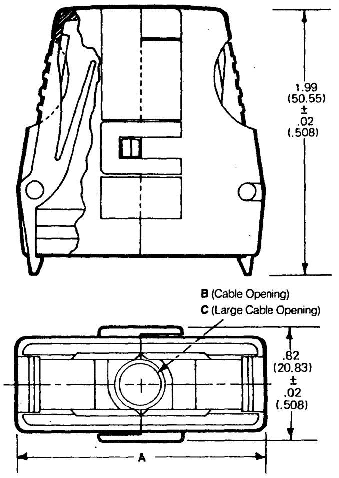
Super D panel cutout


.125 (3.175)
.062 (1.57) R
.513 (13.03)
A
B

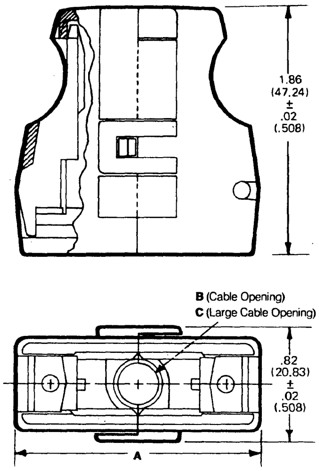
	A		B	
Size	Inches	MM	Inches	MM
9	.900	22.86	.984	24.99
15	1.202	30.53	1.312	33.32
25	1.743	44.27	1.852	47.04
37	2.391	60.73	2.500	63.50

TRW SUPER D
Connector System

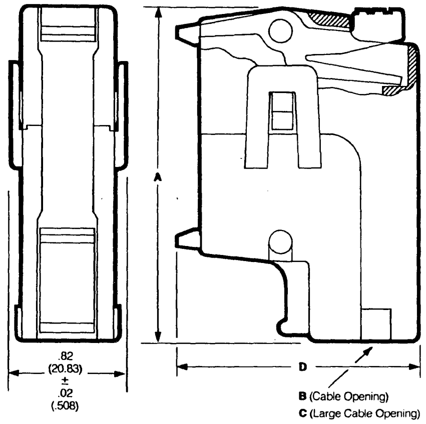
Super D hood w/latches


1.99
(50.55)
±
.02
(.508)
B (Cable Opening)
C (Large Cable Opening)
.82
(20.83)
±
.02
(.508)
A

Super D hood w/filler ends


1.86
(47.24)
±
.02
(.508)
B (Cable Opening)
C (Large Cable Opening)
.82
(20.83)
±
.02
(.508)
A

Right angle Super D hood w/latches


A
.82
(20.83)
±
.02
(.508)
D
B (Cable Opening)
C (Large Cable Opening)

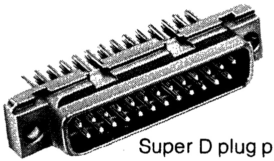
Super D Hood Straight

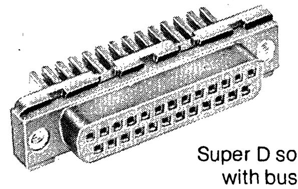
	A ± .02(.508)		B ± .02(.508)		C ± .02(.508)	
Size	In.	MM	In.	MM	In.	MM
9	1.47	37.34	.31	7.87		
15	1.80	45.72	.31	7.87	.41	10.41
25	2.35	59.69	.33	8.40	.47	11.94
37	2.99	75.95	.37	9.40	.50	12.70

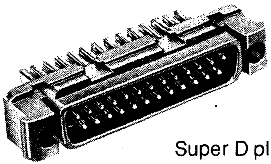
Super D Hood Right Angle

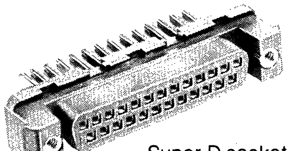
	A ± .02(.508)		B ± .02(.508)		C ± .02(.508)		D ± .02(.508)	
Size	In.	MM	In.	MM	In.	MM	In.	MM
9	1.94	49.21	.31	7.87			1.25	31.75
15	2.25	57.15	.31	7.87	.41	10.41	1.34	34.13
25	2.94	74.61	.33	8.40	.47	11.94	1.50	38.10
37	3.59	91.28	.37	9.40	.50	12.70	1.53	38.89

Super D plastic connectors


Super D plug plain with mounting hole


Super D socket with bushing


Super D plug with latching blocks with mounting hole


Super D socket with latching blocks with bushing

	Distributor Part Number			
	Plain Flange		Flange W/Latching Blocks	
Layout	W/Mounting Hole	W/4-40 Threaded Bushings	W/Mounting Hole	W/4-40 Threaded Bushings
9 Contact Plug Socket	TE-9P TE-9S	TE-9P-TB TE-9S-TB	TE-9P-LB TE-9S-LB	TE-9P-LB-1 TE-9S-LB-1
15 Contact Plug Socket	TA-15P TA-15S	TA-15P-TB TA-15S-TB	TA-15P-LB TA-15S-LB	TA-15P-LB-1 TA-15S-LB-1
25 Contact Plug Socket	TB-25P TB-25S	TB-25P-TB TB-25S-TB	TB-25P-LB TB-25S-LB	TB-25P-LB-1 TB-25S-LB-1
37 Contact Plug Socket	TC-37P TC-37S	TC-37P-TB TC-37S-TB	TC-37P-LB TC-37S-LB	TC-37P-LB-1 TC-37S-LB-1

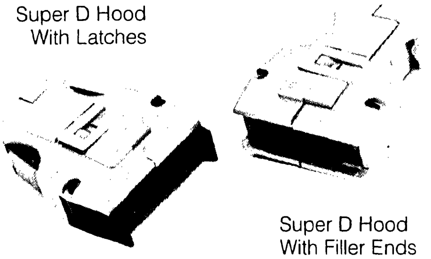
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

TRW SUPER D Connector System

TRW

Super D Hoods—Grey Plastic Straight Hood

Super D Hood With Latches

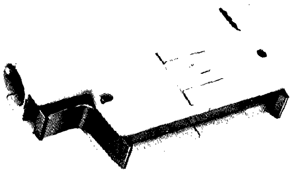


Super D Hood With Filler Ends

One stay band included for each hood.
For additional stay bands, order separately.

	Distributor Part No.					
	Standard Cable Opening			Large Cable Opening		
Contact Size	with Latches	without Screws	with Two Captive 4-40 Screws	with Latches	without Screws	with Two Captive 4-40 Screws
9	SDH-9GL	SDH-9GF	SDH-9GFCS	—	—	—
15	SDH-15GL	SDH-15GF	SDH-15GFCS	SDH-15GLL	SDH-15GFL	SDH-15GLCS
25	SDH-25GL	SDH-25GF	SDH-25GFCS	SDH-25GLL	SDH-25GFL	SDH-25GLCS
37	SDH-37GL	SDH-37GF	SDH-37GFCS	SDH-37GLL	SDH-37GFL	SDH-37GLCS

Super D Hoods—Grey Plastic Right Angle Hood

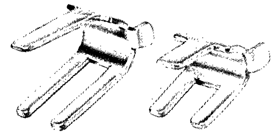


	Distributor Part No.	
	Standard Cable Opening	Large Cable Opening
Contact Size	w/latches	w/latches
9	SDH-9RGL	—
15	SDH-15RGL	SDH-15RGLL
25	SDH-25RGL	SDH-25RGLL
37	SDH-37RGL	SDH-37RGLL

Screws

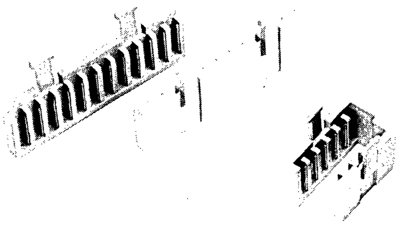
Screws for screw locking connector assembly.
Two required per hood.
Distributor Part No.
SD-4-40 (3/4)

Super D Stay Bands



Size	Distributor Part No.
9	SD-9-15-SB
15	SD-9-15-SB
25	SD-25-37-SB
37	SD-25-37-SB

Super D (Strain Relief) Wire Covers

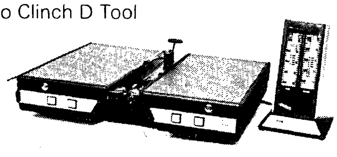


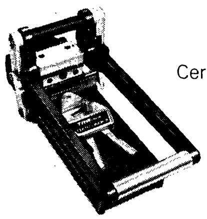
One-piece cover for 9 contact size. Two-piece covers for other sizes. Covers fit both plug and socket.

Layout	Distributor Part No.
9 Contact	SD-WC9
15 Contact	SD-WC15
25 Contact	SD-WC25
37 Contact	SD-WC37

Super D and Super D Metal Shell Terminating Equipment

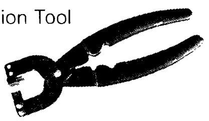
Auto Clinch D Tool





Certi Clinch D Tool

Uni Clinch Hand Insertion Tool



Super D Manual Tool

Auto Clinch D Semi-Automatic Termination Tool
Auto Clinch D is a semi-automatic, pneumatically powered and electrically controlled termination machine that can terminate Cinch Super D 25 contact connectors in less than one minute. It employs selective programmer and a common nest for all four sizes and can be equipped to terminate all-plastic connectors. Can be optionally equipped with remote visual color code display for training operators or for reading special wire sequences. It has provision for omission of wires.
Part No. 999-599-11-11-432

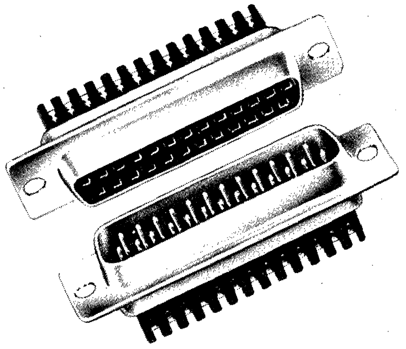
Certi Clinch D Field Termination Tool
***For 24-26 AWG Wire**
Certi Clinch D is designed for mass termination of individual wires, eliminating wire stripping, soldering and crimping. It handles all four connector sizes, is readily portable and requires no set-up time and little operator time. Rugged, all metal construction affords trouble-free long life.
*For 22 AWG consult factory.
Part No. SD-CC for Super D Plastic Connectors
Part No. SD-CCWN for Super D Metal Shell Connectors

Conversion Nest for SD-CC
Part No. SD-CCN (Converts SD-CC to SD-CCWN)

Uni Clinch D Single Wire Hand Insertion Tool
Designed to insert one 22-26 AWG wire at a time, Uni Clinch D is used as a field repair tool by field service engineers.
Part No. SD-UC.

Super D Manual Stay Band Tool
Designed for applying the steel stay band/strain relief to the cable before termination of wires to the connector, the manual Stay Band tool applies both Stay Band sizes to the full range of cable sizes.
Part No. SD-MSBT

TRW SUPER D Metal Shell Connectors

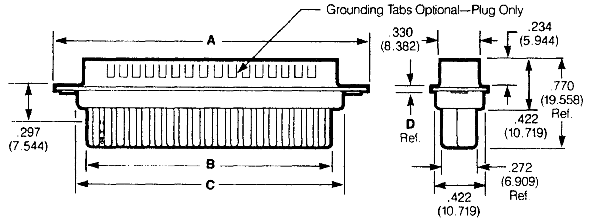


D-Subminiature connectors in 9, 15, 25 and 37 contact sizes in standard D-sub. metal shell or with bright tin finish on shell. Termination is insulation displacement for cost saving. Connector uses same black hoods, add-on latching blocks, hood and mounting screws as in the SUPER D adaptor system. It may be used for grounding in applications using shielded cable.

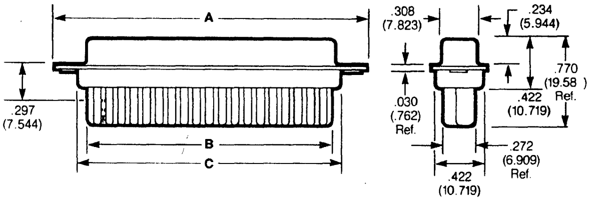
Notched shell versions are available making SUPER D metal shell connectors compatible with other manufacturers' plastic hoods.

Insulator: Molded glass filled polyester UL 94V-O.
Contact material: Copper base alloy.
Contact plating: Gold on contact mating area and gold on contact terminating area, with copper underplate.
Termination: Insulation displacement with same tools as the Super D Connector system except an additional nest is required. Stranded wire 24-26 AWG with .045″ diameter max. PVC insulation is displaced and wire is driven into termination to form four positive contacts on each conductor.
Withstanding voltage rating: 1000 volts RMS AC—sea level
1400 volts DC
Current rating: 3 AMPS

Super D Metal Shell Plug



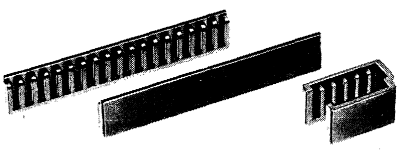
Super D Metal Shell Socket



Size	A		B		C		D	
	IN	MM	IN	MM	IN	MM	IN	MM
9	1.213	30.81	.592	15.04	.759	19.28	.030	.76
15	1.541	39.14	.918	23.32	1.083	27.51	.030	.76
25	2.088	53.04	1.462	37.13	1.624	41.28	.039	.99
37	2.729	69.32	2.114	53.70	2.272	57.71	.039	.99

		Distributor Part No.			
		Bright Tin Finish on Shell			
Layout	Standard Shell	With Front Shell Indentations Without Notches	With Front Shell Indentations With Notches	Without Indentations Without Notches	Without Indentations With Notches
9 Contact Plug	TE-9P-SH	TES-9PTI	TES-9PTI-1	TES-9PT	—
Socket	TE-9S-SH	—	—	TES-9ST	TES-9ST-1
15 Contact Plug	TA-15P-SH	TAS-15PTI	TAS-15PTI-1	TAS-15PT	—
Socket	TA-15S-SH	—	—	TAS-15ST	TAS-15ST-1
25 Contact Plug	TB-25P-SH	TBS-25PTI	TBS-25PTI-1	TBS-25PT	—
Socket	TB-25S-SH	—	—	TBS-25ST	TBS-25ST-1
37 Contact Plug	TC-37P-SH	TCS-37PTI	TCS-37PTI-1	TCS-37PT	—
Socket	TC-37S-SH	—	—	TCS-37ST	TCS-37ST-1

(Strain Relief) Wire Covers

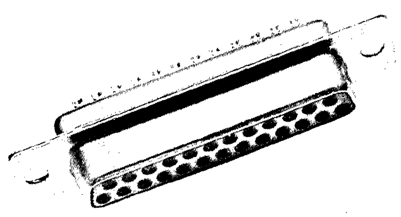


One-piece cover for 9 contact size. Two-piece covers for other sizes. Covers fit both plug and socket.

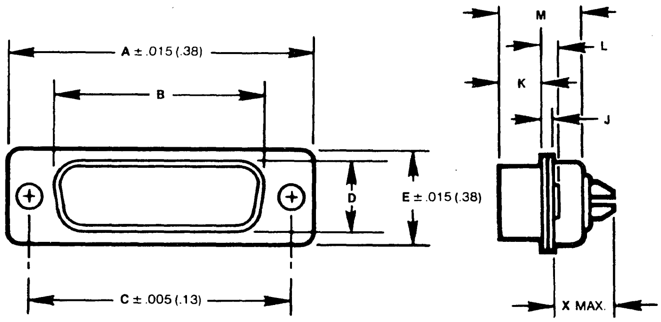
Layout	Distributor Part Number
9 Contact	SSD-WC9
15 Contact	SSD-WC15
25 Contact	SSD-WC25
37 Contact	SSD-WC37

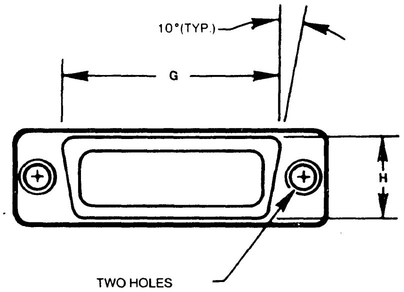
TRW D-Subminiature Connectors

D-Subminiature Shells



Standard Shell: Steel, zinc plated with yellow chromate supplementary coating.
Dataphone Shell: Steel, with a clear chromate coating.
Alternate Shell for Basic D and Econo D: Steel, with a bright tin finish for improved conductivity for grounding. Also available with grounding indentations in front shell.


A ± .015 (.38)
B
D
E ± .015 (.38)
C ± .005 (.13)
M
L
K
J
X MAX.



TWO HOLES
120 (3.05) DIA. ± .005 (.13)

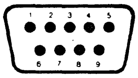
Type	X Max. In.	X Max. MM.
Basic D	.312	7.92
Series 1	.390	9.91
Series 3	.375	9.50
Econo D	.375	9.50

Shell Size	A		B		C		D		E		G		H		J		K		L		M	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
E-Plug	1.213	30.81	.697	17.70	.984	24.99	.360	9.14	.494	12.55	.759	19.28	.422	10.72	.030	.76	.236	5.99	.045	1.14	.422	10.72
E-Socket	1.213	30.81	.640	16.26	.984	24.99	.308	7.82	.494	12.55	.759	19.28	.422	10.72	.030	.76	.243	6.17	.045	1.14	.429	10.90
A-Plug	1.541	39.14	1.025	26.04	1.312	33.32	.360	9.14	.494	12.55	1.083	27.51	.422	10.72	.030	.76	.236	5.99	.045	1.14	.422	10.72
A-Socket	1.541	39.14	9.68	24.59	1.312	33.32	.308	7.82	.494	12.55	1.083	27.51	.422	10.72	.030	.76	.243	6.17	.045	1.14	.429	10.90
B-Plug	2.088	53.04	1.583	40.21	1.852	47.04	.378	9.60	.494	12.55	1.625	41.28	.422	10.72	.039	.99	.231	5.87	.060	1.52	.426	10.82
B-Socket	2.088	53.04	1.508	38.30	1.852	47.04	.308	7.82	.494	12.55	1.625	41.28	.422	10.72	.030	.76	.243	6.17	.045	1.14	.429	10.90
C-Plug	2.729	69.32	2.231	56.67	2.500	63.50	.378	9.60	.494	12.55	2.272	57.71	.422	10.72	.039	.99	.231	5.87	.060	1.52	.426	10.82
C-Socket	2.729	69.32	2.156	54.76	2.500	63.50	.308	7.82	.494	12.55	2.272	57.71	.422	10.72	.030	.76	.243	6.17	.045	1.14	.429	10.90
D-Plug	2.635	66.93	2.127	54.03	2.406	61.11	.484	12.29	.605	15.37	2.178	55.32	.534	13.56	.039	.99	.231	5.87	.060	1.52	.426	10.82
D-Socket	2.635	66.93	2.062	52.34	2.406	61.11	.420	10.67	.605	15.37	2.178	55.32	.534	13.56	.030	.76	.243	6.17	.045	1.14	.429	10.90

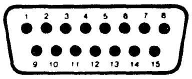
All tolerances are ± 0.10 (.25 mm) unless noted otherwise. Dimensions B and D are measured as outside dimensions at the bottom of the drawing.

Basic layout connectors

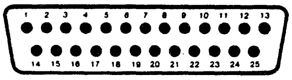
(#20 contacts only)



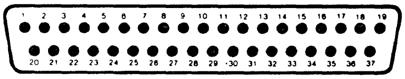
E 9 Contact


1 2 3 4 5 6 7 8
9 10 11 12 13 14 15

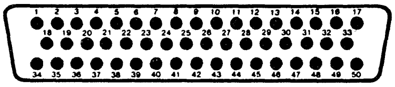
A 15 Contact


1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25

B 25 Contact


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

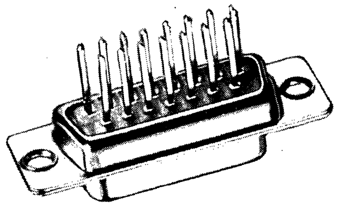
C 37 Contact


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

D 50 Contact

TRW D-Subminiature Connectors

BASIC D* And BASIC D II



The economical BASIC D Connectors are ideal for commercial applications. BASIC D Connectors have a two-piece insulator with non-removable machined contacts. They are available in standard shell or bright tin finish with or without indentations.

A flat cable D-Subminiature connector is also available. See page 11.

Insulator Material: Two-piece nylon

Contact Material: Copper alloy (machined)

Contact Plating: Gold over nickel

Contact Termination: Non-removable; a) Solder pot b) .025" (.64mm) sq x .375" (9.53mm) two-level wire wrap c) .040" (1.02mm) dia. PC tails for 1/16" (1.59mm) boards

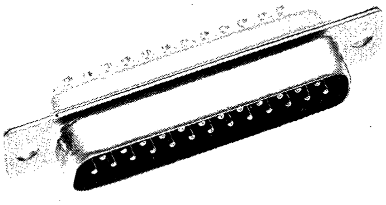
Voltage Rating: 1250 Volts AC rms (@sea level)

Current Rating: 5 Amps

Operating Temperature: –65°F to +250°F

		Distributor Part No.				
		Solder Pot Contacts				
Layout	**Size**	**Standard* Shell**	**Bright Tin Finish on Shell w/indentations Front Shell**	**Bright Tin Finish on Shell**	**Wire Wrap**	**PC Contacts**
9 Contact						
Plug	E	DE-9P	DE-9PTI	DE-9PT	DE-9P-F179	DE-9PV
Socket	E	DE-9S	—	DE-9ST	DE-9S-F179	DE-9SV
15 Contact						
Plug	A	DA-15P	DA-15PTI	DA-15PT	DA-15P-F179	DA-15PV
Socket	A	DA-15S	—	DA-15ST	DA-15S-F179	DA-15SV
25 Contact						
Plug	B	DB-25P	DB-25PTI	DB-25PT	DB-25P-F179	DB-25PV
Socket	B	DB-25S	—	DB-25ST	DB-25S-F179	DB-25SV
37 Contact						
Plug	C	DC-37P	DC-37PTI	DC-37PT	DC-37P-F179	DC-37PV
Socket	C	DC-37S	—	DC-37ST	DC-37S-F179	DC-37SV
50 Contact						
Plug	D	DD-50P	DD-50PTI	DD-50PT	DD-50P-F179	DD-50PV
Socket	D	DD-50S	—	DD-50ST	DD-50S-F179	DD-50SV

*For float mounts add "F" after the part number prefix. For example: DE-9P with float mounts is a DEF-9P.



The low cost version of the BASIC D Connector is the BASIC D II. It has the same performance characteristics as the BASIC D. BASIC D II Connectors cost less because they have stamped instead of machined contacts. They are ideal for commercial applications where cost is a factor.

Insulator Material: Two-piece nylon

Contact Material: Copper alloy (stamped)

Contact Plating: Gold over nickel

Contact Termination: Non-removable; solder pot

Voltage Rating: 1250 Volts AC rms (@sea level)

Current Rating: 5 Amps

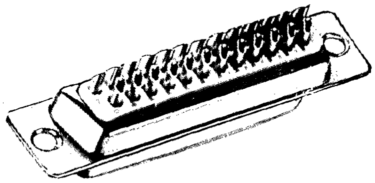
Operating Temperature: –65°F to +250°F

Layout	Shell Size	Distributor Part No.
9 Contact		
Plug	E	DE-9P-II
Socket	E	DE-9S-II
15 Contact		
Plug	A	DA-15P-II
Socket	A	DA-15S-II
25 Contact		
Plug	B	DB-25P-II
Socket	B	DB-25S-II
37 Contact		
Plug	C	DC-37P-II
Socket	C	DC-37S-II
50 Contact		
Plug	D	DD-50P-II
Socket	D	DD-50S-II

*Trademark TRW Inc.

TRW D-Subminiature Connectors

BASIC D Dataphone, SERIES 1*
SERIES 1 Combination Layout



A high reliability connector with two piece insulator and non-removable contacts, designed specifically for use on data signal carrying devices. Order separately.

Insulator Material: Two-piece diallyl phthalate per MIL-M-14 Type GD1-30

Contact Material: Copper alloy

Contact Plating: Gold over copper

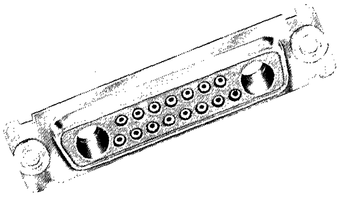
Contact Termination: Non-removable solder pot

Voltage Rating: 1250 Volts AC rms (@sea level)

Current Rating: 5 Amps

Operating Temperature: −65°F to +275°F

Layout	Shell Size	Distributor Part No.
		Dataphone
15 Contact		
Plug	A	DA-19603-403
Socket	A	DA-19603-404
Hood		DA-51225-1
25 Contact		
Plug	B	DB-19604-432
Socket	B	DB-19604-433
Hood		DB-51226-1A



Series 1 Connectors have a Monoblock insulator. Contacts are non-removable. Combination layouts are available with or without #20 solder pots. Coaxial, high voltage or high power contacts must be ordered separately.

Insulator Material: Monoblock glass fiber-filled diallyl phthalate

Contact Material: Series 1: Copper alloy

Contact Plating: Series 1: Gold over nickel

Contact Termination: Series 1: Non-removable; a) solder pot b) Right Angle PC plug with .040″ dia. tail for $\frac{1}{16}$″ (1.59mm) board and c) Straight PC tail with .040″ dia.for $\frac{1}{16}$″ (1.59mm) board; Series 1 Combination: Solder pot with removable coaxial, high voltage or high power contacts

Voltage Rating: 1250 Volts AC rms (@sea level)

Current Rating: 5 Amps

Operating Temperature: −65°F to +300°F

Layout	Shell Size	Distributor Part Number		
		D*M		
		Solder* Pot	Rt. Angle P.C	Straight P.C.
9 Contact				
Plug	E	DEM-9P	DEM-9PA	DEM-9PB
Socket	E	DEM-9S	—	DEM-9SB
15 Contact				
Plug	A	DAM-15P	DAM-15PA	DAM-15PB
Socket	A	DAM-15S	—	DAM-15SB
25 Contact				
Plug	B	DBM-25P	DBM-25PA	DBM-25PB
Socket	B	DBM-25S	—	DBM-25SB
37 Contact				
Plug	C	DCM-37P	DCM-37PA	DCM-37PB
Socket	C	DCM-37S	—	DCM-37SB
50 Contact				
Plug	D	DDM-50P	—	DDM-50PB
Socket	D	DDM-50S	—	DDM-50SB

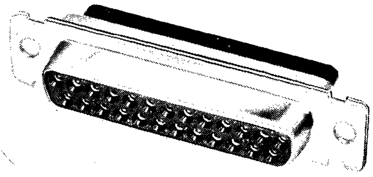
*For float mounts add "F" after the part number prefix. For example: DEM-9P with float mounts is a DEMF-9P.

*Trademark TRW Inc.

TRW D-Subminiature Connectors

SERIES 3*

TRW



Series 3 Connectors are high-reliability connectors with improved heat resistance. They incorporate a monoblock insulator. The best feature of Series 3 Connectors are the crimp, snap-in, rear-release contacts. They are ideal for field repair and replacement. Contacts can be inserted by hand and are removable with an extraction tool. Distributor Part No. CET-20-11

Insulator Material: Monoblock glass fiber-filled diallyl phthalate per MIL-M-14, Type GDI-30-F

Contact Material: Copper alloy

Contact Plating: Gold over nickel

Contact Termination: Crimp insert by hand, remove with extraction tool

Voltage Rating: 1000 Volts AC rms (@sea level)

Current Rating: 5 Amps

Operating Temperature: −65°F to +300°F

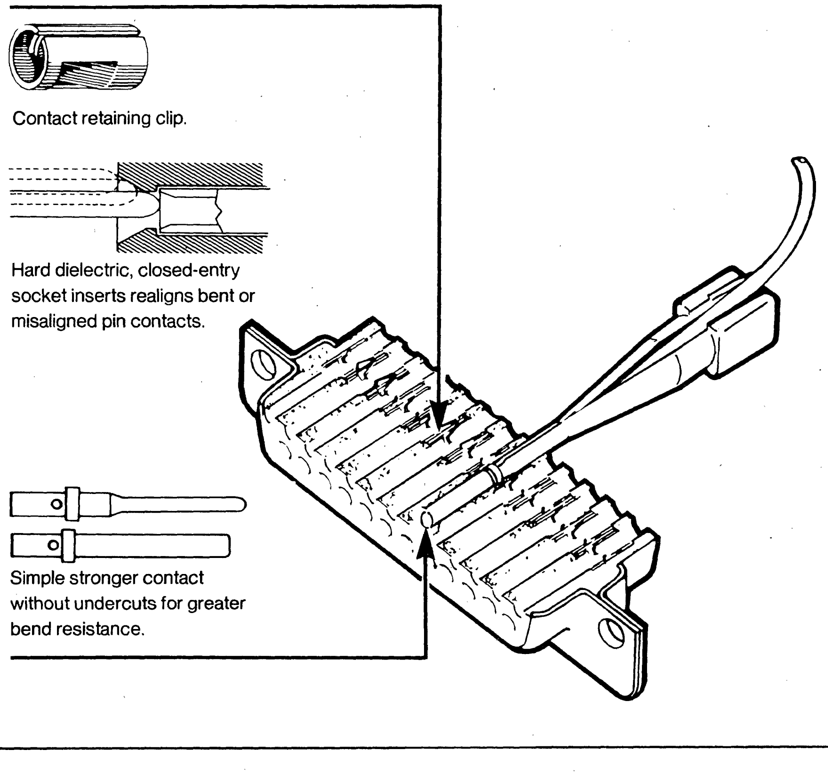
Layout	Shell Size	Distributor Part No.
		D*MA Comm.†
9 Contact Plug	E	DEMA-9P
Socket	E	DEMA-9S
15 Contact Plug	A	DAMA-15P
Socket	A	DAMA-15S
25 Contact Plug	B	DBMA-25P
Socket	B	DBMA-25S
37 Contact Plug	C	DCMA-37P
Socket	C	DCMA-37S
50 Contact Plug	D	DDMA-50P
Socket	D	DDMA-50S

†For float mounts, add "F" after the part number prefix. For example: a DEMA-9P with float mounts is a DEMAF-9P

Machined contacts (loose)

	Distributor Part No.
	Series 3 MA Commercial
Pin	330-5291-000
Socket	031-1007-000

Rear release contact assembly

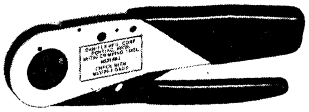


Contact retaining clip.

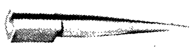
Hard dielectric, closed-entry socket inserts realigns bent or misaligned pin contacts.

Simple stronger contact without undercuts for greater bend resistance.

Tools



Series 3 hand crimp tool for size 20 contacts MS-3198-1. Contact Daniels Co., Bloomfield Hills, MI. for Part no. M-500.



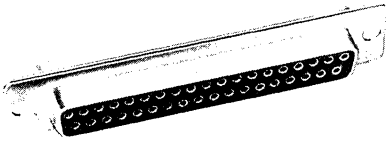
Series 3 commercial extraction tool CET-20-11.

*Trademark TRW Inc.

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

TRW D-Subminiature Connectors

SERIES 1 & SERIES 3
Military To MIL-C-24308



Series 1 Military Connectors have all of the features of Series 1 Connectors and also meet all applicable requirements of MIL-C-24308. They are available with solder pot or non-removable straight and right angle PC tails.

Insulator Material: Monoblock glass fiber-filled diallyl phthalate per MIL-M-14, Type SDG-F

Contact Material: Copper alloy

Contact Plating: Gold over copper

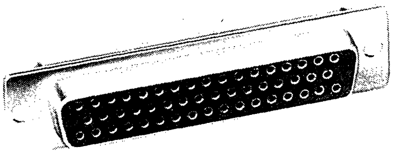
Contact Termination: Solder pot, straight and right angle PC

Voltage Rating: 1250 Volts AC rms (@ sea level)

Current Rating: 5 Amps

Operating Temperature: −65°F to +300°F

		Series I Military Part Number					
		Straight P.C. Tail		Dist. Part Number		Rt. Angle P.C. Tail W/Bracket	
Layout	Shell Size	.156" Long E/.030" Terminal Dia.	.184" Long W/.030" Terminal Dia.	Solder	Solder with Float Amount	W/.093" Tail Extension W/.030" Terminal Dia.	W/.093" Tail Extension W/.040" Terminal Dia.
9 Contact Plug	E	M24308/24-1	—	M24308/3-1	M24308/3-12	M24308/24-25	M24308/24-37
Socket	E	M24308/23-1	M24308/23-7	M24308/1-1	M24308/1-12	—	—
15 Contact Plug	A	M24308/24-2	—	M24308/3-2	M24308/3-13	M24308/24-26	M24308/24-38
Socket	A	M24308/23-2	M24308/23-8	M24308/1-2	M24308/1-13	—	—
25 Contact Plug	B	M24308/24-3	—	M24308/3-3	M24308/3-14	M24308/24-27	M24308/24-39
Socket	B	M24308/23-3	M24308/23-9	M24308/1-3	M24308/1-14	—	—
37 Contact Plug	C	M24308/24-4	—	M24308/3-4	M24308/3-15	M24308/24-28	M24308/24-40
Socket	C	M24308/23-4	M24308/23-10	M24308/1-4	M24308/1-15	—	—
50 Contact Plug	D	M24308/24-5	—	M24308/3-5	M24308/3-16	—	—
Socket	D	M24308/23-5	M24308/23-11	M24308/1-5	M24308/1-16	—	—



Series 3 Military Connectors have all of the features of Series 3 Connectors and also meet all applicable requirements of MIL-C-24308. Crimp, snap-in, rear-release contacts are ideal for field repair or replacement.

Insulator Material: Monoblock glass fiber-filled diallyl phthalate per MIL-M-14, Type GDI-30-F

Contact Material: Copper alloy

Contact Plating: Gold over copper

Contact Termination: Crimp insert by hand, remove with small tool

Voltage Rating: 1000 Volts AC rms (@ sea level)

Current Rating: 5 Amps

Operating Temperature: −65° to +300°F

	Distributor Part No.
	Series 3 Military
Pin	M39029/64-369
Socket	M39029/63-368

		Series 3 Military Part Number			
		With Plain Flanges		With Float Mounts	
Layout	Shell Size	W/Contacts	W/O Contacts	W/Contacts	W/O Contacts
9 Contact Plug	E	M24308/4-1	M24308/4-259	—	—
Socket	E	M24308/2-1	M24308/2-281	M24308/2-23	M24308/2-292
15 Contact Plug	A	M24308/4-2	M24308/4-260	—	—
Socket	A	M24308/2-2	M24308/2-282	M24308/2-24	M24308/2-293
25 Contact Plug	B	M24308/4-3	M24308/4-261	—	—
Socket	B	M24308/2-3	M24308/2-283	M24308/2-25	M24308/2-294
37 Contact Plug	C	M24308/4-4	M24308/4-262	—	—
Socket	C	M24308/2-4	M24308/2-284	M24308/2-26	M24308/2-295
50 Contact Plug	D	M24308/4-5	M24308/4-263	—	—
Socket	D	M24308/2-5	M24308/2-285	M24308/2-27	M24308/2-296

Screw Lock Assemblies

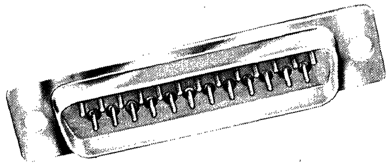
Distributor Part No.	Type	Usage
M24308/25-1 M24308/25-9	Male	DA, DE Plug or Socket, DB, DC Socket both with junction shell
M24308/25-5 M24308/25-10	Male	DD Socket with junction shell
M24308/26-1	Female	DE, DA, DB, DC, DD Plug or Socket with or without junction shell
M24308/26-2	Female	DE, DA, DB, DC, DD Plug or Socket with or without junction shell

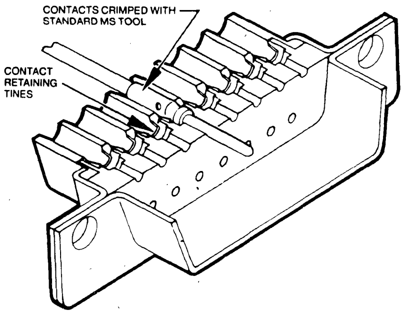
Tools

Series 3 military insertion-extraction tool Part no. CIET-20-HD.

TRW D-Subminiature Connectors

ECONO D*





ECONO D Connectors have a two-piece insulator as well as crimp, snap-in rear-release contacts that can be inserted by hand in rear of insulator, and can be removed with an extraction tool. These economical connectors are ideal for commercial applications where field replacement of contacts is required at lower cost than high-reliability connectors.

The D*U version is UL recognized.

Insulator Material: Two-piece thermoplastic polyester UL-94 VO rated

Contact Material: Machined: copper alloy
Stamped: Cadmium copper

Contact Plating: Gold over nickel

Contact Termination: Crimp insert and remove with an extraction tool Non-removable; a) Right Angle and straight PC tails with .024" (.61mm) dia. for up to 3/32" (2.38mm) boards.

Voltage Rating: 1000 Volts AC rms (@sea level)

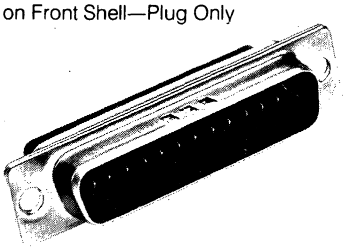
Current Rating: 5 Amps

Operating Temperature: −65°F to +250°F

		Distributor Part No.							
		D*C				D*U			
Layout	**Shell Size**	**Loose Machine Contacts**	**Less Contacts**	**Straight PC Tail**	**Rt. Angle PC Tail W/Molded Bracket**	**Loose Machine Contacts**	**Less Contacts**	**Straight PC Tail**	**Rt. Angle PC Tail W/Molded Bracket**
9 Contact Plug	E	DEC-9P	DEC-9PFO	DEC-9PBF	DEC-9PAD	DEU-9P	DEU-9P-FO	DEU-9PBF	DEU-9PAD
Socket	E	DEC-9S	DEC-9SFO	DEC-9SBF	DEC-9SAD	DEU-9S	DEU-9S-FO	DEU-9SBF	DEU-9SAD
15 Contact Plug	A	DAC-15P	DAC-15PFO	DAC-15PBF	DAC-15PAD	DAU-15P	DAU-15P-FO	DAU-15PBF	DAU-15PAD
Socket	A	DAC-15S	DAC-15SFO	DAC-15SBF	DAC-15SAD	DAU-15S	DAU-15S-FO	DAU-15SBF	DAU-15SAD
25 Contact Plug	B	DBC-25P	DBC-25PFO	DBC-25PBF	DBC-25PAD	DBU-25P	DBU-25P-FO	DBU-25PBF	DBU-25PAD
Socket	B	DBC-25S	DBC-25SFO	DBC-25SBF	DBC-25SAD	DBU-25S	DBU-25S-FO	DBU-25SBF	DBU-25SAD
37 Contact Plug	C	DCC-37P	DCC-37PFO	DCC-37PBF	–	DCU-37P	DCU-37P-FO	DCU-37PBF	–
Socket	C	DCC-37S	DCC-37SFO	DCC-37SBF	–	DCU-37S	DCU-37S-FO	DCU-37SBF	–
50 Contact Plug	D	DDC-50P	DDC-50PFO	DDC-50PBF	–	DDU-50P	DDU-50P-FO	DDU-50PBF	–
Socket	D	DDC-50S	DDC-50SFO	DDC-50SBF	–	DDU-50S	DDU-50S-FO	DDU-50SBF	–

Econo D with Bright Tin Finish On Shell

With and Without Indentations on Front Shell—Plug Only



Insulator Material: Two-piece thermoplastic polyester UL-94 VO rated

Contact Material: Machined: copper alloy
Stamped: Cadmium copper

Contact Plating: Gold over nickel

Contact Termination: Crimp insert and remove with extraction tool Non-removable; a) Right Angle and straight PC tails with .024" (.61mm) dia. for up to 3/32" (2.38mm) boards.

Voltage Rating: 1000 Volts AC rms (@sea level)

Current Rating: 5 Amps

Operating Temperature: −65°F to +250°F

Notched shell versions are available, making ECONO D with bright tin finish connectors compatible with other manufacturers' plastic hoods.

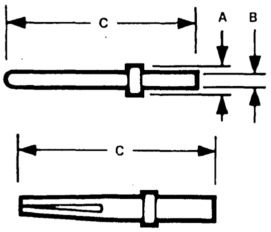
*Trademark TRW Inc.

		Distributor Part Number					
		Without Contacts				Straight PC Tails	
Layout	**Shell Size**	**W/Indentations Front Shell W/O Notches**	**W/Indentations Front Shell With Notches**	**W/O Indentations Front Shell Without Notches**	**W/O Indentations Front Shell With Notches**	**With Indentations Front Shell**	**Without Indentations Front Shell**
9 Contact Plug	E	DEU-9PTI-FO	DEU-9PTI-F01	DEU-9PT-FO	–	DEU-9PBFT1	DEU-9PBFT
Socket	E	–	–	DEU-9ST-FO	DEU-9ST-F01	–	DEU-9SBFT
15 Contact Plug	A	DAU-15PTI-FO	DAU-15PTI-F01	DAU-15PT-FO	–	DAU-15PBFT1	DAU-15PBFT
Socket	A	–	–	DAU-15-ST-FO	DAU-15ST-F01	–	DAU-15SBFT
25 Contact Plug	B	DBU-25PTI-FO	DBU-25PTI-F01	DBU-25PT-FO	–	DBU-25PBFT1	DBU-25PBFT
Socket	B	–	–	DBU-25ST-FO	DBU-25ST-F01	–	DBU-25SBFT
37 Contact Plug	C	DCU-37PTI-FO	DCU-37PTI-F01	DCU-37PT-FO	–	DCU-37PBFT1	DCU-37PBFT
Socket	C	–	–	DCU-37ST-FO	DCU-37ST-F01	–	DCU-37SBFT
50 Contact Plug	D	DDU-50PTI-FO	DDU-50PTI-F01	DDU-50PF-FO	–	DDU-50-PBFT1	DDU-50-PBFT
Socket	D	–	–	DDU-50ST-FO	DDU-50ST-F01	–	DDU-50SBFT

TRW D-Subminiature Connectors

Econo D Contacts

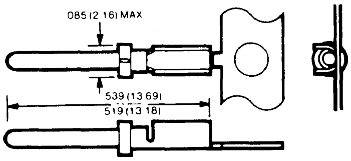
Machined contacts

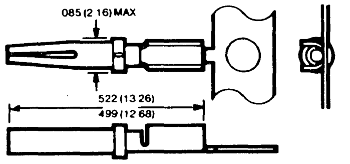


Machined contacts are supplied loose for use with hand crimp tools.

Description	Dist. Part No.	Wire Accommodation	A ±.002 (.05mm) In.	A ±.002 (.05mm) MM	B ±.002 (.05 mm) In.	B ±.002 (.05 mm) MM	C Max. In.	C Max. MM
Pin 20	030-1952-000	#20, 22, 24	.067	1.70	.042	1.07	.537	13.64
Socket 20	030-1953-000	#20, 22, 24	.067	1.70	.042	1.07	.523	13.28

Stamped contacts





Stamped contacts are supplied loose for use with hand crimp tools, or on reels for use with the semiautomatic machines. Selectively gold plated, with gold flash. overall. These contacts will accommodate wire sizes #20 through #28 AWG by adjusting or changing the crimp die set. (For other wire sizes consult factory.)

Stamped contacts are supplied on reels for use with semi automatic machines. Contacts are selectively gold plated. These contacts will accommodate wire size #20 through #28 AWG by adjusting or changing the crimp die set. (For other wire sizes contact factory)

Left hand feed contacts on reel

Type (LH)	Plating	Dist. Part No.
Pin	Selective	BCL-1963-20P
Socket	Selective	BCL-1964-20S

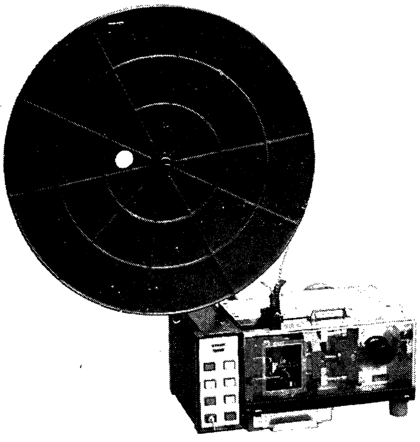
Left hand feed contacts on reels

Type (LH)	Plating/Gold Flash	Dist. Part No.
Pin	Selective	D110238-034
Socket	Selective	D110238-035

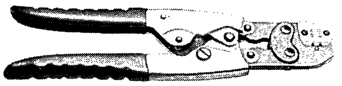
Loose contacts

Type	Plating	Dist. Part No.
Pin	Selective	030-1960-005
Socket	Selective	030-1957-005

Tools



Semi-automatic stripper and crimping tool.
Distributor Part No. ESC-20-30

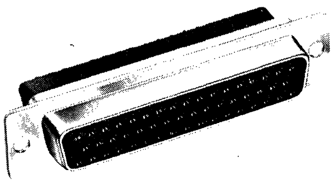


Econo D loose stamped contacts hand crimp tool.
Distributor Part No. BT-20-HC.

Insertion-extraction tool.
Distributor Part No. CIET-20-HDB

TRW D-Subminiature Connectors

ECONO D*A



Insulation-Grip Cinch ECONO D* — Subminiature connectors feature crimp-type insulation-grip contacts providing increased holding power. Evenly distributed crimp pressure provides consistent termination integrity. More reliable than conventional rear-release crimp snap-in contacts.

Notched shell versions are available making ECONO D Connectors compatible with other manufacturers' plastic hoods.

Insulator Material: Two-piece glass-filled thermoplastic

Contact Material: Copper alloy (stamped)

Contact Plating: Gold over nickel

Contact Termination: Crimp insulation grip

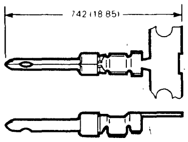
Voltage Rating: 1000 Volts AC rms (@ sea level)

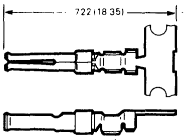
Current Rating: 5 Amps

Operating Temperature: −65°F to +125°F

			Distributor Part No.			
			Tinned Shells Without Contacts			
Layout	Shell Size	D*A Without Contacts	Without Indents Without Notches	Without Indents With Notches	With Indents Without Notches	With Indents With Notches
9 Contact Plug	E	DEA-9-PF0	DEA-9PT-F0	–	DEA-9PTI-F0	DEA-9PTI-F01
Socket	E	DEA-9-SFP	DEA-9ST-F0	DEA-9ST-F01	–	–
15 Contact Plug	A	DAA-15-PF0	DAA-15PT-F0	–	DAA-15PTI-F0	DAA-15PTI-F01
Socket	A	DAA-15-SF0	DAA-15ST-F0	DAA-15ST-F01	–	–
25 Contact Plug	B	DBA-25-PF0	DBA-25PT-F0	–	DBA-25PTI-F0	DBA-25PTI-F01
Socket	B	DBA-25-SF0	DBA-25ST-F0	DBA-25ST-F01	–	–
37 Contact Plug	C	DCA-37-PF0	DCA-37PT-F0	–	DCA-37PTI-F0	DCA-37PTI-F01
Socket	C	DCA-37-SF0	DCA-37ST-F0	DCA-37ST-F01	–	–
50 Contact Plug	D	DDA-50-PF0	DDA-50PT-F0	–	DDA-50PTI-F0	DDA-50PTI-F01
Socket	D	DDA-50-SF0	DDA-50ST-F0	DDA-50ST-F01	–	–

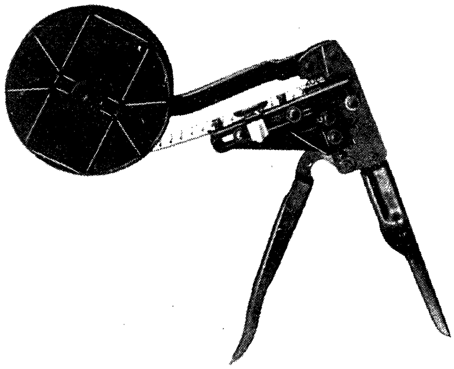
ECONO D*A Contacts





	AWG 20-26				AWG-28-30			
	Gold Flash		Gold Plate		Gold Flash		Gold Plate	
	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel
Plug	DGM-10-1	DGM-3-1	DGM-10-2	DGM-3-2	DGM-10-3	DGM-3-3	DGM-10-4	DGM-3-4
Socket	DGF-10-1	DGF-3-1	DGF-10-2	DGF-3-2	DGF-10-3	DGF-3-3	DGF-10-4	DGF-3-4

Crimping Tools

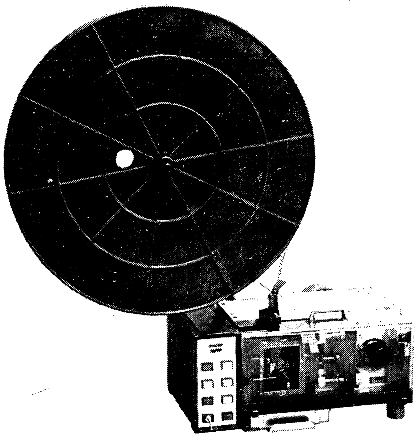


Manual Crimping Tool
Two types of transport for connector chains are available with crimping ranges of AWG 20-30 for B crimpings.

Form B AWG 20-26 GHC-B
Form B AWG 28-30 GHC-B1

Semi-Automatic Stripper and Crimping Tool
Lightweight design. Quiet operation. Single and stranded wire can be processed with PVC or PTFE coverings from AWG 30 to AWG 20.

Distributor Part No. GSC-20-30



Stripper–Crimper–Spare Parts

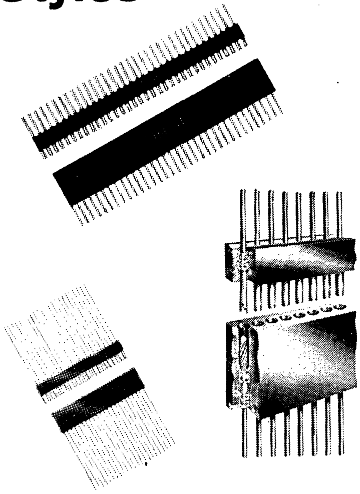
Part Number	Description
SP-67	Set of 4 Fuses
SP-68	Carrier Cutting Blade (Upper)
SP-69	Feeder Pawl
SP-70	Screw for Feeder Pawl
SP-71	Locking Pawl
SP-72	Guide Bar
SP-73	Fender Plate
SP-74	Wire Funnel

Part Number	Description
SP-75	Set of Springs
SP-76	Activator Ram
SP-77	Air Compressor
SP-78	Electronic Control Board
SP-79	Relay Board
SP-80	Motor/Gear Drive
SP-81	Brushes for Motor (Pair)
SP-82	Start Sensor

Part Number	Description
SP-83	Stop Sensor
SP-84	Reed Contact
SP-85	Magnet Stick
SP-86	Set of 9 switches and indicators
SP-87	Indicator Bulbs
SP-88	Cycle Counter
SP-89	Front Guard

TRW DURA-CON*
Connectors

Specify from six standard TRW DURA-CON Connector Styles

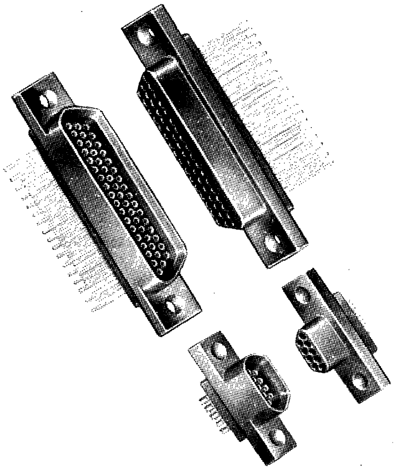


TRW DURA-CON Strip Connectors

. . . offer application flexibility for high density contacts in minimum profile package.

- Many configurations and combinations of wire terminations possible.
- 22 gauge thru 34 gauge wire combinations.
- .025″, .050″, .075″ or .100″ centers.
- Up to 60 contact positions.
- Can be assembled to PC boards or card mounting frames.
- Glass filled thermoplastic insulators.
- Available for right angle PC applications (Consult Factory).

See pages 6-7, TRW DURA-CON Connectors Catalog No. C-50 for complete specifications.

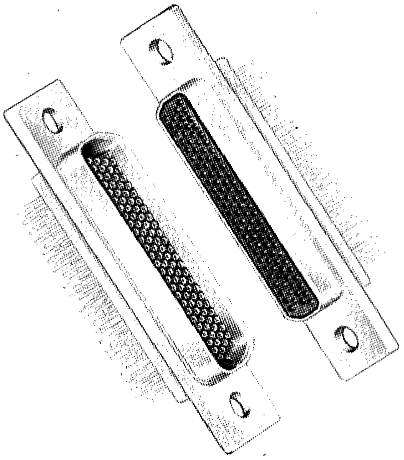


TRW Plastic Shell D-Microminiature Connectors

. . . for general use applications where weight reduction is important.

- Tough polyester thermoplastic shells, UL94 V-O.
- High performance.
- Lightweight space savers for miniaturized electronics.
- Corrosion resistant.
- 7 arrangements: 9, 15, 21, 25, 31, 37, 51 in 24 GA. size contacts.
- Current Rating: 3 amps max.
- Meets MIL-C-83513 requirements.
- Provides shorter signal paths in EDP equipment.

For all the facts about TRW Plastic Shell DURA-CON Micro-Miniature Connectors, See pages 8-11, TRW Catalog No. C-50.



TRW Metal Shell D Microminiature Environmental Connectors

. . . designed to meet stringent requirements in aircraft, data processing equipment, spacecraft and other critical applications.

- Lightweight; high contact density.
- Rugged, reliable contacts.
- Shock and vibration resistant.
- Rugged aluminum alloy shell.
- 8 sizes: 9, 15, 21, 25, 31, 37, 51, 100 contacts.
- 24 size contacts on .050″ center.
- Special power arrangements/custom terminations available.
- Provides EMI/RFI shielding.
- Meets MIL-C-83513 requirements.

Complete Metal-Shell DURA-CON D-Subminiature Connector Specifications are in TRW Catalog C-50, pages 12-15.

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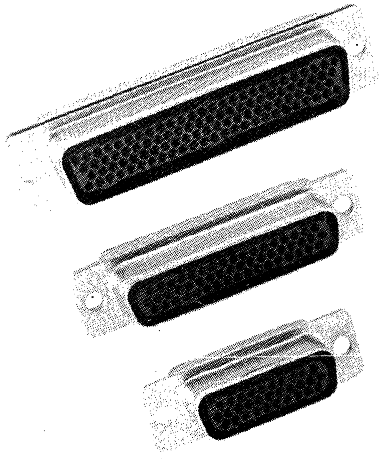
* Trademark TRW Inc.

TRW DURA-CON
Connectors

TRW

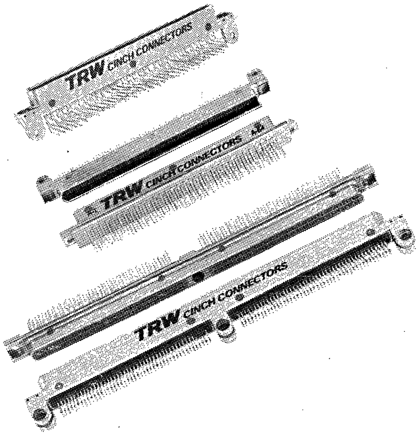


TRW DURA-CON Double-D Subminiature Connectors

. . . provides twice the number of contacts in a D-Subminiature shell for computer, aircraft, instrumentation, calculators, electronic audio equipment.

- Lightweight.
- High contact density.
- Rugged, reliable contacts.
- 22 gauge snap-in contacts permit customer assembly and easy contact replacement.
- Shock and vibration resistant steel shells; "D" (keystone) shape assures polarization.
- 5 sizes: 19, 31, 52, 79, 100 contacts.
- Current Rating: 5 amps max.
- Can be modified to meet your specific requirements or applications.

See pages 16-20, TRW Catalog No. C-50, for complete Double-D Connector performance characteristics.



TRW 128 and 184 Contact Microedge Metal Shell Connectors

. . . rugged, reliable high density connectors with 128 or 184 Twist-Pin contacts.

- High reliability.
- Space/weight savers for aircraft, space, computer, controls applications.
- High contact density.
- Aluminum shell.
- Shock and vibration resistant.
- 2 sizes: 128 and 184 contacts.
- Meets MIL-C-55302 requirements.
- 90° variations available for multi-layer boards.
- Current Rating: 3 amps max.
- Can be modified to meet your specific requirements or applications.

TRW Microedge Metal Shell Connectors are fully described in TRW Catalog No. C-50, pages 21-24.

TRW Terminal Block DURA-CON Connectors

. . . PC series connectors for use with flat cable, flex circuitry, printed circuit and multi-layer boards.

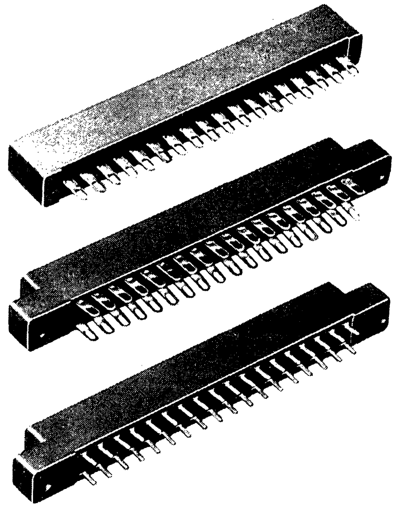
- 3 styles: straight termination, 90° termination, 90° narrow profile.
- Standard aluminum shell.
- Uniquely offers ease of soldering and mounting with all hardware or standard metal shell series.
- 8 sizes: 9, 15, 21, 25, 31, 37, 51, 100 contacts.
- Can be modified to your specific requirements or applications.
- Current Rating: 3 amps max.

Check TRW Catalog No. C-50, pages 25-28, for PC Terminal Block Connector Specifications.

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

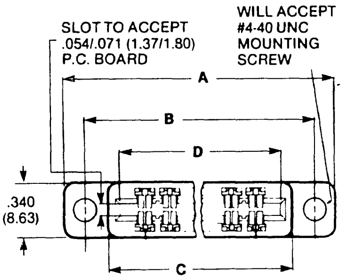
TRW CARDCON* Edge Connectors

.156" (3.96mm) Density for .062" (1.59mm) Boards

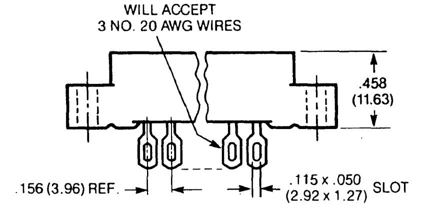


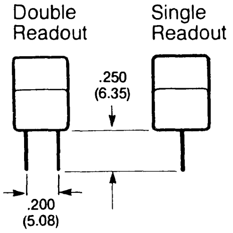
New cost effective methods of manufacture, selective plating and assembly permits TRW Cinch to price Cardcon 20% to 50% below most other P.C. Board connectors. Cardcon meets applicable performance requirements of MIL-C-21097.

Insulator: Blue glass-filled polyester—94V-O
Contact style: Semi-bellows—bifurcated
Contact material: Spring brass alloy 260
Contact plating: Gold on contact area and gold flash on tail with copper underplate.
Termination: Solder eyelet terminals; DIP solder terminals with either .200"(5.08 mm) or .140" (3.56 mm) between row spacing
Mounting: Available with mounting ears and .128" holes or without mounting ears. For other type mounting consult factory.
Test voltage: 1800 RMS AC at sea level
Rated current: 5 AMPS.
Polarizing key: Between-contact type (P/N 50-PK-2) or In-contact type (P/N 50-PK-4):Order separately.
Card guide: Part No. 50-GP-1B. Order separately.
Part is blue to match Cardcon.

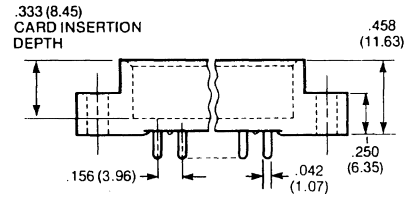


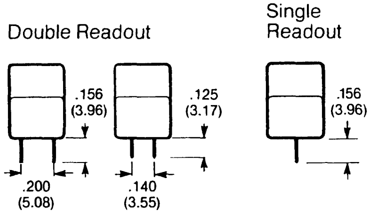
Solder eyelet terminals



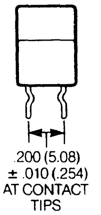


DIP solder terminals





Board retention P.C. tails



*Trademark of TRW, Inc.

Contact Positions	A		B		C		D	
	In.	MM	In.	MM	In.	MM	In.	MM
6	1.785	45.33	1.531	38.88	1.239	31.47	1.100	27.94
10	2.410	61.21	2.156	54.76	1.864	47.34	1.724	43.79
12	2.723	69.16	2.469	62.71	2.177	55.29	2.036	51.71
15	3.191	81.05	2.937	74.60	2.645	67.18	2.504	63.60
18	3.660	92.96	3.406	86.51	3.114	79.09	2.972	75.48
22	4.285	108.83	4.031	102.38	3.739	94.97	3.596	91.33
24	4.598	116.79	4.344	110.31	4.052	102.92	3.911	99.33
25	4.754	120.75	4.500	114.30	4.208	106.88	4.067	103.30

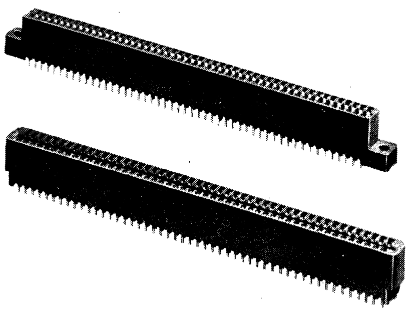
	Distributor Part Numbers											
	Single Readout				Double Readout							
	Solder Eyelet		DIP Solder .156" Long		Solder Eyelet		DIP Solder .125" Long Style 2		DIP Solder .156" Long Style 1			
							.140" Between Rows		.200" Between Rows			
Positions	.128" Mounting Hole	W.O. Mounting Ears	.128" Mounting Hole	W.O. Mounting Ears	.128" Mounting Hole	W.O. Mounting Ears	.128" Mounting Hole	W.O. Mounting Ears	.128" Mounting Hole W.O. †Retention Feat.	.128" Mounting Hole With †Retention Feat.	W.O. Mounting Ears W.O. †Retention Feat.	W.O. Mounting Ears With †Retention Feat.
6	50-6SN-7	50-6SN-8	50-6SN-5	50-6SN-6	50-12SN-9	50-12SN-10	50-12SN-2	50-12SN-4	50-12SN-1	50-12SN-1R	50-12SN-3	50-12SN-3R
10	50-10SN-7	50-10SN-8	50-10SN-5	50-10SN-6	50-20SN-9	50-20SN-10	50-20SN-2	50-20SN-4	50-20SN-1	50-20SN-1R	50-20SN-3	50-20SN-3R
12	50-12SN-7	50-12SN-8	50-12SN-5	50-12SN-6	50-24SN-9	50-24SN-10	50-24SN-2	50-24SN-4	50-24SN-1	50-24SN-1R	50-24SN-3	50-24SN-3R
15	50-15SN-7	50-15SN-8	50-15SN-5	50-15SN-6	50-30SN-9	50-30SN-10	50-30SN-2	50-30SN-4	50-30SN-1	50-30SN-1R	50-30SN-3	50-30SN-3R
18	50-18SN-7	50-18SN-8	50-18SN-5	50-18SN-6	50-36SN-9	50-36SN-10	50-36SN-2	50-36SN-4	50-36SN-1	50-36SN-1R	50-36SN-3	50-36SN-3R
22	50-22SN-7	50-22SN-8	50-22SN-5	50-22SN-6	50-44SN-9	50-44SN-10	50-44SN-2	50-44SN-4	50-44SN-1	50-44SN-1R	50-44SN-3	50-44SN-3R
24	50-24SN-7	50-24SN-8	50-24SN-5	50-24SN-6	50-48SN-9	50-48SN-10	50-48SN-2	50-48SN-4	50-48SN-1	50-48SN-1R	50-48SN-3	50-48SN-3R
25	50-25SN-7	50-25SN-8	50-25SN-5	50-25SN-6	50-50SN-9	50-50SN-10	50-50SN-2	50-50SN-4	50-50SN-1	50-50SN-1R	50-50SN-3	50-50SN-3R

†The TRW board retention feature holds the connector firmly on the board during the wave soldering process, eliminating the need for mounting flanges and hardware. Plated-thru holes are not damaged if the connector is removed.

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

TRW CARDCON Edge Connectors

.100" (2.54mm) Density for .062" (1.59mm) Boards



TRW Cardcon Edge Connectors are also available with .100 (2.54mm) center spacing. These low cost edge connectors are available in double readout only. The bifurcated semi-bellows contacts make them highly suitable for applications involving vibration or board irregularities. They are available less mounting ears, or with .128" (3.25mm) mounting holes or with 4-40 threaded bushing. They meet applicable performance criteria of MIL-C-21097.

Insulator Material: UL 94V-0 rated glass filled polyester. Color—Blue.

Contact Material/Plating: Contacts are available in alloy 260 spring brass. Standard finish gold over nickel in contacting area. Gold flash on tails copper overall underplate. Contact factory for other contact material and plating options.

Shock: Per MIL-STD-202E method 213B, condition "C."

Temperature Cycling: 5 continuous cycles (−65°C to +125°C) per MIL-STD-202E method 107D, condition "B."

Vibration: Per MIL-STD-202E method 204C, condition "B."

Humidity: Per MIL-STD-202E, method 103, condition "B."
650 at sea level.

Current Rating: 3.0 Amperes.

Contact Resistance at Rated Current: 0.010 Ohms Max.

Insulation Resistance: 1000 Megohms Min.

Polarizing Key: Between-contact type Distributor Part No. 50-PK-2; or In-contact type Distributor Part No. 50-PK-4—Order separately.

Card Guide: Distributor Part No: 50-GP-1B. Order separately. Part is blue to match connector.

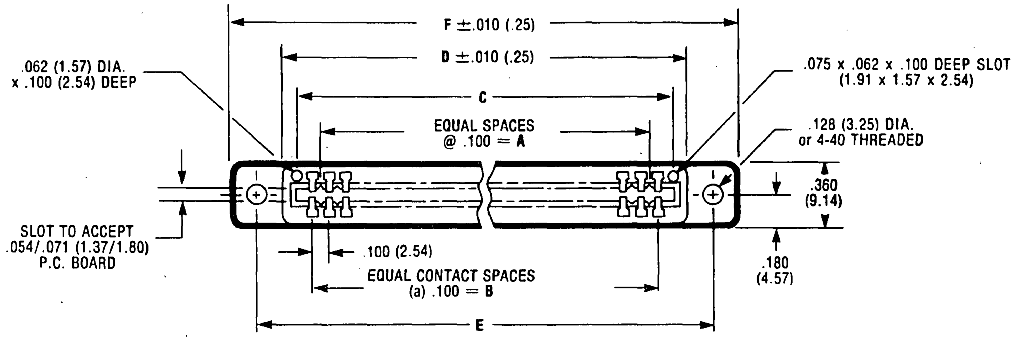
Double Readout .156" Long Dip Solder Tails

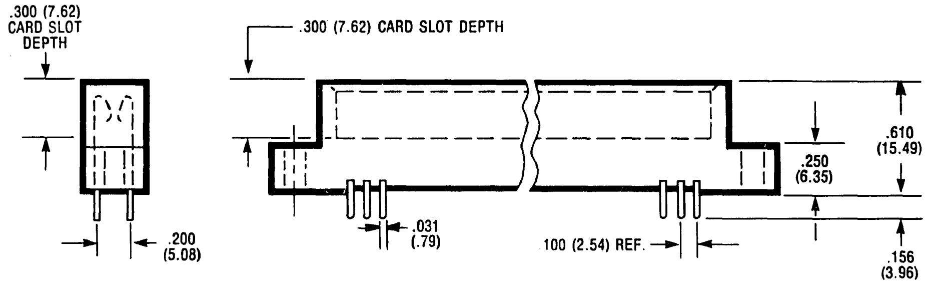
Contact Position	Distributor Part Numbers		
	Without Ears	With Plain Mounting Ears	With Molded in 4-40 Threaded Bushing
12	50-12SN-12	50-12SN-11	50-12SN-13
15	50-15SN-12	50-15SN-11	50-15SN-13
18	50-18SN-12	50-18SN-11	50-18SN-13
20	50-20SN-12	50-20SN-11	50-20SN-13
22	50-22SN-12	50-22SN-11	50-22SN-13
25	50-25SN-12	50-25SN-11	50-25SN-13
28	50-28SN-12	50-28SN-11	50-28SN-13
30	50-30SN-12	50-30SN-11	50-30SN-13
31	50-31SN-12	50-31SN-11	50-31SN-13
36	50-36SN-12	50-36SN-11	50-36SN-13
37	50-37SN-12	50-37SN-11	50-37SN-13
40	50-40SN-12	50-40SN-11	50-40SN-13
43	50-43SN-12	50-43SN-11	50-43SN-13
44	50-44SN-12	50-44SN-11	50-44SN-13
49	50-49SN-12	50-49SN-11	50-49SN-13
50	50-50SN-12	50-50SN-11	50-50SN-13
52	50-52SN-12	50-52SN-11	50-52SN-13
60	50-60SN-12	50-60SN-11	50-60SN-13
70	50-70SN-12	50-70SN-11	50-70SN-13

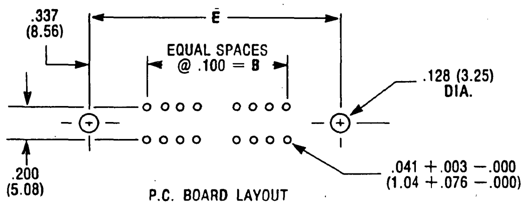
TRW CARDCON Edge Connectors

.156″ (3.96mm) Density for .062″ (1.59mm) Boards

Dimensions


F ±.010 (.25)
D ±.010 (.25)
C
EQUAL SPACES @ .100 = A
.062 (1.57) DIA. x .100 (2.54) DEEP
.075 x .062 x .100 DEEP SLOT (1.91 x 1.57 x 2.54)
.128 (3.25) DIA. or 4-40 THREADED
.360 (9.14)
SLOT TO ACCEPT .054/.071 (1.37/1.80) P.C. BOARD
.100 (2.54)
EQUAL CONTACT SPACES (a) .100 = B
.180 (4.57)
E

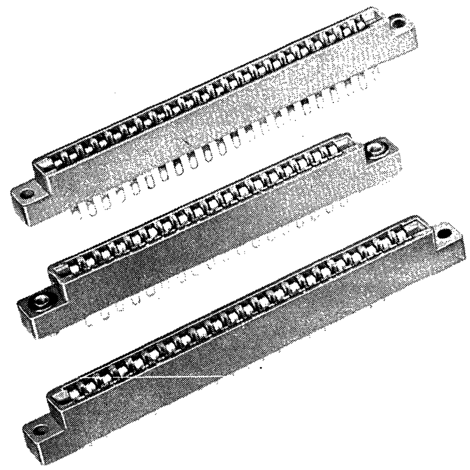

.300 (7.62) CARD SLOT DEPTH
.300 (7.62) CARD SLOT DEPTH
.200 (5.08)
.031 (.79)
100 (2.54) REF.
.610 (15.49)
.250 (6.35)
.156 (3.96)


.337 (8.56)
E
EQUAL SPACES @ .100 = B
.128 (3.25) DIA.
.200 (5.08)
.041 +.003 −.000 (1.04 +.076 −.000)
P.C. BOARD LAYOUT

No. of Contacts	A		B		C		D		E		F	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
12/24	1.000	25.40	1.100	27.94	1.300	33.02	1.460	37.08	1.775	45.09	2.035	51.69
15/30	1.300	33.02	1.400	35.56	1.600	40.64	1.760	44.704	2.075	52.71	2.335	59.31
18/36	1.600	40.64	1.700	43.18	1.900	48.26	2.060	52.32	2.375	60.33	2.635	66.93
20/40	1.800	45.72	1.900	48.26	2.100	53.34	2.260	57.40	2.575	65.41	2.835	72.01
22/44	2.000	50.80	2.100	53.34	2.300	58.42	2.460	62.48	2.775	70.49	3.035	77.09
25/50	2.300	58.42	2.400	60.96	2.600	66.04	2.760	70.10	3.075	78.11	3.335	84.71
28/56	2.600	66.04	2.700	68.58	2.900	73.66	3.060	77.72	3.375	85.73	3.635	92.33
30/60	2.800	71.12	2.900	73.66	3.100	78.74	3.260	82.80	3.575	90.81	3.835	97.41
31/62	2.900	73.66	3.000	76.20	3.200	81.28	3.360	85.34	3.675	93.35	3.935	99.95
36/72	3.400	86.36	3.500	88.90	3.700	93.99	3.860	98.04	4.175	106.05	4.434	112.65
37/74	3.500	88.90	3.600	91.44	3.800	96.52	3.960	100.58	4.275	108.59	4.535	115.19
40/80	3.800	96.52	3.900	99.06	4.100	104.14	4.260	108.20	4.575	116.21	4.835	122.81
43/86	4.100	104.14	4.200	106.68	4.400	111.76	4.560	115.82	4.875	123.83	5.135	130.43
44/88	4.200	106.68	4.300	109.22	4.500	114.30	4.660	118.36	4.975	126.37	5.235	132.97
49/98	4.700	119.38	4.800	121.92	5.000	127.00	5.160	131.06	5.475	139.07	5.735	145.67
50/100	4.800	121.92	4.900	124.46	5.100	129.54	5.260	133.60	5.575	141.61	5.835	148.21
52/104	5.000	127.00	5.100	129.54	5.300	134.62	5.460	138.68	5.775	146.68	6.035	153.30
60/120	5.800	147.32	5.900	149.86	6.100	154.94	6.260	159.00	6.575	167.01	6.835	173.61
70/140	6.800	172.72	6.900	175.26	7.100	180.34	7.260	184.40	7.575	192.41	7.835	199.01

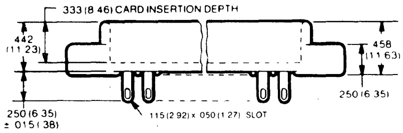
TRW Commercial And Military Edge Connectors .100" (2.54mm) Density for .062" (1.59mm) Boards

Double and Single Readout

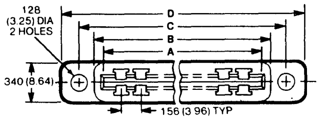


Insulator: Glass fiber filled diallyl phthalate per MIL-M-14 Type SGD-F.
Contact style: Bifurcated bellows.
Contact material:
1) Commercial type: Phosphor bronze.
2) Military type: Beryllium copper.
Contact plating:
1) Commercial type: Stripe plated with gold in contact area and gold on tails with copper underplate. No plating on edges.
2) Military type: gold over copper.
Termination: Solder eyelet terminals with .200" (5.08 mm) between row spacing on double readout. Dip solder tails with either .140" (3.56 mm) or .200" (5.08 mm) between row spacing on double readout.

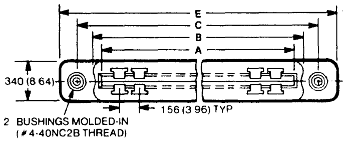
Test voltage: 1800 volts RMS AC at sea level. Rated current: 5 amps.
Polarizing keys: Between contact type Part no. 50-PK-2 or in contact type Part no. 50-PK-1 Order separately.
Card guide: Part no. 50-GP-1 Order separately.
UL recognized


333 (8 46) CARD INSERTION DEPTH
442 (11 23)
458 (11 63)
250 (6 35)
250 (6 35) ± 015 (38)
115 (2 92) x 050 (1 27) SLOT

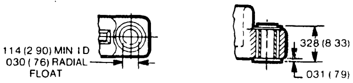
With plain mounting holes


128 (3.25) DIA 2 HOLES
D
C
B
A
340 (8.64)
156 (3 96) TYP

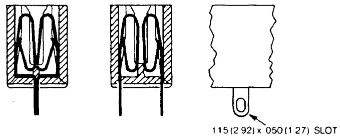
With molded-in bushings (Military)


E
C
B
A
340 (8 64)
156 (3 96) TYP
2 BUSHINGS MOLDED-IN (# 4-40NC2B THREAD)

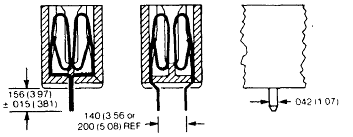
With floating bushings (Military)


114 (2 90) MIN I D
030 (76) RADIAL FLOAT
328 (8 33)
031 (79)

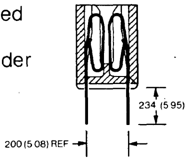
Solder Eyelet


115 (2 92) x 050 (1 27) SLOT

Dip Solder


156 (3 97) ± 015 (381)
140 (3 56 or 200 (5 08) REF
042 (1 07)

Extended Length Dip Solder

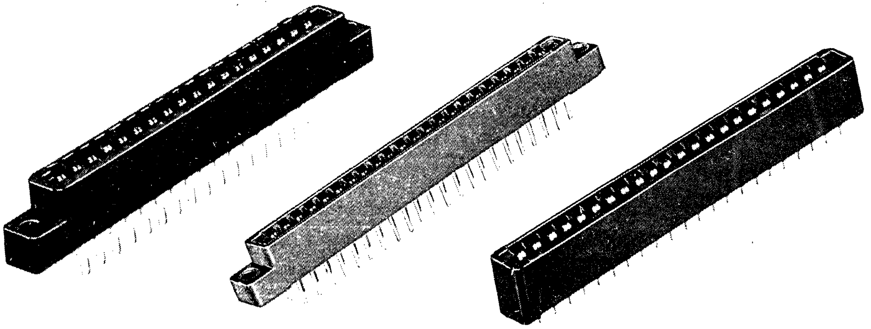

234 (5 95)
200 (5 08) REF

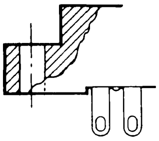
No. of Contact Positions	Dimensions									
	A		B		C		D		E	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
6	1.100	27.94	1.239	31.47	1.531	38.89	1.785	45.34	1.937	49.19
10	1.724	43.79	1.864	47.35	2.156	54.76	2.410	61.21	2.562	65.07
12	2.036	51.71	2.177	55.30	2.469	62.71	2.723	69.16	2.875	73.03
15	2.504	63.60	2.645	67.18	2.937	74.60	3.191	81.05	3.343	84.91
18	2.972	75.49	3.114	79.10	3.406	86.51	3.660	92.96	3.812	96.82
22	3.596	91.34	3.739	94.97	4.031	102.39	4.285	108.84	4.437	112.70
25	4.067	103.30	4.208	106.88	4.500	114.30	4.754	120.75	4.906	124.61

TRW Commercial And Military Edge Connectors

TRW

Commercial Double and Single Readout

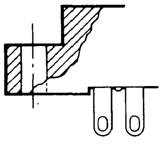




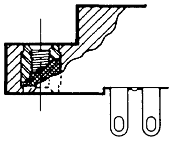
Plain Mounting Hole

	Distributor Part Numbers							
	Single Readout			Double Readout				
	Solder Eyelet	DIP Solder .156″ long	DIP Solder .234″ long	Solder Eyelet	DIP Solder .125″ long		DIP Solder .156″ long	DIP Solder .234″ long
					.140″ Between Rows		.200″ Between Rows	.200″ Between Rows
Contact Positions	Mounting Hole	Mounting Hole	Mounting Hole	Mounting Hole	Mounting Hole	W.O. Mounting Ears	Mounting Hole	Mounting Hole
6	50-6A-20	50-6B-10	50-6S-10	50-12A-30	50-12S-30-2	50-12S-30-1	50-12B-10	50-12S-20
10	50-10A-20	50-10B-10	50-10S-10	50-20A-30	50-20S-30-2	50-20S-30-1	50-20B-10	50-20S-20
12	50-12A-20	50-12B-10	50-12S-10	50-24A-30	50-24S-30-2	50-24S-30-1	50-24B-10	50-24S-20
15	50-15A-20	50-15B-10	50-15S-10	50-30A-30	50-30S-30-2	50-30S-30-1	50-30B-10	50-30S-20
18	50-18A-20	50-18B-10	50-18S-10	50-36A-30	50-36S-30-2	50-36S-30-1	50-36B-10	50-36S-20
22	50-22A-20	50-22B-10	50-22S-10	50-44A-30	50-44S-30-2	50-44S-30-1	50-44B-10	50-44S-20
25	50-25A-20	50-25B-10	50-25S-10	50-50A-30	50-50S-30-2	50-50S-30-1	50-50B-10	50-50S-20

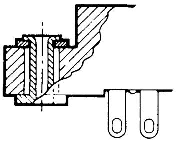
MIL-C-21097 Military Double and Single Readout



Plain Mounting Hole



Molded-in Bushing



Floating Bushing

Military type per MIL-C-21097 with conventional solder terminals

Single Readout

Contact Positions	Plain Mounting Hole		Molded-in Bushing		Floating Bushing	
	Distributor No.	Military No.	Distributor No.	Military No.	Distributor No.	Military No.
6	50-6A-20M-1	M21097/21-001	50-6A-20-MB-1	M21097/21-004	50-6A-20-MFB-1	M21097/21-007
10	50-10A-20M-1	M21097/21-037	50-10A-20-MB-1	M21097/21-040	50-10A-20-MFB-1	M21097/21-043
15	50-15A-20M-1	M21097/21-073	50-15A-20-MB-1	M21097/21-076	50-15A-20-MFB-1	M21097/21-079
18	50-18A-20M-1	M21097/21-109	50-18A-20-MB-1	M21097/21-112	50-18A-20-MFB-1	M21097/21-115
22	50-22A-20M-1	M21097/21-145	50-22A-20-MB-1	M21097/21-148	50-22A-20-MFB-1	M21097/21-151

Double Readout, .200 (5.08 mm) spacing between rows

Contact Positions	Plain Mounting Hole		Molded-in Bushing		Floating Bushing	
	Distributor No.	Military No.	Distributor No.	Military No.	Distributor No.	Military No.
6	50-12A-30M-1	M21097/21-019	50-12A-30-MB-1	M21097/21-022	50-12A-30-MFB-1	M21097/21-025
10	50-20A-30M-1	M21097/21-055	50-20A-30-MB-1	M21097/21-058	50-20A-30-MFB-1	M21097/21-061
15	50-30A-30M-1	M21097/21-091	50-30A-30-MB-1	M21097/21-094	50-30A-30-MFB-1	M21097/21-097
18	50-36A-30M-1	M21097/21-127	50-36A-30-MB-1	M21097/21-130	50-36A-30-MFB-1	M21097/21-133
22	50-44A-30M-1	M21097/21-163	50-44A-30-MB-1	M21097/21-166	50-44A-30-MFB-1	M21097/21-169

Military type per MIL-C-21097 w/dip solder term. Plain mounting hole

Double readout. .200 (5.08 mm) spacing between rows.

Contact Positions	Distributor No.	Mil. Part No.
6	50-12B-10M-1	M21097/21-028
10	50-20B-10M-1	M21097/21-064
15	50-30B-10M-1	M21097/21-100
18	50-36B-10M-1	M21097/21-136
22	50-44B-10M-1	M21097/21-172

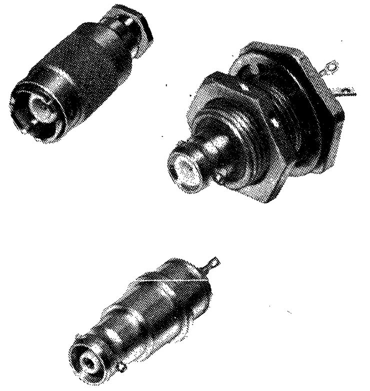
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Connector Products

TRW

Cylindrical Connector Division
TRW Electronic Components Group

Nu-Lok 1200 Series Coaxial Connectors



These QPL approved coaxial connectors eliminate the weak link in fluid measurement, instrumentation and data transmission systems.

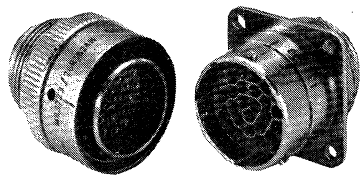
TRW Nu-Lok 1200 Series Coaxial Connectors deliver repeatable connection integrity, assuring consistently accurate readings. Studies indicate that 90 percent of system malfunctions result from the interconnecting cable/connector.

Many Nu-Lok 1200 Series miniature environment-resistant coaxial connectors are QPL approved...designed to meet all the requirements of MIL-C-25516. They provide resistance to high vibration levels and other adverse environments.

They are corrosion resistant against hydrocarbon fuels, lubricants, sea water, etc, easy to install and maintain with common tools and are impedance matched—insensitive at frequencies up to 1 GHz.

The Nu-Lok 1200 Series offers the highest reliability available from a miniature coaxial connector, with proven integrity in critical low/high impedance circuits.

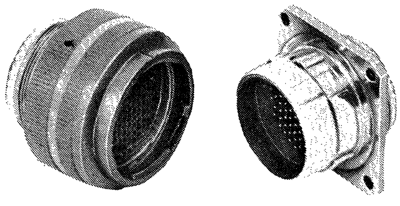
MIL-C-83723 Series III Cylindrical Connectors



The TRW Nucon series are built to exceed the specifications of MIL-C-83723 Series III. The design combines the exacting high reliability miniature connector specifications of MIL-C-26500 with a rear-release contact retention system.

All plug and receptacle shells are machined from aluminum bar stock to ensure close mating tolerances and concentricity. The closed entry-socket insulator will not accept a pin contact that is bent beyond a pre-established limit. The rubber interfacial seal on the pin side has raised bosses around each pin. These bosses engage the socket chamfers to provide an occlusive moisture seal.

Vibra-Lok™ IV Mil-C-38999 Series IV Connectors

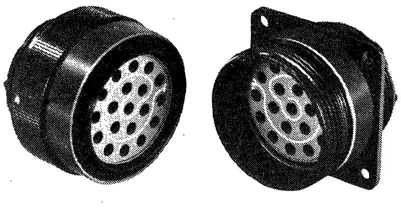


Vibra-Lok IV coupling provides a rugged, fool-proof, quick-disconnect operation in a subminiature electrical connector. The Vibra-Lok mechanism distributes the coupling load over solid metal lands, while internal drive threads provide the mechanical torque required to engage contacts and interfacial seal.

Vibra-Lok IV connectors cannot be coupled (or partially coupled) until key/keyway alignment has been achieved—keys drop into keyways with a positive "feel" before coupling can begin. 90° coupling ring rotation brings the plug to the fully mated position with the mating receptacle.

Superior EMI/EMP shielding is provided by gold-plated beryllium-copper grounding fingers compress on the smooth uninterrupted receptacle's circumference. Grounding occurs prior to contact engagement. Pre-alignment of each contact pair is assured by the Vibra-Lok coupling mechanism with no chance for skewed contact engagement.

CN0966 and CN0967 (MIL-C-26500) Series Connectors



These threaded self-locking vibration-proof environmental plug connectors incorporate the same field-proven features as the MIL-C-26500 connectors. Where harsh environments and severe vibration exist, the design of CN0966/CN0967 connectors provide the complete protection necessary for maintaining electrical continuity.

With stainless steel shells and fluorosilicone grommets, these connectors are especially suited to resisting engine fluids and high temperatures. Industries such as chemical processing, jet engines, and petroleum refining are using these connectors, which are designed to operate continuously at 200°C. The CN0966/CN0967 are capable of taking short exposures up to 800°C and can easily handle up to 2000 CPS vibration.

* Trademark TRW Inc.

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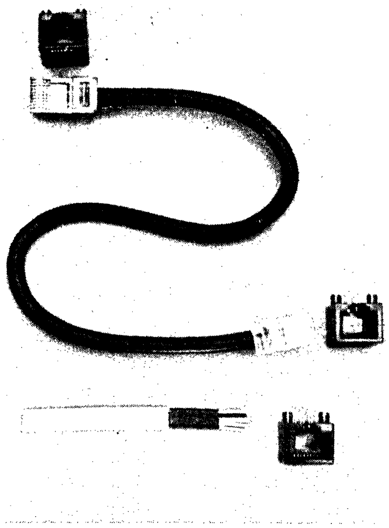
CYLINDRICAL CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP • 8821 SCIENCE CENTER DRIVE, MINNEAPOLIS, MN 55428 • (612) 537-1010

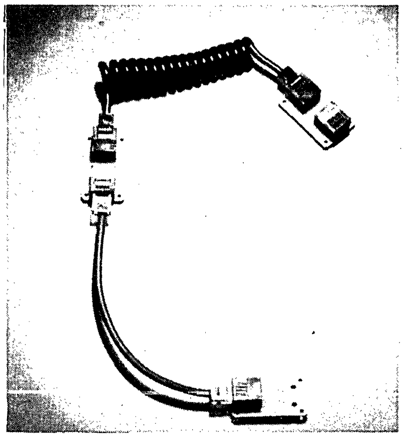
VIRGINIA PLASTICS

P.O. Box 4577
Roanoke, Virginia 24015-0577
Phone (703) 985-3811
TWX 710-870-0440

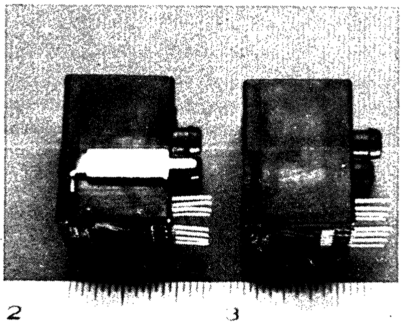


NEW V.P. PRODUCTS

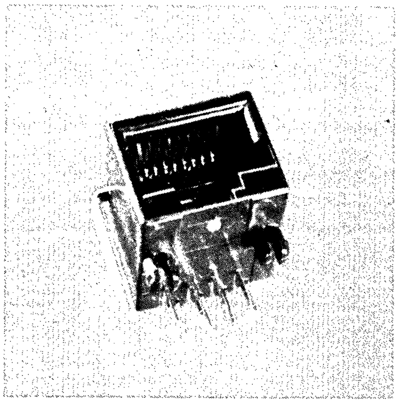
- Low profile female PCB connectors with external ground strap. Ground positions can be 1, 2, or 3. Available as a 8-10 or a 6-8 size.
- Ultra-flexible flat shielded cable because of unique shielding method.
- Low profile 6-8 female PCB connector designed to minimize PCB board spacing. PCB can be spaced as close as ½". Designed to handle 8 active lines with standard 6 position housing.
- 6-8 male plug, standard 6 position modular plug body size which can have up to 8 active lines.
- Unique double shielded construction over the conductor bundle that provides very high levels of signal emissions of high speed transmission.
- 8-10 male plug, standard 8 position modular plug body size which can have up to 10 active lines.
- Low profile 8-10 female PCB connector designed to minimize printed circuit board spacing. P.C.B. can be spaced as close as ½". Designed to handle 10 active lines with standard 8 position modular body size.



Virginia Plastics low profile female PCB connectors are designed to eliminate micro-second interruptions utilizing a beryllium copper contact system which typically yields 100 grams of pressure on each contact. The unique male to female contact arrangement results in 100 times the mating area of traditional modular PCB connectors. Low profile connectors were designed to minimize printed circuit board spacing. Boards can be spaced ½" from one another. Available in 4, 6, or 8 position housings. The outside dimensions of all low profile connectors are identical for ease in board layout and attractive side by side compatibility. The facade line of connectors was developed to meet the needs of customers currently using V.P. connectors. The front dimensions of this connector are the same as our MCJ series connectors for compatibility with existing designs of products in use. All Virginia Plastics' connectors are 100% electrically tested for contact interruptions by oscilloscope or high speed circuit tester.



2 3
10 9



FEATURES:

- Housing is made from high temperature thermoplastic with a flammability rating of 94V-0
- Fits printed circuit board grids of .050" located on .100" centers
- Designed for wave soldering
- Snap-look feet provide positive locking to PCB
- Designed for printed circuit board of .062 inch thickness
- Meets FCC part 68 requirements

SPECIFICATIONS:

- Height of low profile connector on board is .500" max

CONTACT MATERIAL AND PLATING THICKNESS:

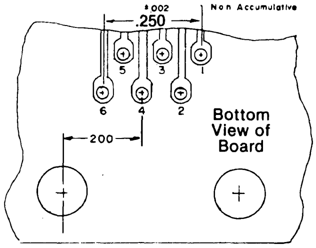
- .015 inch hard temper beryllium copper
- 100 u inch nickel plate overall
- 100 u inch of tin/lead on solder post over nickel
- 15 u inch gold alloy in contact area over nickel

- Each spring contact portion of each contact within the female connector shall have a typ. contact normal force of 100 grams

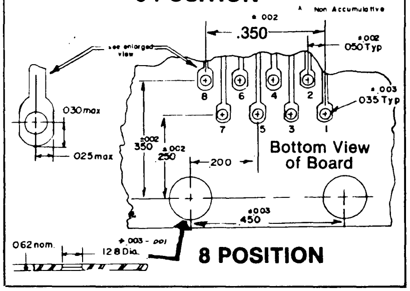
GROUND STRAP LOW PROFILE

An innovative concept for modular grounding systems is the Virginia Plastics' low profile PCB connector with internal contact/external ground strap. The ground strap uses a large surface area to efficiently drain emissions. Ground strap connections bypass PC traces by directly going to the ground plane, reducing EMI emissions.

PRINTED CIRCUIT BOARD LAYOUT



6 POSITION



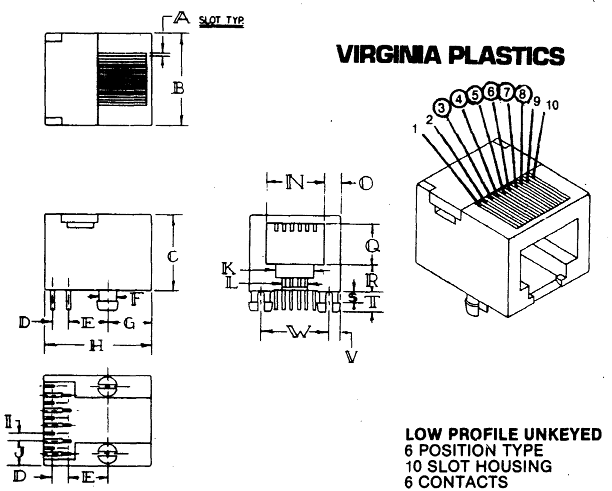
8 POSITION

VIRGINIA PLASTICS

P.O. Box 4577
Roanoke, Virginia 24015-0577
Phone (703) 985-3811
TWX 710-870-0440

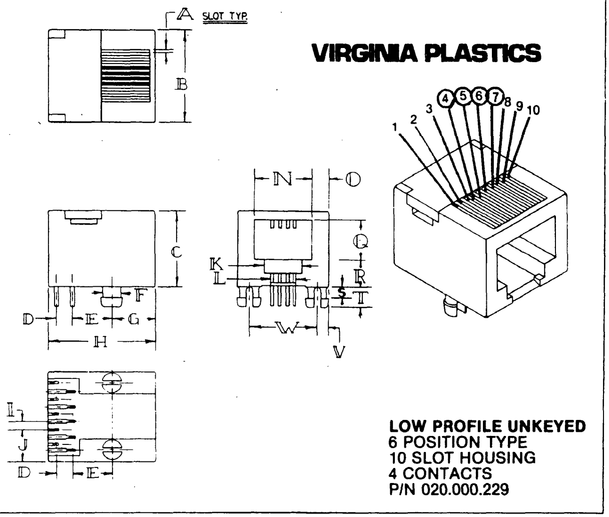
For Universal PCB Layout call Virginia Plastics, (703) 985-3811

DIM.	TOLERANCE INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.
A	.029 REF.		.7 REF	
B	.580	.600	14.7	15.2
C	.480	.500	12.2	12.7
D	.092	.108	2.3	2.7
E	.242	.258	6.1	6.6
F	.120	.130	3.0	3.3
G	.280	.310	7.1	7.6
H	.670	.690	17.0	17.5
I	.045	.055	1.1	1.4
J	.162	.178	4.1	4.5
K	.250	.270	6.4	6.9
L	.155	.165	3.9	4.2
M				
N	.385	.395	9.8	10.0
O	100 REF.		2.54 REF.	
P				
Q	.265	.275	6.7	7.0
R	.130	.150	3.3	3.8
S	.065	.075	1.7	1.9
T	.111	.131	2.8	3.3
U				
V	.070 REF.		1.8 REF.	
W	.441	.459	11.2	11.7
X				
Y				
Z				


A SLOT TYP
B
VIRGINIA PLASTICS
1 2 ③ ④ ⑤ ⑥ ⑦ ⑧ 9 10
N
O
C
Q
K
L
R
S
T
F
D E G
H
W
V
I
J
D E

LOW PROFILE UNKEYED
6 POSITION TYPE
10 SLOT HOUSING
6 CONTACTS
P/N 020.000.186

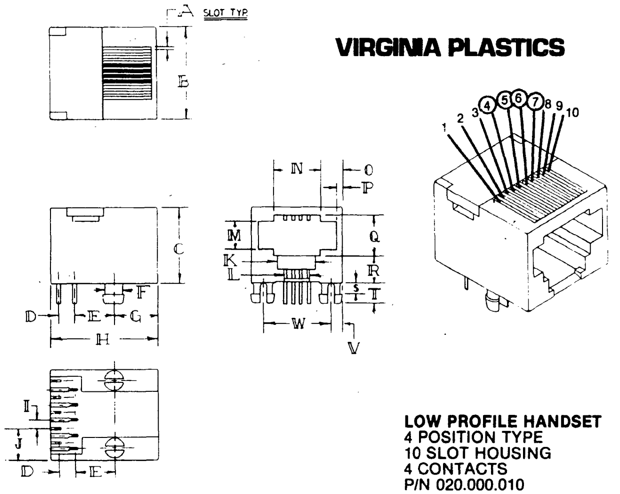
DIM.	TOLERANCE INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.
A	029 REF.		0.7 REF	
B	580	.600	14.7	15.2
C	.480	.500	12.2	12.7
D	.092	.108	2.3	2.7
E	.242	.258	6.1	6.6
F	.120	.130	3 0	3.3
G	.280	.310	7.1	7.6
H	.670	.690	17.0	17.5
I	.045	.055	1.1	1.4
J	.212	.228	5.4	5.8
K	.250	.270	6.4	6.9
L	.155	165	3 9	4.2
M				
N	.385	.395	9.8	10.0
O	100 REF.		2.54 REF.	
P				
Q	.265	.275	6.7	7 0
R	130	.150	3.3	3.8
S	065	075	1.7	1.9
T	111	131	2.8	3.3
U				
V	.070 REF		1.8 REF	
W	441	459	11.2	11.7
X				
Y				
Z				


A SLOT TYP
B
VIRGINIA PLASTICS
1 2 3 ④ ⑤ ⑥ ⑦ 8 9 10
N
O
C
Q
K
L
R
S
T
F
D E G
H
W
V
I
J
D E

LOW PROFILE UNKEYED
6 POSITION TYPE
10 SLOT HOUSING
4 CONTACTS
P/N 020.000.229

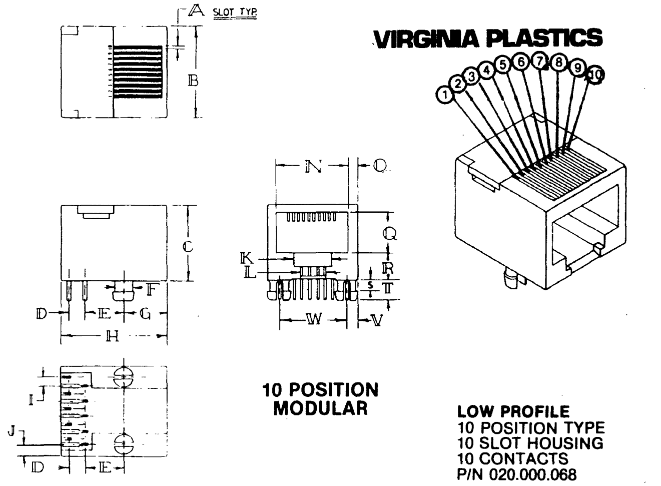
Numbers with circles are Contact Positions.

DIM.	TOLERANCE INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.
A	.029 REF.		.7 REF	
B	.580	.600	14.7	15.2
C	.480	.500	12.2	12.7
D	.092	.108	2.3	2.7
E	.242	.258	6.1	6.6
F	.120	.130	3.0	3.3
G	.280	.300	7.1	7.6
H	.670	.690	17.0	17.5
I	.045	.055	1.1	1.4
J	.212	.228	5.4	5.8
K	.250	.270	6.4	6.9
L	.155	.165	3.9	4.2
M	.170	.190	4.3	4.8
N	.303	.313	7.7	8.0
O	.100 REF.		2.54 REF.	
P	.040 REF		1.0 REF.	
Q	.265	.275	6.7	7.0
R	.130	.150	3.3	3.8
S	.065	.075	1.7	1.9
T	.111	.131	2.8	3.3
U				
V	.070 REF		1.8 REF	
W	.441	.459	11.2	11.7
X				
Y				
Z				


A SLOT TYP
B
VIRGINIA PLASTICS
1 2 3 ④ ⑤ ⑥ ⑦ 8 9 10
N
O
P
M
C
Q
K
L
R
S
T
F
D E G
H
W
V
I
J
D E

LOW PROFILE HANDSET
4 POSITION TYPE
10 SLOT HOUSING
4 CONTACTS
P/N 020.000.010

DIM	TOLERANCE MIN	MAX
A .029REF.		
B	.580	.600
C	.480	.500
D	.092	.108
E	.242	.258
F	.120	.130
G	.280	.310
H	.670	.690
I	.045	.055
J	.062	.078
K	.250	.270
L	.155	.165
M		
N	.465	.475
O .060 REF.		
P		
Q	.265	.275
R	.130	.150
S	.065	.075
T	.111	.131
U		
V .070REF.		
W	.441	.459
X		
Y		
Z		


A SLOT TYP
B
VIRGINIA PLASTICS
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
N
O
C
Q
K
L
R
S
T
F
D E G
H
W
V
I
J
D E

10 POSITION MODULAR

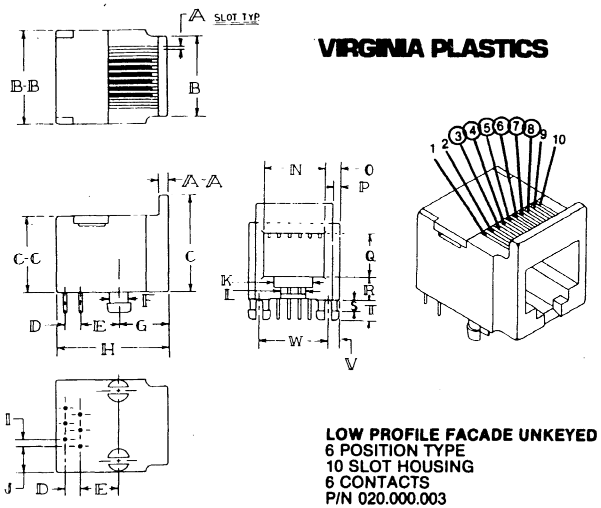
LOW PROFILE
10 POSITION TYPE
10 SLOT HOUSING
10 CONTACTS
P/N 020.000.068

For Universal PCB Layout call K & H Electronic Distributing, (800) 328-8515

For Universal PCB Layout call Virginia Plastics, (703) 985-3811

DIM.	TOLERANCE			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	.029 REF.		7 REF	
A-A	.060 REF.		1.5 REF	
B	.495	515	12 6	13 1
B-B	.580	.600	14 7	15.2
C	.603	623	15.3	15 8
C-C	.480	.500	12.2	12.7
D	.092	108	2.3	2 7
E	.242	.258	6.1	6.6
F	120	.130	3 0	3.3
G	.310	.330	7.9	8 4
H	.712 REF.		18 1 REF	
I	.045	.055	1.1	1 4
J	162	.178	4 1	4 5
K	250	.270	6.4	6.9
L	155	165	3 9	4 2
M				
N	.385	.395	9 8	10.0
O	.100 REF.		2 5 REF	
P	.042 REF.		1 1 REF	
Q	.265	.275	6 7	7 0
R	130	.150	3.3	3 8
S	.065	075	1 7	1 9
T	.111	131	2 8	3.3
U				
V	070 REF.		1 8 REF	
W	441	.459	11 2	11 7

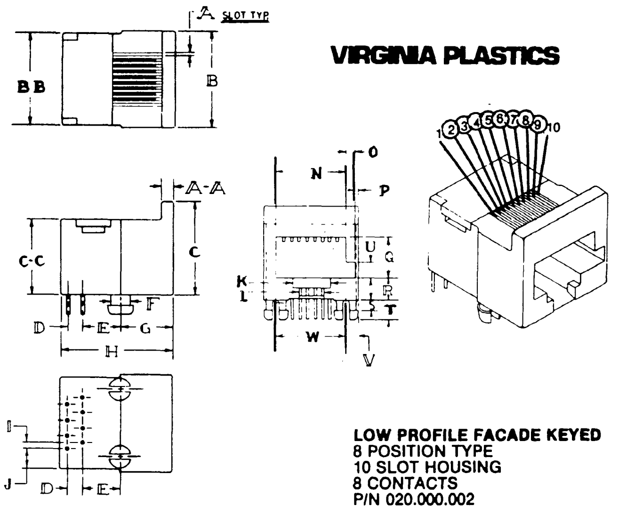
VIRGINIA PLASTICS



LOW PROFILE FACADE UNKEYED
6 POSITION TYPE
10 SLOT HOUSING
6 CONTACTS
P/N 020.000.003

DIM.	TOLERANCE			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	029 REF		7 REF	
A-A	084 REF		2 1 REF	
B	608	628	15 4	16 0
B-B	580	600	14 7	15 2
C	603	623	15 3	15 8
C-C	480	500	12 2	12 7
D	092	108	2 3	2 7
E	242	258	6 1	6 6
F	120	130	3 0	3 3
G	335	355	8 5	9 0
H	730 REF		18 5 REF	
I	045	055	1 1	1 4
J	112	128	2 8	3 3
K	250	270	6 4	6 9
L	155	165	3 9	4 2
M				
N	465	475	11 8	12 1
O	050 REF		1 3 REF	
P	030 REF		8 REF	
Q	265	275	6 7	7 0
R	130	150	3 3	3 8
S	065	075	1 7	1 9
T	111	131	2 8	3 3
U	106 REF		2 7 REF	
V	070 REF		1 8 REF	
W	441	459	11 2	11 7

VIRGINIA PLASTICS

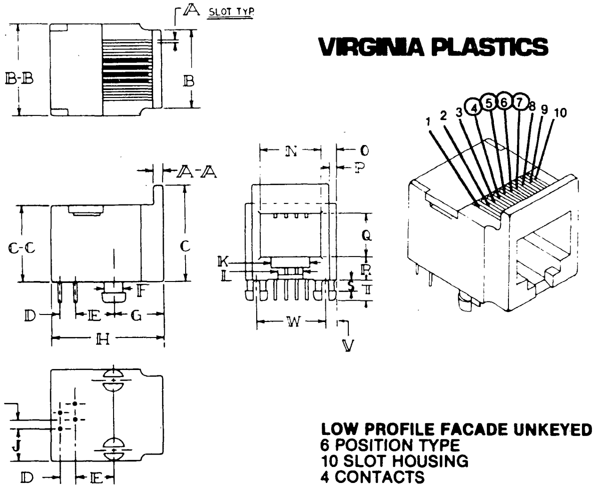


LOW PROFILE FACADE KEYED
8 POSITION TYPE
10 SLOT HOUSING
8 CONTACTS
P/N 020.000.002

Numbers with circles are Contact Positions.

DIM.	TOLERANCE			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	.029 REF.		7 REF	
A-A	060 REF		1.5 REF	
B	.495	.515	12.6	13.1
B-B	.580	.600	14.7	15.2
C	.603	.623	15.3	15.8
C-C	.480	.500	12.2	12.7
D	.092	.108	2.3	2.7
E	.242	.258	6.1	6.6
F	.120	.130	3.0	3.3
G	.310	.330	7.9	8.4
H	.712 REF.		18.1 REF.	
I	.045	.055	1.1	1.4
J	.212	.228	5.4	5.8
K	.250	.270	6.4	6.9
L	.155	.165	3.9	4.2
M				
N	.385	.395	9.8	10.0
O	.100 REF.		2.5 REF.	
P	.042 REF.		1.1 REF.	
Q	.265	.275	6.7	7.0
R	.130	.150	3.3	3.8
S	.065	.075	1 7	1.9
T	.111	.131	2.8	3.3
U				
V	.070 REF.		1.8 REF.	
W	.441	.459	11.2	11.7

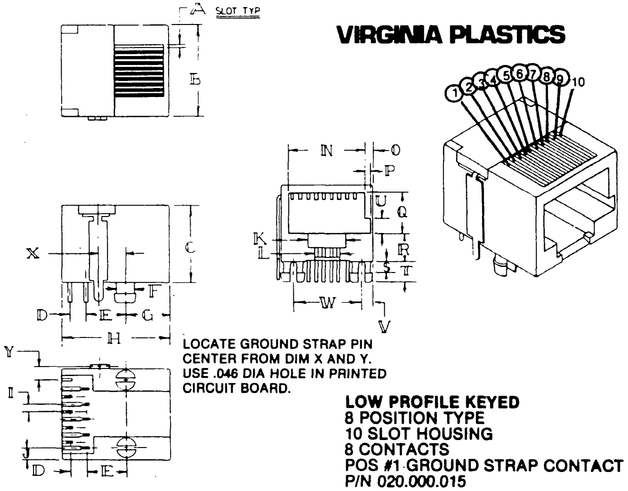
VIRGINIA PLASTICS



LOW PROFILE FACADE UNKEYED
6 POSITION TYPE
10 SLOT HOUSING
4 CONTACTS
P/N 020.000.007

DIM.	TOLERANCE			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	029 REF.		74 REF.	
B	.580	.600	14.7	15.2
C	.480	.500	12.2	12.7
D	.092	.108	2.3	2.7
E	.242	.258	6.1	6.6
F	.120	.130	3.0	3.3
G	.280	.300	7.1	7.6
H	.670	.690	17.0	17.5
I	.045	.055	1.1	1.4
J	.112	.128	2.8	3.3
K	.250	.270	6.4	6.9
L	.155	.165	3.9	4.2
M				
N	.465	.475	11.8	12.1
O	060 REF		1.5 REF.	
P	.040	.050	1.0	1.3
Q	.265	.275	6.7	7.0
R	.130	.150	3.3	3.8
S	.067	.077	1.7	2.0
T	.111	.131	2.8	3.3
U	.101	.111	2.6	2.8
V	070 REF		1.8 REF.	
W	.441	.459	11.2	11.7
X	.140	.160	3.6	4.1
Y	.065	.085	1.7	2.2
Z				

VIRGINIA PLASTICS



LOCATE GROUND STRAP PIN
CENTER FROM DIM X AND Y.
USE .046 DIA HOLE IN PRINTED
CIRCUIT BOARD.

LOW PROFILE KEYED
8 POSITION TYPE
10 SLOT HOUSING
8 CONTACTS
POS #1 GROUND STRAP CONTACT
P/N 020.000.015

For Universal PCB Layout call K & H Electronic Distributing, (800) 328-8515

VIRGINIA PLASTICS

P.O. Box 4577
Roanoke, Virginia 24015-0577
Phone (703) 985-3811
TWX 710-870-0440

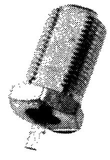
WALL~ABLE MANUFACTURING CORPORATION

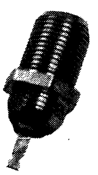
1800 NORTH CLYBOURN AVENUE • CHICAGO, ILLINOIS 60614 • (312) 440-1000

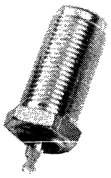
For over 30 years, Wall-Able has been an innovator in the design and manufacture of low-cost connectors. Our ability to provide extraordinarily fast response to major OEM special requirements has earned us a reputation we've grown with. If you have requirements for custom components and critical deadlines, use our years of experience and know-how to economically fill your needs.

We're proud of our diverse selection of quality connectors, both standard and special designs. Listed on these pages are a variety of available Wall-Able products which may help you in your connector requirements. Try us to solve your next connector problem.

F Style Connectors


J75-59-7


J75-59-0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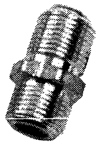
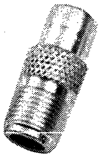
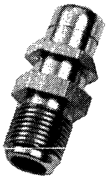

J75-59-13


J75-59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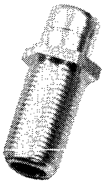
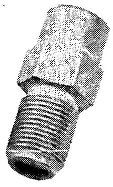
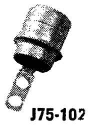

J75-59-4


J75-59-5

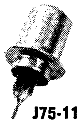
Widely used in CATV-STV and related applications, Wall-Able's connectors feature custom contact designs and solid reliability. Our F to phono adaptors offer flexibility for many cost-effective connection combinations. The double isolation adaptor J75-59-5 incorporates the $\frac{1}{16}''$ minimum spacing required by UL in TV antenna applications.

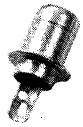
Wall-Able provides high-quality cost-effective F style connectors, which are always state of the art.

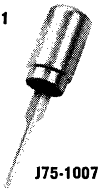
Phono Jacks

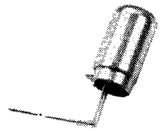

J75-1021

J75-1001


J75-1183-1


J75-2183


J75-1007


J75-2190

Still the industry's most economical 2-conductor connectors, Wall-Able's variety of phono jacks is second to none. Panel mount, solder, and printed circuit styles, with or without solder stopping shoulders, are available with your choice of a variety of center conductor contacts. Jacks with special grooved shells to mate with our PSL spring plugs are also available for extra reliability.

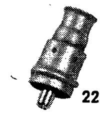
Phono Spring Plugs (PSL Series)

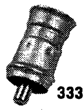
126F-3-15

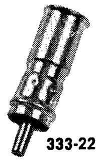
126F-6-15

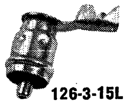
176F-6-18

410-167-6


225F-6-15

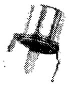

333-15


333-22-1

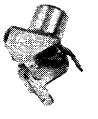

126-3-15L

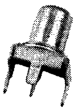
Wall-Able's patented spring lock plugs offer the ultimate in phono connector reliability. Virtually indestructible in use, the mechanical and electrical advantages of this product have been proven by every major OEM. Available with a variety of wire entry sizes and center pin lengths.

Phono Jacks — Saddle Style


J75-2111S

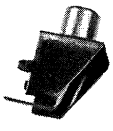
J75-2118

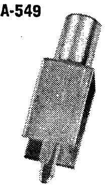

J75-2028-1


WA-549

J75-1163S

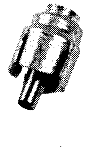
J75-2029S


J75-1177S

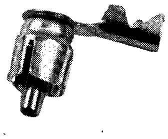

J75-2077S

Wall-Able's large assortment of phono jacks can all be supplied ready for PC or solder assembly with a variety of tooled saddles. Specially assembled to avoid saddle-jack intermittency, these components offer cost-effective assembly methods.

Phono Plugs — Tulip Style


P75-2290

P75-2121-3


P75-1002

Wall-Able offers a variety of phono plugs for low-cost applications, utilizing low loss XXXP-FR insulators and standard pin lengths from $\frac{3}{8}''$ to $\frac{11}{16}''$. Right angle or straight cable strain relief variations are also available.

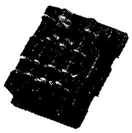
WALL~ABLE MANUFACTURING CORPORATION

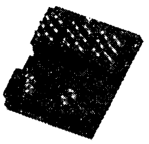
1800 NORTH CLYBOURN AVENUE • CHICAGO, ILLINOIS 60614 • (312) 440-1000

Relay Sockets

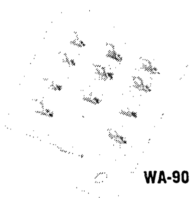
WA-928

WA-922


WA-937

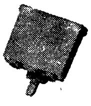

WA-961

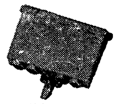
WA-907

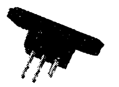

WA-909

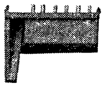
General-purpose KU, Miniature KH, 8 & 11 pin round, and telephone type relay sockets are all available as standard products. Efficient multi-cavity molds, highest quality, UL-approved, flame retardant molding compounds and close tolerance spring brass and phospher bronze contacts assure long-life reliability.

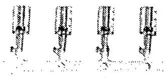
Contacts/Contact Housings

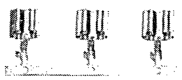

WA-815-8

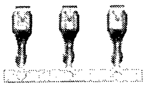

WA-816


WA-927

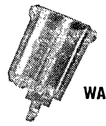

WA-954

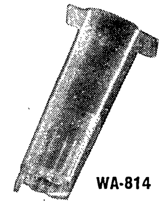

WA-339-2

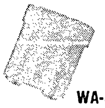

WA-382


WA-302-140

WA-808-2


WA-815-2


WA-814


WA-812

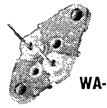
WA-813

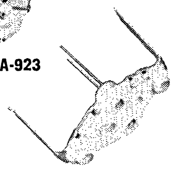
Unique custom contacts and housings designed to solve specific customer requirements have long been a Wall-Able specialty. Single and multiple wire terminations for .093 pins, locking female terminals for .205 jewel disconnect tabs, PC edgeboard connectors and other parts have been cost-effectively and quickly engineered. Use our experience to reduce your connector costs and increase their reliability.

Power Transistor Bases

WA-932

WA-923


WA-920


WA-943

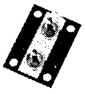
Heavy duty, flame retardant molded transistor bases are manufactured with PC, 6-32, or 4-40 threaded saddles. A wide variety of contacts can be supplied in whatever plating best suits the individual requirements.

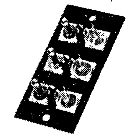
Harness Assemblies

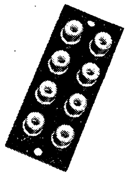
WA-512

UL and CSA approved standard 18GA, 4-contact lamp socket assembly is assembled with durable urea housings. Special wire assemblies can be designed and produced.

Phono Jack Boards


WA-546-1


WA-544


WA-543

Phono jacks can be mounted independently or grouped on flame retardant phenolic boards or metal plates for use in audio and other phono base plate applications. Special common grounding links are also available.

Screw Terminals & Assemblies

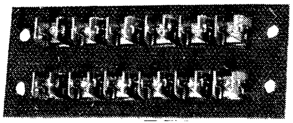
WAJ-332

WAK-116

WAU-332

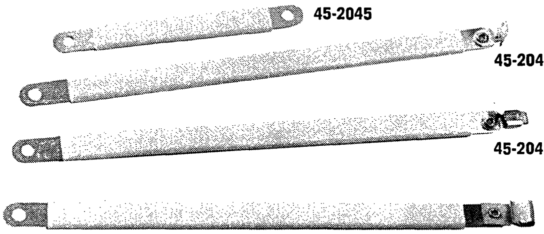
HU-375

WA-2120


WA-703-510

Wall-Able's patented screw/nut snap-in terminal is available individually or in board mounted multiple assemblies. Chances of breaking the wire connection are minimized with this style assembly. Standard 6-32 screw terminal assemblies are also available.

Ground Straps


45-2045

45-2045-3

45-2045-2

45-2045-1

As a major supplier of flat strap ground assemblies, Wall-Able manufactures a variety of straps for all electronic products where a low-cost, highly effective ground is desired. Snap-on, anti-rotation rivet type, and special grip style clips are available to speed the assembly operation.

WECO

SCREW CONNECTORS FOR PRINTED CIRCUITS

Figure No. 1

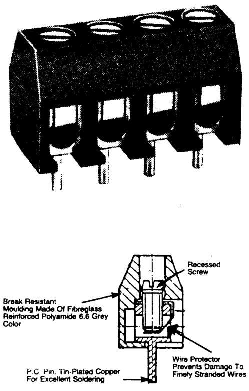

Recessed Screw
Break Resistant Moulding Made Of Fibreglass Reinforced Polyamide 6.6 Grey Color
Wire Protector Prevents Damage To Finely Stranded Wires
P.C. Pin. Tin-Plated Copper For Excellent Soldering

Figure No. 2

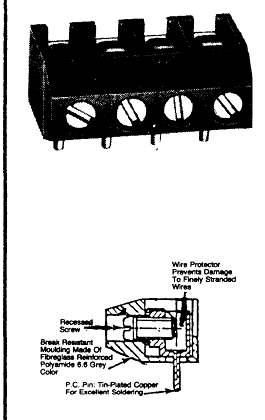

Wire Protector Prevents Damage To Finely Stranded Wires
Recessed Screw
Break Resistant Moulding Made Of Fibreglass Reinforced Polyamide 6.6 Grey Color
P.C. Pin: Tin-Plated Copper For Excellent Soldering

Figure No. 3

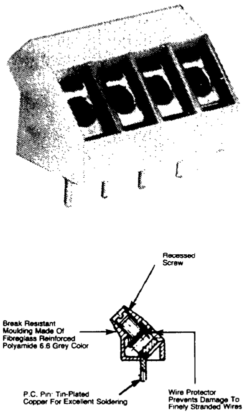

Recessed Screw
Break Resistant Moulding Made Of Fibreglass Reinforced Polyamide 6.6 Grey Color
P.C. Pin: Tin-Plated Copper For Excellent Soldering
Wire Protector Prevents Damage To Finely Stranded Wires

Figure No. 4

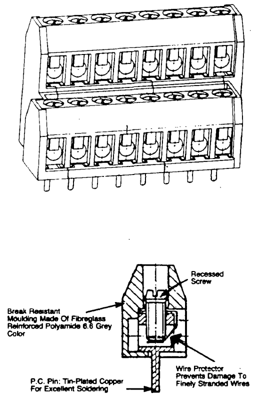
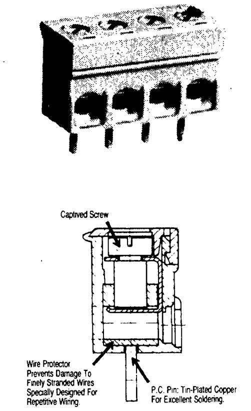

Recessed Screw
Break Resistant Moulding Made Of Fibreglass Reinforced Polyamide 6.6 Grey Color
P.C. Pin: Tin-Plated Copper For Excellent Soldering
Wire Protector Prevents Damage To Finely Stranded Wires

Figure No. 5


Captived Screw
Wire Protector Prevents Damage To Finely Stranded Wires Specially Designed For Repetitive Wiring.
P.C. Pin: Tin-Plated Copper For Excellent Soldering.

International Approvals: VDE rated 0110

Type	No. of circuits	Block length = No. of circuits required x pitch		Height		Width		Wire Entrance relative to PCB:			UL recognized for: (File No.: E69841)			CSA approved for: (File No.: LR24322)			Design similar to figure No.:
		mm	in	mm	in	mm	in	hori-zontal	45° angled	vertical	Volt-age	Amper-age	AWG	Volt-age	Amper-age	AWG	
940 DS	2-32*	5.08	0.200	11.5	0.45	8	0.31	X			150	15	14-22	50	15	14-22	1
941 DS	2-32*	5.08	0.200	8	0.31	11.5	0.45			X	150	15	14-22	50	15	14-22	2
942 DS	2-16	10.16	0.400	11.5	0.45	8	0.31	X			300	15	14-22	150	15	14-22	1
943 DS	2-16	10.16	0.400	8	0.31	11.5	0.45			X	300	15	14-22	150	15	14-22	2
950 DS	2-32*	5	0.197	10	0.39	8	0.31	X			150	15	14-22	50	15	14-22	1
951 DS	2-32*	5	0.197	8	0.31	10	0.39			X	150	15	14-22	50	15	14-22	2
952 DS	2-16	10	0.394	10	0.39	8	0.31	X			300	15	14-22	150	15	14-22	1
953 DS	2-16	10	0.394	8	0.31	10	0.39			X	300	15	14-22	150	15	14-22	2
960 DS	2-32	5.08	0.200	13.5	0.53	9	0.35	X			150	15	14-22	50/300	15/10	14-22	1
961 DS	2-32	5.08	0.200	9	0.35	13.5	0.53			X	150	15	14-22	50/300	15/10	14-22	2
962 DS	2-16	10.16	0.400	13.5	0.53	9	0.35	X			300	15	14-22	150	15	14-22	1
963 DS	2-16	10.16	0.400	9	0.35	13.5	0.53			X	300	15	14-22	150	15	14-22	2
968 DS	2-32	5.08	0.200	13.5	0.53	9	0.35	X			250	15	12-20	300	10	12-20	1
969 DS	2-16	10.16	0.200	13.5	0.53	9	0.35	X			300	15	12-20	300	10	12-20	1
970 DS	2-32	5	0.197	13	0.51	9	0.35	X			150	15	14-22	50	15	14-22	1
971 DS	2-32	5	0.197	9	0.35	13	0.51			X	150	15	14-22	50	15	14-22	2
972 DS	2-16	10	0.394	13	0.51	9	0.35	X			300	15	14-22	150	15	14-22	1
973 DS	2-16	10	0.394	9	0.35	13	0.51			X	300	15	14-22	50	15	14-22	2
974 DS	2-26*	5	0.197	12	0.47	12.5	0.49		X		150	15	14-22	50	15	14-22	3
975 DS	2-13*	10	0.394	12	0.47	12.5	0.49		X		300	15	14-22	150	15	14-22	3
976 DS	2-3	7.5	0.295	12	0.47	12.5	0.49		X		300	15	14-22	150	15	14-22	3
977 DS†	2-3	7.5	0.295	13	0.51	9.5	0.37	X			300	15	14-22	150	15	14-22	1
977 OPDS	2-19	7.5	0.295	13	0.51	9	0.35	X			300	15	14-22	150	15	14-22	1
977 SGDS	2-3	7.5	0.295	9.5	0.37	13	0.51			X	–	–	–	–	–	–	2
978 DS	2-32	5.00	0.197	13.0	0.51	9	0.35	X			250	15	12-20	300	10	12-20	1
979 DS	2-16	10.00	0.394	13.0	0.51	9	0.35	X			300	15	12-20	300	10	12-20	1
910 DS	2-12	10	0.394	14	0.55	9	0.35	X			300	25	18-10	150	25	8-14	1
990 DS	2-28*	5	0.197	11.3	0.45	9	0.35	X			250	15	14-22	50	15	14-22	5
:Specially designed for applications were repetitive wiring is necessary.																	
97 EDS	2-64	5	0.197	27	1.06	20.2	0.80	X			250	15	14-22	50/300	15/10	14-22	4
"Tiered Terminal": Two rows of type 970 DS are offset by half of the pitch. Produces an effective pitch of 2.5 mm / 0.098 in.																	

*: Terminal strips can be butted side by side to fom any requested pole configuration without losing center-to-center spacing.
†: Each circuit is equipped with a test hole.

Terminal body accommodating 20-12 AWG: available for types: 970 DS, 972 DS, 960 DS, 962 DS, 97 EDS, 977 DS, 977 OPDS. It allows the connection of several conductors.

Extra Features: Screen print marking, adhesive labelling strips. Blocks can be supplied without wire protector. Most types can be supplied with solder pins exceeding their standard length and up to 75mm/3 in long.

Moulding: Glass fibre reinforced Polyamide 6.6
Upper temperature limit: short-time 200°C/392°F
continuous 100-120°C/212-248°F
Cold resistant to: −50°C/−58°F
Terminal: Tin-plated Brass
Soldering Pin: Tin-plated copper, for excellent solderability
Wire Protector: Tin bronze
Screw: Zinc-plated steel, yellow chromated
HOW TO ORDER: Indicate Type and No. of Circuits, e.g.: 950 DS-12 is type 950 DS with 12 circuits.

CANADA
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WECO

PLUG-IN SCREW-CONNECTOR SYSTEMS FOR PRINTED CIRCUIT BOARDS

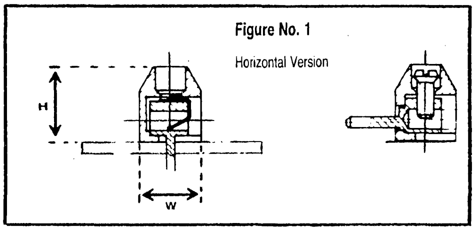


Figure No. 1

Horizontal Version

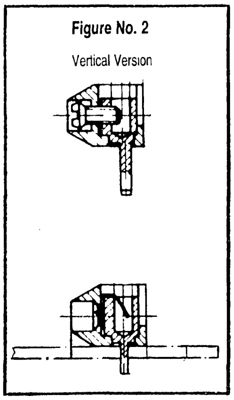


Figure No. 2

Vertical Version

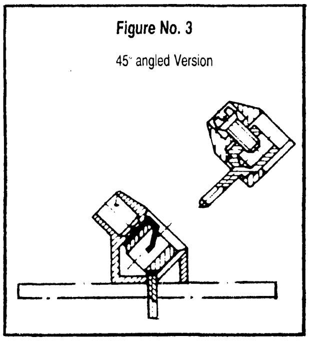
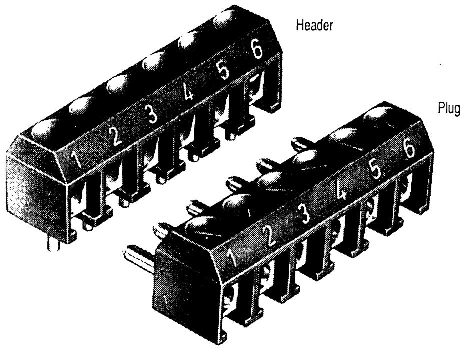


Figure No. 3

45° angled Version



International Approvals: **VDE rated 0110**

Types		No. of circuits	Block length = No. of circuits x pitch		Height (H)		Width (W)		Wire Entrance relative to PCB:			Plug-in direction relative to PCB:			UL recognized for: File No.: E69841			CSA approved for: File No.: LR24322			Design similar to Figure No.:
Plug	Header		mm	in	mm	in	mm	in	horizontal	vertical	45°	horizontal	vertical	45°	Voltage	Amperage	AWG	Voltage	Amperage	AWG	
94 SVDS with	94 FB°	2-32* 2-32*	5.08 5.08	0.200 0.200	11.5 11.5	0.45 0.45	8 8	0.31 0.31	X			X			250	6	16-22	50	6	14-22	1
95 SVDS with	95 FB°	2-32* 2-32*	5 5	0.197 0.197	10 10	0.39 0.39	8 8	0.31 0.31	X			X			250	6	16-22	50	6	14-22	1
96 SVDS with	96 FB°	2-32 2-32	5.08 5.08	0.200 0.200	13.5 13.5	0.53 0.53	9 9	0.35 0.35	X			X			250	6	14-22	50	6	14-22	1
97 SVDS with	97 FB°	2-32 2-32	5 5	0.197 0.197	13 13	0.51 0.51	9 9	0.35 0.35	X			X			250	6	14-22	50	6	14-22	1
94 SVDS with	941 FB°	2-32* 2-32*	5.08 5.08	0.200 0.200	Complete ensemble: 16	0.63	8	0.31		X			X		250	6	16-22	50	6	14-22	2
95 SVDS with	951 FB°	2-32* 2-32*	5 5	0.197 0.197	Complete ensemble: 16	0.63	8	0.31		X			X		250	6	16-22	50	6	14-22	2
96 SVDS with	961 FB°	2-32 2-32	5.08 5.08	0.200 0.200	Complete ensemble: 18	0.71	9	0.35		X			X		250	6	14-22	50	6	14-22	2
97 SVDS with	971 FB°	2-32 2-32	5 5	0.197 0.197	Complete ensemble: 18	0.71	9	0.35		X			X		250	6	14-22	50	6	14-22	2
95 SVDS with	974 FB°	2-32* 2-26*	5 5	0.197 0.197	Complete ensemble: 16.5	0.65	15.5	0.60			X			X	300	6	14-22	50	6	14-22	3

°: soldered onto PC-board, the counterpart is removable.
*: terminal block can be butted side by side to form any requested pole configuration without losing cente-to-center spacing.

Based on the standard program of screw-connectors for printed circuits an unmatched line of Plug-In Systems are available. A stainless steel spring provides the contact pressure to ensure a reliable connection not only to the plug, but also to other components. All systems offered provide for a quick connect and disconnect of wiring to PCB. There are many advantages and benefits to using these components:

- Subassemblies manufactured at different places are equipped with either the plug or header of the selected WECO plug-in screw-connector system. At the time the final assembly is to be finished one has only to insert the plug into the header. No more wiring is necessary.
- Peripheral appliances can be connected to the main PC-board avoiding risk of changing wires by mistake.
- For service purposes a PC-board can easily be disconnected. The plug may then be used for testing the PC-board.
- The plug also connects onto the PC-board, when direct wiring into a screw-connector is difficult because of limited space.
- Service-ability.

Moulding: Glassfibre reinforced Polyamide 6.6, grey color.
Upper temperature limit: short time: 200°C/392°F
continuous: 100-120°C/212-248°F
Cold resistant to: −50°C/−58°F

Terminal Body: Nickel-plated brass
Spring: Stainless steel strip
Plug: Tin-plated brass
Soldering Pin: Tin-plated copper, for excellent solderability
Wire Protector: Tin bronze
Screw: Zinc-plated steel, yellow chromated.

Extra Features: Screen print marking; adhesive labelling strips; Blocks can be supplied without wire protector; Carrying plates are available to additionally interlock each assembly, to increase creepage distance to panel and provide absolute sure connection in vibration treated environment.

How To Order: Please indicate type and no. of circuits, e.g.: 95 SVDS-05 and 95 FB-05. This is the pluggable arrangement of type 95 SVDS and 95 FB, with each 5 circuits per strip.

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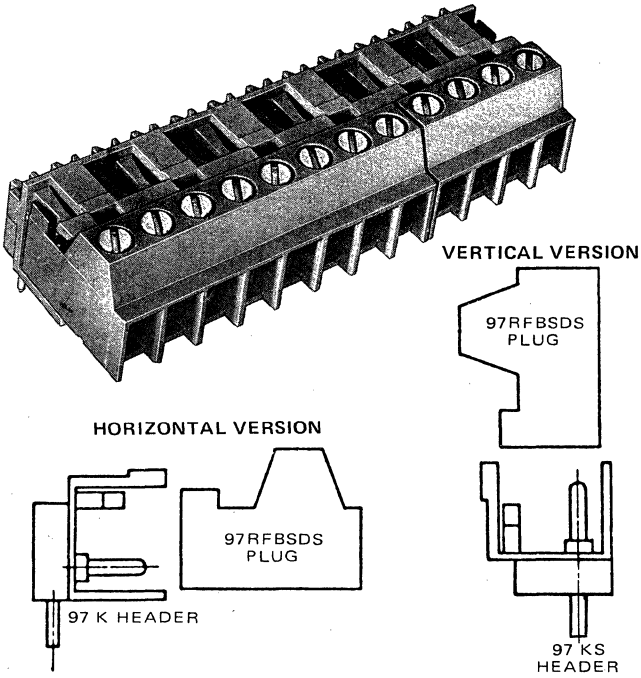
Plug-In Screw Connectors for Printed Circuits 97 K / 97 RFBS DS 97 KS / 97 RFBS DS

WECO

International Approvals: VDE rated 0110



	Header For Horizontal Plug-In	Header For Vertical Plug-In	Plug		
Poles	Order No. 97 K	Order No. 97 KS	Order No. 97 RFBS DS	Length (L) MM.	IN.
2	**12.873.303**	**42.873.303**	**20.873.272**	10	0.39
3	**13.873.303**	**43.873.303**	**20.873.273**	15	0.59
4	**14.873.303**	**44.873.303**	**20.873.274**	20	0.79
5	**15.873.303**	**45.873.303**	**20.873.275**	25	0.98
6	**16.873.303**	**46.873.303**	**20.873.276**	30	1.18
7	**17.873.303**	**47.873.303**	**20.873.277**	35	1.38
8	**18.873.303**	**48.873.303**	**20.873.278**	40	1.57
9	**19.873.303**	**49.873.303**	**20.873.279**	45	1.77
10	**20.873.303**	**50.873.303**	**20.873.280**	50	1.97
11	**21.873.303**	**51.873.303**	**20.873.281**	55	2.17
12	**22.873.303**	**52.873.303**	**20.873.282**	60	2.36

Blocks can be installed end-to-end to form any required pole configuration while maintaining center-to-center spacing.

Keying Pins	Order No.	Length x Width MM.	IN.
97 KPL	**14.496.001**	6 x 6	0.24 x 0.24
97 KKL	**14.496.004**	3 x 5	0.12 x 0.20

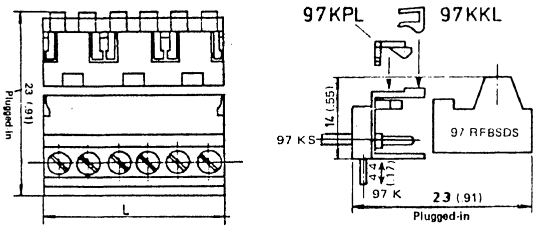
This two piece assembly combines the reliable WECO screw wire clamping technique with the ease of P.C. connector pluggability. Available from 2 to 12 poles, the plug-in direction is horizontal to P.C.-Board when using the header 97 K. The plug-in direction is vertical to PC-Board when using the header 97 KS. To prevent accidental disconnection, plug and header are made to interlock. To prevent accidental interchanging or mismating of blocks the header 97 K / 97 KS can be coded with both the keying pins 97 KPL and 97 KKL. These have to be inserted into the keying slots of the header 97 K / 97 KS and then correspond with nippers on top of the 97 RFBSDS moulding. 97 KPL and 97 KKL will be shipped each four pieces as a set.

Instead of using the plug 97 RFBSDS, one may alternatively use our type 97 FBSDS (see pages 59-61). The combination 97 K / 97 FBSDS or 97 KS / 97 FBSDS then does not feature the advantage of interlocking and keying.

Technical Data:

UL	CSA
300 V, 10 A, 22–14 AWG Cu	300 V, 10 A, 22–14 AWG Cu
File: E 69841	**File:** LR 24322

Pitch: 5 mm / .197" to DIN 40801
Rated Voltage: 380 V to VDE 0110 Insulation Group B
Rated Current: 10 A
Nominal Cross-Section: 2.5 mm^2 / 22–14 AWG Cu
Breakdown Voltage: 2500 V
Tightening Torque: 4.5 lb / in.
Stripping Length: 5.5 mm / 0.2"
Recommended Hole Diameter in P.C. Board: 1,30 mm / 0.051"
Contact Resistance of the Plug and Socket Arrangement: <1 m Ω



Inch dimensions (in brackets) for reference only; Use metric dimensions for design purposes

Material:

97 K Header:
Moulding: Polyamide 6.6, grey color
Upper Temperature Limit:

Short-time:	140-160°C / 284-320°F
Continuous:	80-100°C / 176- 212°F
Cold-resistance to:	−40°C / −40°F

Resistance to Tracking: non-tracking factor KB > 600
Pin: ∅1 mm / .03937"; tin-plated copper

97 RFBSDS Plug:
Moulding: Break resistant fiberglass reinforced Polyamide 6.6, grey color
Upper Temperature Limit:

Short-time:	200°C / 392°F
Continuous:	100-120°C / 212-248°F
Cold-resistant to:	−50°C / −58°F

Resistance to Tracking: non-tracking factor KB > 380
Terminal Body: Tin-plated brass
Spring: Stainless strip steel
Wire Protector: Tin bronze
Screw: M3 x 5.5
Zinc-plated steel, yellow chromated.

How to Order:

Please provide the basic 8-digit Order Number. If you desire options, they may be obtained by adding the appropriate option code with a dash, (e.g.: 20.873.272–CN).

Available Options:

CN: Consecutive Numbering (Screen Print).
SN: Special Numbering to customer requirements (Screen Print). Please provide sketch when ordering.
NWP: Blocks without wire protectors.

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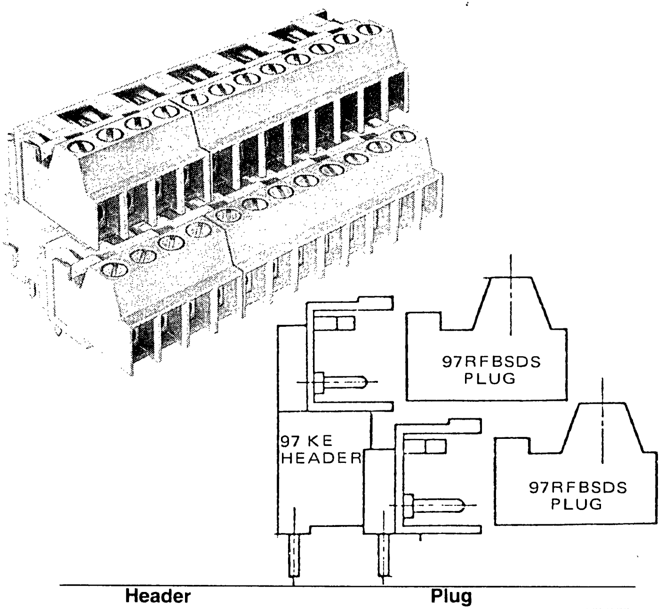
Double Level Plug-In Screw Connectors for Printed Circuits

WECO

97 KE / 97 RFBS DS

International Approvals: UL CSA VDE rated 0110



Header				Plug			
Poles	**Order No. 97 KE**	Length (L) MM.	IN.	Poles	**Order No. 97 RFBS DS**	Length (L) MM.	IN.
4	**14.873.306**	12,5	0.49	2	**20.873.272**	10	0.39
6	**16.873.306**	17,5	0.69	3	**20.873.273**	15	0.59
8	**18.873.306**	22,5	0.89	4	**20.873.274**	20	0.79
10	**20.873.306**	27,5	1.08	5	**20.873.275**	25	0.98
12	**22.873.306**	32,5	1.28	6	**20.873.276**	30	1.18
14	**24.873.306**	37,5	1.48	7	**20.873.277**	35	1.38
16	**26.873.306**	42,5	1.67	8	**20.873.278**	40	1.57
18	**28.873.306**	47,5	1.87	9	**20.873.279**	45	1.77
20	**30.873.306**	52,5	2.07	10	**20.873.280**	50	1.97
22	**32.873.306**	57,5	2.26	11	**20.873.281**	55	2.17
24	**34.873.306**	62,5	2.46	12	**20.873.282**	60	2.36

Blocks can be installed end-to-end to form any required pole configuration while maintaining center-to-center spacing.

Keying Pins	**Order No.**	Length x Width MM.	IN.
97 KPL	**14.496.001**	6 x 6	0.24 x 0.24
97 KKL	**14.496.004**	3 x 5	0.12 x 0.20

The 97 KE header is the double-level execution of our 97 K, described on the foregoing page.

The rear row of the P.C. pins has a distance of 10mm / 0.394" to the front row P.C. pins and is transposed by half a pitch, thus providing a high circuits density on small space.

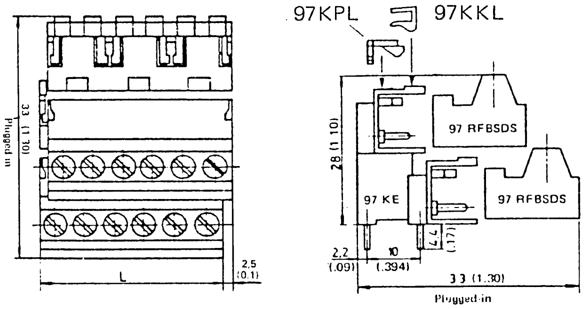
The two piece assembly combines the reliable WECO screw wire clamping technique with the ease of P.C. connector pluggability. Available from 4-24 poles the plug-in direction is horizontal to P.C.-Board. To prevent accidental disconnection, plug and header are made to interlock. To prevent accidental interchanging or mismating of blocks the header 97 KE can be coded with both the keying pins 97 KPL and 97 KKL. These have to be inserted into the keying slots of the header 97 KE and then correspond with nippers on top of the 97 RFBSDS moulding. 97 KPL and 97 KKL will be shipped each four pieces as a set.

Instead of using the plug 97 RFBSDS one may alternatively use our type 97 FBSDS (see pages 59-61). The combination 97 KE/ 97 FBSDS then does not feature the advantage of interlocking and keying.

Technical Data:

UL 300 V, 10 A, 22–14 AWG Cu	CSA 300 V, 10 A, 22–14 AWG Cu
File: E69841	**File:** LR24322

Pitch: 5 mm / .197" to DIN 40801
Rated Voltage: 380 V to VDE 0110 Insulation Group B
Rated Current: 10 A
Nominal Cross-Section: 2.5 mm^2 / 22–14 AWG Cu
Breakdown Voltage: 2500 V
Tightening Torque: 4.5 lb / in.
Stripping Length: 5.5 mm / 0.2"
Recommended Hole Diameter in P.C. Board: 1,30 mm / 0.051"
Contact Resistance of the Plug and Socket Arrangement: <1 m Ω



Inch dimensions (in brackets) for reference only; Use metric dimensions for design purposes

Material:

97 KE Header:

Moulding: Polyamide 6.6, grey color
Upper Temperature Limit:

Short-time:	140-160°C / 284-320°F
Continuous:	80-100°C / 176- 212°F
Cold-resistance to:	−50°C / −58°F

Resistance to Tracking: non-tracking factor KB>600
Pin: ∅1 mm / .03937"; tin-plated copper

97 RFBSDS Plug:

Moulding: Break resistant fiberglass reinforced Polyamide 6.6, grey color
Upper Temperature Limit:

Short-time:	200°C / 392°F
Continuous:	100-120°C / 212-248°F
Cold-resistant to:	−50°C / −58°F

Resistance to Tracking: non-tracking factor KB>380
Terminal Body: Tin-plated brass
Spring: Stainless strip steel
Wire Protector: Tin bronze
Screw: M3 x 5.5
Zinc-plated steel, yellow chromated.

How to Order:

Please provide the basic 8-digit Order Number. If you desire options, they may be obtained by adding the appropriate option code with a dash, (e.g.: 20.873.272–CN).

Available Options:

CN:	Consecutive Numbering (Screen Print).
SN:	Special Numbering to customer requirements (Screen Print). Please provide sketch when ordering.
NWP:	Blocks without wire protectors.

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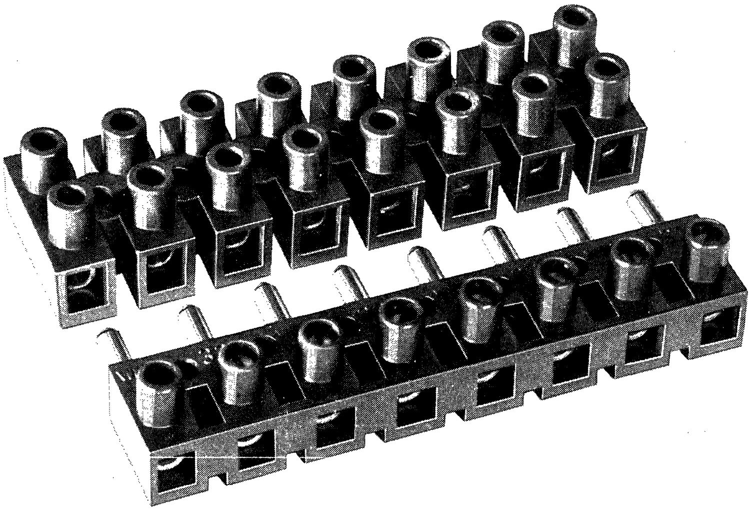
PLUG AND SOCKET SCREW-CONNECTOR SYSTEMS FOR PANEL/CHASSIS MOUNTING

Drawings see facing page.



International Approvals: **VDE rated 0110**

Plug and Socket Connectors are particularly suitable for installations where simple circuit closing and opening is required.
By pre-wiring various equipment sections, it is possible to use Plug and Socket Connectors to provide a quick and reliable connection at final assembly. Therefore wire confusion is avoided. Blocks can be coded (color coding, labelling, etc.) to ensure proper connection.

Some of these assemblies are available for printed circuit application. Standard strip has 12 circuits and can easily be field cut to required number of poles or ordered as required. A mounting hole is provided between each circuit. The terminal screws are backed out and ready for wiring. The dead front design is for safety and avoids short circuitry.

Each screw connection is equipped with a wireprotector to prevent damage to the wire from the turning screw (except types 323 FBW, 324 STFB, 324 STFS). The wireprotector is a thin plate placed between screw and wire.

To obtain low contact resistances on connectors, a high contact pressure is required. This leads to relatively high withdrawal forces. To facilitate the assembly, we therefore recommend that from 7 poles onwards two male and one female plug and socket connector should be used.

For the protective conductor pole the connectors can be equipped with leading plugs or sockets on request. This means that the protective conductor connection is made first when plugging-in and disconnected last.

MATERIAL:

Moulding: Flexible natural Polyamide, white color
Terminal body: Nickel-plated brass
Spring: Stainless steel strip
Wire Protector: tin bronze
Screw: Zinc-plated steel, yellow chromated
Upper temperature Limit:
short-time: 140-160°C / 284-320°F
continuous: 80-100°C / 176-212°F
cold-resistant to -40°C / -40°F

Connector Designation			Length (with 12 circuits)		Height		Width (without plug)		Contact pressure provided through:		UL recognized for (File #E69841)			CSA approved for (File #LR24322)			Screw Tightening Torque (lb/in) for		Wire stripping length		Marker Strip Designation	
Male	Female	No. of Circuits	mm	in	mm	in	mm	in	Steel spring	Slotted Plug and/or Socket	Voltage	Amperage	AWG	Voltage	Amperage	AWG	Male block	Female block	mm	in	For male block	For female block
302 SVDS	302 FBDS	2-12	94	3.74	15	0.59	16	0.63	X		250	6	20-14	300	6	20-14	3.5	3.5	5	0.20	BST 302	BST 302
302 STSDS	302 STBDS	2-12	94	3.74	15	0.59	16	0.63		X	250	6	20-14	300	6	20-14	3.5	3.5	5	0.20	BST 302	BST 302
322 SVDS	323 FBHDS	2-12	117	4.61	16	0.63	14/21	0.55/0.83	X		250	10	18-12	300/150	10/15	18-12	3.5	4.5	7	0.28	BST 322	BST 323
322 SVWDS	323 FBW	2-12	117	4.61	16	0.63	14/21	0.55/0.83	X		250	10	18-12	300/150	10/15	18-12	3.5	4.5	7	0.28	BST 322	BST 323
322 SDS	321 BDS	2-12	117	4.61	15.5/16.5	0.61/0.65	14/21.5	0.55/0.87		X	300	10	18-12	300/150	10/15	18-12	3.5	3.5	6	0.24	BST 322	BST 322
324 STFS	324 STFB	2-12	135	5.32	18.5	0.73	22	0.87		X	250*	25	18-10	—	—	—	7	7	7.5	0.30	BST 324	BST 324

*600V with insulating base

How To Order: Please indicate Connector Designation and No. of circuits requested. Complete assembly to be ordered would read as follows, e.g.: 302 SVDS-06: is male connector 302 SVDS with 6 circuits.
302 FBDS-06: is female connector 302 FBDS with 6 circuits
BST 302-06: is blank marker strip for six circuits. Shall marker strip be factory labelled, please provide sketch of marking arrangement.
Leading plug or socket for protective contact pole: Please provide sketch of required circuit configuration.

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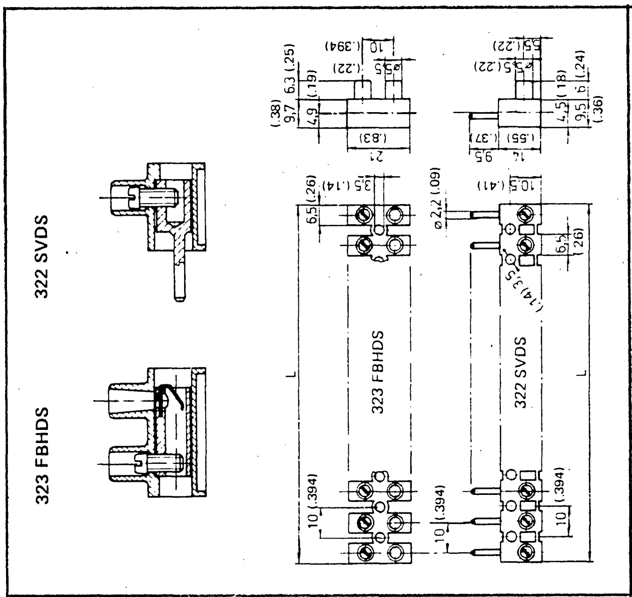
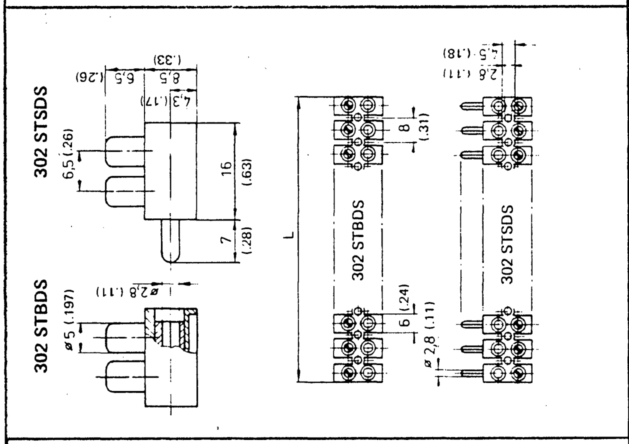
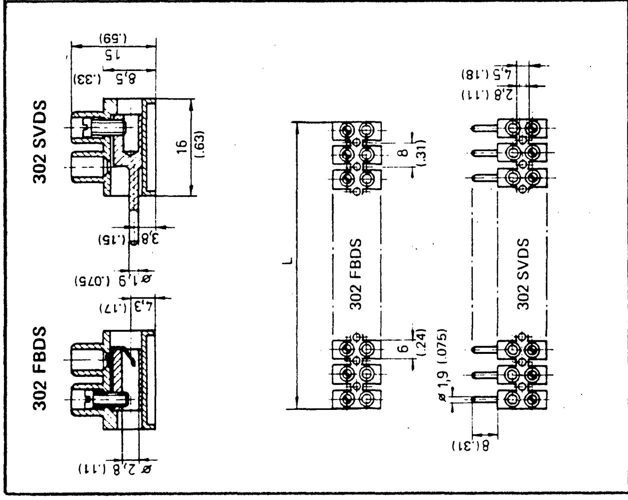
WECO

PLUG AND SOCKET SCREW-CONNECTOR SYSTEMS FOR PANEL/CHASSIS MOUNTING

Continued from facing page.


322 SVDS
323 FBHDS
323 FBHDS
322 SVDS
L
10 (.394)
6,5 (.26)
3,5 (.14)
10,5 (.41)
ø 2,2 (.09)
21 (.83)
9,5 (.37)
14 (.55)


302 STSDS
302 STBDS
302 STBDS
302 STSDS
L
16 (.63)
7 (.28)
8 (.31)
6 (.24)
ø 2,8 (.11)
ø 5 (.197)
6,5 (.26)
8,5 (.33)
4,3 (.17)


302 SVDS
302 FBDS
302 FBDS
302 SVDS
L
15 (.59)
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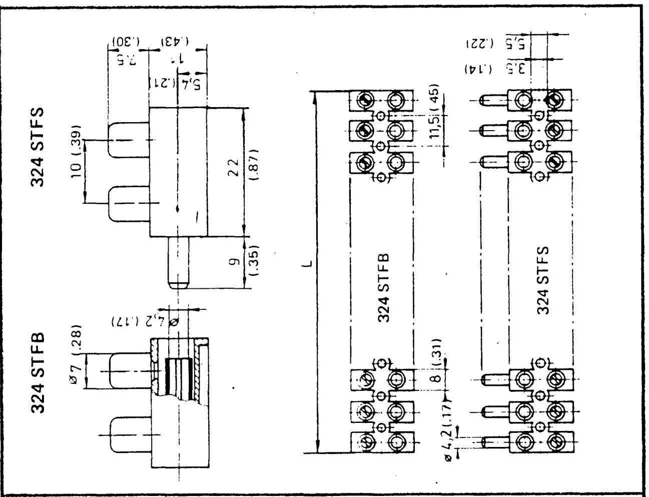
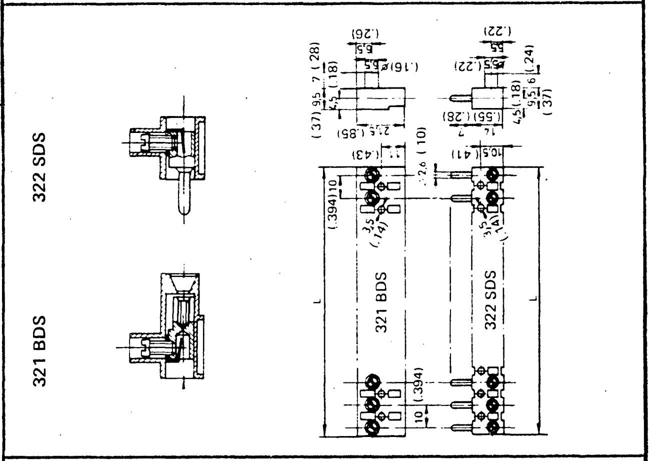
3,8 (.15)
ø 1,9 (.075)
4,3 (.17)
ø 2,8 (.11)
8 (.31)
6 (.24)


324 STFS
324 STFB
324 STFB
324 STFS
L
10 (.39)
22 (.87)
9 (.35)
ø 7 (.28)
ø 4,2 (.17)
11,5 (.45)
8 (.31)
5,5 (.22)
3,5 (.14)


322 SDS
321 BDS
321 BDS
322 SDS
L
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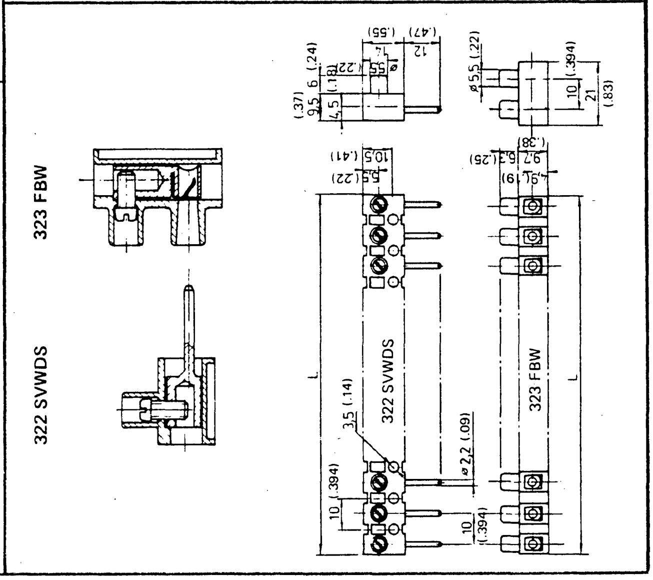
3,5 (.14)
10,5 (.41)
6,5 (.26)
5,5 (.22)


323 FBW
322 SVWDS
322 SVWDS
323 FBW
L
10 (.394)
21 (.83)
3,5 (.14)
ø 2,2 (.09)
10,5 (.41)
5,5 (.22)
12 (.47)
14 (.55)

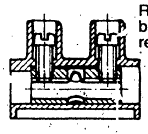
Inch dimensions (in brackets) for reference only; use metric dimentions for design purposes.

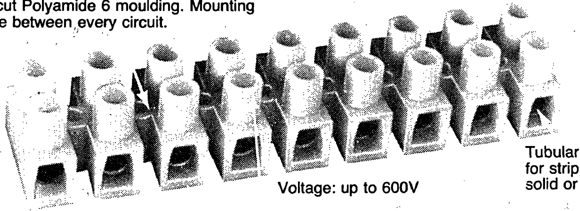
CANADA
WECO Electrical Connectors Inc.
P.O. Box 84, Ste. Anne de Bellevue, P.Q. H9X 3L4 — Phone: (514) 457-3648
Telex: 05-821840

USA
WECO Electrical Connectors Inc.
Trimex Building, RT. 11, Mooers, NY 12958 — Phone: (518) 298-4810
Telex: 05-821840

WECO

SOCKET TERMINAL STRIPS FOR PANEL/CHASSIS MOUNTING


Dead front design:
Screws and terminal body are recessed in polyamide insulating moulding for safety and to prevent short circuiting.
Recessed screws backed-out and ready to wire
Wire protector prevents damage to stranded wires


Modular Design: Flexible and easy to cut Polyamide 6 moulding. Mounting hole between every circuit.
Tubular wire entry for stripped, unterminated solid or stranded wire
Voltage: up to 600V
Amperage: up to 80A
Wire range: 22-6 AWG

High circuit density from 39-21 circuits per foot. Depending on product type selected.

International Approvals: UL SP DVE ⓘ Ⓝ Ⓢ Ⓓ S KEMA EUR

The terminal strips are used for connecting stripped, unterminated, stranded or solid copper wires; ranging from 22-6 AWG, depending on product type selected. Each strip has 12 circuits and can easily be field cut to the required number of poles. They can also be ordered factory-cut in any requested pole number.

A mounting hole is provided between each circuit. The terminal screws are backed-out and ready for wiring. The screws are protected against working loose and cannot fall out.

Each circuit has a wire protector to prevent damage to the wire from the turning screw. The wire protector is a thin steel plate placed between screw and wire. All metal parts of the terminal are completely recessed in the flexible polyamide 6 moulding. This dead-front design ensures safety and prevents short circuiting. Its flexible construction allows use on uneven surfaces. For proper circuit identification, we supply marker strips. They may either be factory numbered or individually marked with a felt pen. The terminal strips meet most world approvals, including UL, CSA & VDE.

Terminal strip types 302 HDS and 323 HDS can be supplied with screw/solder lug connections. Please contact WECO for complete catalog.

How To Order: Please indicate Type and No. of circuits requested, e.g.:

302 HDS-12 is terminal block 302 HDS with 12 circuits.
BST 302-12 is blank marker strip for twelve circuits. Shall marker strip be factory labelled, please provide sketch showing marking arrangement.

TECHNICAL DATA			TERMINAL STRIP TYPE								
			302 HDS	323 HDS	323 FU16HDS	323 FU18.5 HDS	324 HDS	324 FUHDS	326 HDS	327 HDS	327 FUHDS
Material:	Moulding:		Flexible natural Polyamide, white color Upper temperature limit: Short-time 140-160°C / 284-320°F Continuous 80-100°C / 176-212°F Cold resistant to −40°C / −40°F								
	Terminal Body:		Nickel-plated brass								
	Wire Protector:		Stainless steel strip								
	Screw:		Zinc-plated steel, yellow chromated								
No. of Circuits			1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-12
Length (with 12 circuits)		mm	94	117	117	117	135	135	171	171	171
		in	3.74	4.61	4.61	4.61	5.32	5.32	6.73	6.73	6.73
Height		mm	15	16	16	18.5	18.5	21.3	22.5	25	28.5
		in	0.59	0.63	0.63	0.73	0.73	0.84	0.89	0.98	1.12
Width		mm	16	21	21	21	22	22	30	30	30
		in	0.63	0.83	0.83	0.83	0.87	0.87	1.18	1.18	1.18
Center To Center Spacing		mm	8	10	10	10	11.5	11.5	14.5	14.5	14.5
		in	0.31	0.39	0.39	0.39	0.45	0.45	0.57	0.57	0.57
Screw Size			M2.6 x 5	M3 x 5.5	M3 x 5.5	M3 x 5.5	M3.5 x 7	M3.5 x 7	M4 x 8	M5 x 10	M5 x 10
Mounting Hole Diameter		mm	2.8	3.5	3.5	3.5	3.5	3.5	4.3	4.3	4.3
		in	.11	.14	.14	.14	.14	.14	.17	.17	.17
Spacing	Through Air	mm	5.8	6.1	6.3	8.5	6.1	9.2	7.9	7.5	11
		in	.23	.24	.25	.33	.24	.36	.31	.30	.43
	Over Surface	mm	5.8	6.1	11.1	11.9	6.1	11.2	7.9	9.6	13.1
		in	.23	.24	.44	.47	.24	.44	.31	.38	.52
Screw Tightening Torque: lb/in			3.5	4.5	4.5	4.5	7	7	10	16	16
Wire Stripping Length		mm	5	7	7	7	7.5	7.5	9	9	9
		in	0.20	0.28	0.28	0.28	0.30	0.30	0.35	0.35	0.35
UL recognized for (UL File No. E69841):											
Volt			250	250	250	250	250	300	300	300	600
Ampere			20	20	20	20	35	40	55	65	65
Wire Range (AWG)			20-12	20-10	20-10	20-10	14-8	14-8	14-8	14-6	14-6
CSA approved for (CSA File No. LR24322)											
Volt			300/50	300/150	300/150	300 600 pending	150	600	150	300	600
Ampere			10/20	10/20	20/10	20	40	40	55	80	80
Wire Range (AWG)			20-14	18-12	18-12	18-12	18-10	18-10	8-6	8-6	8-6
Marker Strip Designation			BST 302	BST 333	BST 333	BST 333	BST 324	BST 324	BST 335	BST 335	BST 335

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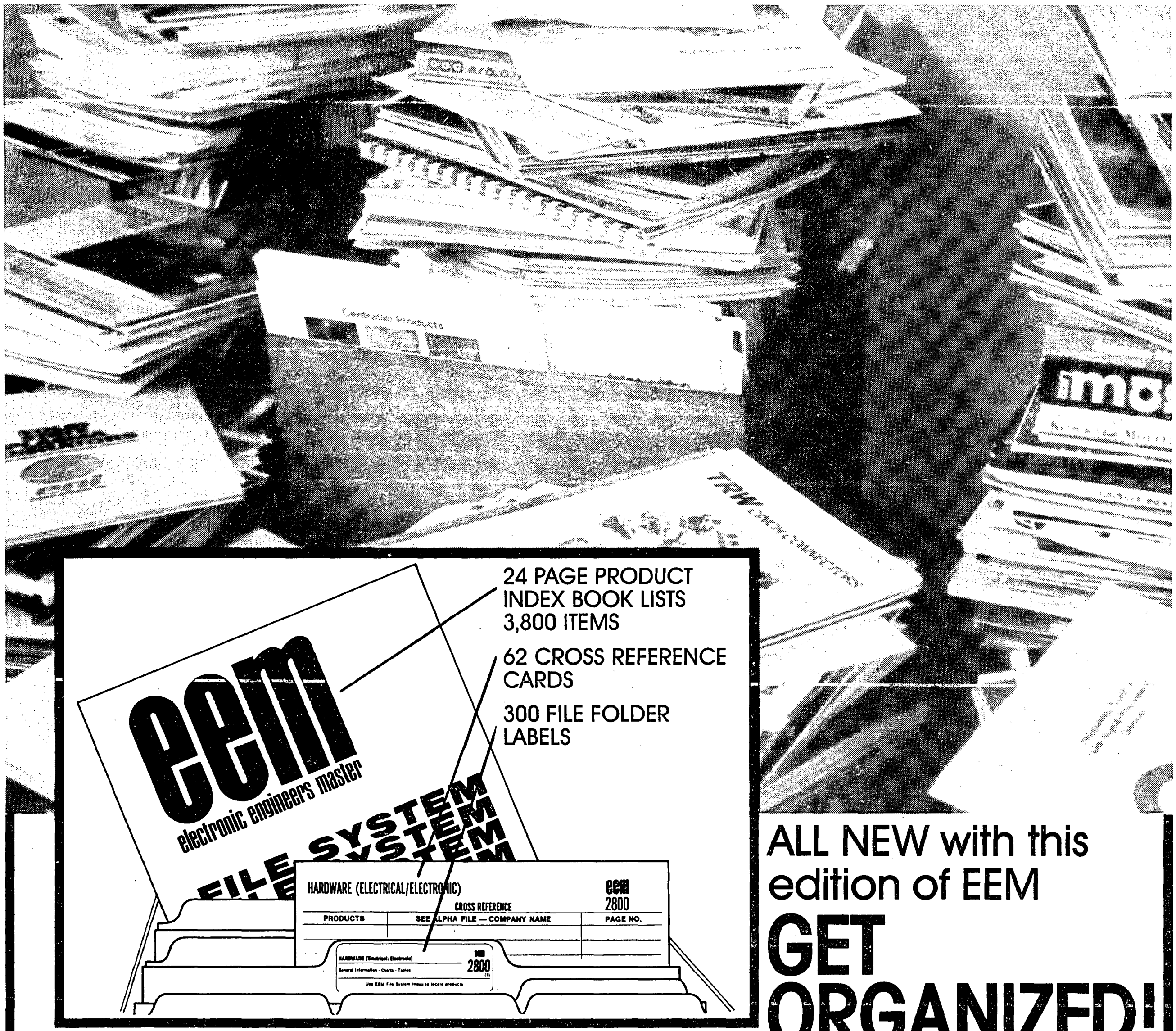
24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
62 CROSS REFERENCE CARDS
300 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
eem 2800
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
2800

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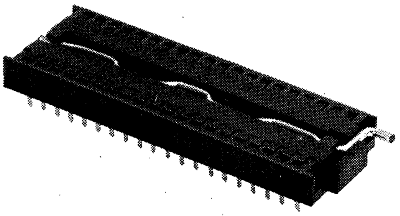
Don't waste any more time. Get organized now!

EEM FILE SYSTEM,
645 stewart ave., garden city, ny 11530

WELCON PRODUCTION SOCKETS

SERIES 630 "PRO-ZIF®"

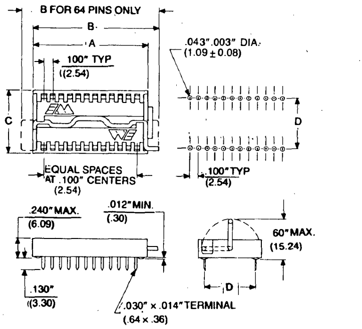


FEATURES
- Easy to operate... Lever controls opening and closing of contacts.
- Light lead wiping action while contacts close.
- Designed for use in many production applications.
- Very compact, standing less than 1/4" off the p.c. board.
- Single face-wipe contacts on .600" and .900" pin row centers.
- Operating range of −40°C. to +105°C.
- Available in 24-, 28-, 40- and 64-leads.
- Beryllium copper contacts plated with 50 microinches of tin/lead or 30 microinches of select gold.

TEST SPECIFICATIONS
Contact Insertion Force: Zero force with device leads at specified centers.
Contact Resistance: 20 Milliohms max. initial; 25 Milliohms max. after 100 insertions or 100 hrs. at 105°C.
Test Current: 1 Ampere.

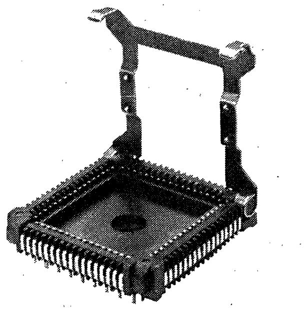
Operating Temperature: Continuous −40°C. to +105°C.
Insulation Resistance (At 500 V.D.C.): 5,000 Megohms minimum.
Dielectric Withstanding Voltage: 600 Volts A.C. RMS minimum.
Durability: 100 Cycles—No electrical degradation.
Thermal Shock: MIL-STD-1344, Method 1003. No physical or electrical degradation.
Moisture Resistance: MIL-STD-202. Method 106; except omit steps 6B and 7A. 300 Megohms minimum.
Vibration: MIL-STD-1344. Method 2005. Condition 111. No electrical interruption greater than 1 microsecond.
Mechanical Shock: MIL-STD-202. Method 213. Condition 1. No electrical interruption greater than 1 microsecond.

WELCON PART NO.	NO. OF PINS	CONTACT PLATING	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm
630-7241612	24	Tin/Lead	1.380	*35.05*	1.510	*38.35*	.750	*19.05*	.600	*15.24*
630-7240312	24	Select Au	1.380	*35.05*	1.510	*38.35*	.750	*19.05*	.600	*15.24*
630-7281612	28	Tin/Lead	1.580	*40.13*	1.710	*43.43*	.750	*19.05*	.600	*15.24*
630-7280312	28	Select Au	1.580	*40.13*	1.710	*43.43*	.750	*19.05*	.600	*15.24*
630-7401612	40	Tin/Lead	2.180	*55.37*	2.310	*58.67*	.750	*19.05*	.600	*15.24*
630-7400312	40	Select Au	2.180	*55.37*	2.310	*58.67*	.750	*19.05*	.600	*15.24*
630-8641612	64	Tin/Lead	3.380	*85.85*	3.640	*92.46*	1.050	*26.67*	.900	*22.86*
630-8640312	64	Select Au	3.380	*85.85*	3.640	*92.46*	1.050	*26.67*	.900	*22.86*

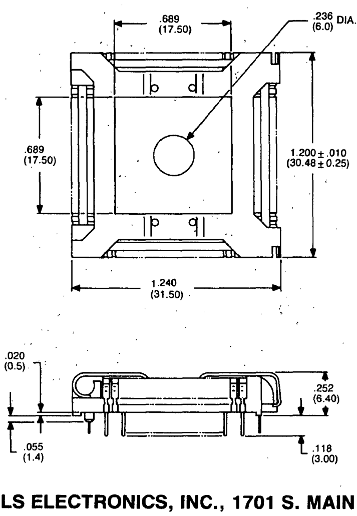


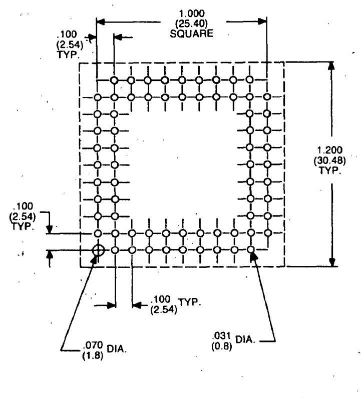
NOTE: Drawings show dimensions in inches over millimeters

SERIES 835 LEADLESS CHIP CARRIER



FEATURES
- Only .252" above the pc board with the device installed.
- 68-lead socket accepts JEDEC Type A, Type B and Type D leadless ceramic devices.
- Open lid designed to accommodate heat sinks and to provide maximum air circulation for cooling of the device.
- Three corner registration notches.
- Solder tail lengths available in .118".
- Easy access to probing of contacts with the device in place.
- Molded polarizing post.
- Lid is easily installed... no tools needed.





TEST SPECIFICATIONS
Contact Resistance: 30 Milliohms maximum after 50 insertions.
Vibration: 10 to 500 Hz at 10 g's per MIL-STD-202, test condition A, Method 204 (monitored for one microsecond opening).
Shock: 50 g's per MIL-STD-202, test condition A. Method 213 (monitored for one microsecond opening).
Salt Spray: Per MIL-STD-202, test condition B (48 hours), Method 101, 30 Milliohms max.
Operating Temperature: −65°C. to +120°C.
Thermal Shock: −65°C. to +120°C. per MIL-STD-202, test condition B, Method 107. No failures.
Humidity: 90% to 95% at 40°C. per MIL-STD-202, Method 103B. 30 Milliohms maximum contact resistance. 1000 Megohms minimum insulating resistance.
Soldering Heat Resistance: 260°C. ±5°C. at 10 seconds per MIL-STD-202, test condition B, Method 210A.

MATERIALS
Socket Body: Glass-filled polyphenylene sulfide, a UL 94V-O rated material
Contacts: Beryllium copper.
Contact Plating: 10 or 30 microinches of select gold over 50 microinches of nickel; tin-lead over nickel in solder tail area.
Lid: Stainless steel.

Part No. 835-0680113: 10 microinches of gold in the contact area

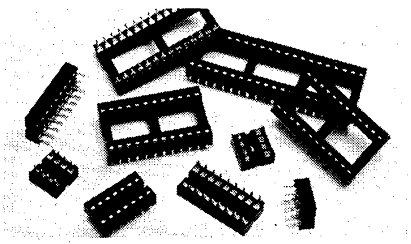
Part No. 835-0680313: 30 microinches of gold in the contact area

Footprint pattern is viewed from above, looking down through the socket.

NOTE: Drawings show dimensions in inches over millimeters.

WELCON PRODUCTION SOCKETS

SERIES 801 and SERIES 811 SINGLE BEAM



FEATURES

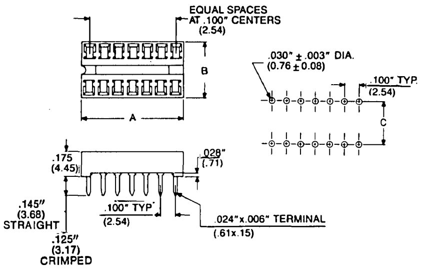
- Single face-wipe contacts providing low contact resistance with high retention force.
- Wide target area and chamfered cavity for easy insertion of IC devices.
- Overstress barrier to protect against contact damage.
- Stands only .175″ above the pc board.
- Available with .125″ long crimped tails or .145″ long straight tails.
- 50 microinches of tin/lead plating on phosphor bronze, or beryllium copper contacts.

TEST SPECIFICATIONS

Rating: 250 VAC
Dielectric Withstanding Voltage: 1000 VRMS minimum.
Insulation Resistance: 5000 Megohms minimum.
Capacitance: 1 Picofarad maximum.

PHOSPHOR BRONZE CONTACTS PLATED WITH A MINIMUM OF 50 MICROINCHES OF TIN

WELCON PART NO.	NO. OF Pins	"A" (max) In.	"A" (max) Mm	"B" (max) In.	"B" (max) Mm	PIN ROW CENTERS ("C") In.	PIN ROW CENTERS ("C") Mm
8XX-0081641	8	.400	*10.16*	.390	*9.91*	.300	*7.62*
8XX-0141641	14	.700	*17.78*	.390	*9.91*	.300	*7.62*
8XX-0161641	16	.800	*20.32*	.390	*9.91*	.300	*7.62*
8XX-0181641	18	.900	*22.86*	.390	*9.91*	.300	*7.62*
8XX-0201641	20	1.000	*25.40*	.390	*9.91*	.300	*7.62*
8XX-4221641	22	1.100	*27.94*	.500	*12.70*	.400	*10.16*
8XX-7241641	24	1.200	*30.48*	.700	*17.78*	.600	*15.24*
8XX-7281641	28	1.400	*35.56*	.700	*17.78*	.600	*15.24*
8XX-7401641	40	2.000	*50.80*	.700	*17.78*	.600	*15.24*


EQUAL SPACES
AT .100" CENTERS
(2.54)
B
A
.030" ± .003" DIA.
(0.76 ± 0.08)
.100" TYP.
(2.54)
C
.175
(4.45)
.028"
(.71)
.145"
(3.68)
STRAIGHT
.100" TYP
(2.54)
.024"x.006" TERMINAL
(.61x.15)
.125"
(3.17)
CRIMPED

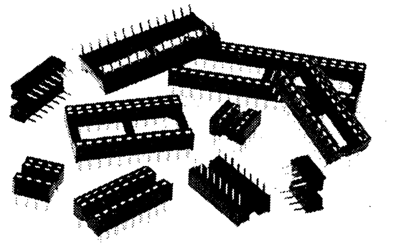
CONTACT MATERIAL

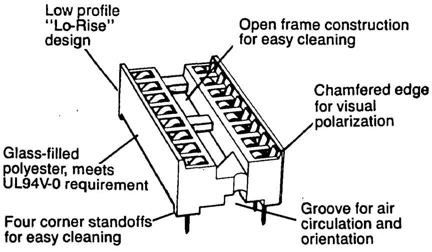
"4" denotes phosphor bronze. To order beryllium copper change the "4" to a "1".

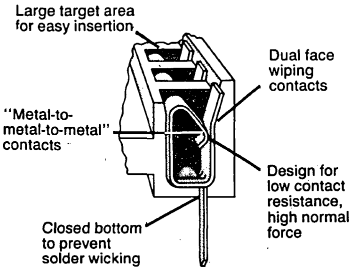
SERIES IDENTIFICATION

To order Series 801 sockets change the "XX" to "01" and for Series 811 sockets change the "XX" to "11".

SERIES 802 "LO-RISE®"



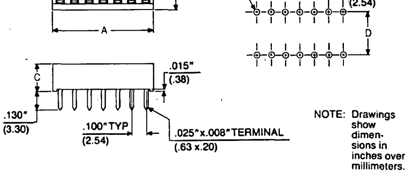

Low profile "Lo-Rise" design
Open frame construction for easy cleaning
Chamfered edge for visual polarization
Glass-filled polyester, meets UL94V-0 requirement
Four corner standoffs for easy cleaning
Groove for air circulation and orientation


Large target area for easy insertion
Dual face wiping contacts
"Metal-to-metal-to-metal" contacts
Design for low contact resistance, high normal force
Closed bottom to prevent solder wicking

WELCON PART NO.	NO. OF PINS	DIMENSIONS "A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	PIN ROW CENTERS ("D") In.	PIN ROW CENTERS ("D") Mm	CONTACT MATERIAL	CONTACT PLATING	PLATING THICKNESS (in microinches)
802-0081642	8	.396	*10.06*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Tin	50
802-0082542	8	.396	*10.06*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Select Au	10
802-0081612	8	.396	*10.06*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Tin	50
802-0082712	8	.396	*10.06*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Select Au	30
802-0141642	14	.696	*17.68*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Tin	50
802-0142542	14	.696	*17.68*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Select Au	10
802-0141612	14	.696	*17.68*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Tin	50
802-0142712	14	.696	*17.68*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Select Au	30
802-0161642	16	.796	*20.22*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Tin	50
802-0162542	16	.796	*20.22*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Select Au	10
802-0161612	16	.796	*20.22*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Tin	50
802-0162712	16	.796	*20.22*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Select Au	30
802-0181642	18	.896	*22.76*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Tin	50
802-0182542	18	.896	*22.76*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Select Au	10
802-0181612	18	.896	*22.76*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Tin	50
802-0182712	18	.896	*22.76*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Select Au	30
802-0201642	20	.996	*25.30*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Tin	50
802-0202542	20	.996	*25.30*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Phos. Bronze	Select Au	10
802-0201612	20	.996	*25.30*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Tin	50
802-0202712	20	.996	*25.30*	.396	*10.06*	.200	*5.08*	.300	*7.62*	Be Copper	Select Au	30
802-6221642	22	1.096	*27.84*	.496	*12.60*	.200	*5.08*	.400	*10.16*	Phos. Bronze	Tin	50
802-6222542	22	1.096	*27.84*	.496	*12.60*	.200	*5.08*	.400	*10.16*	Phos. Bronze	Select Au	10
802-6221612	22	1.096	*27.84*	.496	*12.60*	.200	*5.08*	.400	*10.16*	Be Copper	Tin	50
802-6222712	22	1.096	*27.84*	.496	*12.60*	.200	*5.08*	.400	*10.16*	Be Copper	Select Au	30
802-7241642	24	1.196	*30.38*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Tin	50
802-7242542	24	1.196	*30.38*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Select Au	10
802-7241612	24	1.196	*30.38*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Tin	50
802-7242712	24	1.196	*30.38*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Select Au	30
802-7281642	28	1.396	*35.46*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Tin	50
802-7282542	28	1.396	*35.46*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Select Au	10
802-7281612	28	1.396	*35.46*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Tin	50
802-7282712	28	1.396	*35.46*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Select Au	30
802-7401642	40	1.996	*50.70*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Tin	50
802-7402542	40	1.996	*50.70*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Phos. Bronze	Select Au	10
802-7401612	40	1.996	*50.70*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Tin	50
802-7402712	40	1.996	*50.70*	.696	*17.68*	.200	*5.08*	.600	*15.24*	Be Copper	Select Au	30

TEST SPECIFICATIONS

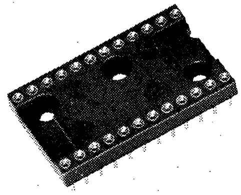
Rating: 250 VAC
Dielectric Withstanding Voltage: 1000 VRMS minimum.
Insulation Resistance: 5000 Megohms minimum.
Capacitance: 1 Picofarad minimum.
Contact Resistance: Conforms to MIL-S-83734E.
Operating Temperature: −55° C to +105° C.
Vibration: Displacement amplitude .06″ .20 G's for 3 cycles in each of 3 axes over frequency range of 10-2000-10 Hz.
Shock: 3 shock pulses along longitudinal axis. Half sine wave at 300 G's and 2 Milliseconds. DIP terminals up.


EQUAL SPACES
AT .100" CENTERS
(2.54)
B
A
.035" ± .003 DIA.
(0.89 ± 0.08)
.100"TYP
(2.54)
D
C
.015"
(.38)
.130"
(3.30)
.100"TYP
(2.54)
.025"x.008"TERMINAL
(.63 x.20)

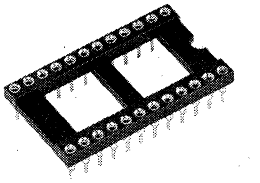
NOTE: Drawings show dimensions in inches over millimeters.

WELCON PRODUCTION SOCKETS

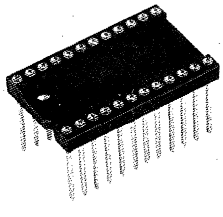
SERIES 100-103 "VIP®" SCREW MACHINE



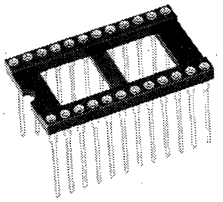
SERIES 100



SERIES 101



SERIES 102



SERIES 103

SCREW MACHINE SOCKETS WITH SOLDER TAILS

WELCON PART NO.	NO. OF PINS	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	OUTER SLEEVE PLATING
1XX-0062812	6	.300	*7.62*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0082812	8	.400	*10.16*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0102812	10	.500	*12.70*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0142812	14	.700	*17.78*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0162812	16	.800	*20.32*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0182812	18	.900	*22.86*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-0202812	20	1.000	*25.40*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin/Lead
1XX-6222812	22	1.100	*27.94*	.500	*12.70*	.106	*2.69*	.400	*10.16*	Tin/Lead
1XX-7242812	24	1.200	*30.48*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin/Lead
1XX-7282812	28	1.400	*35.56*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin/Lead
1XX-7322812	32	1.600	*40.64*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin/Lead
1XX-7362812	36	1.800	*45.72*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin/Lead
1XX-7402812	40	2.000	*50.80*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin/Lead

SERIES IDENTIFICATION

For Series 100 solid body sockets change the "XX" to "00" and for Series 101 open body sockets change the "XX" to "01".

SCREW MACHINE SOCKETS WITH 2-LEVEL WIRE WRAP TAILS

WELCON PART NO.	NO. OF PINS	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	OUTER SLEEVE PLATING
1XX-0062822	6	.300	*7.62*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-0082822	8	.400	*10.16*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-0142822	14	.700	*17.78*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-0162822	16	.800	*20.32*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-0182822	18	.900	*22.86*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-0202822	20	1.000	*25.40*	.400	*10.16*	.135	*3.43*	.300	*7.62*	Tin/Lead
1XX-6222822	22	1.100	*27.94*	.500	*12.70*	.135	*3.43*	.400	*10.16*	Tin/Lead
1XX-7242822	24	1.200	*30.48*	.700	*17.78*	.135	*3.43*	.600	*15.24*	Tin/Lead
1XX-7282822	28	1.400	*35.56*	.700	*17.78*	.135	*3.43*	.600	*15.24*	Tin/Lead
1XX-7322822	32	1.600	*40.64*	.700	*17.78*	.135	*3.43*	.600	*15.24*	Tin/Lead
1XX-7362822	36	1.800	*45.72*	.700	*17.78*	.135	*3.43*	.600	*15.24*	Tin/Lead
1XX-7402822	40	2.000	*50.80*	.700	*17.78*	.135	*3.43*	.600	*15.24*	Tin/Lead

SERIES IDENTIFICATION

For Series 102 solid body sockets change the "XX" to "02" and for Series 103 open body sockets change the "XX" to "03".

WIRE WRAP TAIL LENGTH

To order 3-level tails, substitute "3" in place of the second "2" counting back from the end of the part number.

CONTACT PLATING

"28" denotes contact plating. Specifications are as follows:

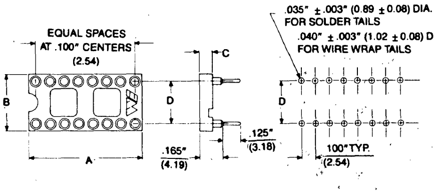
"28".	Min. .10 microinches gold over min. 50 microinches nickel on the inner clip; min. 100 microinches electro deposited tin/lead on the outer sleeve.
"29" in place of "28":	Min. 50 microinches electro deposited tin/lead over min. 50 microinches nickel on the inner clip; min. 100 microinches electro deposited tin/lead on the outer sleeve.
"18" in place of "28":	Min. 30 microinches gold over min. 50 microinches nickel on the inner clip; min. 100 microinches electro deposited tin/lead on the outer sleeve.
"06" in place of "28":	Min. 30 microinches gold over min. 50 microinches nickel on the inner clip; min. 10 microinches gold over min. 100 microinches nickel on the outer sleeve.

FEATURES

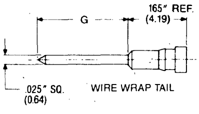
- Two-piece contact consisting of a machined outer sleeve and a four-leaf inner clip.
- Large, tapered entry providing easy insertion of the device leads and multiple points of contact.
- Electro deposited tin/lead plating or gold plating on the beryllium copper inner clip to assure high reliability.
- Brass outer sleeve plated with 100 microinches of electro deposited tin/lead or 10 microinches of gold.
- Low profile...only .165″ above the p.c. board.
- Closed bottom to eliminate solder wicking.
- Four versions available...solid or open frame with solder or wire wrap tails.
- Wire wrap tails in 2- and 3-levels.
- Open frame construction to allow maximum air circulation under the IC.
- Entry area designed to accept flat lead DIP ICs or .016″ to .021″ diameter round leads, maintaining a high retention.

TEST SPECIFICATIONS

Contact Resistance: Conforms to MIL-S-83734E.
Vibration: 10 to 2000 Hz @ 20 g's per MIL-STD-202, test condition D. Method 204 (monitored for one microsecond opening).
Shock: 150 g's per MIL-STD-202, Method 213 (monitored for one microsecond opening).
Capacitance: Between adjacent terminals @ 1KHz per MIL-STD-202, Method 305. .4 pf maximum.
Capacitance: Between opposite terminals @ 1KHz per MIL-STD-202, Method 305. .02 pf maximum.
Terminal Anchoring Retention: Pull against barb locking action. 12 lbs. minimum.
Thermal Shock: −65°C. to +105°C. per MIL-STD-202, test condition F, Method 107. No failures.
Low Voltage Conductivity: Measured at an open circuit voltage of 10 microvolts. .1 milliamp minimum.
Salt Spray: Per MIL-STD-202, Method 101, condition B (48 hours). 20 Milliohms maximum.
Moisture Resistance: Per MIL-STD-202, Method 106, minus steps 7A and 7B. No damage.
Endurance and Exposure to Ammonium Sulfide Atmosphere (Contact): Exposure after 10 insertions of a DIP IC. Contact resistance: 30 Milliohms maximum.
Insulation Resistance (At 500 V.D.C.): Per MIL-S-83734E. 500 Megohms minimum.
Dielectric Withstanding Voltage (At 1000 Volts AC): MIL-STD-202. Method 301 between adjoining conductors.

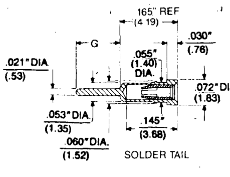


TAIL LENGTH	"G" In.	"G" Mm
Solder Tail	.125	*3.17*
2-Level Wire Wrap	.370	*9.40*
3 Level Wire Wrap	.510	*12.95*



WIRE WRAP TAIL

NOTE: Drawings show dimensions in inches over millimeters.

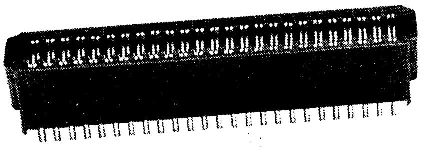


SOLDER TAIL

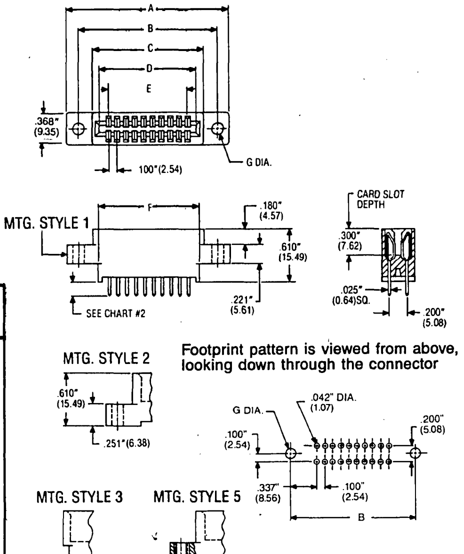
WELLS ELECTRONICS, INC., 1701 S. MAIN ST., SO. BEND, IN 46613, U.S.A. • PHONE 219/287-5941 • TELEX 25-8325 • FAX 219-287-0356

WELCON CONNECTORS

SERIES 400-401 CARD EDGE ON .100″ x .200″ SPACING



DESIGN FEATURES:
- Copper alloy contacts plated with low cost select gold.
- CSA and UL recognized
- 10 Milliohms maximum contact resistance.
- Designed for easy board insertion.
- Available in solder or wire wrap tails.
- Multiple mounting styles.
- Connector body molded of UL 94V-0 rated black polyester.



NOTE: Drawings show dimensions in inches over milimeters.

CHART #1

NO. OF POS.	TOTAL NO. OF CONTACTS	DIMENSIONS "A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm	"F" In.	"F" Mm
10	20	1.835	46.61	1.575	40.00	1.260	32.00	1.100	27.94	.900	22.86	1 150	29.21
12	24	2.035	51.69	1.775	45.09	1.460	37.08	1.300	33.02	1.100	27.94	1.350	34.29
15	30	2.335	59.31	2.075	52.71	1.760	44.70	1.600	40.64	1.400	35.56	1.650	41.91
20	40	2.835	72.01	2.575	65.41	2.260	57.40	2.100	53.34	1.900	48.26	2.150	54.61
22	44	3.035	77.09	2.775	70.49	2.460	62.48	2.300	58.42	2.100	53.34	2.350	59.69
25	50	3.335	84.71	3.075	78.11	2.760	70.10	2.600	66.04	2.400	60.96	2.650	67.31
28	56	3.635	92.33	3.375	85.73	3.060	77.72	2.900	73.66	2.700	68.58	2.950	74.93
30	60	3.835	97.41	3.575	90.81	3.260	82.80	3.100	78.74	2.900	73.66	3.150	80.01
31	62	3.935	99.95	3.675	93.35	3.360	85.34	3.200	81.28	3.000	76.20	3.250	82.55
35	70	4.335	110.11	4.075	103.51	3.760	95.50	3.600	91.44	3.400	86.36	3.650	92.71
36	72	4.435	112.65	4.175	106.05	3.860	98.04	3.700	93.98	3.500	88.90	3.750	95.25
40	80	4.835	122.81	4.575	116.21	4.260	108.20	4.100	104.14	3.900	99.06	4.150	105.41
43	86	5.135	130.43	4.875	123.83	4.560	115.82	4.400	111.76	4.200	106.88	4.450	113.03
50	100	5.835	148.21	5.575	141.61	5.260	133.60	5.100	129.54	4.900	124.46	5.150	130.81

CHART #2

CONTACT DIM In.	Mm	TAIL LENGTH In.	Mm
0–.025 Sq. (ST)	.64	.160	4.06
1–.025 Sq. (WW)	.64	.560	14.22

ST-Solder tail WW-wire wrap tail

CHART #3

MOUNTING STYLE	"G" DIA. In.	Mm
1	.125	3.18
2 (Flush Mtd.)	.125	3.18
3 (As shown)	No Ears	
4	Mtg. Style 1 with #4-40 thread insert	
5	Flush mtd. with #4-40 thread insert	

CHART #4

1- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
2- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
3- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
4- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
5- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
6- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
7- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
8- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO.
DESCRIPTION & ORDERING INFORMATION

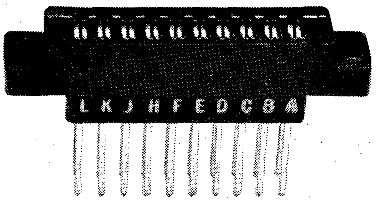
40X - 1 XXX X 1 1 - X

Mtg. Style (Chart #3)
Body Material
Contact Material
Contact Plating (Chart #4)
Total No. of Contacts (Chart #1)
Lead Centers
Tail Length (Chart #2)

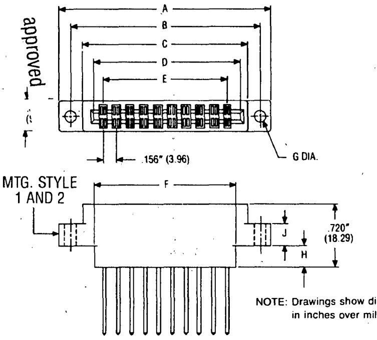
WELLS ELECTRONICS, INC., 1701 S. MAIN ST., SO. BEND, IN 46613, U.S.A. • PHONE 219/287-5941 • TELEX 25-8325 • FAX 219-287-0356

WELCON CONNECTORS

SERIES 402-407 CARD EDGE ON .156″ x .188″ SPACING



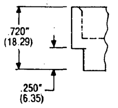
DESIGN FEATURES
- Economically priced with maximum reliability.
- Copper alloy contacts plated with select gold.
- CSA and UL recognized
- Black polyester body, a UL 94V-0 rated material.
- Wire wrap tails, unplated or with tin lead plating.
- Several mounting styles available.
- Designed to meet MIL-STD-202.

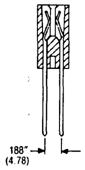


NOTE: Drawings show dimensions in inches over millimeters

MTG. STYLE 2
(Same as Mtg. Style 1 except for the "G" dim.)

MTG. STYLE 3





MTG. STYLE 6
(Same as Mtg. Style 1 except for the "H" dim.)

CHART #1

NO. OF POS.	TOTAL NO. OF CONTACTS	DIMENSIONS "A" In.	"A" Mm	"B" In.	"B" Mm	"C" In	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm	"F" In.	"F" Mm
7	14	1.938	49.22	1.690	42.93	1.408	35.76	1.256	31.90	.936	23.77	1.136	28.85
10	20	2.406	61.11	2.158	54.81	1.876	47.65	1.724	43.79	1.404	35.66	1.604	40.74
15	30	3.186	80.92	2.938	74.63	2.656	67.46	2.504	63.60	2.184	55.47	2.384	60.55
18	36	3.654	92.81	3.406	86.51	3.124	79.35	2.972	75.49	2.652	67.36	2.852	72.44
22	44	4.278	108.66	4.030	102.36	3.748	95.20	3.596	91.39	3.276	83.21	3.476	88.29
28	56	5.214	132.44	4.966	126.14	4.684	118.97	4.532	115.11	4.212	106.98	4 412	112.06
30	60	5.526	140.36	5.278	134.06	4.996	126.90	4.844	123.04	4.524	114.91	4.724	119.99
31	62	5.682	144.32	5.434	138 02	5.152	130.86	5.000	127.00	4.680	118.87	4.880	123.95
36	72	6.462	164.13	6.214	157.84	5.932	150.67	5.780	146.81	5.460	138.68	5.660	143.76
40	80	7.086	179.98	6.838	173.69	6.556	166.52	6.404	162.66	6.084	154.53	6.284	159.61
43	86	7.554	191.87	7.306	185.57	7.024	178.41	6.872	174.55	6.552	166.42	6.752	171.50
50	100	8.646	219.61	8.398	213.31	8.116	206.15	7.964	202.29	7.644	194.16	7.884	199.24

CHART #2

STYLE	TAIL DIMENSIONS CROSS SECTION In.	Mm	LENGTH In.	Mm
2	.045 x .045	1.14 x 1.14	.460	11.68
3	.045 x .045	1.14 x 1.14	.550	13.97
4	.045 x .045	1.14 x 1.14	.770	19.56
5	.031 x .062	.79 x 1.57	.460	11.68
6	.031 x .062	.79 x 1.57	.550	13.97
7	.031 x .062	.79 x 1.57	.770	19.56

CHART #3

MOUNTING STYLE	"G" In.	"G" Mm	"H" In.	"H" Mm	"J" In.	"J" Mm
1	.129	3.28	.250	6.35	.250	6.35
2	.150	3.81	.250	6.35	.250	6.35
3	No Ears		.250	6.35	No Ears	
6	.129	3.28	.210	5.33	.250	6.35

Also available with #4-40 threads, please consult factory.

CHART #4

1-	Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
2-	Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
3-	Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
4-	Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.
5-	Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
6-	Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
7-	Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
8-	Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO.
DESCRIPTION & ORDERING INFORMATION

40X - 2 XXX X 1 1 - X

Mtg. Style (Chart #3)
Body Material
Contact Material
Contact Plating (Chart #4)
Total No. of Contacts (Chart #1)
Lead Centers
Tail Length (Chart #2)

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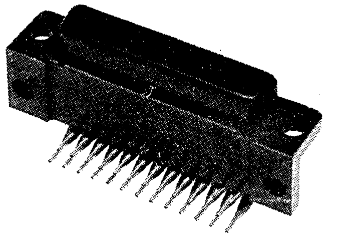
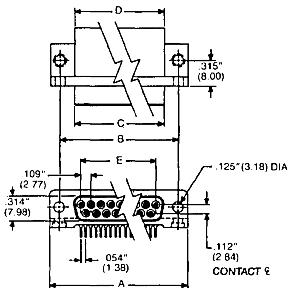
WELCON CONNECTORS

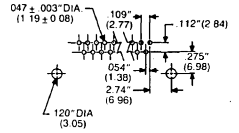
SERIES 420 D-SUBMINIATURE, ALL PLASTIC

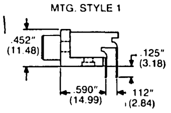


DESIGN FEATURES

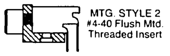
- Standard .590″ footprint.
- Right angle receptacle on the face edge for mating ease.
- CSA and UL recognized
- Rigid tail with built-in heat sink and excellent contact alignment.
- Large circuit cavity lead-in
- Copper alloy contacts with gold plating in the contact area and tin/lead plating on the tails.
- RS 232 and RS 449 compatible.
- Connector body molded of a UL 94V-0 insulator.

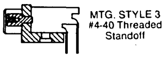

D
.315″
(8.00)
C
B
E
.109″
(2 77)
.125″(3.18) DIA
.314″
(7.98)
.054″
(1 38)
.112″
(2 84)
CONTACT ℄
A

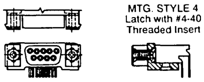

.047 ± .003″DIA.
(1 19 ± 0 08)
.109″
(2.77)
.112″(2 84)
.275″
(6.98)
.054″
(1.38)
2.74″
(6 96)
.120″DIA
(3.05)


MTG. STYLE 1
.452″
(11.48)
.125″
(3.18)
.590″
(14.99)
.112″
(2.84)

Footprint pattern is viewed from above, looking down through the connector.


MTG. STYLE 2
#4-40 Flush Mtd.
Threaded Insert


MTG. STYLE 3
#4-40 Threaded
Standoff


MTG. STYLE 4
Latch with #4-40
Threaded Insert

NOTE: Drawings show dimensions in inches over millimeters.

CHART #1

NO. OF POS.	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm
9	1.244	*31.60*	.984	*24.99*	.642	*16.31*	.624	*15.85*	.436	*11.07*
15	1.572	*39.93*	1.312	*33.33*	.970	*24.64*	.952	*24.18*	.763	*19.38*
25	2.092	*53.14*	1.852	*47.04*	1.510	*38.35*	1.492	*37.90*	1.308	*33.22*
37	2.760	*70.10*	2.500	*63.50*	2.158	*54.81*	2.140	*54.36*	1.962	*49.84*

CHART #2

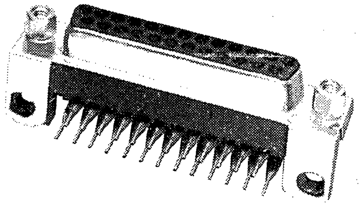
5-	Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
6-	Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
7-	Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
8-	Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO. DESCRIPTION & ORDERING INFORMATION

420 - 1 XX OX 1 1 - X

Mtg. Style
Body Material
Contact Material
Contact Plating (Chart #2)
Total No. of Contacts (Chart #1)
Right Angle Style
All Plastic Shell

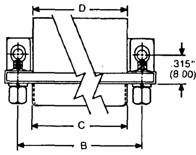
SERIES 421 & 423 D-SUBMINIATURE, METAL SHELL

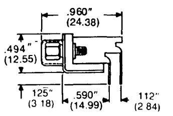


DESIGN FEATURES

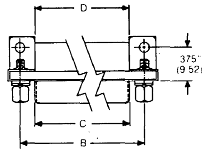
- .318″ footprint for maximum board density.
- CSA and UL recognized
- Right angle receptacle on the face edge for mating ease.
- Factory-installed hardware.
- Large circuit cavity lead-in.
- Selectively plated copper alloy contacts.
- Rigid tail configuration with built-in heat sink and excellent contact alignment.
- Tin/lead plating on the contact tails.
- One-piece metal shell with or without metal on the bottom leg.
- Connector body molded of a UL 94V-0 insulator.

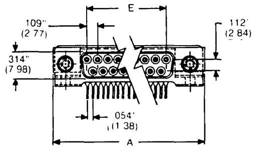
SERIES 421
.590″ FOOTPRINT

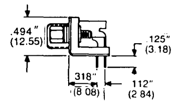



.960″
(24.38)
.494″
(12.55)
.125″
(3 18)
.590″
(14.99)
.112″
(2 84)

SERIES 423
.318″ FOOTPRINT




E
.109″
(2 77)
.112″
(2 84)
.314″
(7 98)
.054″
(1 38)
A


.494″
(12.55)
.125″
(3.18)
.318″
(8 08)
.112″
(2 84)

NOTE: Drawings show dimensions in inches over millimeters

CHART #1

NO. OF POS.	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm
9	1.224	*31.09*	.984	*24.99*	.642	*16.31*	.624	*15.85*	.436	*11.07*
15	1.552	*39.42*	1.312	*33.33*	.970	*24.64*	.952	*24.18*	.763	*19.38*
25	2.092	*53.14*	1.852	*47.04*	1.510	*38.35*	1.492	*37.90*	1.308	*33.22*
37	2.740	*69.60*	2.500	*63.50*	2.158	*54.81*	2.140	*54.36*	1.962	*49.84*

CHART #2

5-	Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
6-	Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
7-	Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.
8-	Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO. DESCRIPTION & ORDERING INFORMATION

42X - 1 XX OX 1 1 - 1

Mtg. Style
Body Material
Contact Material
Contact Plating (Chart #2)
No. of Contacts (Chart #1)
Right Angle Style
1-.590″ Footprint
3-.318″ Footprint

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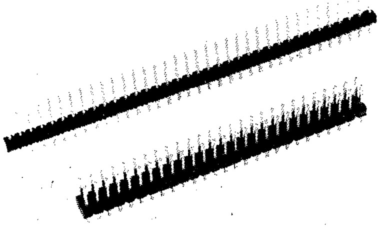
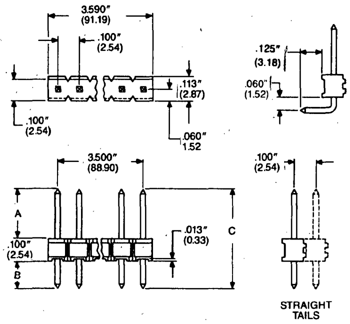
WELCON PRODUCTION SOCKETS

SERIES 442-445 PIN HEADERS



FEATURES
- Unshrouded version from 1 to 36 positions in single and double rows.
- Standard .025″ square male posts on .100″ contact centers.
- Available in two post lengths, .230″ and .318″, both industry standards.
- Choice of four tail lengths for soldering or wire wrapping.
- Pins with nickel underplate and tin/lead all-over or gold in the contact area.
- Tin/lead plating on the tails.
- Easy to break apart into any desired length.
- Side-to-side and end-to-end stackable.
- Compatible with Welcon Series 480 insulated shunts.

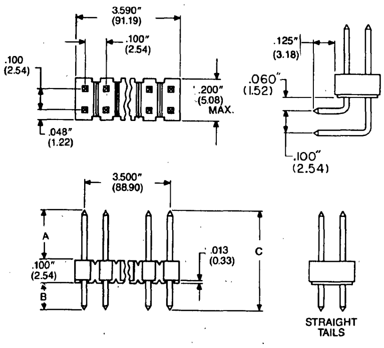
SINGLE ROW



3.590″ (91.19)
.100″ (2.54)
.113″ (2.87)
.100″ (2.54)
.060″ 1.52
.125″ (3.18)
.060″ (1.52)
3.500″ (88.90)
.100″ (2.54)
A
.100″ (2.54)
B
.013″ (0.33)
C
STRAIGHT TAILS

NOTE: Drawings show dimensions in inches over milimeters.

DOUBLE ROW



3.590″ (91.19)
.100″ (2.54)
.100 (2.54)
.200″ (5.08) MAX.
.048″ (1.22)
.125″ (3.18)
.060″ (1.52)
.100″ (2.54)
3.500″ (88.90)
A
.100″ (2.54)
B
.013 (0.33)
C
STRAIGHT TAILS

CHART #1

POST LENGTH "A"	X	TAIL LENGTH "B" In.	Mm	OVERALL LENGTH "C" In.	Mm	RIGHT ANGLE POST LENGTH "A"	X
.230″ 5.84	1	.095	2.41	.425	10.80	.230 5.84	4
	2	.125	3.18	.455	11.56		
	3	.225	5.72	.555	14.10		
	4	.425	10.80	.755	19.18		
.318″ 8.10	1	.095	2.41	.513	13.03	.318 8.10	5
	2	.125	3.18	.543	13.79		
	3	.225	5.72	.643	16.33		
	4	.425	10.80	.843	21.41		

CHART #2

1 - Min. 150 microinches 90/10 tin/lead all-over over min. 50 microinches nickel
2 - Min. 15 microinches gold over min. 50 microinches nickel in the contact area, min. 150 microinches 90/10 tin/lead plated tails.
3 - Min. 30 microinches gold over min. 50 microinches nickel in the contact area, min. 150 microinches 90/10 tin/lead plated tails.

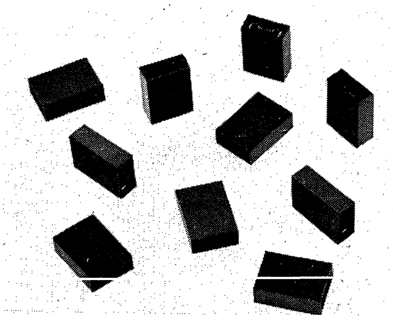
WELCON PART NO. DESCRIPTION & ORDERING INFORMATION

44X X XX X X 1 1

- 1 — Body Material
- 1 — Pin Material
- X — Pin Plating (Chart #2)
- X — Tail Length-Straight Tails (Chart #1); Tail Length-Right Angle (.125″)
- XX — Total No. of Pins (1 thru 72)
- X — 1 - Single Row, Straight Tail or Right Angle Tail; 2 - Double Row, Straight Tail or Right Angle Tail
- 44X — 2 - .230″ Post Length Straight Tail; 3 - .318″ Post Length Straight Tail; 4 - .230″ Post Length Right Angle Tail; 5 - .318″ Post Length Right Angle Tail

Consult the factory for other pin lengths and plating options.

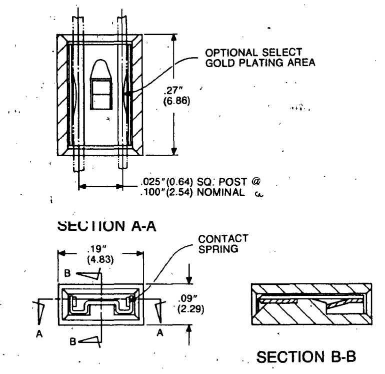
SERIES 480 INSULATED SHUNT



FEATURES
- Two position shunt, designed for .025″ square header posts on .100″ contact centers.
- Beam type contact spring.
- Metal-to-metal contact on both sides of the header post.
- Positive contact retention
- Vertically stackable on parallel or perpendicular axes.
- Copper alloy contacts plated with 50 microinches of tin/lead or a minimum 30 microinches of select gold over 50 microinches of nickel.
- Body molded of glass-filled resin, a UL 94V-0 rated material

Welcon Part No. 480-1021011
Tin/lead-plated contacts

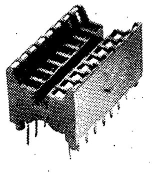
Welcon Part No. 480-1020711
Select gold-plated contacts

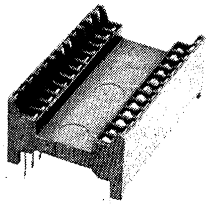


OPTIONAL SELECT GOLD PLATING AREA
.27″ (6.86)
.025″(0.64) SQ. POST @ .100″(2.54) NOMINAL
SECTION A-A
.19″ (4.83)
CONTACT SPRING
B
.09″ (2.29)
A
A
B
SECTION B-B

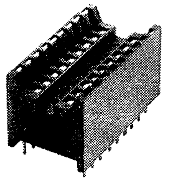
WELCON SOCKETS/CONTACTORS/CARRIERS

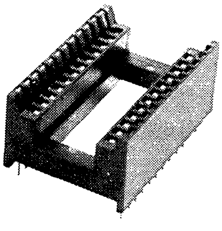
SERIES 613 "MID-RISE"


16-Lead On .300" Centers


24-Lead On .600" Centers

SERIES 603 "HI-RISE"


18-Lead On .400" Centers


24-Lead On .750" Centers

Beryllium Copper Contacts Plated With 30 Microinches of Select Gold

WELCON PART NO.	NO OF PINS	LENGTH In.	LENGTH Mm	WIDTH In.	WIDTH Mm	PIN ROW CENTERS In.	PIN ROW CENTERS Mm
613-0060311	6	.330	8.38	.495	12.57	300	7.62
613-0080311	8	.430	10.92	.495	12.57	.300	7.62
613-0140311	14	730	18.54	.495	12.57	.300	7.62
613-0160311	16	.830	21.08	495	12.57	.300	7.62
613-0180311	18	.930	23.62	495	12.57	.300	7.62
613-0200311	20	1.030	26.16	.495	12.57	.300	7.62
613-0240311	24	1.230	31.24	.495	12.57	.300	7.62
613-7240311	24	1.230	31.24	.795	20.19	.600	15.24
613-7280311	28	1.430	36.32	.795	20.19	.600	15.24
613-7400311	40	2.030	51.56	.795	20.19	.600	15.24

Pfinodal® Contacts Plated With 30 Microinches of Select Gold

WELCON PART NO.	NO.OF PINS	LENGTH In.	LENGTH Mm	WIDTH In.	WIDTH Mm	PIN ROW CENTERS In.	PIN ROW CENTERS Mm
613-0060341	6	.330	8.38	.495	12.57	.300	7.62
613-0080341	8	.430	10.92	.495	12.57	.300	7.62
613-0140341	14	.730	18.54	.495	12.57	.300	7.62
613-0160341	16	.830	21.08	.495	12.57	300	7.62
613-0180341	18	.930	23.62	.495	12.57	.300	7.62
613-0200341	20	1.030	26.16	.495	12.57	300	7.62
613-0240341	24	1.230	31.24	.495	12.57	.300	7.62
613-7240341	24	1.230	31.24	.795	20.19	.600	15.24
613-7280341	28	1.430	36.32	.795	20.19	.600	15.24
613-7400341	40	2.030	51.56	.795	20.19	.600	15.24

Beryllium Copper Contacts Plated With 30 Microinches of Select Gold

WELCON PART NO.	NO.OF PINS	LENGTH In.	LENGTH Mm	WIDTH In	WIDTH Mm	PIN ROW CENTERS In.	PIN ROW CENTERS Mm
603-1140311	14	.800	20.32	565	14.35	.400	10.16
603-2140311	14	.800	20.32	.565	14.35	450	11.43
603-1160311	16	.900	22.86	.565	14.35	.400	10.16
603-2160311	16	.900	22.86	.565	14.35	.450	11.43
603-1180311	18	1.000	25.40	.565	14.35	.400	10.16
603-2180311	18	1.000	25.40	.565	14.35	.450	11.43
603-1200311	20	1.100	27.94	.565	14.35	.400	10.16
603-2200311	20	1.100	27.94	.565	14.35	450	11.43
603-2220311	22	1.200	30.48	.565	14.35	.450	11.43
603-3220311	22	1.200	30.48	.665	16.89	.500	12.70
603-3240311	24	1.300	33.02	.665	16.89	500	12.70
603-5240311	24	1.300	33.02	.865	21.97	700	17.78
603-8240311-007	24	1.300	33.02	.865	21.97	.750	19.05
603-3280311	28	1.490	37.85	.665	16.89	.500	12.70
603-5280311	28	1.490	37.85	.865	21.97	.700	17.78
603-8280311-007	28	1.500	38.10	.865	21.97	.750	19.05
603-5400311	40	2.090	53.09	.865	21.97	.700	17.78
603-8400311-007	40	2.100	53.34	.865	21.97	.750	19.05
603-8420311-007	42	2.200	55.88	.865	21.97	.750	19.05
603-5480311	48	2.490	63.25	.865	21.97	700	17.78
603-8480311-007	48	2.500	63.50	.865	21.97	.750	19.05

BURN-IN TEST SOCKETS

GENERAL FEATURES

- Low cost select gold plating on beryllium copper or Pfinodal® contacts.
- Dual, face-wipe contacts for long, dependable life.
- For burn-in applications up to 200°C.
- Large target area for fast, easy insertion of IC devices.
- Tin plate on the solder tails.

TEST DATA

Contact Insertion Force: 180 grams max. per contact pair.

Contact Withdrawal Force: 30 grams min. per contact pair.

Contact Resistance: 20 Millohms max. at 1 Ampere.

Insulation Resistance [At 500 V.D.C.]: Per MIL-STD-1344, Method 3003. Result; 5000 Megohms minimum.

Dielectric Withstanding Voltage: Per MIL-STD-1344, Method 3001. Result: 600 V.A.C. (RMS) minimum.

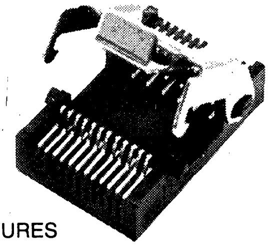
Moisture Resistance: 24 hrs. at 85°C., 85% RH. Result: 1000 Megohms minimum.

Temperature Cycling: 168 hrs. at 200°C. Result: No electrical or mechanical degradation.

Durability: 10,000 insertion/withdrawl cyles. Result: No electrical or mechanical degradation.

CONTACTORS & CARRIERS

FLATPACK CONTACTORS

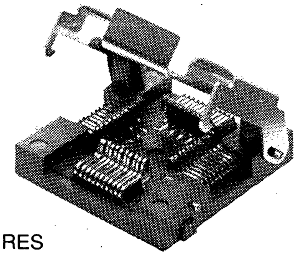


FEATURES

- Improved performance with new extra-low-force ("ELF") contacts.
- Improved insertion of IC devices... no lead damage.
- Side air slots to allow maximum air circulation.
- For burn-in applications up to 200°C.
- No carrier distortion under high temperature burn-in.
- Tin plating on the solder tails.
- One-piece, non-corrosive stainless steel latch.

WELCON PART NO.	NO. OF PINS	CONTACT MATERIAL	CONTACT PLATING	PLATING THICKNESS (In Microinches)
301-0140311	14	BeCu	Select Au	30
301-0160311	16	BeCu	Select Au	30
301-0180311	18	BeCu	Select Au	30
301-0240311	24	BeCu	Select Au	30

QUAD PACK CONTACTORS

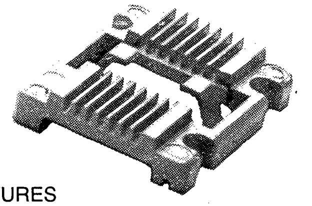


FEATURES

- High lead count quad pack contactors for high density packaging.
- Beryllium copper contacts plated with 30 microinches of select gold.
- New extra-low-force ("ELF") contacts.
- Longlasting metal hinge pins.
- Contactor body molded of a high temperature material for burn-in applications up to 200°C.
- No carrier distortion.
- Easy insertion of IC leads.

WELCON PART NO.	NO. OF PINS.	PIN SPACING IN.	PIN SPACING Mm
304-0240311	24	.050	1.27
304-0280311	28	.050	1.27
631-0320311	32	.040	1.02
631-0440311	44	.040	1.02
305-0680311	68	.050	1.27
632-0720311	72	.040	1.02
305-0840311	84	.050	1.27

ONE-PIECE CARRIERS



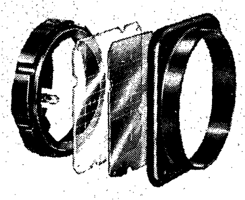
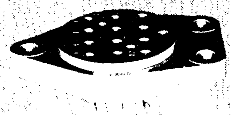
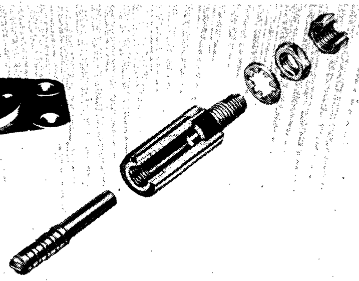
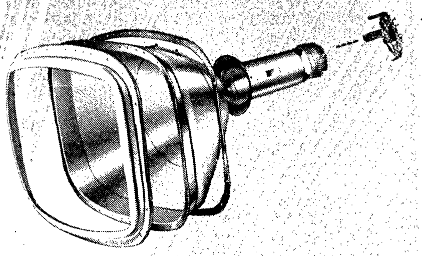
FEATURES

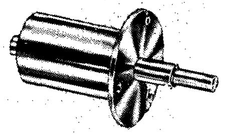
- Specially designed for automatic loading and unloading.
- Can be molded from ESP materials.
- Increased retention... IC device will not drop out.
- Allows for large marking area.

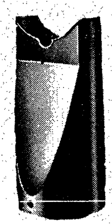
WELCON PART NO.	NO. OF LEADS	LEAD SPACING In.	LEAD SPACING Mm	DEVICE DIMENSIONS WIDTH (max.) In.	DEVICE DIMENSIONS WIDTH (max.) Mm	DEVICE DIMENSIONS LENGTH In.	DEVICE DIMENSIONS LENGTH Mm
029-330-00X	14	.050	1.27	.270	6.86	.380	9.65
029-341-00X	14	.050	1.27	.250	6.35	.250	6.35
029-331-00X	16	.050	1.27	.270	6.86	.380	9.65
029-343-00X	16	.050	1.27	.300	7.62	.380	9.65
029-340-00X	18	.050	1.27	.320	8.13	.410	10.41
029-348-00X	18	.050	1.27	.375	9.53	.450	11.43
029-339-00X	20	.050	1.27	.350	8.89	.500	12.70
029-352-00X	20	.050	1.27	.270	6.86	.500	12.70
029-337-00X	20	.030	.76	.200	5.08	.380	9.65
029-353-00X	24	.050	1.27	.270	6.86	.500	12.70
029-334-00X	24	.050	1.27	.375	9.53	.375	9.53
029-356-00X	28	.050	1.27	.500	12.70	.500	12.70
029-336-00X	32	.040	1.02	.395	10.03	.395	10.03
029-335-00X	44	.040	1.02	.515	13.08	.515	13.08
029-683-00X	64	.050	1.27	.900	22.86	.900	22.86
029-684-00X	68	.050	1.27	.900	22.86	.900	22.86
029-338-00X	72	.040	1.02	.800	20.32	.800	20.32
029-358-00X	84	.050	1.27	1.100	27.94	1.100	27.94

WELLS ELECTRONICS, INC., 1701 S. MAIN ST., SO. BEND, IN 46613, U.S.A. • PHONE 219/287-5941 • TELEX 25-8325 • FAX 219-287-0356

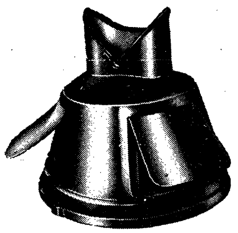
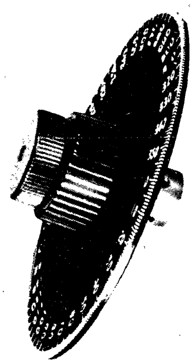
CAT. 84/1



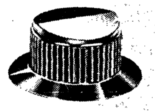


ENGINEERED COMPONENTS for ELECTRONICS

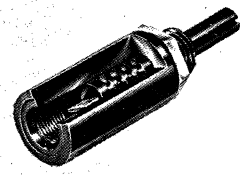
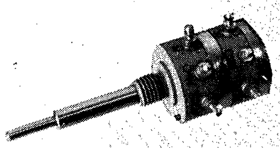



Are Our

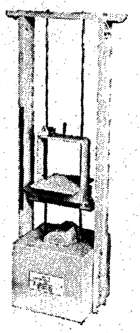
Specials JAN Specialty



QUALITY • RELIABILITY • ECONOMY

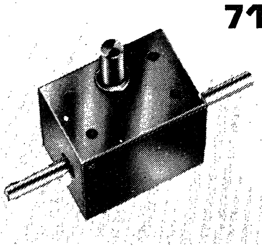
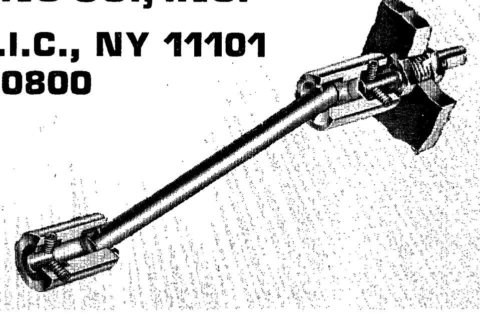



SEE OUR
QUALITY ELECTRONIC COMPONENTS
PAGES 2•1762 — 2•1779



JAN HARDWARE
MANUFACTURING CO., INC.

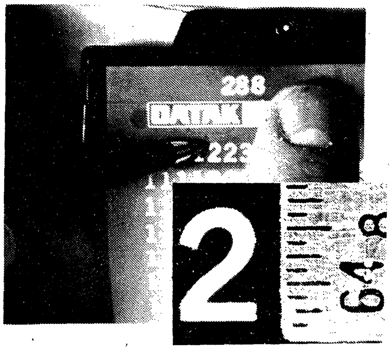
47-27 36TH ST., L.I.C., NY 11101
718-361-0800

PANEL HARDWARE

Manufacturer	Bezels	Dials, Instrument	Pointers, Dial	Handles	Knobs:	Type				Panel Markings	Plates, Escutcheon	Drives & Drive Mechanisms	Shaft Couplings	Shaft Locks	Speed Reducers
						Control-Shaft Locking	Limit Stop	Slip Clutch	Ratio Drive Torque						
Buckeye Stamping					C•1027										
Datak										C•1590					
Jan Hardware	C•1601	C•1591 C•1594 C•1606-C•1609		C•1597	C•1591-C•1593 C•1596 C•1604-C•1611	C•1596 C•1604 C•1605 C•1610	C•1593 C•1604 C•1605 C•1610	C•1604 C•1605 C•1610	C•1591 C•1592 C•1604 C•1605		C•1601	C•1591 C•1593	C•1595	C•1594 C•1596	C•1591 C•1592
JMJ Technical	C•1613														
Power Dynamics					C•1615	C•1615									
RMF Products	C•1616														
Unicorp				C•1696											

DATAK dry TRANSFERS and COATINGS



HOW THEY WORK . . . These amazing letters, words and art patterns transfer to any clean surface. Just rub down with a ballpoint pen! Heat-resistant adhesive is safe for diazo copies.

MASTER ART QUALITY . . . Razor sharp edge definition makes DATAK transfers superb for original artwork or prototypes.

TAILOR-MADE COATINGS . . . Any old protective spray won't work over dry transfers. Our formulas flow evenly over the transfer and protect it perfectly on all classes of surfaces: glass, paper, wood, metal, plastics or paint.

TITLES and COMPONENT DESIGNATION SETS for ELECTRONIC EQUIPMENT

Newest **professional titles** have thousands of ⅛"(12 pt.) and 0.105"(10 pt.) words for both standard and micro-sized equipment control panels. Sets have 24 sheets, 3½" x 5". 12 point sets use bold face type, have one letter and one number sheet; 10 point sets are bold face titles and include 4 each, light and bold number and letter sheets. Letter and number sets have 12 indentical sheets.

Component designation sets (TERMINAL and CHASSIS MARKING sets) include 24 sheets, 3½" x 5" of sequential numbers, letters and letter combinations conforming to ANSI Y32.16 and IEEE STD 200. This series is ⅛" size only. See JotDraft #JD192-JD251 for .085" through .250" designation numbers. Coat transfers for protection. See coatings section.

MICRON MICROFARADS	METER METER mHz
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
11112233445556	677889900000;;;;
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
11112233445556	677889900000;;;;
VIDEO VOICE VOL	VOLUME VOR VU
ABCDEFGHIJKLMN	OPQRSTUVWXYZ
11112233445555	6677889900000;;;
JJJJPPPP 363738	394041424344454

948 Black (949 White) 10 pt. Titles	**$11.25**
950 Black (951 White) 10 pt. Bold Letters	**5.95**
952 Black (953 White) 10 pt. Bold Numbers	**5.95**
954 Black (955 White) 10 pt Lt. Face Letters	**5.95**
956 Black (957 White) 10 pt. Lt. Face Numbers	**5.95**
9581 Black (9591 White) 12 pt. Titles	**11.25**
9601 Black (9611 White) 12 pt. Bold Letters	**5.95**
9621 Black (9631 White) 12 pt. Bold Numbers	**5.95**
9661 Black (9671 White) Terminal & Chassis set	**11.25**

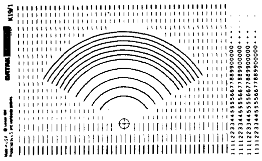
DATAMARK™ TITLES, PATTERNS, ALPHABETS and NUMBERS

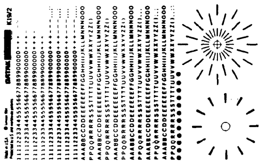
These are smaller assortments for specialized electronic applications. Type matches professional 9581-9671 series. Switch patterns match some that are in #968 Meter Dial and Switch Marking set. All sets contain six 3½" x 5" sheets. Coat transfers for protection. See coatings section.

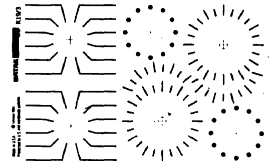
K58B Black (K58W White) Audio, TV, Hi-Fi	**$3.00**
K59B Black (K59W White) Amateur Radio, CB	**3.00**
K60B Black (K60W White) Experimenter, Home, Intercom	**3.00**
K61B Black (K61W White) Test Equipment, Industry	**3.00**
K62 Marks and Switch Patterns, black, white asst.	**$3.00**
K63 ⅛" Letters and Numbers, black, white, gold, asst.	**3.00**
K64 ¼" Letters and Numbers, black, white, gold, asst.	**3.00**
K65 ½" Letters and Numbers, black, white, gold, asst.	**3.00**

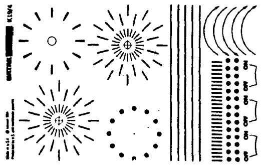
METER DIAL and SWITCH MARKING SET

Crisp meter graduations let you modify dial scales fast. Saves time and money compared to a "mod center" job. Tap switch marks are preset to 7.5° and 15° detents but will transfer to any angle. The smallest switch pattern will match knob skirts down to 0.5" diameter. Type style matches 10 point professional title and letter sets described above. Complete set includes 12 sheets, 5" x 7" in black, white and red. Refill sheets available separately in uncut sets of 4 identical sheets. *K19/1 available in white as a refill only. Protect panels with DATAKOAT or HARDKOAT. Do not coat dialplates.


K19/1 BLK
K19/5 RED
K19/1* WHT


K19/2 BLK
K19/6 RED
K19/9 WHT


K19/3 BLK
K19/7 WHT
K19/12 RED


K19/4 BLK
K19/8, 10 WHT
K19/11 RED

968 Meter Dial and Switch Set	**$11.25**
K19/(Specify #) Refill of 4 identical sheets	**$5.30**

DATAKOAT™ PROTECTIVE COATINGS

DATAKOAT is a 100% acrylic high-solids water-clear coating for metals and plastics. It encapsulates dry transfers in a tough film. Its solvents will not attack most plastics, lacquers or cured enamels. The dry film has a high dielectric strength, is very flexible, moderately hard and extremely resistant to weathering and UV exposure. DATAKOAT is not recommended for transfers on paper.

04176 DATAKOAT Brushcoat and Thinner Kit (1 oz. ea.)	**$3.20**
04177 DATAKOAT Gloss Spray (12 oz. net wt.)	**4.65**
04178 DATAKOAT Matte Spray (12 oz. net wt.)	**4.65**

HARDKOAT™ PROTECTIVE COATINGS

HARDKOAT is a clear, very high-solids quality cellulosic resin for paper, wood and other porous surfaces. Its solvents fuse the dry transfer into the surface while its resins bond to the surface with an extremely hard, flexible film. HARDKOAT may be used on metals and many painted surfaces where it gives superior protection against abrasion and scratching. Its solvents temporarily soften many plastic materials, so it should be used with caution. Multiple heavy coats may have a very faint yellowish tint. Use DATAKOAT if an absolutely water-clear coating is essential.

04170 HARDKOAT Gloss Spray (12 oz. net wt.)	**$4.65**
04171 HARDKOAT Matte Spray (12 oz. net wt.)	**4.65**

See Sections 1700 and 6000 for DATAK Printed Circuit Kits and Wire Markers

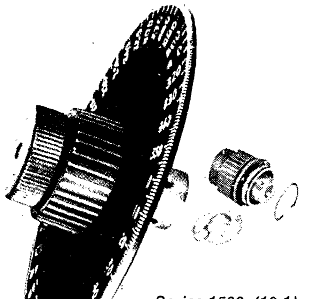
Are Our JAN Specials Specialty

MACROVERNIER

REDUCTION DRIVE

Precision Tuning Built Into Knob

- **Integral assembly**
- **Zero Backlash**
- **Infinite resolution with absolute shaft registration**
- **Driving torque-10 oz. in.**
- **Saves space behind the panel**
- **Installation in seconds, without special tools**
- **Knobs and Component Shaft rotate in same direction.**

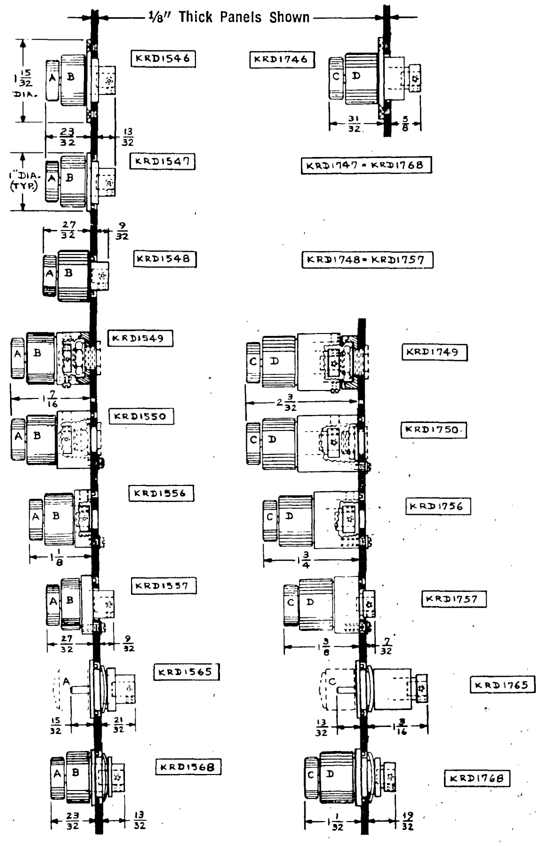


Series 1500: (10:1)
Series 1700: (40:1, 100:1)
Others available

MACROVERNIER CONTROL KNOBS —VISUAL INDEX

Single Unit KRD15 - -
"A" = 10:1 Vernier Drive
"B" = 1:1 Direct Drive

Double Unit KRD17 - -
"C" = Max. Ratio 100:1 OR 40:1
"D" = Min. Ratio 10:1 4:1



1/8" Thick Panels Shown
KRD1546
KRD1746
1 15/32 DIA.
23/32
13/32
31/32
5/8
KRD1547
KRD1747 • KRD1768
1" DIA. (TYP)
27/32
9/32
KRD1548
KRD1748 • KRD1757
KRD1549
KRD1749
1 7/16
2 3/32
KRD1550
KRD1750
KRD1556
KRD1756
1 1/8
1 3/4
KRD1557
KRD1757
27/32
9/32
1 3/8
7/32
KRD1565
KRD1765
15/32
21/32
13/32
3/16
KRD1568
KRD1768
23/32
13/32
1 1/32
19/32
A
B
C
D

FRONT FLANGE — Panel Mounted. 2 Screws.

2 PINS ONLY.
Component Mounted.

PANEL BUSHING—Separate Spacer. Secured by bushing. Panel Mounted.

PANEL BUSHING—Integral Spacer.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Only. Panel Mounted.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

2 PINS AND BOWED RETAINING RING.
Panel Mounted.
Single Knob—Max. Ratio Only.
(Various Size Knobs Available.)

2 PINS AND BOWED RETAINING RING.
Panel Mounted.

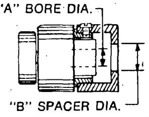
PANEL "HOLES" REQUIRED

KRD NUMBER	MIN. DIA. THRU PANEL	2 HOLES @ 180° DIA.	2 HOLES @ 180° B.C. DIA.
1546 1746	.790	4-40 TAP	1.188 ± .001
1550-8 1750-8	NOTE No. 1	.125	.851 ± .001
1556-8 1756-8	NOTE No. 2	.125	.851 ± .001
1557-8 1757-8	.562	.125	.851 ± .001
1549 1749	REQUIRES ONLY NOTE No. 1		

KRD NUMBER	MIN. DIA. THRU PANEL	2 SLOTS @ 180° .078 $^{+.002}_{-.000}$ WIDE DIMEN. ACROSS OUTSIDE OF SLOTS
1547	.790	.995 $^{+.003}_{-.000}$
1548	.530	.750 $^{+.003}_{-.000}$
1550-7 1750-7	NOTE No. 1	.945 ± .005
1556-7 1756-7	NOTE No. 2	.945 ± .005
1557-7 1757-7	.562	.945 ± .005
1565 1765	.790	.995 $^{+.003}_{-.000}$
1568 1768	.790	.995 $^{+.003}_{-.000}$

NOTES:
1. CLEARANCE HOLE FOR 1/4" OR 3/8" PANEL BUSHING
2. CLEARANCE HOLE FOR COMPONENT SHAFT ONLY.

MACROVERNIER CONTROL KNOBS — COMPLETE PART NUMBERS



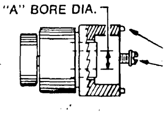
"A" BORE DIA.
"B" SPACER DIA.

"A"

"A" $^{+.002}_{-.000}$ BORE DIA.	FIRST DASH NO.
.127	-2
.190	-3
.252	-4

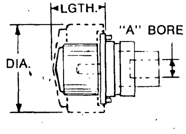
"B"

"B" DIA. THRU SPACER	SECOND DASH NO.
.252 $^{+.002}_{-.000}$	-4
¼-32 THD.	-4T
.377 $^{+.002}_{-.000}$	-6
⅜-32 THD.	-6T



"C"

PINS OR SCREWS (180° APART)	SECOND DASH NO.
2 Pins Only	-7
2 Screws Only	-8



LGTH.
"A" BORE DIA.
DIA.

"D"

KNOBS DIA.	LGTH.	SECOND DASH NO.
23/32	25/32	-07
15/16	29/32	-09
1 9/32	1 3/16	-12
1 25/32	31/32	-17

LOW RATIO SINGLE UNITS
(10/1 Ratio Only)

KRD1546-"A"
KRD1547-"A"
KRD1548-"A"
KRD1549-"A"-"B"
*KRD1550-"A"-"C"
KRD1556-"A"-"C"
KRD1557-"A"-"C"
KRD1565-"A"-"D"
KRD1568-"A"

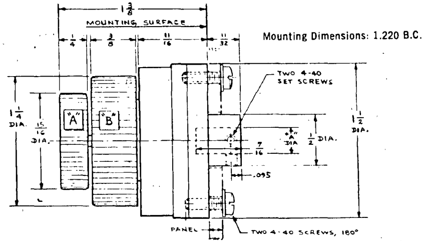
TYPICAL PART NUMBERS:
*KRD1550-4-8
*KRD1749-3-6-100/10

HIGH RATIO DOUBLE UNITS
Ratios (100/10) or (40/4)

KRD1746-"A"—
*KRD1749-"A"-"B"-
KRD1750-"A"-"C"-
KRD1756-"A"-"C"-
KRD1757-"A"-"C"-
KRD1765-"A"-"D"-
KRD1768-"A"—

KRD 1820

- **Hybrid: Friction and gear reduction.**
- **Driving Torque 5 lb. in. minimum.**



1 3/8
MOUNTING SURFACE
1/4
3/8
11/16
11/32
1 1/4 DIA.
15/16 DIA.
"A"
"B"
TWO 4-40 SET SCREWS
"A" DIA
1/2 DIA.
1 1/2 DIA.
7/16
.095
PANEL
TWO 4-40 SCREWS, 180°

Mounting Dimensions: 1.220 B.C.

Notes:
1. Knob "A" = Max. Ratio (input : output)
2. Knob "B" = Min. Ratio (input : output)
3. Both knobs & component shaft will rotate in same direction.
4. **Typical Assembly No.: KRD1857-3-Max/Min (ratios)**

"A" $^{+.002}_{-.000}$ BORE DIA.	FIRST DASH NO.
.127	-2
.190	-3
.252	-4

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JAN HARDWARE

MANUFACTURING COMPANY INC.

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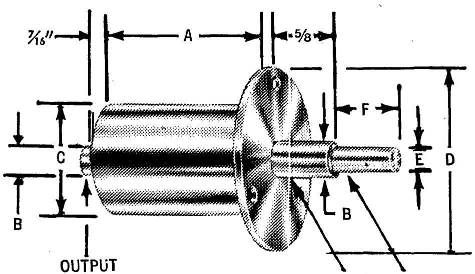
QUALITY
RELIABILITY
ECONOMY

REDUCTION DRIVES — BALL BEARING TYPE

FOR FINE INSTRUMENT AND MACHINE CONTROL


7/16"
A
5/8
F
C
E
D
B
B
OUTPUT
OUTPUT
INPUT

RDL ( ) ——— RDL ( )
——— RDLC ( ) – RDLC ( )
RDLCC ( ) ——— RDLCC ( ) – RDLCC ( )

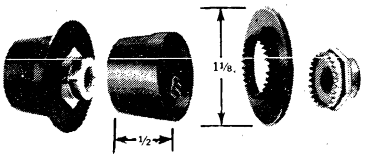
Cat. No.	Ratio	A	B O.D.	B I.D.	C	D	Input Shaft E	F	Bolt-Mtg. Dia.
RDL-1	2.6:1	1	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDL-2	7.0:1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDL-3	17.0:1	1 13/16	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDLC-1	2.6:1	1	3/8	1/4	1 1/8	1 13/16	1/4	1 1/2	1 15/32
RDLC-2	7.0:1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDLC-3	17.0:1	1 13/16	3/8	1/4	1 1/8	1 13/16	1/4	23/32	1 15/32
RDLCC-1	2.6:1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDLCC-3	17.0:1	2 43/64	3/8	1/4	1 1/8	1 13/16	1/4	11/16	1 15/32
RDL-4	45.0:1	2 7/32	3/8	1/4	1 1/8	1 13/16	1/4	23/32	1 15/32
RDL-5	120.0:1	2 23/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDL-6	300.0:1	3 7/32	3/8	1/4	1 1/8	1 13/16	1/4	11/16	1 15/32

All Ratios are ±10%.

Employ precision ball bearings. For rotary control of components. Smooth motion. Ruggedly built, permanently sealed and lubricated.

Input and output shafts operate in SAME DIRECTION. Type "RDL" provides "in-line" input-output shafts. Type "RDLC" is supplied with **concentric** shafts whereby the output envelopes the input shaft. An added feature of Type "RDLCC" is the output shaft in the rear.

KNOB RATIO DRIVE



9 to 1 ratio (to dial skirt).
1:1 to potentiometer.

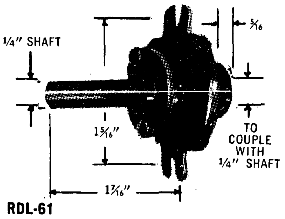
Cat. No. KRD-11 (Plain Gripping Surface)
Cat. No. KRD-12 (Knurled Gripping Surface)

Other ratios designed to specifications. Engineered miniature gear system, permits precise, fine tuning of controls.

Brass gears; black anodized aluminum knob and dial. Available with knurled or non-knurled outside knob. Available for 1/8" shafts. 1/4" on special order.

IN-LINE RATIO DRIVE — 6.3:1

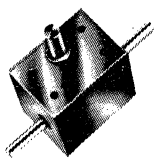
For smooth rotary control of components requiring Vernier adjustments. Suitable for use where panel space is at a premium. Durable, ruggedized ball bearing mechanism.


1/4" SHAFT
3/16
1 5/16"
TO COUPLE WITH 1/4" SHAFT
1 7/16"

RDL-61

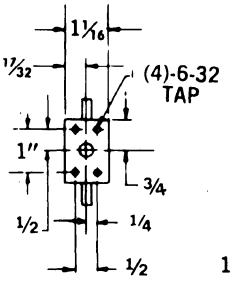
RIGHT ANGLE RATIO DRIVES — Versatile, Miniaturized, Right Angle Rotary Controls

RAWG ( )
RABG ( )

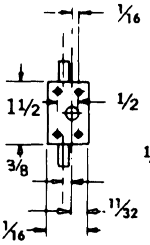


Dual output stainless steel shafts at right angles to input, provide ideal type instrument control. With matched bevel, worm gears cover wide range of ratios.

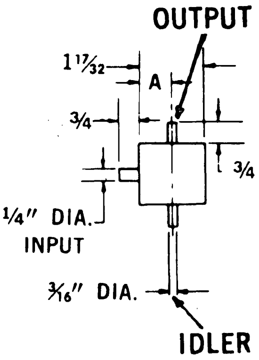
Especially useful for handling spring or gravity-loaded components. Output shaft automatically locks in any desired position yet remains free for smooth adjustment by input shaft. Assembled in dust-proof housings, gears are permanently pinned in place mounted in oilite bearings, and held under constant pressure.

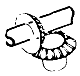

1 1/16
17/32
(4)-6-32 TAP
1"
3/4
1/2
1/4
1/2

RABG


1/16
1 1/2
1/2
3/8
11/32
1 1/16

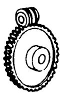
RAWG


OUTPUT
1 17/32
A
3/4
3/4
1/4" DIA.
INPUT
3/16" DIA.
IDLER



BEVEL GEAR RIGHT ANGLE DRIVES

Cat. No.	Ratio	"A"
RABG-1	1:1	7/8
RABG-2	2:1	7/8
RABG-3	3:1	7/8

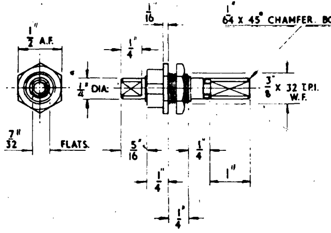


WORM GEAR RIGHT ANGLE DRIVES

Cat. No.	Ratio	"A"
RAWG-1	5.1	3/4
RAWG-2	10:1	3/4
RAWG-3	20:1	3/4

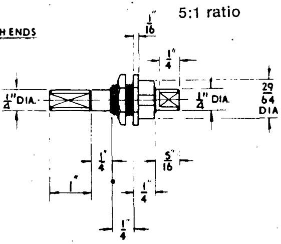
DIRECT DRIVE, REVERSE VERNIER
RDS - R 51

1:1 ratio 5:1 ratio

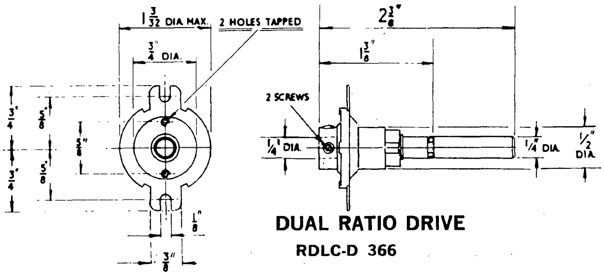

1/2" A.F.
1/16"
1/64" X 45° CHAMFER. BOTH ENDS
1/4"
1/4" DIA.
3/8" X 32 T.P.I. W.F.
7/32"
FLATS.
5/16"
1/4"
1"
1/4"
1/4"

CONTINUOUS DRIVE
RDS 51

5:1 ratio


1/16"
1/4"
1/4" DIA.
1/4" DIA.
29/64 DIA
1/4"
5/16"
1"
1/4"
1/4"

*OTHER LENGTHS AVAILABLE


1 3/32 DIA MAX.
2 HOLES TAPPED
3/4" DIA.
2 3/8"
1 3/8"
2 SCREWS
3/4"
5/8"
5/8"
5/8"
3/4"
1/4" DIA.
1/4" DIA.
1/2" DIA.
1/8"
3/8"

DUAL RATIO DRIVE
RDLC-D 366

Reverse Vernier Action with 36-1 ratio and Fast Drive of 6-1 ratio.
Also available with flange bushing P/N RDLC-D 366-F

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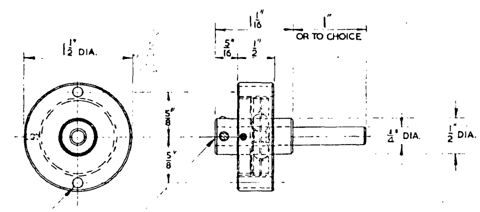
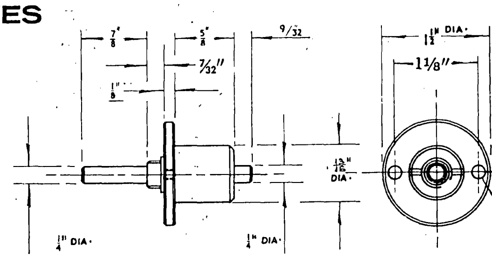
RELIABILITY
ECONOMY

RATIO DRIVES


1½ DIA.
1 1/16"
5/16" 1/2"
1" OR TO CHOICE
5/8"
5/8"
1/4" DIA.
1/2" DIA.
2 HOLES 1/8 DIA.
1/4 DIA. BORE X 7/16 DEEP

RDLC-601 6-1 ratio.

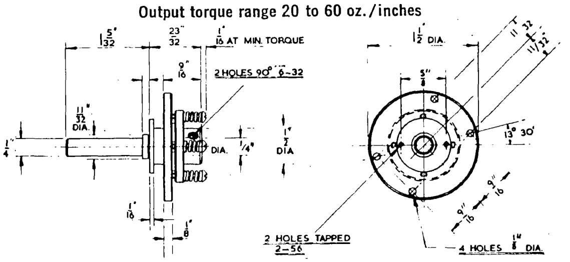

7/8"
5/8"
9/32
7/32"
1"/8
1/4" DIA.
1/4" DIA.
15/16" DIA.
1¼" DIA.
1⅛"
2 HOLES 7/64" DIA.

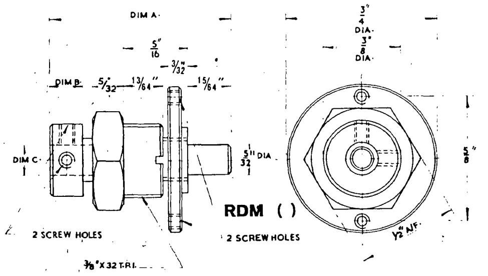
RDL-C 101 : 10-1 ratio.

ADJUSTABLE TORQUE BALL DRIVE

RDLA-601 6-1 ratio

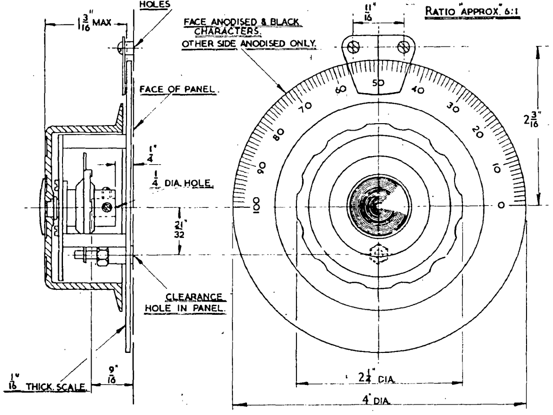
Output torque range 20 to 60 oz./inches


1 5/32
23/32
1/16 AT MIN. TORQUE
9/16
2 HOLES 90° 6-32
11/32 DIA.
1/4
1/4 DIA.
7/8 DIA.
1/16
1/8
1½ DIA.
5/8"
13° 30'
11/32
9/16
2 HOLES TAPPED 2-56
4 HOLES 1/8 DIA.

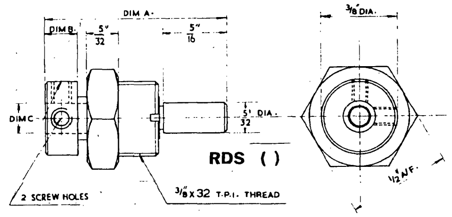

DIM A
5/16
3/32
DIM B
5/32
13/64
15/64
DIM C
5/32 DIA.
3/4 DIA.
3/8 DIA.
5/8
1/2 NF
RDM ( )
2 SCREW HOLES
2 SCREW HOLES
3/8 x 32 T.P.I.

10-1 ratio.

BALL DRIVE DIAL


6 CLEARANCE HOLES
1 3/16 MAX
FACE ANODISED & BLACK CHARACTERS. OTHER SIDE ANODISED ONLY.
11/16
RATIO APPROX 6:1
FACE OF PANEL
1/4
1/4 DIA. HOLE
21/32
CLEARANCE HOLE IN PANEL
1/16 THICK SCALE
9/16
2 3/16
2¼ DIA.
4 DIA.
50 60 40 70 30 80 20 90 10 100 0

DAD 600 6-1 ratio.

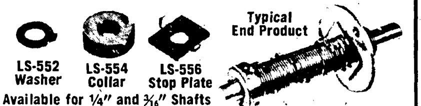

DIM A
DIM B
5/32
5/16
DIM C
5/32 DIA.
3/8 DIA.
RDS ( )
1/2 NF
2 SCREW HOLES
3/8 x 32 T.P.I. THREAD

10-1 ratio.

PART NO.	PART NO.	DIM A	DIM B	DIM C
RDS 101-1	RDM 101-1	29/32"	5/32"	5/32"
RDS 101-2	RDM 101-2	15/16"	13/64"	15/64"
RDS 101-3	RDM 101-3	15/16"	13/64"	1/4"

LIMIT STOP COMPONENTS

Limit stop as a component to design with, potentiometers, capacitors, or other similar units. Added washers enables an increase in stop range (with precision). Dual locking screws maintain settings under all conditions of shock and vibration.


Typical End Product

LS-552 Washer **LS-554** Collar **LS-556** Stop Plate

Available for ¼" and 3/16" Shafts

Specify — (3) for 3/16"
— (4) for ¼"

Can be designed internally into JANSET knobs.

MINIATURIZED SLIP CLUTCH

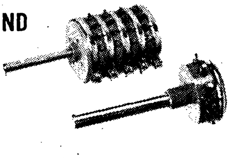
Couples ⅛", 3/16" or ¼" input-output (2 set screws). Also 'D' shafts (with or without set screws). Torques: 2 to 50 oz./in. All metal components. ⅝" dia. x ⅝" long.

APS-1723

Shaft sizes (—2=⅛") (—3=3/16") (—4=¼")
min. & max. torque in oz./inches

Example: Part #APS-1723-34-8-16
To fit 3/16" dia. shaft to ¼" dia. shaft, and torque 8 to 16 oz./inches.

POTENTIOMETERS / PRECISION WIRE WOUND



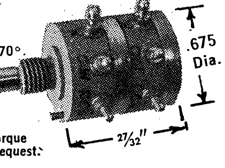
- **LINEAR AND NON-LINEAR** • **SINGLE AND MULTI-TURN**
- **PENDULUM OPERATED** • **SECTORS AND GYRO PICKOFFS** • **SWITCHES**

Reliable, competitively priced wire-wound potentiometers for commercial, industrial and military electronic equipment manufacturers.

- **EXCELLENT LINEARITY:** 0.03% available in single turn 5" diameter unit.
- **LONG LIFE:** Over two million revolutions with base metal windings.
- **WIDE TEMPERATURE RANGE:** Available for operation from −55°C to +125°C.
- **LOW NOISE** Platinum alloy winding also insures low noise level.
- **RELIABILITY:** Welded taps for better mechanical and electrical connections.
- **HIGH RESOLUTION:** Wire as fine as 0.0003" diameter can be used.
- **CUSTOM DESIGNS:** Fast prototype delivery on special linear or non-linear units.
- **PRECISION CONSTRUCTION:** Anodized aluminum housings and polished steel shafts.
- **ACCURATE FUNCTIONS:** Welded taps to a single turn of wire eliminates shorted sections of winding at intermediate taps.
- **RUGGEDNESS:** Meets all applicable MIL Specs.
- **MAXIMUM STORAGE LIFE:** Maintained over long life and extreme environments by unique wiper designs compatible with winding configurations.

RESISTOR, VARIABLE. Single and Dual gang.

Conforms to MIL-R-12934. Resistance values as required. Linear design.
Power: 1 watt continuously, up to 70°C.; Mechanical rotation—300°; Electrical rotation—270°.
Noise level less than 1% of total resistance.
Operating torque: 4.0 to 6.0 oz. in., detent where specified.
Detent torque: 5 oz. in. above operating torque, or
6.0 to 14.0 oz. in. including unit operating torque.
Min. rotational life: 25,000 cycles. Operating Temp.: −65°C to 150°C.
Clutch Knobs: These potentiometers must be adjusted solely by clutch knobs, limiting the torque exerted on shafts beyond their rotational limits. See Jan catalog. Special designs upon request.


.675 Dia.
27/32"

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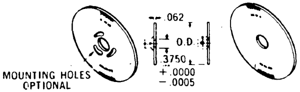
DIALS, DISC

Clockwise and Counter Clockwise

PRECISION ENGRAVED


.062
O.D.
.3750
+.0000
−.0005
MOUNTING HOLES
OPTIONAL

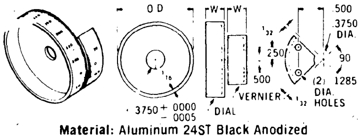
Material: Aluminum 24ST Black Anodized

Cat. No.	Range	O. +.000 D. −.003	Steps in Degrees	Graduations
DA-01	—	1.500	—	BLANK
DA-02	0-360		2°	180
DA-03	0-100		3°-36′	100
DA-04	0-60		6°	60
DA-05	0-50		7°-12′	50
DA-06	0-25		14°-24′	25
DA-07	0-10		36°	10
DA-08	—	2.000	—	BLANK
DA-09	0-360		2°	180
DA-010	0-120		3°	120
DA-011	0-100		3°-36′	100
DA-012	0-72		5°	72
DA-013	0-60		6°	60
DA-014	0-50		7°-12′	50
DA-015	0-25		14°-24′	25
DA-016	0-10		36°	10
DA-017	—	3.000	—	BLANK
DA-018*	0-360		1°	360
DA-019*	0-360		2°	180
DA-020	0-200		1°-48′	200
DA-021	0-180		2°	180
DA-022	0-120		3°	120
DA-023*	0-100		3°-36′	100
DA-024	0-72		5°	72
DA-025	0-50		7°-12′	50
DA-026	0-10		36°	10
DA-027	—	4.000	—	BLANK
DA-028*	0-360		1°	360
DA-029*	0-360		2°	180
DA-030	0-200		1°-48′	200
DA-031	0-180		2°	180
DA-032	0-100		3°-36′	100
DA-033	0-50		7°-12′	50
DA-034	0-10		36°	10

*Available counter clockwise. To order, use prefix DC in place of DA.

DIAL, DRUM AND VERNIER SETS

PRECISION ENGRAVED


O D
W
W
.500
.3750
DIA.
1/32
.250
90
1/16
.500
(2) .1285
DIA.
HOLES
VERNIER
1/32
.3750 + .0000
− .0005
DIAL

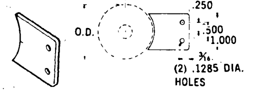
Material: Aluminum 24ST Black Anodized

Note: Special Sets Available on Request

For Additional Information See Technical Section

Cat. No.	O. +.005 D. −.005	W	Dial Graduations	Dial Range	Vernier Reading
DJ-1	1.490	.375	360° in 2° Steps	0°-360°	12′
DJ-2	1.990	.375			12′
DJ-3	2.490	.500	360° in 1° Steps		6′
DJ-4	2.990	.500			6′

INDEX, DIAL DISC

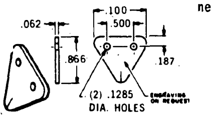

A
.250
O.D.
.500
1.000
3/16
(2) .1285 DIA.
HOLES

Material: Aluminum 24ST Black Anodized

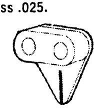
Note: Use with "DA" and "DC" Type Disc Dials

Cat. No.	A	O.D. of Dial
DG-1	1.760	1.500
DG-2	2.010	2.000
DG-3	2.510	3.000
DG-4	3.010	4.000

INDEX, DIAL


.062
.100
.500
.866
.187
(2) .1285
DIA. HOLES
ENGRAVING ON REQUEST

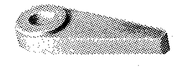
No. 1341 POINTER, DIAL
3/8″W. x 3/8″H. x 1 5 D. Pointer Sectir., thickness .025.



Two .078 Dia. Holes 3/16″ Apart.

Cat. No.	Material
DE-1	Clear Plexiglass
DE-2	Aluminum 24ST Black Anodized

D0034-(3.7) POINTER
1/4″ H. x 49/64″ L.
.230 mtg. hole. Aluminum casting.

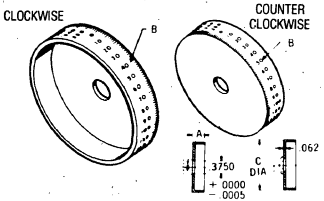


D0037-(2) DIAL
3/16″ H. x 13/32″ dia. x 113/64″ L.
Brass wih 1/8″ mounting hole.

DIALS, DRUM

Clockwise and Counter Clockwise

PRECISION ENGRAVED


CLOCKWISE
COUNTER CLOCKWISE
B
B
A
.3750
+.0000
−.0005
C
DIA
.062

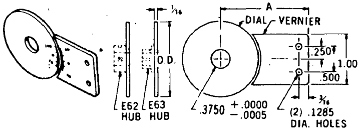
Material: Aluminum 24ST Black Anodized

Cat. No.	A	B	C	Range	Steps in Degrees
DB-1	3/8	—	.990	BLANK	—
DB-2		100		0-100	3°-36′
DB-3		180		0-360	2°
DB-4	3/8	—	1.490	BLANK	—
DB-5		60		0-60	6°
DB-6		100		0-100	3°-36′
DB-7		180		0-360	2°
DB-8	3/8	—	1.990	BLANK	—
DB-9		50		0-50	7°-12′
DB-10		25		0-25	14′-24°
DB-11		10		0-10	36°
DB-12		180		0-180	2°
DB-13		180		0-360	2°
DB-14	1/2	—	2.490	BLANK	—
DB-15		200		0-200	1°-48′
DB-16		180		0-180	2°
DB-17*		180		0-360	2°
DB-18*		360		0-360	1°
DB-19		100		0-100	3°-36′
DB-20	1/2	—	2.990	BLANK	—
DB-21		180		0-180	2°
DB-22		100		0-100	3°-36′
DB-23		10		0-10	36°
DB-24*		360		0-360	1°
DB-25*		180		0-360	2°

*Available counter clockwise. To order, use prefix DD in place of DB.

DIAL, DISC AND VERNIER SETS

PRECISION ENGRAVED


1/16
A
DIAL
VERNIER
O.D.
.250
1.000
.500
E62 HUB
E63 HUB
.3750 +.0000
−.0005
3/16
(2) .1285
DIA. HOLES

Material: Aluminum 24ST Black Anodized

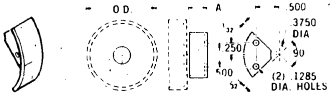
Note: Special Sets Available on Request

For Additional Information See Technical Section

Cat. No.	O. +.000 D. −.005	A	Dial Graduations	Dial Range	Vernier Reading
DH-1	1.500	1.760	360° in 2° Steps	0°-360°	12′
DH-2	2.000	2.010			12′
DH-3	3.000	2.510	360° in 1° Steps		6′
DH-4	4.000	3.010			6′

We invite your inquiries for special dials and drums. Also available from stock — precision ground shafts.

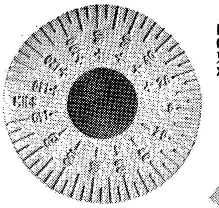
INDEX, DRUM DIAL


O D
A
.500
.3750
DIA
1/32
.250
90
.500
1/32
(2) .1285
DIA. HOLES

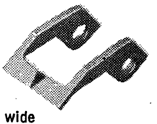
Material: Aluminum 24ST Black Anodized

Note: Use with "DB" and "DD" Type Drum Dials

Cat. No.	A	O.D. of Drum
DF-1	.375	1.490
DF-2	.375	1.990
DF-3	.500	2.490
DF-4	.500	2.999

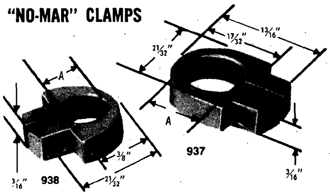


D0008 DIAL
Cast Aluminum.
1/16″ thick x 159/64″ dia. x 43/64″ center hole.



D2103
3/4″ H. x 5/8″ wide
No screws. .136 mounting holes.
(Red pointer index)

"NO-MAR" CLAMPS


13/16″
17/32″
21/32″
A
A
937
3/16″
938
3/8″
21/32″
3/16″

Set screw does not touch shaft. Ideal for knob and gear applications. Variety of sizes available.

A Dimensions in Inches

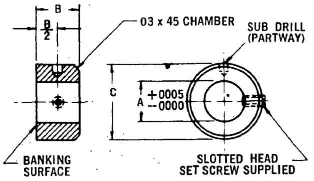
Cat. No.	-2	-3	-4	-5	-6	-7	-8
937	1/8	3/16	1/4	5/16	3/8	13/32	7/16
938	1/8	3/16	1/4	5/16	3/8	13/32	

PRECISION SET SCREW COLLARS

Material: 303 Stainless Steel
Finish: Clear Passivate **5/64 to 1/2 Bores**

Shaft Size	A	B	C	Set Screw	Part No.
5/64	.0779	.12	7/32	#0-80	SC7-07
3/32	.0935	.12	1/4	#0-80	SC8-09
.12	.1200	.18	5/16	#2-56	SC10-120
1/8	.1248	.18	5/16	#2-56	SC10-124
5/32	.1560	.18	5/16	#2-56	SC10-15
3/16	.1873	.22	3/8	#4-40	SC12-18
.24	.2405	.25	1/2	#6-32	SC16-240
1/4	.2498	.25	1/2	#6-32	SC16-249
5/16	.3123	.28	9/16	#6-32	SC18-31
3/8	.3748	.37	3/4	#10-32	SC24-37
1/2	.4998	.50	1	1/4-20	SC32-49

Special Collars Available on Request.

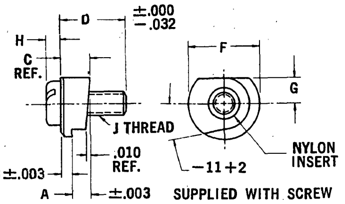

B
B/2
03 x 45 CHAMBER
SUB DRILL
(PARTWAY)
C
+0005
A
−0000
BANKING
SURFACE
SLOTTED HEAD
SET SCREW SUPPLIED

MOTOR MOUNT CLEATS

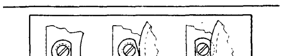
Quick release, self locking, instant nulling, meets shock & vibration requirements.

Type Mount	A	B	C	D	E	F	G	H	J	Part No.
Flush & Recess	.031	.040	.071	.312	.135	.390 .385	.125	.068 Max.	#4-40	SMFR3-1
Flush	.062	.040	.102	.312						SMF3-2
Flush	.062	.050	.112	.375						SMS3-3
Flush	.062	.063	.125	.375						SMS3-4
Flush	.078	.063	.141	.375						SMS3-5
Flush	.093	.040	.133	.375						SMS3-6
Flush	.093	.050	.143	.375						SMS3-7
Flush	.093	.063	.156	.375						SMF3-8
Step	.125	.050	.175	.375						SMS3-9
Step	.156	.040	.196	.375						SMS3-10
Step	.225	.063	.288	.437						SMS3-11
Flush	.250	.063	.312	.625						SMF3-12
Flush & Recess	.031	.040	.071	.250	.096	.265 .260	.091	.053 Max.	#2-56	SMFR3-20
Flush	.047	.040	.087	.250						SMF3-21
Flush	.062	.040	.102	.250						SMF3-22
Flush	.093	.040	.133	.312						SMF3-23
Step	.125	.040	.165	.312						SMS3-24
Reverse	.062	.063	.125	*	.135	.390	.125	*	#4-40	SMRV3-30
Reverse	.093	.063	.156	*		.385		*		SMRV3-31

* Reverse type cleat supplied less screw.

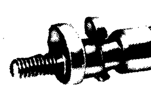

D
±.000
−.032
H
C
REF.
F
G
J THREAD
.010
REF.
NYLON
INSERT
B±.003
−11+2
A
±.003

SUPPLIED WITH SCREW


MOUNTED
UNLOCKED
LOCKED

LOCKS, DIAL

No. AP-1060



Supplied completely assembled. Securely locks dial in position. Nickel plated on brass. Knurled head. 13/8″ overall length.

Are Our JAN *Specials* *Specialty*

JAN HARDWARE

MANUFACTURING COMPANY INC.

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QUALITY
RELIABILITY
ECONOMY

HI-VOLTAGE INSULATED COUPLINGS U.S. PATENT NO. 2,681,387

MEETS MILITARY SPECIFICATIONS — TEMPERATURE · HUMIDITY · SHOCK · VIBRATION · FUNGUS

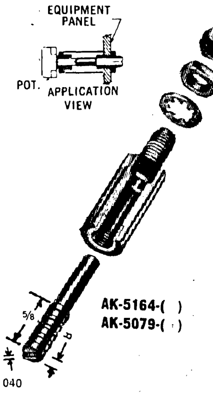
HI-VOLTAGE INSULATED COUPLINGS

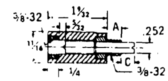
15 KV Breakdown—10 lb/in. torque
Series No. AK-5079 and No. AK-5164

Stainless steel shaft and screwdriver tip molded-integrally with Diallyl Phthalate per Mil Specs. Shock ,vibration and fungus proof, they operate with ease over an ambient temperature range of −75°C to +175°C. Supplied with mounting hardware.

Screwdriver tip fits standard slotted shafts (potentiometer, etc.) without further machining. Suited to adjust high voltage controls protecting operating personnel. Also used to reduce ground capacitance on other types of instrument controls.

For Commercial Instrument Applications . . . Available in general purpose Bakelite.





STANDARD TYPE

Cat. No.	Dimensions in Inches			
	"A"	"B"	Shaft	"C"
AK-5164-X-1	3/8	3/16	Slotted	5/16
AK-5164-B-1	3/8	1/16	Slotted	5/16
AK-5164-X-2	3/8	3/16	Slotted	15/32
AK-5164-B-2	3/8	1/16	Slotted	15/32
AK-5164-X-3	3/8	3/16	No Slot	15/16
AK-5164-B-3	3/8	1/16	No Slot	15/16
AK-5164-X-4	3/8	3/16	No Slot	1 7/16
AK-5164-B-4	3/8	1/16	No Slot	1 7/16
AK-5164-X-5	3/8	3/16	Slotted	Minus 1/16
AK-5164-B-5	3/8	1/16	Slotted	Minus 1/16

WITH LOCKING TYPE BUSHING

AK-5079-X-1	9/16	3/16	Slotted	1/8
AK-5079-B-1	9/16	1/16	Slotted	1/8
AK-5079-X-2	9/16	3/16	Slotted	9/32
AK-5079-B-2	9/16	1/16	Slotted	9/32

Note: (3/16″) to be used with 1/8″ long shaft.
(1/16″) to be used with 1/4″ long shaft.

VOLTAGE: 6000VDC INSULATED COUPLINGS FOR 1/8″ SHAFTS

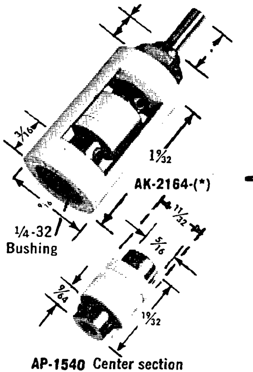
Material: Cycalac, Brass, Nickel Plated.

*Insert letter "S" or "N" followed by first two numbers of decimal equivalent, for fractional length of shaft beyond bushing.
"S" = with slot. "N" = no slot.

Typical Part Number: AK-2164-N31 =
5/16″ long shaft beyond bushing (standard), no slot. If length is 1″ use "X".

AK-2164-SX =
1″ long shaft beyond bushing, slotted.
If length exceeds 1″, use "X" and decimal equivalent for balance of number.

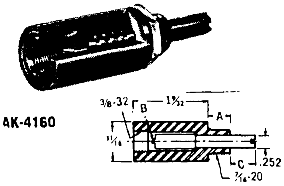
AK-2164-NX31 =
1 5/16″ long shaft beyond bushing, no slot.



AP-1540 Center section of AK-2164-(*)

COMMERCIAL INSULATED COUPLINGS

30 KV Breakdown
10 lb-In. Torque.



STANDARD TYPE

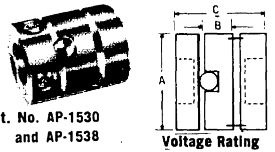
Cat. No.	Dimensions in Inches			
	"A"	"B"	Shaft	"C"
AK-4160-X-1	3/8	3/8	Slotted	1/8
AK-4160-B-1	3/8	3/16	Slotted	1/8
AK-4160-X-2	3/8	3/8	No Slot	1/2
AK-4160-B-2	3/8	3/16	No Slot	1/2

Series No. AK-4160
For TV and Industrial Applications

Withstands 30 KV, made of high grade Bakelite throughout except for stainless steel screwdriver tip molded in drive shaft. Mounting Hardware supplied.

AUTOLINEAR (INSULATED) SHAFT COUPLINGS

2.5-5 KV Breakdown Universal, Miniature, Self-aligning



Cat. No. AP-1530 and AP-1538

Voltage Rating
AP-1530, 2500 V
AP-1538, 5000 V

Part No.	Dimensions in Inches			
	Dia. Hole	"A"	"B"	"C"
AP-1530-2	1/8	1/2	15/64	59/64±1/32
AP-1530-3	3/16	1/2	15/64	59/64±1/32
AP-1530-4	1/4	1/2	15/64	59/64±1/32
AP-1538-2	1/8	1/2	27/64	1 7/64±1/32
AP-1538-3	3/16	1/2	27/64	1 7/64±1/32
AP-1538-4	1/4	1/2	27/64	1 7/64±1/32

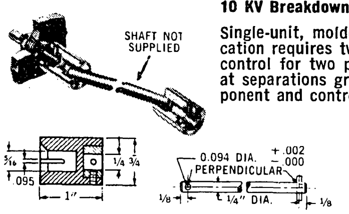
Accommodates either similar or dissimilar 1/8″, 3/16″ or 1/4″ shafts. Permits misalignment to 1/16″ and 5° angle. Operates free of backlash. Plastic insulator between cast aluminum hubs. Each hub has 2 set screws. Alodine finish. Also available with self-extinguishing low water absorption characteristic plastic insulator on special order.

Typical Part No.'s

AP-1530-34	accommodates a 3/16″ shaft one side, 1/4″ shaft on other.
AP-1538-22	accommodates two 1/8″ shafts.

OFFSET-SHAFT (INSULATED) COUPLINGS

10 KV Breakdown ±30° Offset AP-15299



Single-unit, molded Nylon-to-metal insert. Application requires two couplings — permits smooth control for two parallel shafts offset up to 30° at separations greater than 3″. Secured to component and control shafts by 2 set screws.

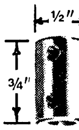
Note: Coupling is accomplished with a 1/4″ shaft of any length (not furnished). Coupling shaft keyed to coupler by steel drive pins supplied. See P. 9 for shafting.

1/4″ SHAFT COUPLING EXTENDER

AP-1010
Nickel plated brass with 2 set screws. 1/2″ O.D.; 1 3/4″ overall length.

AP-1321
Same as above, except extends 1/4″ shaft to 1/8″, overall length 2 1/2″. Aluminum clear iridite.

SHAFT COUPLING

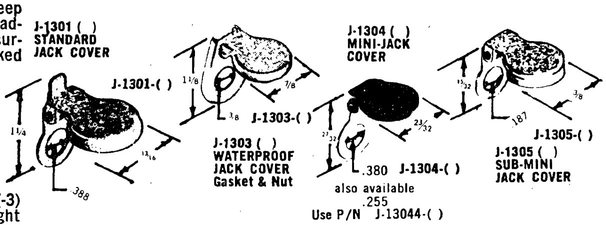


AP-15150
Nickel plated brass coupling for joining two 1/4″ shafts. 4 set screws.

Cat. No. AP-15151
Same as above, 2 set screws.

JACK COVERS (TRIMMER COVERS)

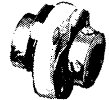
Fit jack or panel bushings used to keep out dust and moisture and prevent inadvertent disturbance of control. Outer surfaces finished in standard colors of baked enamel.


J-1301 ( ) STANDARD JACK COVER
J-1301-( )
1 1/4
13/16
.388
1 1/8
7/8
3/8
J-1303-( )
J-1303 ( ) WATERPROOF JACK COVER Gasket & Nut
J-1304 ( ) MINI-JACK COVER
27/32
23/32
.380
J-1304-( )
also available .255 Use P/N J-13044-( )
15/32
3/8
.187
J-1305-( )
J-1305 ( ) SUB-MINI JACK COVER
*5/16″
*13/32″
*1/4″
*13/64″

*Overall height in closed position when mounted on panel.

To Order Colors Specify:
(-1) Black Texture; (-2) Smooth Gray; (-3) Smooth Olive; (-4) Smooth Black; (-5) Bright Nickel Plate; (-6) Red (Top section only); (-7) White (Top section only).

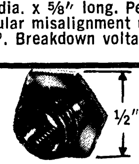
Example: Jack cover, color black texture, order as **J-1301 (-1)**



AK5610
INSULATED COUPLING

For 1/4″ shaft. 3/4″ dia. x 5/8″ long. Permits linear and angular misalignment up to .005″ and/or 10°. Breakdown voltage 3 KV.

AK771
REDUCER
INSERT BUSHING



1/2″ Hex — 1/16″ thick.
Overall length 9/32″

Adapter with high voltage insulated couplings to accommodate 1/8″ shaft potentiometers. 3/8 x 32 O.D., 1/4 x 32 I.D.

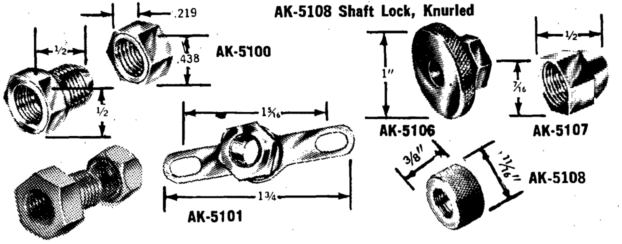
Are Our Specials Specialty JAN
JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800
QUALITY
RELIABILITY
ECONOMY

SHAFT LOCKS Split-Bushing, Collet Type

Securely holds shaft in position. Brass, nickel plated body and lock nut.

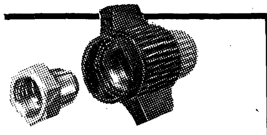
— For ¼″ Shafts ⅜-32 bushing

AK-5100 Standard Lock Nut
AK-5101 Panel Mount Type
AK-5106 Knurled Shaft Lock (1″ O.D. Knurl)
AK-5107 Lock Nut (Round Head)
AK-5108 Shaft Lock, Knurled



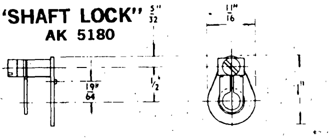
AK-103 — For ⅛″ shaft — ¼-32 bushing ⅜″ Hex Dia., assembled length ½.

AK-5109 — For ⅛″ shaft. ¼-28 bushing (7/32″ long x 5/16″ dia.)



SHAFT LOCK KNOB
(with locking collet)

"SHAFT LOCK"
AK 5180



FITS ⅜″ BUSHING, ¼″ SHAFT

SHAFT LOCKS One-piece; fits standard ¼″ and ⅜″-32 thread of shaft bushing. Friction grip holds shaft to prevent accidental or vibrational disturbance of control settings. Adjustment for semi-permanent locking, provided. Note: Part No's. 1047, 1048, 1049 maximum tightening torque — 5 lb.-in.

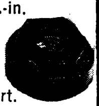
AK-1046 5/16″ Hex OD. Metal w/plastic insert.

AK-1048 7/16″ Hex OD. Metal w/plastic insert.

AK-1047 5/16″ Hex OD. All Plastic

AK-1049 7/16″ Hex OD. All Plastic

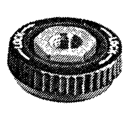
AK-1050 Plastic w/metal insert.



Ordering Data:	-(1) Nominal Shaft Dia.	-(2) Bushing Thd. Size
	2 = ⅛″	4 = ¼-32
	4 = ¼″	6 = ⅜-32

Typical P/N: **AK1049-2-4** = for ⅛″ shaft, ¼-32 bushing.
AK1048-4-6 = for ¼″ shaft, ⅜-32 bushing.

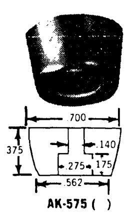
SHAFT KNOB LOCK



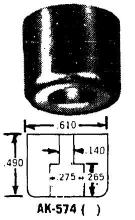
Cat. No.
AK-1057-2 (*) (⅛″ shaft)
AK-1057-4 (*) (¼″ shaft)
(Used with 71 Series Knob)
AK-1059-4 (*) (¼″ shaft)
(Used with 91 Series Knob)
AK-1061-4 (*) (¼″ shaft)
(Used with 121 Series Knob)
*Specify "M" or "G" for matte or glossy finish.

Prevents movement of controls due to shock, vibration, or accidental contact. Available matte or glossy finish.

Typical Part Numbers: **AK-1057-2MA = For ⅛″ Shaft/matte finish/Black**
AK-1059-4GA = For ¼″ Shaft/glossy finish/Black



AK-575 ( )



AK-574 ( )

CHASSIS AND CABINET BUMPERS

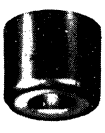
Low-friction polyethylene. Guards against scuffing. Supplied in either black or russet brown, with recessed hole for screw or bolt usage.

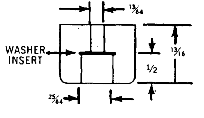
To Order Colors: Black, specify (4); Brown, specify (7). Other colors on request.

AK-574 also available in white nylon; thru hole .187 dia., C bore ⅜″. Specify No. AK-577-8

NO. AK-576-4 HEAVY DUTY CHASSIS AND CABINET BUMPER
(WITH STEEL WASHER INSERT)

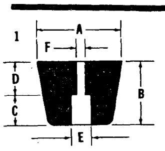
Molded neoprene. 1″ diameter, 13/16″ high. Configuration similar to AK-574 above. Color: Black. Other colors on request.



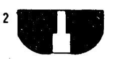


No. AK-162610-4 New, improved non-marring, high tear strength, neoprene.

1



2



RECESSED BUMPERS

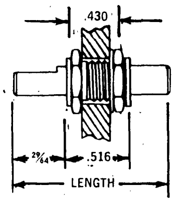
PART NO.	A MAX. DIAM.	B HGT.	C SCREW HEAD DEPTH	D SCREW SHAFT DEPTH	E SCREW BASE OPENING	F SCREW SHAFT WIDTH	NOMINAL DURO-METER	FIG. NO.
REC-2082S	⅝	½	¼	¼	5/16	5/32	75	1
REC-2084S	¾	⅜	3/16	3/16	7/16	3/16	75	1
REC-2081S	⅝	5/16	3/16	⅛	¼	3/16	75	2

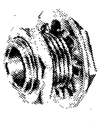
Suffix S — Steel Washer Insert.

PANEL BEARING AND SHAFT ASSEMBLIES

Cat. No. AP-15350 Series

For rotary control of components. Stainless steel shaft ¼″ dia. one end flatted completely assembled with retaining rings, jam nut and lock washer. Nickel plated, brass panel bearing. Fits panels up to 3/16″ thick; mounts in 13/32″ dia. hole.





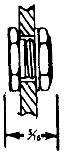
AP-15350

AP-15350 ( )

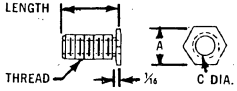
STAINLESS STEEL

Cat. No.	Item	"L" Shaft Length
AP-15350	Panel Bearing	—
AP-15350-1	Panel Bearing &	1 5/16″
AP-15350-2	Shaft Assembly	3″
AP-15350-3		6″

Also available as Nylon Panel Bearing.



Cat. No. AK-5511 Panel Bearing Assembly
Shafts available on special order.



BUSHING, PANEL
FOR ¼ AND ⅛ SHAFT

Typical Pt. No. PB 60814-B = ¼-28 Thd., ½ Lg. Brass w/ .127 Hole.

Bushing can be supplied with Mtg. nut and int. tooth lockwasher. Available with special nylon bearings.

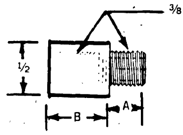
Lgth.	A=⅜ ¼-28 Thread	A=½ ⅜-32 Thread
⅜	PB 60614	PB 80638
7/16	PB 60714	PB 80738
½	PB 60814	PB 80838
⅝	PB 61014	PB 81038
¾	PB 61214	PB 81238
⅞	PB 61414	PB 81438

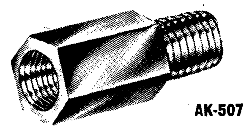
Thread	"C" Dia.
¼-28	.127
⅜-32	.252

BUSHING EXTENDERS AK-5075-1 thru AK-5075-11

Permit staggered mounting of components having ¼″ shafts, behind a panel. Nickel plated brass.

Note: *AK-5075-9 is a locking (collet) type, supplied with lock nut.





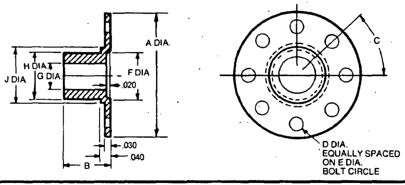
AK-5075 ( )

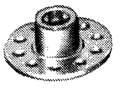
Dimensions in Inches

Cat. No.	"B"	"A"	Cat. No.	"B"	"A"
AK-5075-1	⅝	⅜	AK-5075-6	1⅝	¼
AK-5075-2	⅝	¼	AK-5075-7	1 7/16	3/16
AK-5075-3	⅝	3/16	AK-5075-8	1 1/16	¼
AK-5075-4	¾	¼	*AK-5075-9	11/16	½
AK-5075-5	2¼	¼	AK-5075-10	1 21/64	7/16
			AK-5075-11	55/64	7/16

STUD, GROUND Multi-termination ground lugs.
Electrically Sound • Easily Installed • Space Saving

- Provides equipotential chassis termination for ground leads.
- Minimizes resistance between circuit contacts and ground point.
- Diminishes noise, pick-up and regenerative feedback.
- Eliminates the need for buss bars or stacks of lugs.
- Can be use as "Floating Ground" with proper insulation.





Material: Brass, Half Hard
Finish: Tin Plate

Part No.	A	B	C	D	E	F	G	H	J
G 1001	¾″	5/16″	30°	1/16″ Dia. 12 Holes	9/16″	21/64″	3/16″	5/16″	23/64″
G 5008	¾″	¼″	36°	5/64″ Dia. 10 Holes	9/16″	21/64″	3/16″	5/16″	23/64″
G 7004	½″	9/32″	45°	1/16″ Dia. 8 Holes	25/64″	17/64″	5/32″	7/32″	19/64″

Specials Are Our Specialty
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QUALITY
RELIABILITY
ECONOMY

EQUIPMENT HANDLES

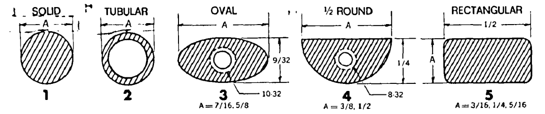
MATERIAL

A — ALUMINUM
B — BRASS
S — COLD ROLLED STEEL
SS — STAINLESS STEEL

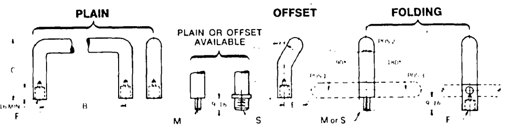
FINISH

A — BLACK ANODIZE
B — OPTICAL BLACK
C — CLEAR ANODIZE
E — SATIN ETCH
N — NICKEL PLATE
X — BLACK OXIDE
P — PASSIVATE
0 — NO FINISH

SHAPE



TYPE



HOW TO SPECIFY

NOTE: For special designs, identify differences from standard in ( ) after Part No.
Example: 3008 H0A 1 F 10 C09 B08 A (F = 6-32 x ¾″ deep).

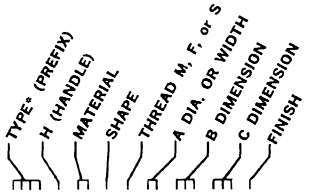
TYPE OF HANDLE

*TYPE	PREFIX	DESCRIPTION
PLAIN	NONE	———
OFFSET	ϕ, E	———
FOLDING	A	A = FREE 180°
	B	B = 2 POS., DETENT, 90°
	C	C = 3 POS., DETENT, 90°

A DIA.	3/16	1/4	5/16	3/8	7/16	1/2
M, F	4-40	8-32	10-32	10-32	10-32	10-32
S	10-32	1/4-28	5/16-24	3/8-24	3/8-24	3/8-24

RECOMMENDED CARRYING LOAD (lbs.) BASED ON HUMAN ENGINEERING FACTORS

A DIA.	1/4	3/8	1/2	5/8	3/4
JAN STD. (lbs.)	10-15	15-20	20-30	30-40	40-50
MIL STD. 1472 (lbs. max.)	15	—	20	—	40



DIMENSION:

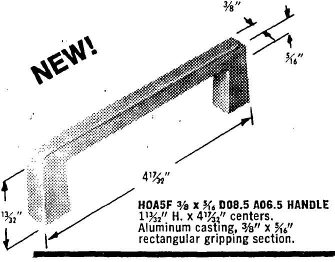
θ Specify in Degrees
A, E Specify in 1/16 increments
C, B Specify with Letter + Fraction in 1/16 increments

LETTER VALUE:

A thru Z = 1 thru 26. When Specifying dimension in 1/16 increments, use numerator of fraction for Part No. See Examples.

TYPICAL PART NUMBER

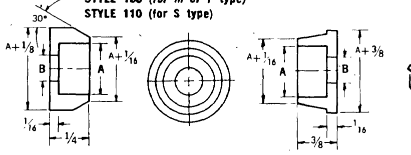
H 0B 1 M 04 D03 A02 X ...	Plain Handle Brass, Shape 1, Male Thd., A = ¼ O.D., B = 4 3/16, C = 1⅛, Black Oxide Finish.
3008 H 0A 1 F 10 C09 B08 A ..	30°, Offset, E = ½, Aluminum, Shape 1. Female Thd,. A = ⅝ O.D., B = 3 9/16, C = 2½, Blk. Anodized.
A H SS 2 S 08 D00 A08 P ...	Folding Handle, 180°, Free. Stainless Steel, Shape 2. A = ½ Dia., B = 4″, C = 1½, Passivate, ⅜-24 thd.



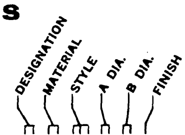
HOA5F ⅜ x 5/16 D08.5 A06.5 HANDLE
1 13/32″ H. x 4 17/32″ centers.
Aluminum casting, ⅜″ x 5/16″ rectangular gripping section.

FERRULES

STYLE 100 (for M or F type)
STYLE 110 (for S type)



STYLE 200 (for M or F type)
STYLE 210 (for S type)



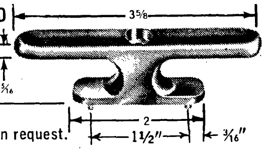
NOTES: "A" dimension is specified in 1/16 increments using numerator of fraction for part No.
"B" Dia. is clearance hole. For thd., see table.
For material and finish, see above.
See examples.

HF 0B 100 05 10 X	Ferrule Brass, Style 100, A = 5/16 Dia. B = clearance for 10-32, Black Oxide
HF 0A 200 08 10 A	Ferrule Aluminum, Style 200, A = ½″ Dia. B = clearance for 10-32, Black Anodized.

Thd. Size	4-40	6-32	8-32	10-32	¼-24	⅜-24
B	04	06	08	10	25	38

HANDLE, CORD

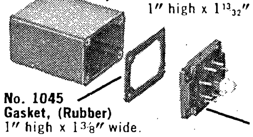
Cat. No. H-692-1



Colors:
(-1) Grey
(-2) Black
Special colors on request.

Die-cast aluminum handle designed for use on small instrument panels. Single integral hole accepts No. 10 screw. Dia. of pins 3/16″ x .078H.

Crystal Box



No. 1047
Housing (Plastic)
Mates with base & gasket.
1″ high x 1 13/32″ wide x 1 43/64″ long.

No. 1045
Gasket, (Rubber)
1″ high x 1⅜″ wide.

No. 1046
Base, (Plastic)
1″ high x 1 13/32″ wide.
Mtg. holes 1.156 x .750.

JOLTA SHOCK TEST MACHINES

For Reproducible Impact-Shock Test Pulses

Engineered to reproduce the entire spectrum of all significant impact shock waves.

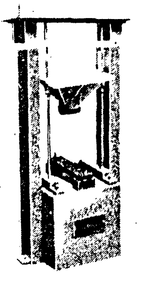
Designed for laboratory and production testing of light to medium weight components. Produced to meet practically all requirements of common Mil. Spec. qualification tests (JAN-S-44, Mil-Std. 202A, Mil-T-12679A). Each JOLTA is electronically calibrated to certify compliance with test specifications.

JOLTA — Floor Model Nos. F-3003-C1, C2, C3 — Precision-machined magnesium casting utilized for higher shock amplitudes. Typical tests with these units 50 to 5000 G at .2 to 11.0 millisecs. For high impact testing, accessory springs and twin anvil combinations yield impulses of 0.2 millisecs to 5000 G.

SPECIFICATIONS — JOLTA SHOCK TESTERS

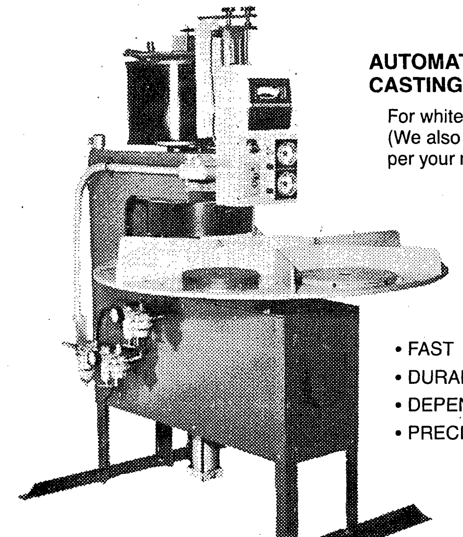
Model No.	Carriage Volume	Test Weight	"G" Ranges
F-3003-C-1	5″ cube	0-12 lbs.	50-1500
F-3003-C-2	5″ cube	0-4.0 lbs.	350-5000

FEATURES
- **Economical**
- **Simple to Operate**
- **Rugged**
- **Uniformly Accurate**



For Production Testing, Can Be Automated for Continuous Operation

Note:
New design allows for quick changecvers of accessories.



AUTOMATIC CENTRIFUGAL CASTING MACHINE

For white metal, pewter and lead.
(We also produce castings per your requirements).

- FAST
- DURABLE
- DEPENDABLE
- PRECISELY BUILT

CENTRIFUGAL CASTING WITH EASE

Now Available!

Investment Castings—Lost Wax Process
FERROUS & NON-FERROUS METALS
CLOSE TOLERANCES
To your specifications!

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QUALITY
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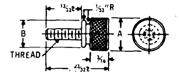
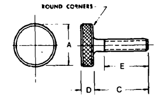
THUMB SCREW



Thread	A Dia.	B Dia.	Pt. No.
6-32	3/8	5/16	TS 6056
	7/16	3/8	TS 7066
	1/2	7/16	TS 8076
8-32	3/8	5/16	TS 6058
	7/16	3/8	TS 7068
	1/2	7/16	TS 8078
10-32	3/8	5/16	TS 60510
	7/16	3/8	TS 70610
	1/2	7/16	TS 80710

EXAMPLE (TO ORDER)

Pt. No. TS 6058-B = 8-32 x 13/32 Lg. Thread, Thumb Screw- Brass.



KNURLED THUMB SCREWS

Material: 303 Stainless Steel

Thread	A	C	D	E	Part No.
#4-40	1/4	3/8	1/8	5/16	ST4010
	1/4	1/2	1/2	7/16	ST4011
	1/4	3/4	1/2	5/8	ST4012
	3/8	3/8	1/8	5/16	ST4013
	3/8	1/2	1/8	7/16	ST4014
#6-32	1/4	1/2	1/2	7/16	ST6015
	1/4	3/4	1/2	5/8	ST6016
	1/4	1	1/2	13/16	ST6017
	3/8	3/8	1/8	5/16	ST6018
	3/8	1/2	1/8	3/8	ST6019
#8-32	1/4	1/2	1/2	7/16	ST8020
	1/4	3/4	1/2	5/8	ST8021
	1/4	1	1/2	13/16	ST8022
	3/8	3/8	1/8	5/16	ST8023
	3/8	1/2	1/8	3/8	ST8024
#10-24	3/8	1/2	3/16	7/16	ST11025
	3/8	3/4	3/16	5/8	ST11026
	3/8	1	3/16	13/16	ST11027
	3/8	1 1/4	3/16	1	ST11028
	1/2	3/4	3/16	5/8	ST11029
	1/2	1	3/16	13/16	ST11030
	1/2	1 1/4	3/16	1	ST11031
	1/2	1 1/2	3/16	1 1/4	ST11032
	3/4	3/4	3/16	5/8	ST11033
	3/4	1	3/16	13/16	ST11034
#10-24	3/4	1 1/4	3/16	1	ST11035
	3/4	1 1/2	3/16	1 1/4	ST11036
#10-32	3/8	1/2	3/16	7/16	ST10037
	3/8	3/4	3/16	5/8	ST10038
	3/4	1	3/16	13/16	ST10039
	3/8	1 1/4	3/16	1	ST10040
	1/2	3/4	3/16	5/8	ST10041
	1/2	1	3/16	13/16	ST10042
	1/2	1 1/4	3/16	1	ST10043
	1/2	1 1/2	3/16	1 1/4	ST10044
	3/4	3/4	3/16	5/8	ST10045
	3/4	1	3/16	13/16	ST10046
	3/4	1 1/4	3/16	1	ST10047
	3/4	1 1/2	3/16	1 1/4	ST10048
1/4-20	3/4	3/4	3/16	5/8	ST14049
	3/4	1	3/16	13/16	ST14050
	3/4	1 1/4	3/16	1	ST14051
	3/4	1 1/2	3/16	1 1/4	ST14052
	3/4	2	3/16	1 5/8	ST14053
	1	3/4	3/16	5/8	ST14054
	1	1	3/16	13/16	ST14055
	1	1 1/4	3/16	1	ST14056
	1	1 1/2	3/16	1 1/4	ST14057
	1	2	3/16	1 5/8	ST14058

SET SCREWS

CUP POINT STAINLESS

SOCKET HEAD

Class 3A Thread
Stainless Steel

Screw Size	L	Part No.
#0-80	1/8	SS-T-1
	3/16	SS-T-2
#2-56	1/8	SS-T-3
	3/16	SS-T-4
	1/4	SS-T-5
#4-40	1/8	SS-T-6
	3/16	SS-T-7
	1/4	SS-T-8
#6-32	1/8	SS-T-9
	1/4	SS-T-10
	3/8	SS-T-11
	1/2	SS-T-12
#8-32	1/4	SS-T-13
	3/8	SS-T-14
	1/2	SS-T-15
	5/8	SS-T-16
#10-32	1/4	SS-T-17
	1/2	SS-T-18
	3/4	SS-T-19
	1	SS-T-20
1/4-20	1/4	SS-T-21
	1/2	SS-T-22
	3/4	SS-T-23
	1	SS-T-24
	1 1/4	SS-T-25

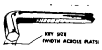
SLOTTED HEAD

Class 2A Thread

Screw Size	L	Part No.
#0-08	1/8	SS-D-15
#0-80	3/16	SS-D-16
#2-56	1/8	SS-D-1-A
#4-40	1/8	SS-D-2-A
#6-32	1/8	SS-D-3-A

SOCKET HEAD KEYS & SETS

Material:
Steel
(Nickel Plated)

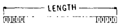


Set of Hex Socket Head Keys Containing 8 Keys from .050 to 5/32 Key Size — in case. Order SS-K-50

Screw Size	Key Size	Part No.
#2	.035	SS-K-40
#4	.050	SS-K-41
#6	1/16	SS-K-42
#8	5/64	SS-K-43
#10	3/32	SS-K-44
1/4	1/8	SS-K-45
5/16	5/32	SS-K-46
3/8	3/16	SS-K-47
1/2	1/4	SS-K-48

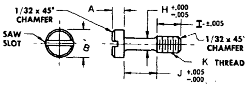
THREADED ROD

— 1/4-20 THREAD — 2" EACH END



Lgth.		Lgth.		Lgth.		Lgth.		Lgth.		Lgth.	
4 1/2	TR 1445	7	TR 1470	9 1/2	TR 1495	12	TR 14120	14 1/2	TR 14145	17 1/2	TR 14175
5	TR 1450	7 1/2	TR 1475	10	TR 14100	12 1/2	TR 14125	15	TR 14150	18	TR 14180
5 1/2	TR 1455	8	TR 1480	10 1/2	TR 14105	13	TR 14130	15 1/2	TR 14155	18 1/2	TR 14185
6	TR 1460	8 1/2	TR 1485	11	TR 14110	13 1/2	TR 14135	16	TR 14160	19	TR 14190
6 1/2	TR 1465	9	TR 1490	11 1/2	TR 14115	14	TR 14140	16 1/2	TR 14165	19 1/2	TR 14195
								17	TR 14170	20	TR 14200

MATERIALS B = Brass A = Aluminum SS = Stainless Steel



CAPTIVE SCREWS

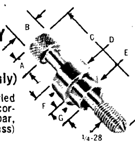
Material: 303 Stainless Steel

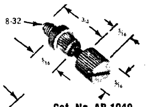
Thickness For Panel	A	B	H	I	J	K Thread	Part No.
1/16	1/8	1/4	.072	.187	.281	#4-40	CS4-1
1/8	1/8	1/4	.072	.187	.343		CS4-2
1/16	1/8	9/32	.086	.218	.312	#6-32	CS6-1
1/8	1/8	9/32	.086	.218	.375		CS6-2
3/16	1/8	9/32	.086	.218	.437		CS6-3
1/8	5/32	5/16	.114	.250	.406	#8-32	CS8-2
3/16	5/32	5/16	.114	.250	.468		CS8-3
1/4	5/32	5/16	.114	.250	.531		CS8-4
3/16	3/16	3/8	.136	.312	.531	#10-32	CS10-3
1/4	3/16	3/8	.136	.312	.593		CS10-4

CAPTIVE SCREW AND NUT ASSEMBLY

No. CS-711-(1)
No. CS-711-(2) (screw only)

Consists of slotted, knurled thumb screws made of corrosion resistant steel bar, and nickel-plated (on brass) panel inserts.



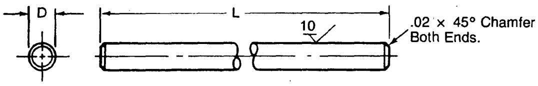


Cat. No. AP-1040
Screw, Captive
Cat. No. AP-1039
Insert, Captive

	A	B	C	D	E	F	G	J Thd.
—1	1/4	3/8	1 5/16	9/16	13/32	5/16	3/8	1/4-28
—2	1/4	29/64	1 7/16	9/16	13/32	5/16	3/8	8-32

Cat. No. AP-1197
Screw, Captive
1/16" slotted knurled head (7/16" O.D.)
1 1/4" overall length; 8-32 thread.

PRECISION GROUND SHAFTS .303 Stainless Steel



Tolerance

Shaft Dia. (D) PGS1 = $^{+.0000}_{-.0001}$

PGS2 = $^{+.0000}_{-.0002}$

PGS3 = $^{+.0000}_{-.0003}$

Standard Diameters — 1/16" Increments

2 = .1247
3 = .1872
4 = .2497
5 = .3125
6 = .3747

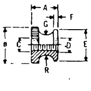
To specify: add (D) dia. × (L) length to prefix above.

IE. PGS1 — 2 × 6.375 = .1247 $^{+.0000}_{-.0001}$ Dia. × 6.375 Long.

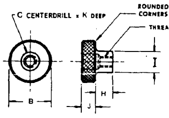
PGS2 — 3 × 3.250 = .1872 $^{+.0000}_{-.0002}$ Dia. × 3.250 Long.

PGS3 — 4 × 8.625 = .2497 $^{+.0000}_{-.0003}$ Dia. × 8.625 Long.

THUMB NUT KNURLED



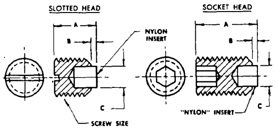
Thread	A	B Dia.	C Dia.	D Dia.	E Dia.	F	G	R Rad.	Part No.
4-36	1/4	3/8	1/8	.147	5/16	3/64	7/32	3/64	KN 436
4-40	1/4	3/8	1/8	.147	5/16	3/64	7/32	3/64	KN 440
6-32	1/4	3/8	9/64	.169	5/16	3/64	7/32	3/64	KN 632
6-32	9/32	13/32	9/64	13/64	11/32	3/64	7/32	1/16	KN 6321
8-32	5/16	7/16	11/64	15/64	3/8	1/16	1/4	1/16	KN 832
10-24	21/64	1/2	13/64	17/64	7/16	1/16	9/32	.070	KN 124
10-32	21/64	1/2	13/64	17/64	7/16	1/16	9/32	.070	KN 132
12-24	11/32	9/16	7/32	19/64	1/2	1/16	21/64	.070	KN 224
1/4-20	3/8	5/8	17/64	21/64	9/16	1/16	23/64	5/64	KN 420



KNURLED THUMB NUTS

Material: 303 Stainless Steel

Thread	B Dia.	C	H	I	J	K	Part No.
#4-40	1/2	1/8	1/4	1/4	1/8	1/8	NK4070
	1/2	1/8	1/2	1/4	1/8	3/8	NK4071
	3/4	1/8	1/4	1/4	1/8	1/8	NK4072
	3/4	1/8	1/2	1/4	1/8	3/8	NK4073
#6-32	1/2	#26	1/4	1/4	1/8	3/32	NK4074
	1/2	#26	1/2	1/4	1/8	11/32	NK4075
	3/4	#26	1/4	1/4	1/8	3/32	NK4076
	3/4	#26	1/2	1/4	1/8	11/32	NK4077
#8-32	1/2	—	1/4	5/16	1/8	—	NK4078
	1/2	#15	1/2	5/16	1/8	1/4	NK4079
	3/4	—	1/4	5/16	1/8	—	NK4080
	3/4	#15	1/2	5/16	1/8	1/4	NK4081
#10-24	1/2	—	1/4	3/8	3/16	—	NK4082
	1/2	13/64	1/2	3/8	3/16	1/4	NK4083
	1	—	1/4	3/8	3/16	—	NK4084
	1	13/64	1/2	3/8	3/16	1/4	NK4085
#10-32	1/2	—	1/4	3/8	3/16	—	NK4086
	1/2	13/64	1/2	3/8	3/16	1/4	NK4087
	1	—	1/4	3/8	3/16	—	NK4088
	1	13/64	1/2	3/8	3/16	1/4	NK4089
1/4-20	3/4	—	1/4	1/2	1/4	—	NK4090
	3/4	17/64	1/2	1/2	1/4	1/4	NK4091
	1	—	1/4	1/2	1/4	—	NK4092
	1	17/64	1/2	1/2	1/4	1/4	NK4093
	1	17/64	3/4	1/2	1/4	1/2	NK4094



SET SCREWS

Material: Screw — Stainless Steel; Insert — Nylon Protective Tip

SLOTTED HEAD

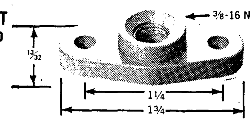
Screw Size	A	B	C	Part No.
#2-56	5/32	1/32	1/32	SSN-D-1
#4-40	5/32	1/32	1/16	SSN-D-2
#6-32	5/32	1/32	1/16	SSN-D-3
#8-32	15/64	3/64	1/16	SSN-D-4
#10-24	15/64	3/64	3/32	SSN-D-5
#10-32	15/64	3/64	3/32	SSN-D-6
1/4-20	5/16	1/16	1/8	SSN-D-7

SOCKET HEAD

Screw Size	A	B	C	Part No.
#2-56	5/32	1/32	1/32	SSN-T-8
	9/32	1/32	1/32	SSN-T-24
#4-40	5/32	1/32	1/16	SSN-T-9
	9/32	1/32	1/16	SSN-T-25
	13/32	1/32	1/16	SSN-T-26
#6-32	5/32	1/32	1/16	SSN-T-10
	9/32	1/32	1/16	SSN-T-15
	17/32	1/32	1/16	SSN-T-27
#8-32	15/64	3/64	3/32	SSN-T-11
	27/64	3/64	3/32	SSN-T-16
	43/64	3/64	3/32	SSN-T-28
#10-24	15/64	3/64	3/32	SSN-T-12
	27/64	3/64	3/32	SSN-T-17
#10-32	15/64	3/64	3/32	SSN-T-13
	27/64	3/64	3/32	SSN-T-18
#10-32	43/64	3/64	3/32	SSN-T-29
1/4-20	5/16	1/16	1/8	SSN-T-14
	7/16	1/16	1/8	SSN-T-19
	13/16	1/16	1/8	SSN-T-30
	1 1/16	1/16	1/8	SSN-T-31
1/4-28	7/16	1/16	1/8	SSN-T-20
5/16-18	19/32	3/32	3/16	SSN-T-21
	27/32	3/32	3/16	SSN-T-32
	1 3/32	3/32	3/16	SSN-T-33
3/8-16	19/32	3/32	3/16	SSN-T-22
	27/32	3/32	3/16	SSN-T-34
	1 3/32	3/32	3/16	SSN-T-35
1/2-13	3/4	1/8	1/4	SSN-T-23
	1 1/8	1/8	1/4	SSN-T-36

RETAINER NUT

Cat. No. R-1030



Used in conjunction with captive screw and nut assemblies. Die casting. Can be painted. Other thread sizes available upon special order.

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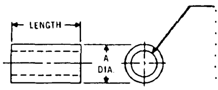
QUALITY
RELIABILITY
ECONOMY

STANDOFFS

SPACER-THRU HOLE



Clearance Hole	Code
.091 Dia. (No. 2 Screw)	1
.116 Dia. (No. 4 Screw)	2
.141 Dia. (No. 6 Screw)	3
.171 Dia. (No. 8 Screw)	4
.194 Dia. (No. 10 Screw)	5
.219 Dia. (No. 12 Screw)	6
.257 Dia. (No. 1/4 Screw	7
.312 Dia.	8

Length	A=1/8	A=3/16	A=1/4	Length	A=3/16	A=1/4
1/16	SP 021	SP 031		11/16	SP 0311	SP 0411
1/8	SP 022	SP 032	SP 042	3/4	SP 0312	SP 0412
3/16	SP 023	SP 033	SP 043	7/8	SP 0314	SP 0414
1/4	SP 024	SP 034	SP 044	15/16	SP 0315	SP 0415
5/16	SP 025	SP 035	SP 045	1	SP 0316	SP 0416
3/8	SP 026	SP 036	SP 046	1 1/8		SP 0418
7/16	SP 027	SP 037	SP 047	1 1/4		SP 0420
1/2	SP 028	SP 038	SP 048	1 3/8		SP 0422
9/16	SP 029	SP 039	SP 049	1 1/2		SP 0424
5/8		SP 0310	SP 0410			

EXAMPLE (TO ORDER) Pt. No. SP 035-2-B = 3/16 Dia. x 5/16 Lg. Spacer-Brass w/.116 Clearance Hole for #4 Screw.

Length	A=5/16	A=3/8	A=1/2	Length	A=5/16	A=3/8	A=1/2
1/8	SP 052	SP 062	SP 082	7/8	SP 0514	SP 0614	SP 0814
3/16	SP 053	SP 063	SP 083	15/16	SP 0515	SP 0615	SP 0815
1/4	SP 054	SP 064	SP 084	1	SP 0516	SP 0616	SP 0816
5/16	SP 055	SP 065	SP 085	1 1/8	SP 0518	SP 0618	SP 0818
3/8	SP 056	SP 066	SP 086	1 1/4	SP 0520	SP 0620	SP 0820
7/16	SP 057	SP 067	SP 087	1 3/8	SP 0522	SP 0622	SP 0822
1/2	SP 058	SP 068	SP 088	1 1/2	SP 0524	SP 0624	SP 0824
9/16	SP 059	SP 069	SP 089	1 5/8		SP 0626	SP 0826
5/8	SP 0510	SP 0610	SP 0810	1 3/4		SP 0628	SP 0828
11/16	SP 0511	SP 0611	SP 0811	1 7/8		SP 0630	SP 0830
3/4	SP 0512	SP 0612	SP 0812	2		SP 0632	SP 0832

EXAMPLE (TO ORDER) Pt. No. SP 064-3-PH = 3/8 Dia. x 1/4 Lg. Spacer-Phenolic w/ 141 Clearance Hole for #6 Screw.

FINISH

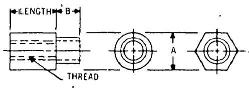
CA = Clear Anodize
P = Passivate
A = Black Anodize
I = Iridite #14 (Golden Yellow)
C = Cadmium Plate
CCC = Cadmium Plate and Clear Chromate
N = Nickel Plate
X = Black Oxide

MATERIALS

B = Brass
A = Aluminum
SS = Stainless Steel
S = Steel
N = Nylon
PH = Phenolic
T = Teflon

STANDOFF — RIVET

— HEX AND ROUND



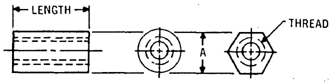
Code	Board Thickness	Shank B
1	1/32	.075
2	1/16	.105
3	3/32	.135
4	1/8	.165
5	3/16	.230
6	1/4	.290

Length	A=1/8 Dia. 0-80 Thread		A=1/4 Dia. 2-56 Thread		A=5/16 Dia. 4-40 Thread		A=3/8 Dia. 6-32 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	RR 202	RH 202	RR 4022	RH 4022	RR 5024	RH 5024	RR 6026	RH 6026
3/16	RR 203	RH 203	RR 4032	RH 4032	RR 5034	RH 5034	RR 6036	RH 6036
1/4	RR 204	RH 204	RR 4042	RH 4042	RR 5044	RH 5044	RR 6046	RH 6046
5/16	RR 205	RH 205	RR 4052	RH 4052	RR 5054	RH 5054	RR 6056	RH 6056
3/8	RR 206	RH 206	RR 4062	RH 4062	RR 5064	RH 5064	RR 6066	RH 6066
7/16	RR 207	RH 207	RR 4072	RH 4072	RR 5074	RH 5074	RR 6076	RH 6076
1/2	RR 208	RH 208	RR 4082	RH 4082	RR 5084	RH 5084	RR 6086	RH 6086
9/16	RR 209	RH 209	RR 4092	RH 4092	RR 5094	RH 5094	RR 6096	RH 6096
5/8	RR 210	RH 210	RR 4102	RH 4102	RR 5104	RH 5104	RR 6106	RH 6106
11/16	RR 211	RH 211	RR 4112	RH 4112	RR 5114	RH 5114	RR 6116	RH 6116
3/4	RR 212	RH 212	RR 4122	RH 4122	RR 5124	RH 5124	RR 6126	RH 6126
7/8	RR 214	RH 214	RR 4142	RH 4142	RR 5144	RH 5144	RR 6146	RH 6146
1	RR 216	RH 216	RR 4162	RH 4162	RR 5164	RH 5164	RR 6166	RH 6166

EXAMPLE (TO ORDER) Pt. No. RR 4052-2-B = 1/4 Dia. x 5/16 Lg. Round, Rivet Standoff-Brass w/2-56 Thread Shank = .105 for 1/16 Board.

STANDOFF — THREADED

— HEX & ROUND



MATERIALS B = Brass A = Aluminum SS = Stainless Steel PH = Phenolic
SPECIAL SIZES AND MATERIALS/MANUFACTURED TO ORDER

Lgth.	A=1/8 Dia. 0-80 Thread		A=3/16 Dia. 2-56 Thread		A=3/16 Dia. 4-40 Thread	
	Round	Hex	Round	Hex	Round	Hex
1/16	SR 201	SH 201	SR 3012	SH 3012	SR 3014	SH 3014
1/8	SR 202	SH 202	SR 3022	SH 3022	SR 3024	SH 3024
3/16	SR 203	SH 203	SR 3032	SH 3032	SR 3034	SH 3034
1/4	SR 204	SH 204	SR 3042	SH 3042	SR 3044	SH 3044
5/16	SR 205	SH 205	SR 3052	SH 3052	SR 3054	SH 3054
3/8	SR 206	SH 206	SR 3062	SH 3062	SR 3064	SH 3064
7/16	SR 207	SH 207	SR 3072	SH 3072	SR 3074	SH 3074
1/2	SR 208	SH 208	SR 3082	SH 3082	SR 3084	SH 3084
9/16	SR 209	SH 209	SR 3092	SH 3092	SR 3094	SH 3094
5/8	SR 210	SH 210	SR 3102	SH 3102	SR 3104	SH 3104
3/4	SR 212	SH 212	SR 3122	SH 3122	SR 3124	SH 3124
1			SR 3162	SH 3162	SR 3164	SH 3164

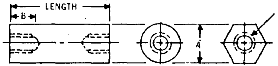
EXAMPLE (TO ORDER) Pt. No. SR 3032-A = 3/16 Dia. x 3/16 Lg. Round Standoff-Aluminum w/2-55 Threaded Hole.

Lgth.	A=1/4 Dia. 4-40 Thread		6-32 Thread		8-32 Thread		10-32 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 4024	SH 4024	SR 4026	SH 4026	SR 4028	SH 4028	SR 40210	SH 40210
3/16	SR 4034	SH 4034	SR 4036	SH 4036	SR 4038	SH 4038	SR 40310	SH 40310
1/4	SR 4044	SH 4044	SR 4046	SH 4046	SR 4048	SH 4048	SR 40410	SH 40410
5/16	SR 4054	SH 4054	SR 4056	SH 4056	SR 4058	SH 4058	SR 40510	SH 40510
3/8	SR 4064	SH 4064	SR 4066	SH 4066	SR 4068	SH 4068	SR 40610	SH 40610
7/16	SR 4074	SH 4074	SR 4076	SH 4076	SR 4078	SH 4078	SR 40710	SH 40710
1/2	SR 4084	SH 4084	SR 4086	SH 4086	SR 4088	SH 4088	SR 40810	SH 40810
9/16	SR 4094	SH 4094	SR 4096	SH 4096	SR 4098	SH 4098	SR 40910	SH 40910
5/8	SR 4104	SH 4104	SR 4106	SH 4106	SR 4108	SH 4108	SR 41010	SH 41010
3/4	SR 4124	SH 4124	SR 4126	SH 4126	SR 4128	SH 4128	SR 41210	SH 41210
7/8	SR 4144	SH 4144	SR 4146	SH 4146	SR 4148	SH 4148	SR 41410	SH 41410
1	SR 4164	SH 4164	SR 4166	SH 4166	SR 4168	SH 4168	SR 41610	SH 41610

EXAMPLE (TO ORDER) Pt. No. SH 4086-B = 1/4 Dia. x 1/2 Lg. Hex Standoff-Brass w/6-32 Threaded Hole.

STANDOFF — THREADED ENDS

— HEX & ROUND



Thread	Depth B
0-80	3/16
4-40	1/4
6-32	3/8
8-32	7/16

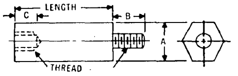
Length	A=1/8 Dia. 0-80 Thread		A=1/4 Dia. 4-40 Thread		A=1/4 Dia. 6-32 Thread		A=1/4 Dia. 8-32 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1 1/16	DR 217	DH 217	DR 4174	DH 4174	DR 4176	DH 4176	DR 4178	DH 4178
1 1/8	DR 218	DH 218	DR 4184	DH 4184	DR 4186	DH 4186	DR 4188	DH 4188
1 3/16	DR 219	DH 219	DR 4194	DH 4194	DR 4196	DH 4196	DR 4198	DH 4198
1 1/4	DR 220	DH 220	DR 4204	DH 4204	DR 4206	DH 4206	DR 4208	DH 4208
1 5/16	DR 221	DH 221	DR 4214	DH 4214	DR 4216	DH 4216	DR 4218	DH 4218
1 3/8	DR 222	DH 222	DR 4224	DH 4224	DR 4226	DH 4226	DR 4228	DH 4228
1 7/16	DR 223	DH 223	DR 4234	DH 4234	DR 4236	DH 4236	DR 4238	DH 4238
1 1/2	DR 224	DH 224	DR 4244	DH 4244	DR 4246	DH 4246	DR 4248	DH 4248
2			DR 4324	DH 4324	DR 4326	DH 4326	DR 4328	DH 4323
2 1/8			DR 4344	DH 4344	DR 4346	DH 4346	DR 4348	DH 4348
2 3/4			DR 4444	DH 4444	DR 4446	DH 4446	DR 4448	DH 4448
3			DR 4484	DH 4484	DR 4486	DH 4486	DR 4488	DH 4488

EXAMPLE (TO ORDER) Pt. No. DH 219-B = 1/8 Dia. x 1 3/16 Lg. Hex Standoff-Tapped Both Ends Brass w/o-80 x 3/16 Hole.

Lgth.	A=5/16 Dia. 6-32 Thread		A=3/8 Dia. 6-32 Thread		A=3/8 Dia. 8-32 Thread		A=1/2 Dia. 8-32 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1 1/16	DR 5176	DH 5176	DR 6176	DH 6176	DR 6178	DH 6178	DR 8178	DH 8178
1 1/8	DR 5186	DH 5186	DR 6186	DH 6186	DR 6188	DH 6188	DR 8188	DH 8188
1 3/16	DR 5196	DH 5196	DR 6196	DH 6196	DR 6198	DH 6198	DR 8198	DH 8198
1 1/4	DR 5206	DH 5206	DR 6206	DH 6206	DR 6208	DH 6208	DR 8208	DH 8208
1 5/16	DR 5216	DH 5216	DR 6216	DH 6216	DR 6218	DH 6218	DR 8218	DH 8218
1 3/8	DR 5226	DH 5226	DR 6226	DH 6226	DR 6228	DH 6228	DR 8228	DH 8228
1 7/16	DR 5236	DH 5236	DR 6236	DH 6236	DR 6238	DH 6238	DR 8238	DH 8238
1 1/2	DR 5246	DH 5246	DR 6246	DH 6246	DR 6248	DH 6248	DR 8248	DH 8248
1 3/4	DR 5286	DH 5286	DR 6286	DH 6286	DR 6288	DH 6288	DR 8288	DH 8288
2	DR 5326	DH 5326	DR 6326	DH 6326	DR 6328	DH 6328	DR 8328	DH 8328
2 1/4	DR 5366	DH 5366	DR 6366	DH 5366	DR 6368	DH 6368	DR 8368	DH 8368
2 1/2	DR 5406	DH 5406	DR 6406	DH 6405	DR 6408	DH 6408	DR 8408	DH 8408
3	DR 5486	DH 5486	DR 6486	DH 6486	DR 6488	DH 6488	DR 8488	DH 8488
3 1/2	DR 5566	DH 5566	DR 6566	DH 6566	DR 6568	DH 6568	DR 8568	DH 8568
4	DR 5646	DH 5646	DR 6646	DH 6666	DR 6648	DH 6648	DR 8648	DH 8648

EXAMPLE (TO ORDER) Pt. No. DR 6186-A = 3/8 Dia. x 1 1/8 Lg. Round Standoff-Aluminum-Tapped Both Ends w/6-32 x 3/8 Thread.

STANDOFF — MALE-FEMALE



Thread	B	C
4-40	3/16	1/4
6-32	1/4	3/8
8-32	3/8	7/16
10-32	3/8	1/2

Lgth.	A=1/4 AC. Flts. 4-40	6-32	8-32	10-32	A=3/8 AC. Flts. 4-40	6-32	8-32	10-32
1/4	MF 4044	MF 4046	MF 4048	MF 40410	MF 6044	MF 6046	MF 6048	MF 60410
3/8	MF 4064	MF 4066	MF 4068	MF 40610	MF 6064	MF 6066	MF 6068	MF 60610
1/2	MF 4084	MF 4086	MF 4088	MF 40810	MF 6084	MF 6086	MF 6088	MF 60810
5/8	MF 4104	MF 4106	MF 4108	MF 41010	MF 6104	MF 6106	MF 6108	MF 61010
3/4	MF 4124	MF 4126	MF 4128	MF 41210	MF 6124	MF 6126	MF 6128	MF 61210
7/8	MF 4144	MF 4146	MF 4148	MF 41410	MF 6144	MF 6146	MF 6148	MF 61410
1	MF 4164	MF 4166	MF 4168	MF 41610	MF 6164	MF 6166	MF 6168	MF 61610
1 1/8	MF 4184	MF 4186	MF 4188	MF 41810	MF 6184	MF 6186	MF 6188	MF 61810
1 1/4	MF 4204	MF 4206	MF 4208	MF 42010	MF 6204	MF 6206	MF 6208	MF 62010
1 3/8	MF 4224	MF 4226	MF 4228	MF 42210	MF 6224	MF 6226	MF 6228	MF 62210
1 1/2	MF 4244	MF 4246	MF 4248	MF 42410	MF 6244	MF 6246	MF 6248	MF 62410
1 5/8	MF 4264	MF 4266	MF 4268	MF 42610	MF 6264	MF 6266	MF 6268	MF 62610
1 3/4	MF 4284	MF 4286	MF 4288	MF 42810	MF 6284	MF 6286	MF 6288	MF 62810
2	MF 4324	MF 4326	MF 4328	MF 43210	MF 6324	MF 6326	MF 6328	MF 63210
2 1/2	MF 4404	MF 4406	MF 4408	MF 44010	MF 6404	MF 6406	MF 6408	MF 64010
3	MF 4484	MF 4486	MF 4488	MF 44810	MF 6484	MF 6486	MF 6488	MF 64810

EXAMPLE (TO ORDER) Pt. No. MF 4146-B = 1/4 AC. Flts. Standoff-Brass 6-32 Male-Female Threads.

STANDOFF — THREADED

Lgth.	A=5/16 Dia. 4-40 Thread		6-32 Thread		8-32 Thread		10-32 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 5024	SH 5024	SR 5026	SH 5026	SR 5028	SH 5028	SR 50210	SH 50210
3/16	SR 5034	SH 5034	SR 5036	SH 5036	SR 5038	SH 5038	SR 50310	SH 50310
1/4	SR 5044	SH 5044	SR 5046	SH 5046	SR 5048	SH 5048	SR 50410	SH 50410
5/16	SR 5054	SH 5054	SR 5056	SH 5056	SR 5058	SH 5058	SR 50510	SH 50510
3/8	SR 5064	SH 5064	SR 5066	SH 5066	SR 5068	SH 5068	SR 50610	SH 50610
7/16	SR 5074	SH 5074	SR 5076	SH 5076	SR 5078	SH 5078	SR 50710	SH 50710
1/2	SR 5084	SH 5084	SR 5086	SH 5086	SR 5088	SH 5088	SR 50810	SH 50810
9/16	SR 5094	SH 5094	SR 5096	SH 5096	SR 5098	SH 5098	SR 50910	SH 50910
5/8	SR 5104	SH 5104	SR 5106	SH 5106	SR 5108	SH 5108	SR 51010	SH 51010
3/4	SR 5124	SH 5124	SR 5126	SH 5126	SR 5128	SH 5128	SR 51210	SH 51210
7/8	SR 5144	SH 5144	SR 5146	SH 5146	SR 5148	SH 5148	SR 51410	SH 51410
1	SR 5164	SH 5164	SR 5166	SH 5166	SR 5168	SH 5168	SR 51610	SH 51610

EXAMPLE (TO ORDER) Pt. No. SR 5146-PH = 5/16 Dia. x 7/8 Lg. Round Standoff-Phenolic w/6-32 Threaded Hole.

Lgth.	3/8 Dia. 6-32 Thread		8-32 Thread		10-32 Thread	
	Round	Hex	Round	Hex	Round	Hex
1/8	SR 6026	SH 6026	SR 6028	SH 6028	SR 60210	SH 60210
3/16	SR 6036	SH 6036	SR 6038	SH 6038	SR 60310	SH 60310
1/4	SR 6046	SH 6046	SR 6048	SH 6048	SR 60410	SH 60410
5/16	SR 6056	SH 6056	SR 6058	SH 6058	SR 60510	SH 60510
3/8	SR 6066	SH 6066	SR 6068	SH 6068	SR 60610	SH 60610
7/16	SR 6076	SH 6076	SR 6078	SH 6078	SR 60710	SH 60710
1/2	SR 6086	SH 6086	SR 6088	SH 6088	SR 60810	SH 60810
9/16	SR 6096	SH 6096	SR 6098	SH 6098	SR 60910	SH 60910
5/8	SR 6106	SH 6106	SR 6108	SH 6108	SR 61010	SH 61010
3/4	SR 6126	SH 6126	SR 6128	SH 6128	SR 61210	SH 61210
7/8	SR 6146	SH 6146	SR 6148	SH 6148	SR 61410	SH 61410
1	SR 6166	SH 6166	SR 6168	SH 6168	SR 61610	SH 61610

EXAMPLE (TO ORDER) Pt. No. SH 6068-B = 3/8 Dia. x 3/8 Lg. Hex Standoff-Brass w/8-32 Threaded Hole.

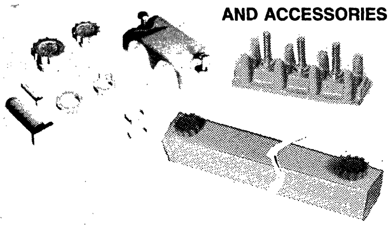
Lgth.	A=1/2 Dia. 8-32 Thread		10-32 Thread		12-24 Thread		1/4-20 Thread	
	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 8028	SH 8028	SR 80210	SH 80210	SR 80212	SH 80212	SR 80214	SH 80214
3/16	SR 8038	SH 8038	SR 80310	SH 80310	SR 80312	SH 80310	SR 80314	SH 80314
1/4	SR 8048	SH 8048	SR 80410	SH 80410	SR 80412	SH 80412	SR 80414	SH 80414
5/16	SR 8058	SH 8058	SR 80510	SH 80510	SR 80512	SH 80512	SR 80514	SH 80514
3/8	SR 8068	SH 8068	SR 80610	SH 80610	SR 80612	SH 80612	SR 80614	SH 80614
7/16	SR 8078	SH 8078	SR 80710	SH 80710	SR 80712	SH 80712	SR 80714	SH 80714
1/2	SR 8088	SH 8088	SR 80810	SH 80810	SR 80812	SH 80812	SR 80814	SH 80814
9/16	SR 8098	SH 8098	SR 80910	SH 80910	SR 80912	SH 80912	SR 80914	SH 80914
5/8	SR 8108	SH 8108	SR 81010	SH 81010	SR 81012	SH 81012	SR 81014	SH 81014
3/4	SR 8128	SH 8128	SR 81210	SH 81210	SR 81212	SH 81212	SR 81214	SH 81214
7/8	SR 8148	SH 8148	SR 81410	SH 81410	SR 81412	SH 81412	SR 81414	SH 81414
1	SR 8168	SH 8168	SR 81610	SH 81610	SR 81612	SH 81612	SR 81614	SH 81614

EXAMPLE (TO ORDER) Pt. No. SR 80910-A = 1/2 Dia. x 9/16 Lg. Round Standoff-Aluminum w/10-32 Threaded Hole.

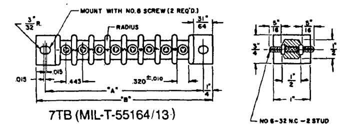
SPECIAL SIZES AND MATERIALS MANUFACTURED TO ORDER *NOTE: Ceramic and Steatite spacers and standoffs also available.*

Specials Are Our Specialty
JAN
JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800
QUALITY
RELIABILITY
ECONOMY

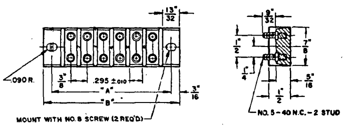
MILITARY TERMINAL BLOCKS AND ACCESSORIES



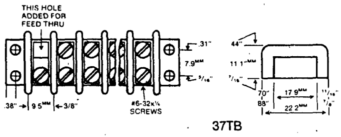
A complete line of Terminal Blocks and accessories, per MS18029, MS25046, MS25123, MS27212, NAS191, and MIL-T-55164/13;/14;/23;/24 and Style 7TB, 8TB, 25TB, 26TB, 37TB, 38TB, 40TB, 41TB.


MOUNT WITH NO.8 SCREW (2 REQ'D)
RADIUS
.443
.320±.010
"A"
"B"
NO 6-32 NC-2 STUD

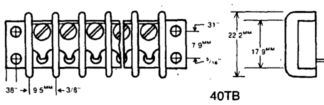
7TB (MIL-T-55164/13)


.090 R.
.295±.010
"A"
"B"
MOUNT WITH NO.8 SCREW (2 REQ'D)
NO. 5-40 N.C.-2 STUD

8TB (MIL-T-55164/14)

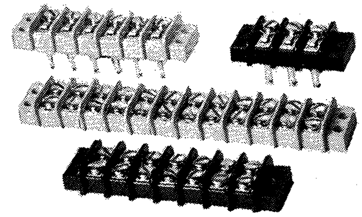

THIS HOLE ADDED FOR FEED THRU
#6-32×¼ SCREWS
9.5MM
3/8"
17.9MM
22.2MM

37TB

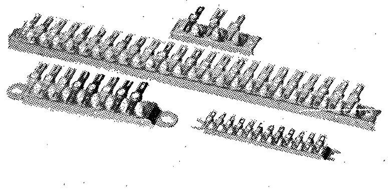

22.2MM
17.9MM
7.9MM
9.5MM
3/8"

40TB

Also available:
COMMERCIAL TERMINAL BLOCKS
in single or double row styles with accessories (marker strips, insulating covers, quick connect and solder terminals, jumpers, etc.)



MULTI-WAY INSULATING TERMINAL STRIPS
(Avail. in standard number of terminals—up to 24 terminals).



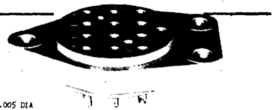
RELAY SOCKETS with Fixed or Removable Contacts!

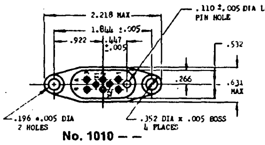
Jan's relay sockets are specifically designed for use with plug-in relays . . . in electronic circuit applications which demand quick and easy assembly and maintenance.

Available with dip-solder pin terminals for printed circuit assembly, or solder cup and turret terminals for direct wiring. For applications requiring removable contacts, solderless wire crimp terminations are available for #16, 20, 22, or 24 AWG wire sizes.

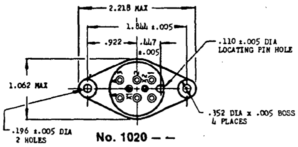
A variety of mounting styles are offered including . . . tapped inserts with studs for top chassis mounting; thru hole; or tapped inserts with removable standoffs and screws for mounting on either side of chassis or panel. Unexpected disconnect because of vibration is eliminated by fastening the relay to the socket. Polarization dots and/or index holes (optional) aid in plugging in relay correctly. Socket contact material is spring tempered phosphor bronze gold plate over silver plate. Body material is Diallyl Phthalate, fiberglass filled per MIL-M-19833.

1000 SERIES

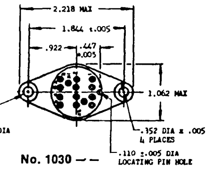



2.218 MAX
1.844 ±.005
.922
.447 ±.005
.110 ±.005 DIA LOCATING PIN HOLE
.532
.266
.631 MAX
.196 ±.005 DIA 2 HOLES
.352 DIA x .005 BOSS 4 PLACES

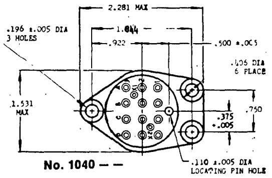
No. 1010 – –


2.218 MAX
1.844 ±.005
.922
.447 ±.005
.110 ±.005 DIA LOCATING PIN HOLE
1.062 MAX
.352 DIA x .005 BOSS 4 PLACES
.196 ±.005 DIA 2 HOLES

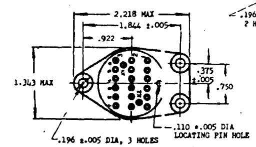
No. 1020 – –


2.218 MAX
1.844 ±.005
.922
.447 ±.005
1.062 MAX
.196 ±.005 DIA 2 HOLES
.352 DIA x .005 4 PLACES
.110 ±.005 DIA LOCATING PIN HOLE

No. 1030 – –


2.281 MAX
1.844
.922
.196 ±.005 DIA 3 HOLES
.500 ±.005
.106 DIA 6 PLACE
1.531 MAX
.375 ±.005
.750
.110 ±.005 DIA LOCATING PIN HOLE

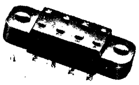
No. 1040 – –

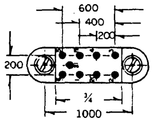

2.218 MAX
1.844 ±.005
.922
1.343 MAX
.375 ±.005
.750
.196 ±.005 DIA, 3 HOLES
.110 ±.005 DIA LOCATING PIN HOLE

No. 1050 – –

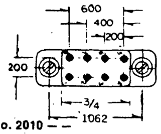
MS No.	JAN Part No.	MS No.	JAN Part No.
MS25322	No. 1010	MS25456	No. 1060
MS25324	No. 1020	MS25458	No. 1070
MS25326	No. 1030	MS25460	No. 1080
MS25328	No. 1040	MS25462	No. 1090
MS25330	No. 1050	MS25464	No. 1100

2000 SERIES

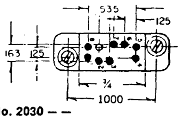



600
400
200
200
¾
1000

No. 2020 – –

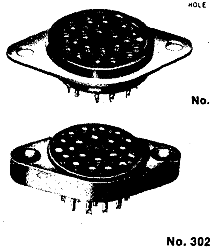

600
400
200
200
3/4
1062

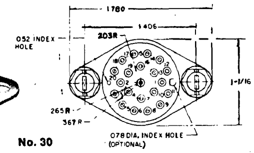
No. 2010 – –


535
125
163
125
¾
1000

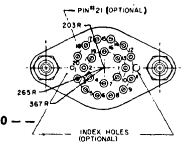
No. 2030 – –

3000 SERIES




1780
1406
203R
052 INDEX HOLE
1-1/16
265R
367R
078 DIA. INDEX HOLE (OPTIONAL)

No. 30


PIN #21 (OPTIONAL)
203R
265R
367R
INDEX HOLES (OPTIONAL)

No. 3020 – –

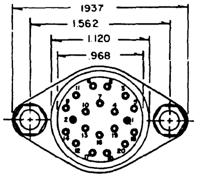
JAN Part No.			Relay Type
No. 3010	No. 3020	No. 3030	6PDT
No. 3011	No. 3021	No. 3031	6PDTL
No. 3012	No. 3022	No. 3032	4PDT
No. 3013	No. 3023	No. 3033	4PDTL
No. 3014	No. 3024	No. 3034	3PDT
No. 3015	No. 3025	No. 3035	3PDTL

Numbering System

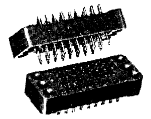
Typical Part No 3010 — —

A = Closed Entry
B = Slotted

1 = Solder Cup
2 = Eyelet
3 = Turret
4 = Dip Solder
5 = Taper


1937
1.562
1.120
.968

No. 3030 – –

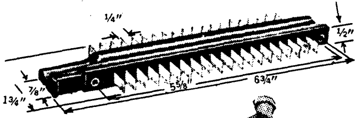


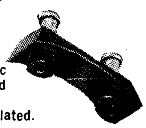
The service of JAN's design engineers is available to assist you in the design and manufacture of special sockets and connectors.

"FEED THROUGH" TERMINAL BOARDS

Cat. No. T-746
Molded of wood-filled melamine per MIL-M-14E.

Avoid expensive tooling. Design around this integrally-molded 20 feed-through terminal board. Equally-spaced terminals can be used for wrap around and/or solder connections. Voltage Breakdown 4000 Volts.


¼"
½"
7/8"
1¾"
5⅝"
6¾"

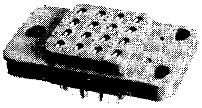


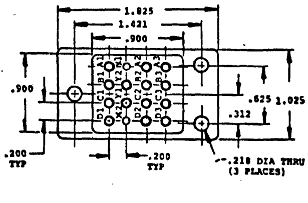
Cat. No. X-3
INSULATED TERMINALS — plastic
For wire termination in metal and plastic cases (glue to case).
Contacts can be brass or brass plated.

4000 SERIES

JAN Part No.	Relay Type MS27400
No. 4010	-2
No. 4020	-4
No. 4030	-6
No. 4040	-8

Layout of contacts per MS27400 print.
Other layouts can be accomodated.




1.825
1.421
.900
.900
.625
1.025
.312
.200 TYP
.200 TYP
.218 DIA THRU (3 PLACES)

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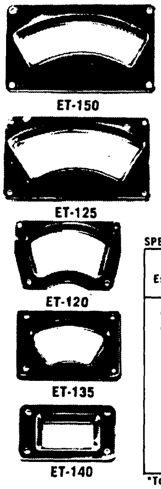
ECONOMY

ESCUTCHEON PLATES FOR ELEGANT FRAMING OF PANEL OPENINGS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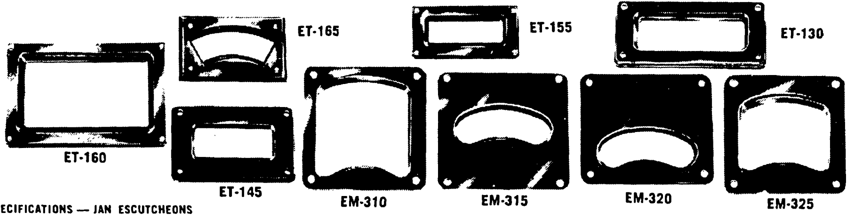
ET-125
ET-120
ET-135
ET-140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EM-310
EM-315
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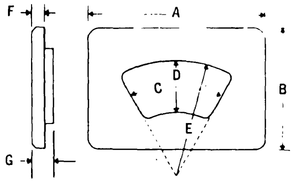
EM-325



SPECIFICATIONS — JAN ESCUTCHEONS

Escutcheon Cat. No.	A Overall Width	B Overall Height	C Window Width	D Window Height	E Effective Outer Dial Radius	Thickness F=Face Only	Thickness G=Incl. Flange	Panel Opening Width	Panel Opening Height	Mounting Holes Width	Mounting Holes Height	Type of Dial	Material
ET-120*	2 27/32	1 7/8	1 3/4	1	1 27/32	3/16	3/16	2 11/32	1 3/8	2 9/16 top 2 1/16 bottom	1 9/16	Circular	Injection Molded Tenite II, Black Matte Finish
ET-125*	3 7/8	2 15/16	2 7/8	1	3 1/4	3/16	5/16	3 1/2	1 1/2	3 1/2	1 15/16		
ET-135*	2 3/4	1 7/8	1 1/2	7/8	1 7/8	3/16	1/4	1 31/32	1 7/32	2 1/4	1 3/8		
ET-150*	3 7/8	2 5/16	2 7/8	3/4	3 1/8	3/16	5/16	3 9/32	1 7/32	3 1/2	1 15/16		
ET-165*	2 5/8	1 5/8	1 49/64	9/16	2 3/32	1/8	1/4	2 7/16	1 1/2	2 1/16	1 1/16		
ET-130*	4	1 13/16	2 3/4	13/16	—	3/16	1/4	2 13/32	1 11/32	3 1/2	1 5/16	Flexible Tape, Digital Counter, Cylinder or Drum	Injection Molded Tenite II, Black Matte Finish
ET-140*	2 1/2	1 1/2	1 1/4	5/8	—	1/8	5/16	1 17/32	1 1/32	2	1		
ET-145*	3 1/4	2 1/16	1 15/16	3/4	—	5/32	5/32	2 13/32	1 5/32	2 3/4	1 9/16		
ET-155*	2 1/2	1 3/16	1 11/16	1/2	—	5/32		2 1/32	2 9/32	2 1/4	13/16		
ET-160*	3 7/8	2 1/2	2 15/16	1 5/8	—	1/8	1/8	3	2 1/32	3 5/8	2 1/4		
EM-310	3	3	2 1/16	1 15/16	2 9/16	1/32	1/4	3 11/32	2 1/2	2 1/2	2 1/2	Helical	Soft Aluminum with Black Matte Enamel Finish
EM-315	3 1/4	3	2 1/4	5/8	2 1/16	1/32	1/8	2 15/32	1 5/64	2 3/4	2 5/8	Circular	
EM-320	3 1/4	2 3/4	2 1/4	5/8	2 1/16	1/32	1/8	2 29/64	1 3/64	2 3/4	2 1/4	Circular	
EM-325	3	3	2 1/16	1 1/2	2 5/16	1/32	1/4	2 11/32	1 61/64	2 1/2	2 1/2	Helical	

*To Order Specify: (1) frame only; (2) frame with clear window; (3) frame with clear window scribed with a center line.

JAN's molded, black, shock-resistant plastic escutcheons are available in an exceptionally wide variety of different types and sizes. They provide a pleasing window to frame dial plates mounted behind the panel.

Plastic escutcheons are available in the following ways: frame only; frame with clear windows; frame with clear window scribed with a center line.

For especially large working areas, stamped aluminum escutcheons, finished in dull black are available to meet the needs for space economy. Withstands temp. shock −65°C to +80°C. NON INFLAMMABLE.

BEZELS

JAN's Bezels enhance the appearance of the instruments on which they are used. These units are functionally designed to provide OPTIMUM UTILIZATION OF THE C.R.T. SCREEN, as well as safety against tube breakage and danger to operating personnel.

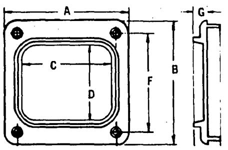
JAN Bezel Assemblies are supplied with a **bezel, calibrated graticule,** (where applicable) **light filter** and **C.R.T. cushion.** Bezels are finished in a smooth dull black non-reflecting surface. These units fit JAN Mu-Metal Shields.

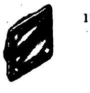
Edge-lit Bezels (E.L.B.A.)**
These Bezels are designed to provide edge lighting of the engraved scale-calibrated graticule by means of pilot lights.

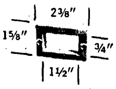
Camera Mount Bezel
These units provide an integral cast mounting flange that fits all standard 3", 5" and 7" C.R.T. cameras.

Cat. No.	C.R.T. Face	Material	Type	Panel Opening	A Over-all Width	B Over-all Ht.	C Visible Area (Bezel) Width	D Visible Area (Bezel) Ht.	E Mtg. Holes Width	F Mtg. Holes Ht.	G- Thickness (Face Only)	H- Thickness (Incl. Flange)	Visible Area (Cushion) Ht.	Visible Area (Cushion) Width
BEZELS FOR 2" C.R.T.														
CP-1110-P-2	Flat	Plastic*	Standard	2 3/16	2 5/8	2 5/8	1 3/4	1 3/4	2	2	5/16	7/16	1 3/4	1 3/4
BEZELS FOR 3" C.R.T.														
CP-1220-P‡	Curved or Flat	Plastic*	Camera Mount	—	4 7/8	3 1/4	2 3/4	2 1/4	4	2 1/2	5/16	11/16"	—	
CP-1328-P-1 CP-1328-P-2	Curved Flat	Plastic*	Standard	3 33/64	3 3/4	3 3/4	2 5/8	2 3/16	3	3	3/8	45/64	2 1/2	2 1/16
CP-1427-1 CP-1427-2	Curved Flat	Aluminum	Camera Mount	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-1428-1** CP-1428-2**	Curved Flat	Aluminum	Camera Mount E.L.B.A.**	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-1429-1 CP-1429-2	Curved Flat	Aluminum	Camera Mount	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-3430-1 CP-3430-2	Curved Flat	Steel	Standard	—	4 1/16 Dia.		3 3/8 Dia.		3 3/4	3 3/4	1 41/64	1 41/64	2 25/32 Dia.	
BEZELS FOR 4" C.R.T.														
CP-1533-P‡	—	Plastic*	Camera Mount	3 1/32	4 39/64	3 61/64	3	3	4	—	1 3/32	1 3/32	No Cushion	
BEZELS FOR 5" C.R.T.														
CP-13549-1 CP-13549-2	Curved Flat	Aluminum	Standard	6.0	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	17/32	1 3/32	4 1/4	3 3/16
CP-13584-1 CP-13584-2	Curved Flat	Aluminum	Camera Mount	6.0	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	1 5/32	1 23/32	4 1/4	3 3/16
CP-13595-1** CP-13595-2**	Curved Flat	Aluminum	Standard E.L.B.A.**	5 7/16	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	17/32	—	4 3/4 Dia.	
CP-1465 CP-1465-2	Curved or Flat Flat	Steel	Camera Mount	5 9/16 5 17/32	6 3/8 Dia.		5 35/64 Dia.		6	6	7/8	7/8	No Cushion 4 1/2 Dia.	
CP-19495-1** CP-19495-2**	Curved Flat	Aluminum	Camera Mount E.L.B.A.**	5 7/16	6 1/4	6 1/4	5 1/4 Dia.		4 15/16	4 15/16	1 5/32	—	4 3/4 Dia.	
CP-19636-2**	Flat	Aluminum	Camera Mount E.L.B.A.**	5 5/8	5 7/8	5 7/8	4 1/2 Dia.	3	4 7/8	4 7/8	1 1/4	—	4 1/2 Dia.	
CP-446-11 CP-446-22	Flat	Steel	Camera Mount	—	6 9/16 Dia.		5 9/16 Dia.		6 5/32 6 1/8	6 5/32 6 1/8	1	1 19/64 1 3/16	4 1/2 Dia.	
CP-545	Curved or Flat	Aluminum	Camera Mount	5	5 27/32	5 27/32	4 25/32 Dia.		5	5	25/32	—	—	
BEZELS FOR 7" C.R.T.														
CP-7330-1 CP-7331-2**	Curved Flat	Plastic*	Standard E.L.B.A.**	7 13/32	7 13/16	7 13/16	6 5/16 Dia.		6 3/16	6 3/16	3/4	3/4	6 3/8 Dia.	
CP-7375-1** CP-7375-2**	Curved Flat	Aluminum	E.L.B.A.**	7 13/32	8	8	4 1/2	4 1/2	6 3/16	6 3/16	1 17/32	2 29/32	1 1/2	4 1/2
CP-7420-1** CP-7420-2**	Curved or Flat	Plastic*	Camera Mount	7 13/32	7 13/16	7 13/16	6 15/16 Dia.		6 3/16	6 3/16	3/4	1 3/8	6 3/8 Dia.	
CP-7550	Curved or Flat	Aluminum	Camera Mount	4 25/32	7 3/8	6 1/4	4 3/4	4 3/4	6 1/4	5 1/8	1 3/16	1 3/16	No Cushion	
BEZEL FOR 10" C.R.T.														
CP-10860	Curved or Flat	Aluminum	Standard	11 1/32	12 1/4 Dia.		8 1/16	6 1/4	11 1/2 B.O.		11/16	13/16	No Cushion	

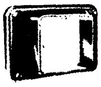
*All Plastic Bezels are furnished in shock resistant plastic, per MIL-P-3414. **Edge Lit Bezel Assemblies. ‡Rectangular C.R.T.

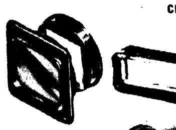



CP-1110P2
(with 4 mounting holes)
CP-1120P2
(same as above, but with 2 mounting holes, in diagonal corners)

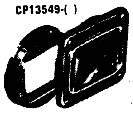


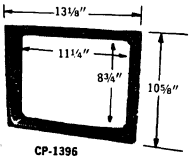
CP-1393


CP-1220-P

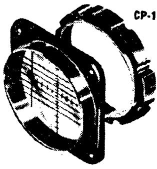

CP-725
CP-1328-P-( )

CP-1428-( )
CP-1427 } Same as
CP-1429 } 1428, except for mounting holes


CP13549-( )



CP-1396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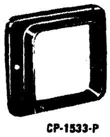
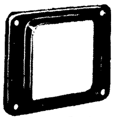
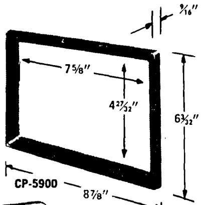
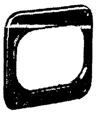

CP-1533-P

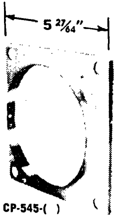

CP-7550

CP-1465

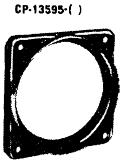


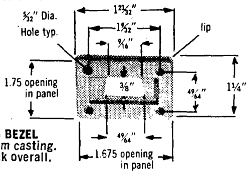
CP-5900


CP-13595-( )



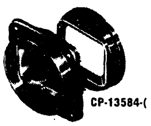
CP-545-( )

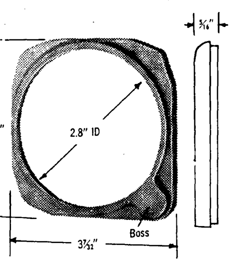

CP-7420



CP 2105 BEZEL
Aluminum casting.
3/16" thick overall.

CP-7330


CP-13584-( )



CP 2106 BEZEL
Aluminum casting.

DISTINCTIVE FEATURES

- Engineered for 2", 3", 4", 5", 7", 8", 10" C.R.T.
- Maximum display area
- Precision engraved, scale-calibrated graticules; standard or to customer's specifications
- Materials and finish to "Mil Spec"
- Heavy buna-S shock cushion
- Models for edge-lighting
- Phosphor-matched light filters
- Non-reflecting matte surfaces
- Rugged camera mounts
- Models for curved and flat-faced C.R.T.

Are Our
Specials JAN Specialty

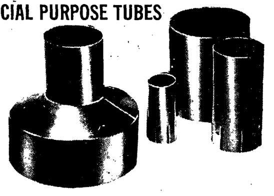
JAN HARDWARE
MANUFACTURING COMPANY INC.

47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800

QUALITY
RELIABILITY
ECONOMY

JAN'S MAGNETIC SHIELDS are made of MU-Metal or equal and are hydrogen annealed by a special process to assure optimum orientation of the molecular structure of the alloy for best magnetic shielding. JAN'S MAGNETIC SHIELDS prevent distortion and intensity modulation of the electron beam due to stray magnetic fields. In addition, the use of these shields protect personnel against the dangers of accidental tube breakage. Mounting holes are tapped for No. 6-32 screws as shown. These shields are designed to fit JAN'S standard bezels as listed below. See preceding pages for specifications on JAN'S BEZEL ASSEMBLIES.

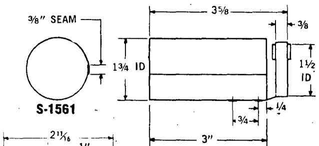
MAGNETIC SHIELDS FOR PHOTO-MULTIPLIER AND SPECIAL PURPOSE TUBES



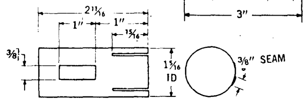
Shield	Tube
S-1091	ICP1
S-1181	929 930 5581 5653 IP39 IP40
S-1500	6291
S-1561	4440 6199 7102
S-1562	931 4471 4472 4473 6323 6328 7117

Shield	Tube
S-1562	IP21 IP22 IP28
S-1563	1EP1
S-2002	2002 6810 7264 7265 7326
S-2003	6903
S-2004	2020 4463 5819 6292 6342 6571 6655 7746 8053

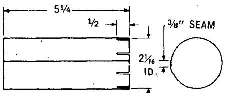
Shield	Tube
S-2005	6372
S-2007	7850
S-2008	4459 6217
S-3015	1197 6363
S-5013	1112
S-5018	1198 6364
S-7009	1238 1287



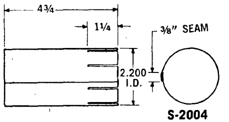
S-1561



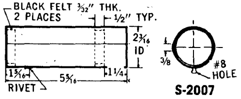
S-1562



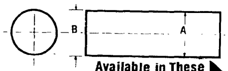
S-2002



S-2004

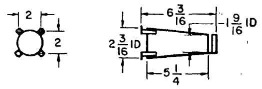
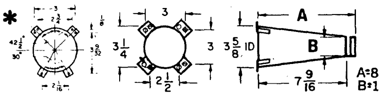
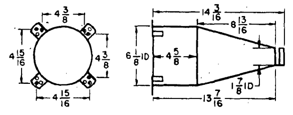
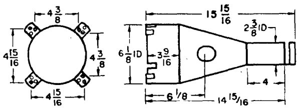
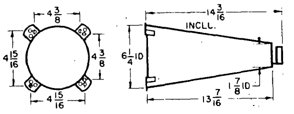
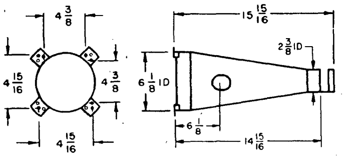


S-2007



Seamless Tubing Available in These Dimensions ▶ Can be supplied cut to your length, with holes and/or cutouts to your specifications.

A	B
1.010	1.050
.948	.998
.740	.783
.632	.663

SHIELD CAT. NO.	FOR USE WITH C.R.T. NO.	MATCHING JAN BEZEL	
S2001 **S2001-1**	902 2AP 2BP	CP1110P2 CP1120P2	
S3001 adaptable for edge-lighting graticule using S3010 with Bezel CP1428✱	3RP 3RPA	CP1328-P-1 CP1427-1 CP1429-1 CP1328-P2 CP1427-2 CP1429-2 CP3430-1 CP3430-2	 A=8¼ B=1⅝
S3003 **S3003-1**	3KP 908A 3AP	CP1328-P1 CP1427-1 CP1429-1	Same type as S-3001, except A=10⅛ B=2
S3004—12 (less anode hole) —22 (with anode hole) adaptable for edge-lighting graticule using S3012 with Bezel CP1428 ✱	3BP 3JP 3ACP	Same as S3003 Same as S3005	Same type as S-3001, except A=8⅝ B=2⅜
S3005 adaptable for edge-lighting graticule using S3008 with Bezel CP1428✱	3WP	CP1328-P2 CP1427-2 CP1429-2	Same type as S-3001, except A=10⅝ B=1⅞
S3016	3ASP		Contact factory for specifications of these shields
S3019	3XP	CP-725	
S3031	3BFP		
S3027	4KP 4ER	CP1533P	
S4001	SC3511 4MP	CP-1533P	
S5001	5UP	CP1465 CP13584-1 CP13549-1 CP13595-1 CP19495-1 CP446-11 CP446-22	
S5002 adaptable for edge-lighting	5BP 5CP 5ABP 5ADP	Same as S5001 Same as S5006	
S5003	5UP	CP1465 CP13584-1 CP13549-1 CP13595-1 CP19495-1	
S5005 adaptable for edge-lighting	5AQP 5ABP 5ADP	CP1465-2 CP13549-2 CP13584-2 CP13595-2 CP19495-2 CP446-11 CP446-22	
S5006 adaptable for edge-lighting	5RPA 5 AWP	CP1465-2 CP13549-2 CP13584-2 CP13595-2 CP19495-2	Contact factory for specifications of these shields

Shielding for EMC, RFI, and EMI now available, as bezels, shields, cushions, gaskets . . . in strip, sheet, formed and molded.

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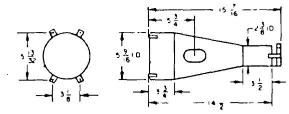
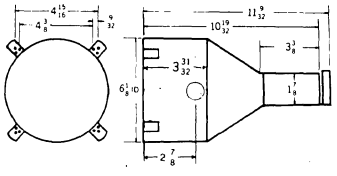
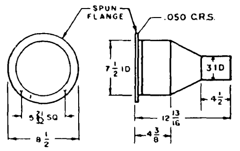
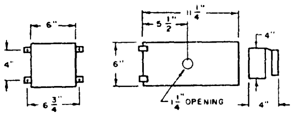
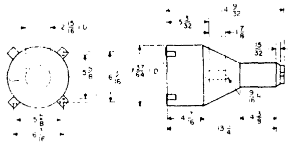
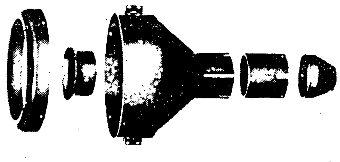
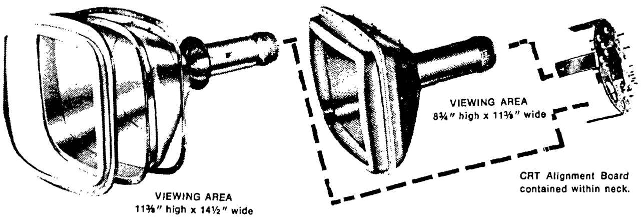
SHIELD CAT. NO.	FOR USE WITH C.R.T. NO.	MATCHING JAN BEZEL	
S5008 adaptable for edge-lighting	5AMP	CP1465-2 CP13549-2 CP13584-2 CP13595-2 CP19495-2	**Contact factory for specifications of these shields**
S5017 adaptable for edge-lighting	5ABP 5ADP	CP1465-2 CP19636-2	
S5027	5BTP	CP19495-2	
S5032	5CEP	CP19495-2	**Contact factory for specifications of these shields**
S5500	5BXP		
S6600	6E17P		
S7001	7GP 7JP 7VP	CP7330 CP7445 CP7331 CP7550 CP7420	
S7003 (Shield supplied as two separate sections)	7YP3	CP-7550	
S7006	7ALP	CP7330 CP7445 CP7331 CP7550 CP7420	
S10002	10KP 10WP		

When ordering, be sure to specify CRT type number. Anode openings provided, where required.

We will design and manufacture ***SPECIAL*** *Shields & Bezels,*

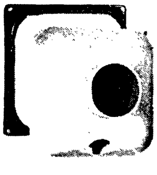
to customers specifications. Complete facilities for prototype work.



VIEWING AREA
11⅜" high x 14½" wide

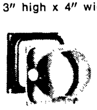
VIEWING AREA
8¾" high x 11⅜" wide

CRT Alignment Board contained within neck.



VIEWING AREA
6" high x 6" wide

VIEWING AREA
3" high x 4" wide



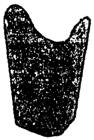
VIEWING AREA
2½" high x 2½" wide

VIEWING HOODS Black neoprene rubber, contour-molded, fits the shape of face. Keeps out ambient light when viewing scope.

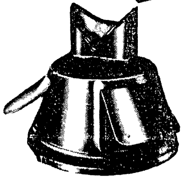
Cat. No. H-465
Can be used as viewing hood, on 2¾" dia. bezels. (#1427; 1428; 1429). Also serves as adapter to permit use of face fitting neoprene rubber viewing hoods. All aluminum. Dull black enamel finish.

Cat. No. H-689-1 (5⅝" I.D.)
Used with following Jan Bezels; 19636; 19495; 13584; 1465.
No. H-689-2 (4⅞" I.D.)
Used with JAN Bezel #545

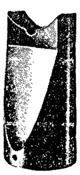
Cat. No. H-1008
TO FIT RECTANGULAR BEZELS
Can be adapted for smaller I.D.'s. Can be used with JAN Bezel CP-1328P. Can be adapted for #1533-P.



Cat. No. H-1713

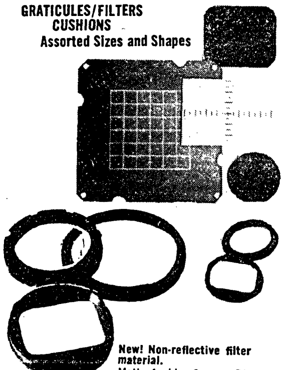


Cat. No. H-1063 (12" I.D.)
Flanges provided for hand access to PPI settings.



Cat. No. H-1361 (5²⁵⁄₃₂" I.D.)

GRATICULES/FILTERS CUSHIONS
Assorted Sizes and Shapes



New! Non-reflective filter material.
Matte 1 side. Grey or Blue. Other colors on special order.

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WE CATALOGUE & MANUFACTURE MORE THAN 10,000 DIFFERENT KNOBS FOR COMMERCIAL, INDUSTRIAL, MILITARY AND OTHER GOV'T AGENCIES. (FSN, MS, SM, SC, ON, NAS, AN, etc.) WE INVITE YOUR INQUIRIES.

Standard Shaft Holes - 1/16" Increments.

-(2)—1/8"
-(2.5)-5/32"
-(4)—1/4"

-(B)—1/8" D Flatted
-(B.5)-5/32" D Flatted
-(D)—1/4" D Flatted
-(D1)—5/16" D Flatted

-(BB)—1/8" Double Flatted
-(BB.5)—5/32" Double Flatted
-(DD)—1/4" Double Flatted
-(DD1.3)-21/64" Double Flatted

Nominal shaft dimensions: 1/8" = .128 1/4" = .253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4" shaft, Matte Finish, Black)

SLIP-CLUTCH KNOB with Spinners

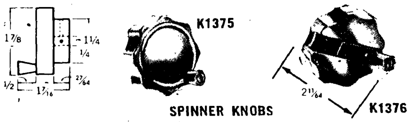
KS-1375-(4) & KS-1376-(4)

For driving devices such as variable capacitors, inductors, potentiometers, etc., the "slip-clutch"* automatically disengages and slips when pre-determined torque has been exceeded. Knobs are fluted, and equipped with either fixed or retractable spinner for fast turning. Backlash-free units safeguard against cranking beyond normal stops.

*Normally set for 3-6" lbs./in. Can be modified for other requirements.

Model K-1376-(4) is identical with K-1375 with additional feature retractable spinner. Spring loading provides positive, toggle-type action to lock spinner in open or closed position. K-1376 for use where economy of space is essential.

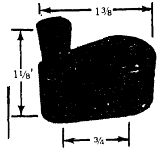
Cat. Nos. K-1275-(4) & 1276-(4)
In appearance, these knobs are identical with K-1375 and K-1376 but without Slip-Clutch. Molded Bakelite-to-metal-insert construction, two set screws for attachment to shafts.



SPINNER KNOBS

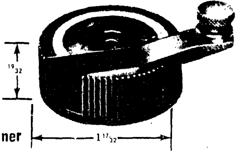
With Fixed or Retractable Spinners

Standard: Glossy finish. (Matte finish avail. on special order)



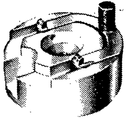
K-1125-(4) SPINNER KNOB

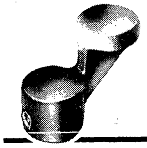
SK-1125 SLIP CLUTCH KNOB



MS-91522-1-(4)
Retractable Spinner
CRANK KNOB
Aluminum Olive Drab. Other colors and shaft dia. on request. 2 5/8" min. clearance required with handle in open position.

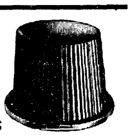
K1622
Retractable Spinner CRANK KNOB
Modified version to replace MS91522. Incorporates brake mechanism to lock control in position.





K1358-(2)
MINIATURE SPINNER KNOB
Nylon. 19/32" H. x 3/4" W.
Spinner section dia. 3/8".
Accepts 1/8" shaft or smaller.

K1357-(4) SLIP CLUTCH KNOB
Knurl aluminum. Twin set screws.
1 3/8" dia. skirt, tapers to
1" at top. Height, 1" Std. Torque
1 to 3 lbs./in. Avail. from 1/2 oz./in.
to 48 oz./in.

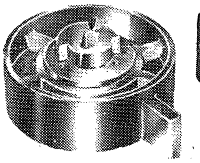


For additional slip clutch knobs, see JANSET KNOBS

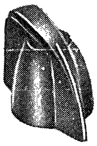
MOLDED PLASTIC KNOBS W/O METAL INSERTS

2 Set Screws (unless otherwise specified).

K1440
K1445
K1575
K1791
K1794
K1942
K2108
AN3220

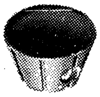


K1794-(DD)
29/32" H. x 3 1/2" overall dia. Mounts from top.



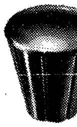
AN3220-1-(4)
7/8" H. 27/32" dia.
1 1/2" L.

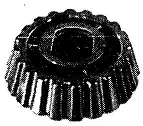
AN3220-3-(D)
7/8" H. x 27/32" dia.
1 1/2" L. 1 set screw.



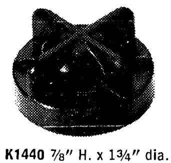
K1575-(4)
1/2" H. x 3/4" OD.
Single set screw.
No insert.

K1445-(4)
1" H. x 7/8" dia.
One set screw.

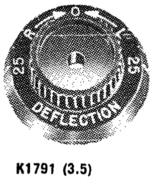




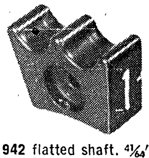
K2108-DDGA
31/64" H. x 1 3/8" OD.
(Double flatted shaft hole).
.258 x .209
No screws, mounts to end of female threaded shaft.



K1440 7/8" H. x 1 3/4" dia.
Special mounting. Adaptable for other mounting.

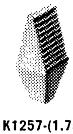


K1791 (3.5)
3/4" H. x 1 23/32" dia.
Mounts from top.

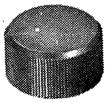


K1942 flatted shaft. 41/64" W. x 3/16" thick. Mounts with clearance hole 11/64" dia. thru 39/64" thickness.
39/64" Thick; 1 33/64" L. x 17/64" H.
Note: Add dash & number required to be at end of knob.

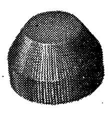
K1257
K1335
K1407
K1939
K1940
K1954
K2006
K2034



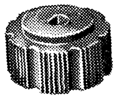
K1257-(1.75)
15/16" H. x 7/16" W. Hole for pinning to shaft.



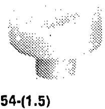
K1939 .260 dia. shaft.
no screws, must be pinned to shaft;
1 1/16"; 35/64" H.



K1940-(3.25)
no screws—must be pinned to shaft;
1 1/64" OD.; 5/8" H.

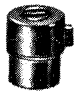


K1335-(B.5)
11/32" H. x 21/32" dia.
No screw holes.

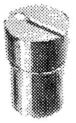


K1954-(1.5)
63/64" OD.; 11/16" H.
Allows turning with one finger or conventional.

K2034 Push Button.
For 3/64" x 3/16" flat shaft, 3/8" L.
15/32" H. x 29/64" dia. Mounts by pushing onto shaft with flat spring in shaft hole. No screws.



K2006-(B)
1/2" H. x 11/32"
dia. with 3/64" indicator tip. No screws.
Screwdriver slot on top.

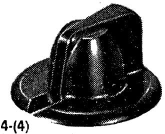


K1407-1(B)
9/16" H. x 23/64" O.D. shaft hole dia. .083 with .048 flat.
Screwdriver slot on top.

K1407-2(B) 1/2" H.
With or w/o white dot.

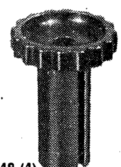
K1717
K1795
K1948
K2005
K2093
K2094
K2104
SMC4447976
SMC447306

K1795-(DD)
1 3/16" L. x 15/32" H.
7/8" skirt dia. Black w/ white fill. Mounts from top.



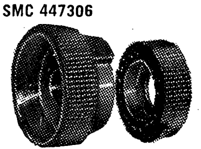
K2104-(4)
7/8" H. x 1 3/4" dia.

K1717 15/32" H.
1/2" O.D.; ID .140
can be 8-32 thread.



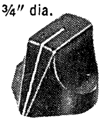
K1948-(4)
1 1/4" dia.; 1 11/16" L. with .109 slot in one wall.

SMC 447306



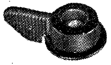
SMC 44479 76-
(1) -(2)

K2005-(8)
17/32" H. x 3/4" dia.
(Two 5/32" dia. holes on top thru to 1/2" dia)



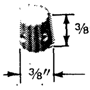
K2094-(D)
3/4" H. x 1 1/16" dia.
No screw - push on type with flat spring.

K2093-(DD)
7/16" H. x 1 1/8" L.
Mounts from top.

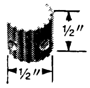


MINIATURE KNOBS
PLASTIC

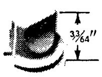
K101294
K101295
K101297



K-101297

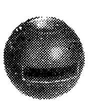


K-101295-(B)
-1 w/white dot
-2 plain
Also avail. with 1/8" round shafts.

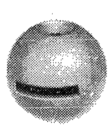


K-101294( )
-1 11/16" skirt dia.
-2 3/4" skirt dia.

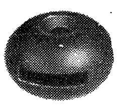
NAS120
NAS121
NAS123
NAS124
NAS125
NAS168



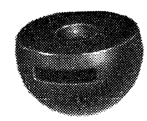
NAS120-(2)(1.5)
For flat shafts.
3/4" spherical dia.
1 screw.



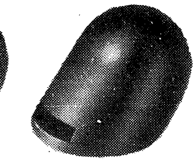
NAS121-(3)(2)(1.5)
For flat shafts.
1" sperical dia.
1 screw.



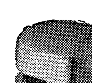
NAS123-(2)(1.5)
For flat shafts.
1" dia. 5/8" oval.
1 screw.



NAS124-(3)(2)(1.5)
For flat shafts.
13/16" H. x 1 1/4" dia.
1 screw.



NAS125-(3)(2)(1.5)
For flat shafts.
1 1/8" x 1 3/16" semi-round.
1 screw.



NAS168-(3)(2)(1.5)
For flat shafts.
13/16" H. x 1" dia.
1 screw.

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JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800

QUALITY
RELIABILITY
ECONOMY

MOLDED PLASTIC KNOBS WITH METAL INSERTS

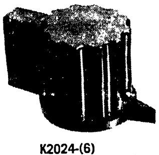
2 Set Screws (unless otherwise specified).

Standard Shaft Holes - 1/16″ Increments.

-(2)—⅛″	-(B)—⅛″ D Flatted	-(BB)—⅛″ Double Flatted
-(2.5)-5/32″	-(B.5)-5/32″ D Flatted	-(BB.5)—5/32″ Double Flatted
-(4)—¼″	-(D)—¼″ D Flatted	-(DD)—¼″ Double Flatted
	-(D1)—5/16″ D Flatted	-(DD1.3)-21/64″ Double Flatted

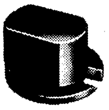
Nominal shaft dimensions: ⅛″=.128 ¼″=.253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(¼″ shaft, Matte Finish, Black)

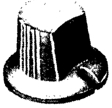

K2024-(6) 1¼″ H. x 1 11/32″ dia. 2¼″ overall length.

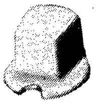
M-3926/3 1″ H. x 1″ OD. with 9/16″ dia. hub. Also avail. to accommodate 8-32 and ¼-28 threaded shafts.

K783
K1332
K1333
K1494
K1706
K1707
K1708
K1709
K1803
K1804
K2000
K2024
M-3926


K1332-(3) 21/32″ H. x 1⅛″ dia. Notch: ⅛″ W. x 3/16″ D.

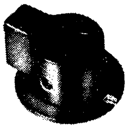
K1333-(3) ⅝″ H. x ¾″ dia.

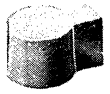

K2000-(2) 11/16″ H. x 1″ dia.

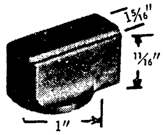

K1706-(D) 1½″ O.D. x ⅞″ H. Single set screw.
K1707 2″ O.D. x ⅞″ H.

K1708-(D) ¾″ H. x ¾″ wide bar. 1½″ O.D. skirt.
K1709-(D) ⅞″ H. x ¾″ wide bar. 2″ dia. skirt.

K1803-(4) ¾″ H. x 1 3/16″ dia. Skirt can have white line or notch.

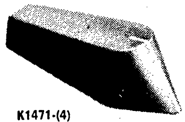

K1805 Plastic with 8-32 metal stud. 7/32″ length of stud. Plastic ⅛″ thick. No set screw.

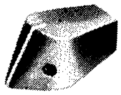

K1804-(D) ⅝″ H. x ¾″ dia. 1 1/16″ long. Can be supplied with skirt.



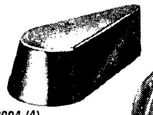
BAR KNOB
K-783 Set screw at back, for shaft attachment. Finished to specifications.

K1471
K1472
K1573
K1629
K1785
K1953
K2004
K2037
K2040
K3219


K1471-(4) ¾″ H. x 2 5/16″ L. x ¾″ W. Center of shaft hole to pointer end, 49/64″.

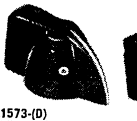

K1472-(4) 21/32″ H. x 1 15/32″ L. x ¾″ W. Center of shaft hole to pointed end, 37/64″.

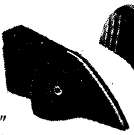
Black or Grey. Can be supplied for other round and "D" flat shafts.


K2004-(4) ⅜″ H. x 1⅛″ L. x 5/16″ body dia. (Avail. in Cast Alum. See K2002.)

AN3219-1-(4) ⅝″ H. x ¾″ dia. x 1¼″ L. 1 set screw.

K2037-(D) ¾″ H. x 27/32″ dia. 1½″ L.


K1573-(D) ¾″ H. x 1 15/32″ L. x 13/16″ body dia.


K2040-(D) ¾″ H. x ⅞″ dia. x 2¼″ L.

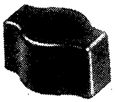
K1629-(4) 2¼″ overall length x ⅞″ overall width. Shaft hole centered.

K1785-(2)(4) ½″ H., 1½″ W., x ½″ dia.

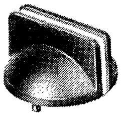
K1953-(4) 2 set screws, or for female or male threaded stud 23/64″ H. x 1⅛″ OD.

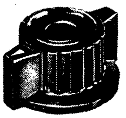
K706
K772
K1468
K1481
K1492
K2011
K2014
K2015
K2035
K2088
K2100

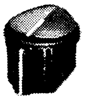
K706-(DD) (mounts from top of knob). No insert. 1″ H. x ⅝″ W. x 1⅜″ L.

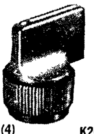

K2035-(4) 11/16″ H. x ⅞″ D. x 1¼″ L.

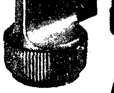
K1492-(4) 11/16″ H. x 1⅛″ L. Single set screw.


K772-(4) 1⅜″ OD.; ¾″ H. (not including non-rotation pin). Avail. in black, red, yellow, green, & blue. To order add color to part no.

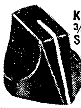

K2011-(4) ¾″ H. x 1⅜″ dia. Overall length 1⅝″.

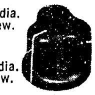

K1481-(2)(4) "Pull" Knob 39/64″ H. x 23/32″ dia. x 27/32″. Note: Basic configuration of knob is MS91528-1GG.


K2014-(4) 1″ H. x 45/64″ OD. Overall length 29/32″.

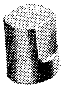

K2015-(4) 1 1/16″ H. x 53/64″ OD. Overall length 1⅛″.

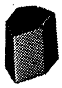
K1468-(4) 27/32″ H. x 11/16″ dia. Single set screw.


K2088-(4) ¾″ H. x 1 1/16″ dia. Single set screw.


K2100-(2) 9/16″ H. x ⅝″ dia.

K1280
K1345
K1351
K1353
K1355
K1700
K1718
K1772
K1793
K1805

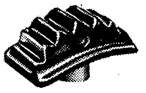

K1718-(B) 21/32″ H. x 9/16″ O.D. Can supply for ¼″ shaft on special order.

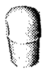

K1772-(2) 9/16″ H. x 11/16″ L.

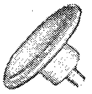
K1351-(2) .096 across flat. 9/16″ H. x ⅝″ dia.

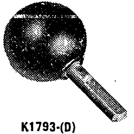
K1355-(3) ⅝″ H. Base size 17/32″ x 13/32″.

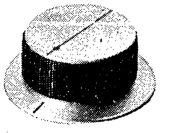
K1345-(3) ¾″ W. x 7/16″ dia. (Shaft mounts in side hole, screw at bottom). Single set screw


K1280-(3.25) 5/16″ H. x ⅞″ L. x 11/16″ W.


K1353 5/16-32 threaded shaft. 59/64″ H. x ½″ dia.




K1793-(D) 2⅛″ L. x 1 1/16″ dia. No set screw.


K1700-(4) 1 13/16″ H. x 1 9/16″ body O.D. Plastic body, metal cap, skirt and insert. 25/64″ skirt O.D.

K929
K936
K1334
K1344
K1349
K1350
K1359
K1792
K1945
K1946
K1993
K1997

K1344-(B.5) with .130 across flat. ⅞″ H. x ⅞″ dia.

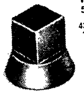
K1349-(B.5) 11/16″ H. x ¾″ dia.

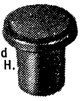
K1350-(B) ⅞″ H. x ⅞″ dia.

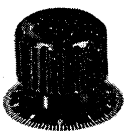
K1359-(B) 9/16″ H. x 7/16″ OD. "P" on top filled. "Day-glo Saturn Yellow" or "White".

K1792 ¼-20 threaded shaft. ¾″ H. x ⅞″ dia. Color Gray.

K1945 6-32 threaded shaft. 17/32″ H. x ⅝″ OD.

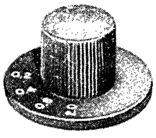

K1993-(4) ⅝″ H. x 43/64″ dia.


K1946 6-32 threaded shaft. ¾″ OD.; ¾″ H. with ½″ dia. hub. For 8-32 threaded shaft, **K1946-832.**


K936-(5) Knob dia. 1⅛″; Skirt dia. 1½″; overall height 13/32″. Beveled aluminum skirt, black anodized finish. Deeply etched and filled contrasting markings. Accurately centered brass insert.
K936-(4) KNOB ONLY
K929-(5) Same as above. less skirt.
K929-(4)

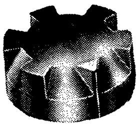
Variations on shaft sizes and markings available in production quantities. Single set screw.

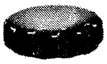
K1334-(2) ⅝″ H. x ¾″ dia. Notch: 3/32″

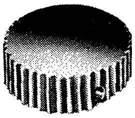

K1997-(4.25) ¾″ H. x 1⅜″ dia.

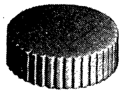
K1368
K1398
K1462
K1714
K1796
K1798
K1938
K1952
K2012

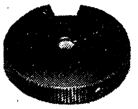
K1398/WD-(6) 1 1/16″ H. x 2⅜″ dia.

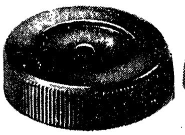

K1798-(2) ½″ H. x 1½″ dia.

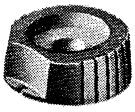

K1952-(4) 2 set screws, or for female or male threaded stud. 27/64″ H. x 1⅛″ OD.

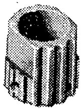

K1796-(7.5) 33/64″ H. x 1½″ dia. One set screw.


K1938-(3.5) 33/64″ H. x 1½″ OD. Single set screw.

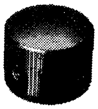

K1714-(4) 23/64″ O.D. x ⅜″ H.

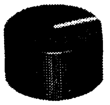

K2012-(4) 39/64″ H. x 2″ dia.

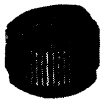

K1462-(4.25) 7/16″ H. x 1″ OD.


K1368-(D) 11/16″ H. x 11/16 dia.

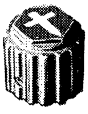
K1331
K1347
K1348
K1352
K1464
K1579
K1771
K1783
K1789
K2089
K2099


K1331-(3) ¾″ H. x 1 1/64″ dia.


K1579-(2)(4) ½″ H. x ⅞″ dia.


K1771-(4) 13/32″ H. x 1 19/32″ dia. Appearance same as JAN deluxe instrument knobs.

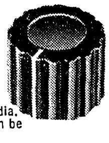
K1789-(B) 21/32″ H. x ½″ dia. Note: Same as deluxe inst. knobs, except w/flat cap.


K1347-(2.5) ½″ H. x ¾″ dia.

K1352-(B) 11/16″ H. x ½″ dia.

K1464-(B) 11/16″ H. x ½″ OD.

K1348-(2.5)(B.5) ½″ H. x ¾″ dia.


K1783-(4) 1″ H. x 1¼″ dia. Top recess can be color coded.

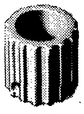
K2089-(3) 19/32″ H. x 55/64″ dia.

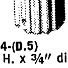
K2099-(4) 19/32″ H. x ⅞″ dia.

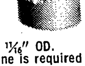
K1343
K1346
K1354
K1493
K1806
K1925
K1950
K1995
K1998
K2098

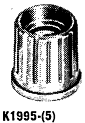
K1493-(3) ⅝″ H. x 9/16″ dia.
With or w/o white dot.

K1343-(D.5) 21/32″ H. x ⅞″ dia.

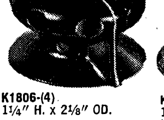

K1346-(D) 11/16″ H. x 11/16″ dia.

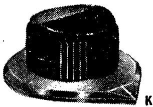

K1354-(D.5) 45/64″ H. x ¾″ dia.

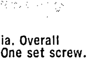

K1925-(2) 13/32″ H. x 11/16″ OD. If white line is required add /WL to part no.


K1995-(5) ¾″ H. x 23/32″ dia. Color — Brown.

K2098-(4) 11/16″ H. x 1¾″ dia.


K1806-(4) 1¼″ H. x 2⅛″ OD.
K2016 ⅞″ H. x 1½″ OD.


K1950-(4) 1⅞″ dia. skirt, 1¼″ knob. 55/64″ H. overall. Note: Knob less skirt is standard deluxe instrument P/N 121A4MA, color black. Skirt is gray w/clear tip & white line.


K1998-(D) ¾″ H. x 1″ dia. Overall length 1⅛″. One set screw.

Are Our Specials JAN Specialty

JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800

QUALITY
RELIABILITY
ECONOMY

TRANSILLUMINATED (BACK-LIT) MOLDED PLASTIC KNOBS WITH METAL INSERTS

2 Set Screws (unless otherwise specified).

Precision molded of JAN's transparent plastic material to military specs, with dull finish. Transilluminated pointers permit easy reading under subdued lighting conditions. For use on instrument panels, switchboards, electrical and electronic apparatus.

Can be supplied without transillumination, for other size shafts, and in other colors.

OTHER SPECIAL VARIATIONS AVAILABLE

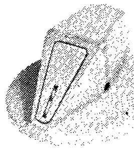
Standard Shaft Holes - 1/16" Increments.

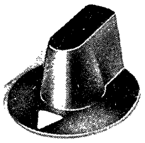
-(2)—⅛"	**-(B)—⅛" D Flatted**	**-(BB)—⅛" Double Flatted**
-(2.5)-5/32"	**-(B.5)-5/32" D Flatted**	**-(BB.5)—5/32" Double Flatted**
-(4)—¼"	**-(D)—¼" D Flatted**	**-(DD)—¼" Double Flatted**
	-(D1)—5/16" D Flatted	**-(DD1.3)-21/64" Double Flatted**

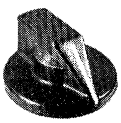
Nominal shaft dimensions: ⅛"=.128 ¼"=.253

Finish: M- Matte; G- Glossy; **/WD**- White Dot; **/WL**- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(¼" shaft, Matte Finish, Black)

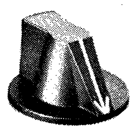
K977
K1103
K1199
K1788
K1999
MS24229-P1
MS25165-1
MS25166-1

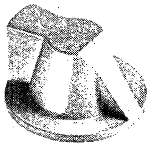

LM-K 1199
USED ON LUNAR MODULES!
Precision aluminum casting. Adaptable for back lighting. With slip clutch features similar to K1375.

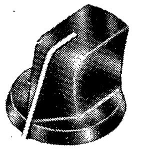

K1999-(D)
⅞" H. x 1 37/64" dia

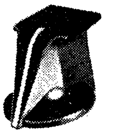

K1103-(D)
13/16" H. x 1⅝" dia.
One set screw.

MS25165-1-(D)
23/32" H. x 1¼" dia.

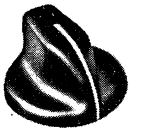

MS25166-1-(D)
27/32" H., 1½" dia. skirt. One set screw.

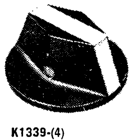

MS24229-P1-(D)
27/32" H. x 1½" OD.
One set screw.


K1788-(D)
⅞" H. x 1 23/32" L.
Skirt dia. 1⅜".
One set screw.

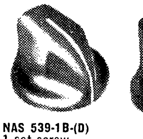

USAF 61D 404 74
K-977-(D)
1⅛" H. x 1¼" dia.
Single set screw.

NAS 539
K1338
K1339
K1501
K1502
K1503
K1504
K1800
K2041


K1338-(D)
25/32" H. x 1½" dia. One set screw.

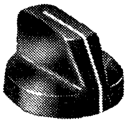

K1339-(4)
¾" H. x 1½" dia.

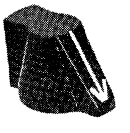
K2041-(4.4)(D)
⅞" H. x 1 5/32" dia.
Transilluminated
(No insert)

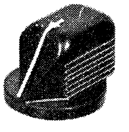

NAS 539-1B-(D)
1 set screw.
NAS 539-1C-(4)
2 set screws.
51/64" H. x 1¼" dia.

K1501-(B)
9/16" H. x ⅞" dia.

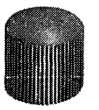
K1504-(B)
⅝" H. x 1" OD.

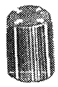

K1800-(D)
59/64" H. x 1½" dia.
One set screw.

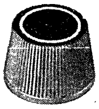

K1502-(B)
23/32" H. x 1 5/32" L.

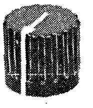

K1503-(B) 1" dia, ¾" H. x 1⅛" L.

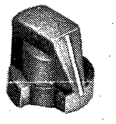
K1428
K1430
K1435
K1500
K1951
K1992
K2031
MS25169
MS25170
MS251701

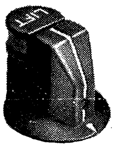

K1428-(2)(4)
⅝" H. x ¾" dia.
Avail. w/backlit indicator line or dot.


K2031-(2)
¾" H. x 9/16" OD.

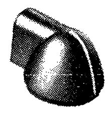

K1992-(4)
¾" H. x 1 1/16" dia.

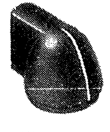

K1500-(2)(B)
⅝" H. x ¾" dia.


K1430-(2)(4)
⅝" H. x ¾" dia. One set screw.


K1435-(4)
⅞" H. x 1 1/32" dia.
One set screw.

K1951-(5.25)
51/64" H. x 1" dia.
3 set screws. Metal insert extends above plastic body.

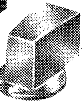

MS25169-P1B 11/16" H. knob body .875" dia.
One set screw.
Also avail. w/skirt.

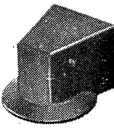

MS25170-P1B
27/32" H. x ⅞" dia.
One set screw.

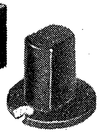
MS25170-P2A
27/32" H. Skirt dia. 1½"; knob body .875 dia.
One set screw.

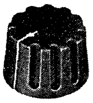
K1710
K1711
K1712
K1797
K1943
K2028
K2101
K2102
MS21382
MS21384
K21385

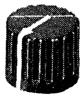
K1710-(D)
One set screw.
51/64" dia. x 29/32" H.
1½" L. x 45/64" wide bar.
K1711 1" dia. x 45/64" H.
1" L. x 19/32" wide bar.
K1712 1" dia. x 29/32" H.
1" L. x 19/32" wide bar.


1797-(4)
13/16" H. x 1 5/16" L.
Skirt dia. 1⅛".


K1943-(4)
1⅛" skirt OD.
3/16" H. x 1 17/32" L.

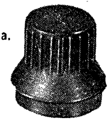

K2028-(2)
⅞" H. x 1" dia.

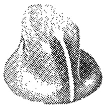

K21385-4MC/5/BLWL
¾" H. x ⅞" dia.


K2101-(4)
⅞" H. x ⅞" dia.

MS21382-(2)(B)
7/16" H. x ½" OD.

MS21384
Type 1
⅝" H. x 1" OD.

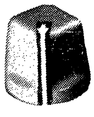

K2102-(D)
1 5/64" H. x 2 11/16" dia.
Single set screw.

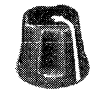

MS21384
Type 2
⅝" H. x 1" dia.

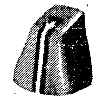
MS21384
Type 3 11/16" H.
1" Skirt dia.

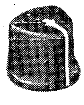
MS21384
Type 4 1⅛" L.
¾" H. x 1" OD.

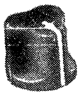
MS21385
MS21386

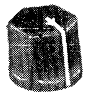

MS21385
Type 1
¾" H. x ⅞" OD.

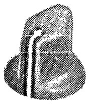

MS21385
Type 2
¾" H. x ⅞" dia.

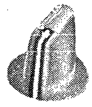

MS21385
Type 3
¾" H x ⅞" OD.

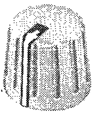

MS21385
Type 4
¾" H. x ⅞" dia.


MS21385
Type 5
¾" H. x ⅞" dia.

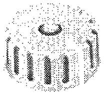

MS21385
Type 6
¾" H. x ⅞" dia.


MS21385
Type 7
¾" H x ⅞" OD.

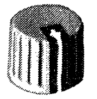

MS21385
Type 8
¾" H. x ⅞" dia.

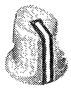

MS21385
Type 9
¾" H. x ⅞" dia.

MS21386
Type 1 (B)
11/32" H. x ¾" dia.

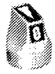

MS21386
Type 2 (D)
11/32" H. x 1" dia.
Shaft hole is for concentric mounting.

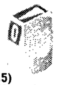
K1456
K1486
K1582
K2003
K2013
K2038
K2039
MS21387
MS91528

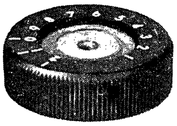

MS21387
⅝" H. x ¾" OD.


K2039-(B)
9/16" H. x ⅝" dia.

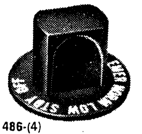
K2038-(B)
7/16" H. x ½" dia.

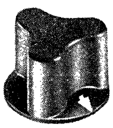

K1582-(2)
9/16" H. x 31/64" dia.

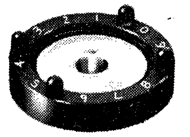

K1582-(4.5)
9/16" H. x 35/64" dia.


K2013-(4)
19/32" H. x 2 1/16" dia.

MS91528
See page 20 for specifications.

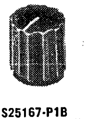

K1486-(4)
Alum. w/backlit skirt.
Knob 53/64" x H. x ¾" x 7/16".
1¼" dia. skirt.
Also avail. w/o skirt.

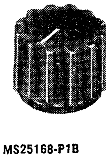

K2003-(8)
1 3/16" H. x 1⅛" dia.
One set screw.


K1456-(D.5)
½" H. x 1 19/32" dia.
Backlit numbers.

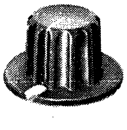
K1577
K1786
K1787
K2008
K2013
MS25167
MS25168

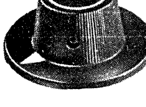
K1577-(D)
One set screw. ⅞" H. x ¾" dia. Skirt dia. 1¼".
Avail. with other markings and/or less skirt.

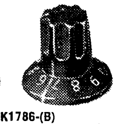

MS25167-P1B
23/32" H. x ⅝" dia.
One set screw.

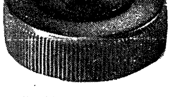

MS25168-P1B
27/32" H. x 1" dia.
One set screw.

MS25167-P2B
23/32" H. x ⅝" dia.
Skirt dia. 1¼". One set screw. Also avail. w/o skirt.


MS25168-P2B
27/32" H. x 1" dia.
Skirt dia. 1½".
One set screw.


K2008-(4)
¾" H. x 1¾" dia.


K1786-(B)
55/64" H. x 9/16" body dia., 1" skirt dia.
One set screw.
K1787 Same as 1786 except 41/64" H.


K2013-(4)
39/64" H. x 2" dia.
Back lit marking as required.

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QUALITY
RELIABILITY
ECONOMY

MACHINED METAL KNOBS — ALUMINUM

2 Set Screws (unless otherwise specified).

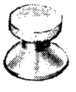
Standard Shaft Holes - 1/16" Increments.

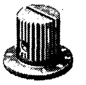
-(2)—⅛" -(B)—⅛" D Flatted -(BB)—⅛" Double Flatted
-(2.5)-5/32" -(B.5)-5/32" D Flatted -(BB.5)—5/32" Double Flatted
-(4)—¼" -(D)—¼" D Flatted -(DD)—¼" Double Flatted
-(D1)—5/16" D Flatted -(DD1.3)-21/64" Double Flatted
Nominal shaft dimensions: ⅛"=.128 ¼"=.253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(¼" shaft, Matte Finish, Black)

SK630
K1007
K1105
K1330
NAS1553
K1702
K1909
K1944
K2007
K2009

K1702-(B)
½" H. x 23/32" dia.


SK630-(B)
¾" H. x ⅞" dia.

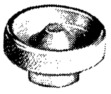

K1330-(2) ½" H. x ⅝" dia.
Can be used for printed circuit boards. Gives both finger and screwdriver adjustment.

K1909-(2)
13/32" H. x ¾" dia.
K2009
Same as K1909 except 9/16" H.

K1105-(4)
⅝" H. x 1.4" OD.

K-1007-(2)(4)
¾" H. x ¾" OD.

K2007-(4)
19/32" H. x ⅞" dia.


K1944 To fit ¼-20 threaded stud.
½" H. x 1 3/16" OD.

NAS1553
Style C
Avail. ¾" to 2" dia.
Alum. or steel.

K1130
AK1326
K1329
K1336
K1409
K1434
K1801
K2010

AK-1326-(4)
11/32" H. x 9/16" O.D.
Also avail. w/plain top.

K1336 8-32 threaded shaft. Aluminum locking knob. 15/32" H., ½" knurled OD.

K1329-(4)
23/32" H. x ⅝" dia.
Knurled edge for easy turning.

K2010-(4)
11/16" H. x ½" dia.
No screws. Mounts from top of knob.

K1434-(4)
9/16" H. x ¾" dia.
One set screw.

K1409-(3)
1 set screw and 1 spot-drill hole for pinning.
11/16" H. x ¾" head dia., 7/16" shank dia. Avail. w/o marking. Brass.

K1801
Stainless Steel.
10-32 threaded shaft.
11/16" OD. x 13/32" L.

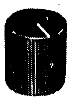
K1130
6-32 thd'd. shaft.
⅜" L. x ½" H. x ½" OD.
Brass, nickel plated (screw-on type).

K1572
K1574
K1584
K1696
K1701
K1814
K1819
K2033
K2096B

K1814-(4)
½" H. x ¾" dia.

K1696-(CC)
Mounts from top.
9/16" H. x 13/16" OD.

K1701-(2)
25/32" H. x ⅝" OD.
One set screw.


K1572-(2)
⅞" H. x ¾" dia.
Black anodized, with or w/o white filled line.

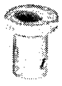
K1574-(2)
½" H. x ½" dia.
Painted black with or w/o markings.

K1584-(2)
½" H. x ⅜" OD.

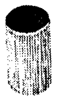
K2033-(2)
33/64" H. x 25/64" dia.
Steel.

K1819-2MA/WD
13/32" H. x ⅜" dia.

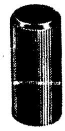
K819-2MA Same as above, without white dot.

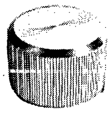

K2096-(B)
42/64" H. x 9/16" dia.

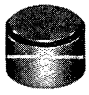
K897
K1006
K1433
K1436
K1459
K1485
K1571
K1628
K2001

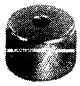

K-1006-(2)(3)
¾" H. x ⅜" dia.

K1485-(2)
13/16" H. x ¼" OD.


K2001-(3)
1⅛ H. x ½" dia.

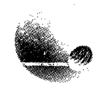

K1436-(4)
¾" H. x 1 3/16" dia.


K1571-(4)
¾" H. x 1" dia.
Painted black.

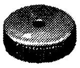

K1628-(3)
⅝" H. x ⅞" OD.

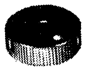
K897-(4)
7/16" H. x 9/16" dia.
Brass. Avail. in other finishes.
One set screw.

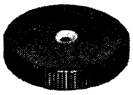
K1433-(2)(4) Same as K897 except aluminum.

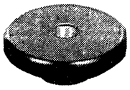

K1459 (Screw on type).
5/16"-18 thd'd. shaft.
½" L. x 1" dia.
(Red anodize)

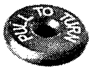
K1278
K1446
K1488
K1570
K1576
K1697
K1703
K1716

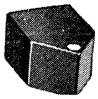

K1446-(2)(4)
¼" H. x ¾" dia.
Brass.
With or w/o white dot.

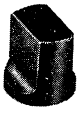

K1576-(2)
¼" H. x ¾" dia.
Painted black, with or w/o white dot.
Brass.

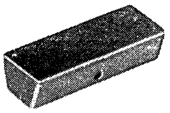

K1716-(4)
¼" H. x 1¼" OD.


K1703-(6)
Can be pinned or set screws. 1¾" dia.
11/16" H. x ¾" hub dia.


K1488-(2.25)
11/64" H. x ⅝" dia.
Mounts from top.


K1697-(4)
1" L. x ¾" W. x 9/16" H.
With or w/o white dot.

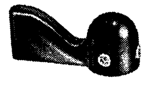

K1278-(4)
¾" H. x 11/16" dia.
One set screw.

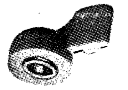

K1570-(5)
29/64" H. x 21/32" L. x ⅝" W.
Black anodized.

CAST ALUMINUM BAR KNOBS

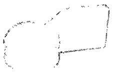
2 Set Screws (unless otherwise specified).

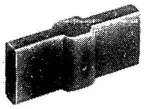
K1325
K1327
K1342
K1487
K1490
K1994
K1996
K2029

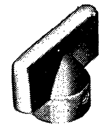

K1325-(4)
1" level arm for heavy load switching.
⅝" H. x 1 17/32" L. x 9/16" body dia.

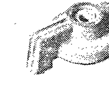

K1490-(2.5)
43/64" H. x 1¼" L. x 1/16" hub. Can supply for mounting skirt.

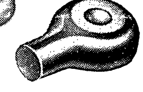
K1994-(2.5)
25/32" H. x 1" long.
13/32" body dia.


K1996-(4)
⅝" H. x 1 13/64" L.
21/32" body dia.
Single set screw.


K2029-(4)
13/16" H x ½" dia.
x 1 13/16" L.
One set screw.
Hole for pinning.

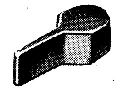

K1327-(4)
1" H. x 11/16" body dia.

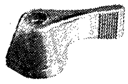

K1487-(DD)
Mounts from top.
35/64" H. x 1 3/16" L.
x 27/32" dia.

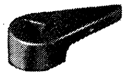

K1342-(DD)
Knob switch.
7/16" H. x 1½" L. 1" body dia., 7/16" bar dia.

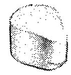
K981
K1337
K1408
K1429
K1431
K1695
MS91523-1

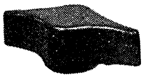
MS91523-1-(DD)
½" H. x 1 7/32" L.
Center of shaft hole to end of handle - 29/32".

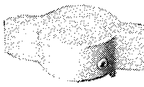

K1337-(4)
⅜" H. x 1⅛" L.
x ½" body dia.


K1408-(D.5)
1 13/16" H. x 1 29/32" L.


K1695 .255 square shaft. ½" H. x 1¾" L.
Center of shaft hole to end of handle — 1⅜".


K1429-(4)
15/32" H. x 27/32" L.
Magnesium Casting.
1 set screw and pinning hole.

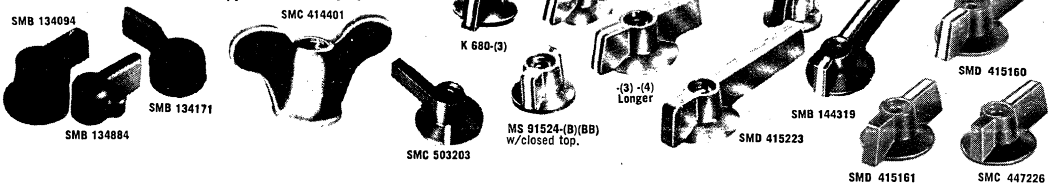

K1431-(3.5)
½" H. x 1½" L., Body dia. 9/16"
Normally supplied for pinning to shaft. Can be supplied for screw attachment. Can also be supplied in brass.


K981-(4)
9/16" H. x 2 1/32" L.
1 1/16" body dia.

K680
SMC91018
MS91524
MS91525
SMB134094
SMB134171
SMB134884
SMB144319
SMC414401
SMC447226
SMD415160
SMD415161
SMD415223
SMC503203

MS & SIGNAL CORPS ALUMINUM & PLASTIC CONTROL KNOBS

Manufactured in Accordance with Applicable Military Specifications



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QUALITY
RELIABILITY
ECONOMY

CAST ALUMINUM KNOBS

2 Set Screws (unless otherwise specified).

Standard Shaft Holes - 1/16" Increments.

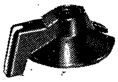
-(2)—1/8"	-(B)—1/8" D Flatted	-(BB)—1/8" Double Flatted
-(2.5)-5/32"	-(B.5)-5/32" D Flatted	-(BB.5)—5/32" Double Flatted
-(4)—1/4"	-(D)—1/4" D Flatted	-(DD)—1/4" Double Flatted
	-(D1)—5/16" D Flatted	-(DD1.3)-21/64" Double Flatted

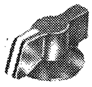
Nominal shaft dimensions: 1/8"=.128 1/4"=.253

Finish: M- Matte; G- Glossy; **/WD**- White Dot; **/WL**- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4" shaft, Matte Finish, Black)

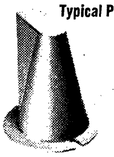
K1005
K1022
K1023
K1024
K1389
K1461
K1773
K1775
K1802

K-1005-(4)
7/8" H. x 1" skirt dia. Overall length 1 5/16". Available with or without skirt.


K1773-(DD)
11/16 H. x 1 1/8" dia. Mounts from top.

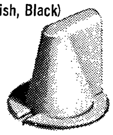

K1802-(2)
15/32" H. x 1 3/16" L. 7/8" dia. skirt.

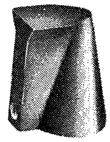
K1775-(4)
31/64" H. x 1" dia. x 1 5/32" L.


No. K-1022-(4)
1 1/32" H. x 15/16" base dia. Full Round Skirt

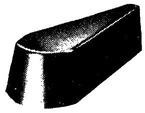
No. K-1023-(4)
Flat Back Round Skirt
1 1/32" H. x 15/16" base dia. (29/32" to flat back).

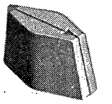
No. K-1024-(4)
With cam shape cut out in bottom of knob.
1 1/32" H. x 15/16" base dia.

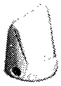

K1389-(4)
27/32" H. x 15/16" dia.

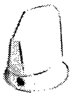

K1461-(4)
1 1/8" H. x 3/4" OD. (Overall width incl. bar, 15/16"). Avail. with skirt. One set screw.

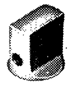
K1020
K1021
K1328
K1390
K1392
K1799
K1947
K2002

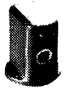

K2002-(4)
3/8" H. x 1 1/8" L. x 5/16" body dia. (Avail. in plastic w/metal insert. See K2004.)


K1947-(4)
3/4" H. x 1 1/4" L. x 5/8" W.


K1390-(3)
11/16" H. x 9/16" dia. One set screw.

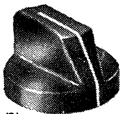

K1392-(3)
25/32" H. x 11/16" dia. (Bar is 13/16" long).


K1328-(4)
11/16" H. x 11/16" dia.


K1020-(4)
11/16" H. x 9/16" base dia.

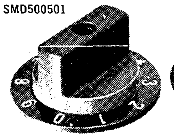
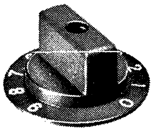
No. K-1021-(4)
11/16" H. x 1" base dia.

Other shaft diameters on request.

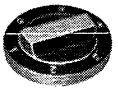

K1799-(D)
59/64" H. x 1 1/2" dia. One set screw. For transilluminated knob see K-1800.

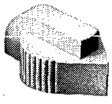
K1124
K1447
K1448
K1449
K1453
SMD500501
SMD500502

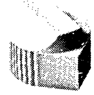
SMD500501

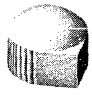


SMD500502

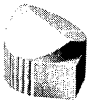
-(DD)
1/4" double flatted shaft.
29/32" H. x 1 15/16" dia.


K1124-(2)
9/16" H. x 1 1/16" dia. One set screw.

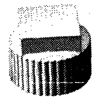

K1453-(4)
11/16" H. x 1 1/2" L. x 15/16" dia. Tactile Top.

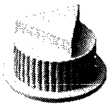

K1447-(4)
11/16" H. x 15/16" dia. x 3/32" L. Tactile "Bar" Top.

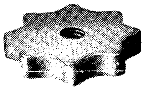

K1448-(4)
11/16" H. x 15/16" dia. x 3/32" L. Tactile "Sphere" Top.

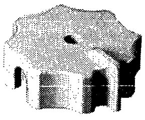

K1449-(4)
11/16" H. x 15/16" dia. x 3/32" L. Tactile "Edge" Top.

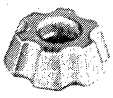
K1450
K1451
K1484
K1698
K1699
K1956
K1957

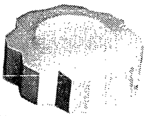

K1450-(4)
11/16" H. x 15/16" dia. Tactile "Square" Top.


K1451-(4)
11/16 H. x 1 3/16" skirt dia. Tactile "Triangle" Top.


K1484 5/16-24 threaded shaft. 5/16" H. x 1 5/8. OD. Partial pin holes supplied for pinning to shaft.

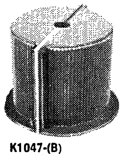

K1698-(4)
3/4" H. x 2" O.D. One set screw.

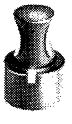

K1699-(DD5)
1/2" H. x 1" dia. Mounts from top.

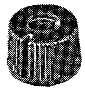

K1956-(4)
35/64" H. x 1 5/8" OD.

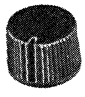
K1957-(4)
1/2" H. x 1" OD.

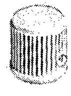
K1047
K1126
K1127
K1391
K1394
K1452
K1774
SCB41848

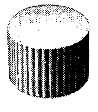

K1047-(B)
(Double D). 7/8" H. x 1 1/8" dia.

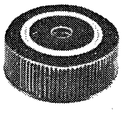

K1394-(2)
7/8" H. x 1/2" dia.

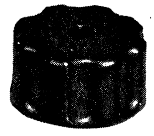

K1126-(DD)
15/32" H. x 23/32" dia. Mounts from top.


K1127-(2)
15/32" H. x 23/32" dia.


K1391-(2)
43/64" H. x 5/8" dia. White-filled line.

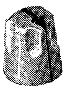

K1452-(4)
11/16" H. x 15/16" dia. Tactile "Round Ribbed" Top.




K1774-(5.25)
1 1/8" H. x 2 1/8" dia. Mounts from top.

BK1080
K1387
K1460
K1770
K1790
MS21360

MS21360-1BID-(2)
1/2" H. x 27/64" OD.


K1790-(4)
27/32" H. x 49/64" dia.

K1460-(4)
19/32" H. x 7/8" OD.

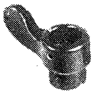
K1387-(2.5)
1/4" H. x 23/32" dia.

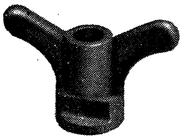
K1770-(2)(4)
1/2" knob dia., 17/32" H. x 1" skirt dia.

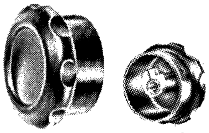
BK-1080-(B)
5/16" H x 1/2" OD.

K243
K1432
K1991
K2036

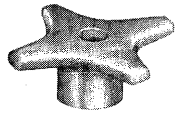
K1991-(6)
1" H. x 1 1/2" dia. No screws. 2 holes for pinning to shaft.

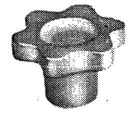

K2036
3/4" H. x 9/16" dia. x 1 5/32" L. For 17/64" shaft. .062 cross drilled
Stainless Steel.
Can be supplied with screws.

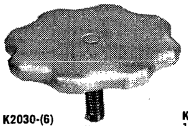

K1432-(5)
1 1/4" H. x 1 7/8" across wing. Body dia. 3/4". Must be pinned to shaft.

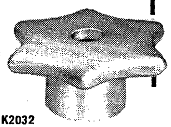

TUNING KNOB K243-(4.5)
1 1/4" H. x 2 5/16" dia. Use no-mar clamp (Cat. No. 937-8) for mounting. (Not supplied).

K2030
K2032
NAS1553


NAS1553
Style A
Avail. 3/4" to 2 1/2" dia. Cast alum. or steel.

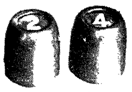

NAS1553
Style B
Avail. 1 1/2" to 3" dia. Cast alum. or steel.

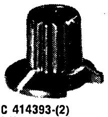

K2030-(6)
3/8" H. x 3 1/2" dia. Can be supplied for screw or pinning.
Steel.


K2032
1 15/32" H. x 3 1/2" dia. Hub dia. 1 5/8". Threaded 7/16" - 20

K242
K984
SCB35862-1
SMC414393
SMC414399
SMC414680

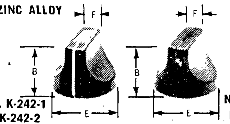
SMC 414399-(2)
3/4" H. x 13/16" dia. Mounts with screw (not supplied) from top.


SMC 414680-1 thru 10
3/8" x 9/32" flatted shaft Push on mounting.
21/32" H. x 9/16" dia.


SMC 414393-(2)
1/2" H. x 11/16" O.D. Mounts with screw (not supplied) from top.

SIGNAL CORPS DIE CAST KNOBS

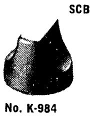
ZINC ALLOY



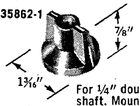
No. K-242-1 & K-242-2

No. K-242-3

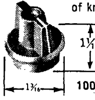
Cat. No.	B	E	F	Marking
K-242-1	3/4"	15/16"	5/16"	White
K-242-2	7/8"	1 1/8"	3/8"	White
K-242-3	3/4"	15/16"	5/16"	None


No. K-984
Dimensions as per 242-3 No markings. .257 tear drop shaft hole.

SCB35862-1



For 1/4" double flatted shaft. Mounts from top of knob.



100446

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QUALITY
RELIABILITY
ECONOMY

CAST ALUMINUM KNOBS

2 Set Screws (unless otherwise specified).

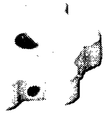
Standard Shaft Holes - 1/16″ Increments.

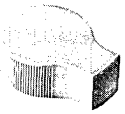
-(2)—⅛″	-(B)—⅛″ D Flatted	-(BB)—⅛″ Double Flatted
-(2.5)-5⁄32″	-(B.5)-5⁄32″ D Flatted	-(BB.5)—5⁄32″ Double Flatted
-(4)—¼″	-(D)—¼″ D Flatted	-(DD)—¼″ Double Flatted
	-(D1)—5⁄16″ D Flatted	-(DD1.3)-21⁄64″ Double Flatted

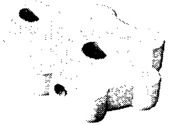
Nominal shaft dimensions: ⅛″=.128 ¼″=.253

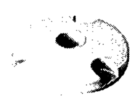
Finish: M- Matte; G- Glossy; **/WD**- White Dot; /**WL**- White Line
Colors: A- Black; B- Red; C-Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(¼″ shaft, Matte Finish, Black)

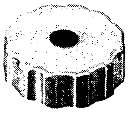
K0002
K0003
K0004
K0005
K0006
K0007

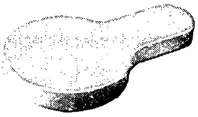

K0002-(4.7)
½″ H. x 1 19⁄32″ dia.
No screws - pin to shaft.


K0003
15⁄32″ H. x 1 1⁄32″ dia.
x 1⅜″ L. Single set screw.

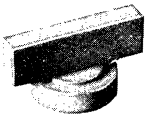

K0004-(4.5)
½″ H. x 19⁄32″ dia. x 1 59⁄64″ L.
No screws - pin to shaft.

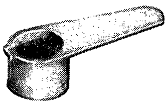

K0005-(4)
7⁄16″ H. x 1 23⁄64″ dia.
No screws - mounts from top.

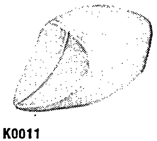

K0006-(5.5)
½″ H. x 1 7⁄16″ dia.
Steel.

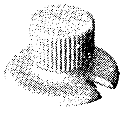

K0007
5⁄16″ H. x 1 29⁄64″ dia.
x 2 15⁄32″ L. Steel casting.

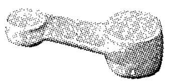
K0009
K0010
K0011
K0012
K0013
K0014

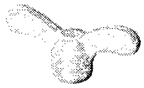

K0009-(8)
15⁄16″ H. x 1 5⁄64″ dia.
x 1¾″ L. Brass.


K0010-(8)
½″ H. x ⅝″ dia. x 1 47⁄64″ L.
Steel. No screws - pin to shaft.

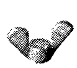

K0011
⅝″ H. x ¾″ wide x
1 1⁄16″ L. Single set screw.

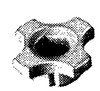

K0012-(3.5)
45⁄64″ H. x 1¼″ dia.

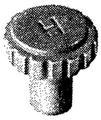

K0013-(4)
21⁄32″ H. x 21⁄32″ dia.
x 1¾″ L.

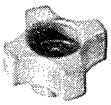

K0014-(2)
53⁄64″ H. x 1 17⁄32″ L.
Steel.

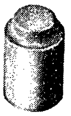
K0015
K0016
K0018
K0019
K0020
K0021

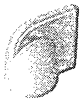

K0015-(2)
7⁄16″ H. x 19⁄64″ dia.
x 23⁄32″ L. Brass.


K0016-(D1.3)
11⁄32″ H. x 53⁄64″ dia.
(For 21⁄64″ dia. x 17⁄64″ double flatted shaft hole)
No screws - pin to shaft.

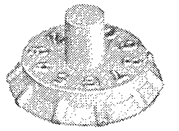

K0018-(4)
55⁄64″ H. x 27⁄32″ dia.
(Hub 13⁄32″ dia.)
Brass.

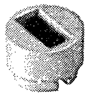

K0019-(2.5)
½″ H. x 1″ dia.
(Hub dia. 2″)

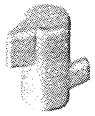

K0020-(D1)
1 5⁄64″ H. x 41⁄64″ dia.
(Shaft Hole 5⁄16″ Round - ¼″ Flat)
Brass casting.

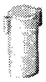

K0021-(2)
25⁄32″ H. x ½″ dia.
x ¾″ L. (Hub dia. ⅜″)

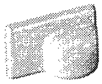
K0023
K0024
K0025
K0026
K0027
K0028
K0029

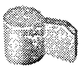

K0023-(4)
¾″ H. x 1 1⁄32″ dia.

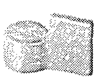

K0024
35⁄64″ H. x 25⁄32″ dia.
(for ⅝″ x 5⁄16″ rectangular shaft).


K0025-(4)
1″ H. x 13⁄16″ dia.

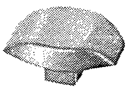

K0026-(2)
¾″ H. x 21⁄64″ dia.

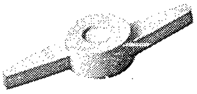

K0027-(D)
11⁄16″ H. x 21⁄32″ dia.
x 1 3⁄32″ L.

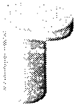

K0028-(2)
½″ H. x 27⁄64″ dia.
x 51⁄64″ L. Steel.

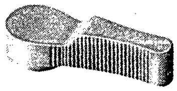

K0029-(4)
11⁄16″ H. x 1″ L. x ½″ dia.

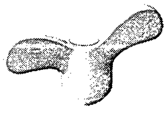
K0030
K0031
K0032
K0033
K0035
K0036

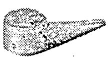

K0030
41⁄64″ H. x 1¼″ L.
(has shaft for ⅜ x 11⁄32″ rectangular shaft hole)
Steel. No screws.


K0031-(3)
¼″ H. x ½″ dia. x
1 15⁄32″ L. Brass.

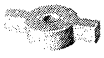

K0032-(2)
13⁄16″ H. x ⅝″ L.
Steel.

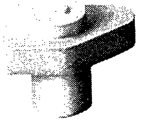

K0033-(4)
7⁄16″ H. x 33⁄64″ dia. x 1½″ L.
Steel.

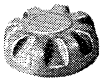

K0035-(2)
53⁄64″ H. x 1 17⁄32″ L.
Brass.

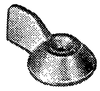

K0036-(3)
¼″ H. x ⅞″ L.
Steel. 1 set screw.

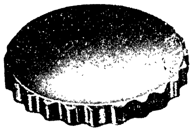
K0038
K0039
K0040
K2087
K2090
K2091

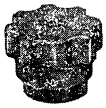

K0038-(2)
3⁄16″ H. x ¾″ L. x 25⁄64″ dia.
Body Brass.


K0039-(6)
1 1⁄32″ H. x 19⁄32″ dia.
x 1 35⁄64″ L. Brass.

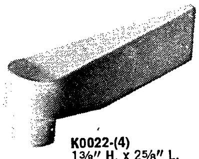

K0040-(2)
19⁄64″ H. x 51⁄64″ dia.
Brass.

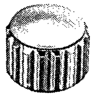

K2087-(DD)
17⁄32″ H. x 47⁄64″ dia.
x 1 3⁄32″ L.
Single screw hole on top.


K2090-(4)
13⁄32″ H. x 3⅞″ dia.


K2091-(3)
¾″ H. x 1″ dia.
Single set screw and
1 hole for pinning.

K0022
K2092


K0022-(4)
1⅜″ H. x 2⅝″ L.
(Hub dia. ½″)


K2092-(4)
1″ H. x 1⅛″ dia.
Single set screw.

Are Our Specials Specialty
JAN

JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (718) 361-0800

QUALITY
RELIABILITY
ECONOMY

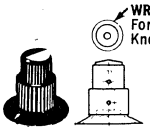
Are Our Specials JAN Specialty

KNOBS, DELUXE INSTRUMENT

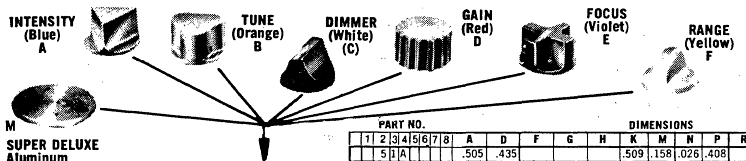
ROUND, ROUND FUNCTIONAL, TACTILE SHAPES

Visual and tactile funtion identifications. Tactile Knobs are in standard color & Configuration for its intended function. Available in other colors (special order).

Configuration meets performance **MS91528**, MIL-K-3926 and MIL STD. 242D (ships). Knobs meet environmental conditions MIL-E-16400. **QPL #3926 — T.R. #J101.** Patents: **4,012,966** and **4,077,503.** Others pending.



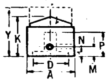
Concentric Controls
"Piggy-back" knobs for concentric shaft pots or similar applications.

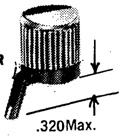


SUPER DELUXE
Aluminum
Anodized Top (Number as below)

*'Y' dimension applies when A thru F caps (shown above) are used.

NO SKIRT

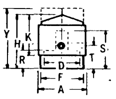


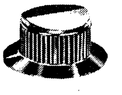


LOCK POINTER SKIRT

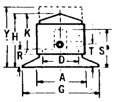
.320Max.

RING SKIRT





DIAL SKIRT



PART NO.									DIMENSIONS														
	1	2	3	4	5	6	7	8	A	D	F	G	H	K	M	N	P	R	S	T	TT	Y
		5	1	A	SPECIFY AS REQUIRED				.505	.435				.509	.158	.026	.408					
		7	1	A					.708	.486				.626	.187	.026	.406					.915
		9	1	A					.911	.645				.798	.255	.114	.521					1.171
		12	1	A					1.255	.974				.703	.260	.115	.458					1.220
		15	1	A					1.580	1.350					.300	.040	.640					
		17	1	A					1.755	1.465				.854	.255	.114	.521					
		22	1	A					2.255	1.870				.885	.255	.114	.521					
		5	1	B	SPECIFY AS REQUIRED				.505	.435	.450		.660	.509				.181	.563	.324	.355	
		7	1	B					.708	.486	.670		.805	.626				.188	.568	.340	.406	1.100
		9	1	B					.911	.645	.826		1.027	.798				.323	.730	.484	.410	1.399
		12	1	B					1.255	.974	1.155		.870	.703				.262	.605	.427	.406	1.399
		15	1	B					1.580	1.350	1.500		1.100	.850				.280	.840	.540	.480	
		17	1	B					1.755	1.465	1.666		1.088	.854				.338	.740	.489	.480	
		22	1	B					2.255	1.870	2.153		1.114	.885				.333	.740	.489	.480	
		5	1	C	SPECIFY AS REQUIRED				.505	.435		.885	.660	.509				.181	.563	.324	.355	
		7	1	C					.708	.486		1.135	.805	.626				.183	.568	.340	.406	1.100
		9	1	C					.911	.645		1.510	1.027	.798				.323	.730	.484	.410	1.399
		12	1	C					1.255	.974		1.822	.870	.703				.262	.605	.427	.406	1.399
		17	1	C					1.755	1.465		2.543	1.088	.854				.338	.740	.489	.480	
		22	1	C					2.255	1.870		3.005	1.114	.885				.333	.740	.489	.480	

TYPICAL PART NUMBERS — SEE BELOW TT For Janset® Series

1 CAP STYLE
(Color of Tactile)
0 = NO TOP —
Shaft Hole Drilled Thru
A = (INTENSITY - Blue)
B = (TUNE - Orange)
C = (DIMMER - White)
D = (GAIN - Red)
E = (FOCUS - Violet)
F = (RANGE - Yellow)
M = (ALUM ANODIZED TOP
T = STANDARD TOP
(PREFIX NOT REQUIRED)
Use only when color of standard shape top differs from body color. Precede T by color code from Column 7 (BT = RED top standard shape).

2 BODY DIA.
5 = .51
7 = .71
9 = .91
12 = 1.25
17 = 1.75
22 = 2.25

3 BODY STYLE
1 = ROUND
2 = POINTER
8 = HEX SHAPE

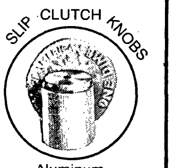
4 SKIRT
A = NO SKIRT
B = RING
C = DIAL W/POINTER
D = DIAL W/O POINTER
H = DIAL W/SLOT
J = RING SKIRT W/POINTER

5 — SHAFT-HOLE DIA. ± .001
2 = .128
3 = .190
4 = .253
4.25 = .268
5 = .315
6 = .378
7 = .441
"D" FLAT SHAFT HOLES
B = .107 (1/8")
D = .222 (1/4")

6 FINISH
M = MATTE
G = GLOSSY

7 COLOR
A = BLACK
B = RED
C = GREY
D = GREEN
E = YELLOW
F = PURPLE
G = BLUE
H = WHITE
J = ORANGE
K = BROWN

8 MARKING For no marking, omit
/WD = WHITE DOT
/FD = FLUORESCENT DOT
/PD = PHOSPHORESCENT DOT
/FA = FLUORESCENT ARROW
/PA = PHOSPHORESCENT ARROW
/BL = BACKLIGHTED
/WL = WHITE LINE
/BD = BLACK DOT
/WB = WHITE BULLSEYE ON TOP OF KNOB
/WR = WHITE RING (for concentric)



Aluminum.
3/8" dia. x 1/2" high.

JANSET® FUNCTIONAL KNOBS

"PUSH-TO-SET" OR "PUSH-TO-TURN"

DISTINCTIVE FEATURES:

- **Dimensions (see chart above).**
- **Installation: Same as a standard knob.**
- **Locks shaft automatically, upon release.**
- **Release Brake when depressed: settings can be altered.**
- **Resolution: Infinite, with zero backlash.**
- **Shaft Registration: to indicators, ie.: arrows, dots, cut-outs, etc.**
- **Shock or vibration settings are guarded against accidental change.**
- **Integral Assembly: Mechanism completely enclosed in knob body.**
- **Old designs: Janset® Knobs require no modification to existing panels.**
- **Shaft sizes: 1/8 thru 1/4 dia. (except 1/2 dia. knob, 5/32" shaft dia. max.).**
- **Panel Bushings: Fits with all 1/4 and 3/8 standard.**
- **Space: No space required behind panel; all functions within knob body.**

PREFIX	
S (Slip Clutch)	**SLIP CLUTCH:** Prevents over torquing delicate mechanisms. Functions as standard knob between limit stops. When limit is reached and knob rotation continues, clutch overrides the stop without applying torque in excess of specifications. Driving torque in detented position .5-6 LB./IN. (depending on knob diameter).
PT (Push-To-Turn)	**BRAKE KNOB:** Prevents control setting from movement due to shock or vibration.
PSC (Push-To-Set)	**Brake Knob W/ OVERRIDING CLUTCH:** Same as "PT" with added feature of "S" (slip clutch) combined. Knob can be rotated without changing setting (if not pushed in).
PSCE (Push-To-Set /w Limit Stop)	**Brake Knob W/ Overriding Clutch & LIMIT STOP:** Same as "PT" & "PSC" with added feature of limit stop (320° MAX) built in.
LSC*** (Pull-To-Turn)	**Brake Knob W/ Overriding Clutch — PULL-TO-TURN:** Same as "PSC" except pull-to-turn. For use in extremely hostile environment, i.e.: Life Support Equipment.
PTN (Spin Free Push-To-Turn)	**SPIN FREE PUSH-TO-ENGAGE:** Prevents shaft from inadvertent turning — Knob spins free unless depressed and rotated until full internal engagement is accomplished for use where SHAFT TORQUE EXCEEDS 4 oz. in.
PTCN (Spin Free Push-To-Turn)	**Spin Free PUSH-TO-ENGAGE:** Same as "PTN" except for use where SHAFT TORQUE is LESS THAN 4 oz. in.
PTNN (Spin Free Press-To-Turn)	**Spin Free PRESS-TO-TURN:** (Friction) Prevents inadvertent change of setting. Use only where intent to turn is required. Must be pressed in while turning, for low torque applications.
LTN (Spin Free Lift-To-Turn)	**Spin Free LIFT-TO-TURN:** Same at "PTN" except pull-to-turn. For use where SHAFT TORQUE EXCEEDS 4 oz. in.
TC (Torque)	**TORQUE KNOB:** (Friction) For use where positive feel is desired and/or where minor excursions of shock and vibration are anticipated.
LEPR (Limit Stop & Release)	**LIMIT STOP W/ QUICK RELEASE:** For use where limited travel (0-? degrees) is required. Push-To-Release stop and continue to the next function.
LELR (Limit Stop & Release)	**Same as LEPR except PULL-TO-RELEASE:** For use in extremely hostile environment, i.e.: Life Support Equipment.

INCREMENTAL KNOBS

Repositions to the exact point, with zero backlash. Easily provides precise setting to pre-determined positions. Can be repeated with finite exactness to as many as 32 or as few as a single position.

		Cap									
		EE	1	B							
		GG	1	B							
		II	1	B							
		LL	1	B							
		QQ	1	B							
		VV	1	B							
		EE	1	C							
		GG	1	C							
		II	1	C							
		LL	1	C							
		QQ	1	C							
		VV	1	C							

PART NO.

FOR DIMENSIONS SEE TABLE ABOVE (COLUMNS A - Y)

(9) NO. OF INCREMENTAL POSITIONS
SPECIFY 1 THRU 32.

(10) INCREMENTAL ANGLES
E = Equal Angles
N = Unequal Angles*
* Supply table of angular increments in degrees and minutes. See Table.

* SAMPLE OF TYPICAL TABLE (to be supplied)

Position	Increment Angle	Total Angle
1	0	0
2	5	5
3	4	9
4	25	34
5	266	300

(11) TOTAL ANGULAR ROTATION IN DEGREES AND MINUTES
SPECIFY 0° to 360°

SPECIAL KNOBS TO YOUR SPECIFICATIONS (Give full description and/or sketch)

TYPICAL PART NUMBERS

S71C4MC = Slip Clutch Knob/.708 Dia./Dial Skirt/.253 Shaft Hole/Matte/Gray
PT71B4GA = Brake Knob marked Push-To-Turn/.708 Dia./Ring Skirt/.253 Shaft Hole/Glossy/Black
PSC91B4MA = Brake Knob marked Push-To-Set w/Overriding Clutch/.911 Dia./Ring Skirt/.253 Shaft Hole/Matte/Black
PS91C4GA — Push-To-Turn Brake Knob with cap marked Push-To-Set/.90 Dia./Round/Dial/1/2"/Glossy/Black

TYPICAL PART NUMBERS

IIB4MA/WD (17E 180°) = Standard Top/.90 Dia./Round/Plain/.253 Dia. Shaft Hole/Matte/Black/White Dot/17 Incremental Positions/Equally Spaced, in 180° Rotation.
MLL1C4GB (5N 300°) = Aluminum Anodized Top/1.25 Dia./Round/Dial with Pointer/.253 Dia. Shaft Hole/Glossy/Red/5 Incremental Positions/Unequally Spaced, in 300° Rotation (See Table).

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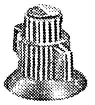
QUALITY
RELIABILITY
ECONOMY

KNOBS, DELUXE INSTRUMENT

POINTER (2); DOUBLE BAR (3); BAR POINTER (5), (6); BAR (7) HEX (8); CRANK (4); ROUND (DEEP FLUTED)

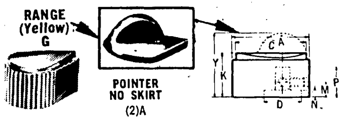
Visual and tactile funtion identifications. Tactile Knobs are in standard color & Configuration for its intended function. Available in other colors (special order).

Configuration meets performance **MS91528**, MIL-K-3926 and MIL STD. 24'2D (ships). Knobs meet environmental conditions MIL-E-16400. **QPL #3926 — T.R. #J101.** Patents: **4,012,966** and **4,077,503.** Others pending.

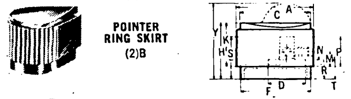


Concentric Controls
"Piggy-back" knobs for concentric shaft pots or similar applications.

51A & 73 Series



POINTER NO SKIRT (2)A

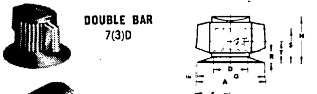


POINTER RING SKIRT (2)B

POINTER KNOBS

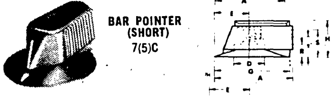
PART NO.

1	2	3	4	5	6	7	8	A	D	E	F	H	K	M	N	P	R	S	T	Y
	5	2	A	SPECIFY AS REQUIRED				.750	.406	.510			.505	.158	.026	.402				
	7	2	A					1.038	.486	.690			.619	.187	.026	.406				.918
	9	2	A					1.344	.645	.895			.796	.255	.114	.555				1.171
	5	2	B					.750	.406	.510	.669	.655	.505			.402	.177	.563	.324	
	7	2	B					1.038	.486	.690	.940	.791	.619			.406	.193	.573	.364	1.100
	9	2	B					1.344	.645	.895	1 251	1.051	.796			.555	.328	.796	.479	1.400



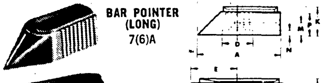
DOUBLE BAR 7(3)D

						A	D	F	G	H	K	M	N	P	R	S	T
	7	3	A	SPECIFY AS REQUIRED		1.150	.486				.610	.187	.026	.406			
	7	3	B			1.150	.486	.680		.782					.183	.568	.364
	7	3	D			1.150	.486		1.135	.782					.183	.568	.364



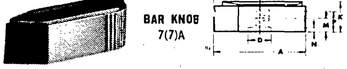
BAR POINTER (SHORT) 7(5)C

						A	D	E	G	H	K	M	N	P	R	S	T
	7	5	A	SPECIFY AS REQUIRED		1.515	.515	.575			.645	.250	110	.445			
	7	5	C			1.720	.515	.780	1.520	.815					.266	.590	.435



BAR POINTER (LONG) 7(6)A

PART NO.					A	D	E	G	H	K	M	N	P	R	S	T
	7	6	A	SPECIFY AS REQUIRED	1.855	.595	.900			.645	.250	.110	.445			
	7	6	D		1.870	.470	.915			.815	.435	.266	.590			



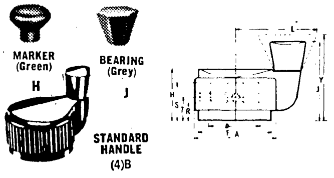
BAR KNOB 7(7)A

						A	D	E	G	H	K	M	N	P	R	S	T
	7	7	A	SPECIFY AS REQUIRED		2.552	.562	1.290			.869	.348	.177	.739			

HEX 7(8)B

HEX KNOBS

						A Flats	D	F	G	H	K	M	N	P	R	S	T	Y
	7	8	A	SPECIFY AS REQUIRED		.880	.645				.798	.255	.114	.521				1.171
	7	8	B			.880	.654	.826		1.027	.798				.323	.730	.484	1.399
	7	8	C			.880	.645		1.510	1.027	.798				.323	.730	.484	1.399



MARKER (Green) H

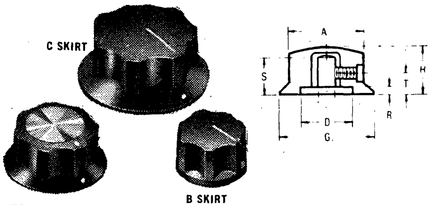
BEARING (Grey) J

STANDARD HANDLE (4)B

CRANK KNOBS

						A	D	F	H	J	L	R	S	T	Y
	12	4	B	SPECIFY AS REQUIRED		1.290	.685	1.185	.850	1.350	1.275	.250	.605	.427	1.475
	17	4	B			1.750	.685	1.666	1.070	1.758	1.735	.320	.740	.489	1.940
	22	4	B			2.250	.685	2.185	1.095	1.782	1.970	.320	740	.489	1.970

INSTRUMENT KNOBS — DEEP FLUTED (ALSO SUPPLIED WITH SLIP CLUTCH MECHANISM)



C SKIRT

METAL INLAY TOP

B SKIRT

1	2	3	4	5	6	7	8	A	D	G	H	R	S	T
	6	1	B	SPECIFY AS REQUIRED				5/8	9/16		7/16	1/16	3/8	7/32
	8	1	B					13/16	11/16		19/32	3/32	1/2	9/32
	10	1	B					1	11/16		21/32	3/32	1/2	9/32
	13	1	B					1 1/4	31/32		3/4	5/32	9/16	11/32
	16	1	B					1 5/8	13/16		7/8	3/32	21/32	13/32

								A	D	G	H	R	S	T
	6	1	C	SPECIFY AS REQUIRED				5/8	9/16	3/4	7/16	1/16	3/8	7/32
	8	1	C					13/16	11/16	1	19/32	3/32	1/2	9/32
	10	1	C					1	11/16	1 1/4	21/32	3/32	1/2	9/32
	13	1	C					1 1/4	31/32	1 1/2	3/4	5/32	9/16	11/32
	16	1	C					1 5/8	13/16	2	7/8	3/32	21/32	13/32

1 — CAP STYLE
(Color of Tactile)
O = NO TOP — Shaft Hole Drilled Thru
A = (INTENSITY - Blue)
B = (TUNE - Orange)
C = (DIMMER - White)
D = (GAIN - Red)
E = (FOCUS - Violet)
F = (RANGE - Yellow)
M = ALUM ANODIZED TOP
H = (MARKER - Green)†
J = (BEARING - Grey)†

T = STANDARD TOP (PREFIX NOT REQUIRED) Use only when color of standard shape top differs from body color. Precede T by color code from Column 7 (BT = RED top standard shape).

2 — BODY DIA.
5 = .51
6 = .62
7 = .71
8 = .80
9 = .91
10 = 1.00
12 = 1.25
13 = 1.25
16 = 1.62
17 = 1.75
22 = 2.25

3 — BODY STYLE
1 = ROUND
2 = POINTER
3 = BAR, ROUND
4 = SPINNER
5 = BAR, SHORT
6 = BAR, LONG
7 = BAR—HIGH TORQUE
8 = HEX SHAPE

4 — SKIRT
A = No Skirt
B = Ring (see F dim.)
C = Skirt with Marker
D = Skirt w/o Marker
H = Dial w/slot
J = Ring Skirt w/Pointer

5 — SHAFT HOLE DIA. ± .001
2 = .128
3 = .190
4 = .253
4.25 = .268
5 = .315
6 = .378
7 = .441
"D" FLAT SHAFT HOLES
B = .107 (1/8")
D = .222 (1/4")
(Standard—with metal insert. "O" preceding these numbers means w/o metal insert)

6 — FINISH
M = MATTE
G = GLOSSY

7 — COLOR
A = BLACK
B = RED
C = GREY
D = GREEN
E = YELLOW
F = PURPLE
G = BLUE
H = WHITE
J = ORANGE
K = BROWN

8 — MARKING
/WD = WHITE DOT
/WL = WHITE LINE ON TOP
/FL = FLUORESCENT LINE
/PL = PHOSPHORESCENT LINE
/FD = FLUORESCENT DOT
/PD = PHOSPHORESCENT DOT
/FA = FLUORESCENT ARROW
/PA = PHOSPHORESCENT ARROW
/BL = BACKLIGHTED
/BD = BLACK DOT
For no marking, omit

TYPICAL PART NUMBERS
91C4GA = .90 Dia./Round/Dial/1/4"/Glossy/Black
A71B4MA = Triangle Top Blue/.72/Round/Plain/1/4"/Matte Black
124B4MA = 1.25 dia./Crank (Spinner)/Plain/1/4"/Matte/Black
BT71B4MA = Standard Top Red/.72/Round/Plain/1/4"/Matte/Black
****071B4MA** = No Top. Shaft hole drilled thru/.72/Round/Plain/1/4"/Matte/Black.

TYPICAL PART NUMBERS
81D4GA = 13/16" Dia./Round/Skirt w/o indicator marker 1/4" Shaft Hole Dia/w/o line on top/Glossy Black
101C4MA/WL = 1" Dia./Round/Skirt w/indicator marker/White Line on top/1/4" Shaft Hole Dia./Matte Black
M61B2GA = 5/8" Dia./Round/Plain Skirt/no marking/metal top/1/8" Shaft Hole Dia./Glossy Black
61B2GA/WL = 5/8" Dia./Round/Plain Skirt/White Line on top/no marking on skirt/1/8" Shaft Hole Dia./Glossy Black

SPECIAL KNOBS TO YOUR SPECIFICATIONS (Give full description and/or sketch)

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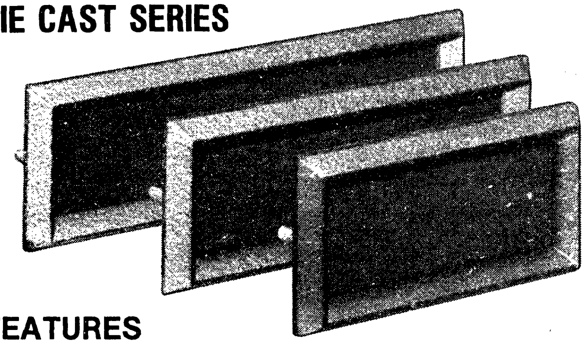
EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

JMJ
Technical Products, Inc.

STANDARD AND CUSTOM DIGITAL DISPLAY BEZELS

DIE CAST SERIES



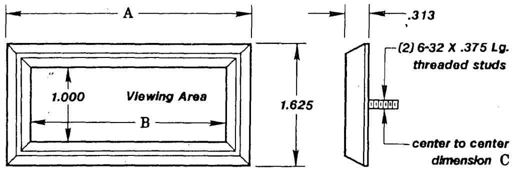
FEATURES

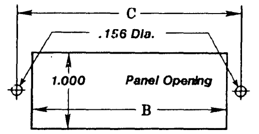
DIE CAST METAL FRAME

- Nonreflective black finish
- Durable — heat resistant
- Integral 6-32 mounting studs
- No exposed hardware
- Mounts in panels up to 3/16" thick
- Includes mounting hardware
- Available in three sizes
- Filters available in 10 colors and clear

DESCRIPTION

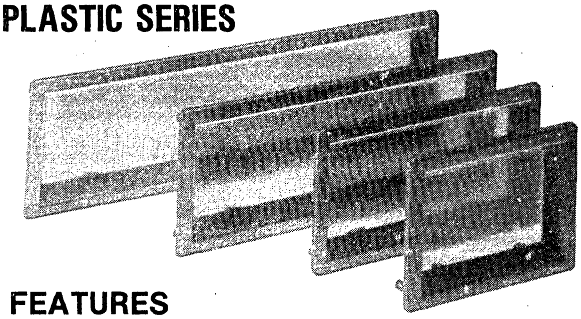
The DIE CAST SERIES of bezels consist of a special plastic screen and a die cast metal frame. Mounting is accomplished by two 6-32 studs which can also be used to mount PC boards or other components behind the panel. The high quality of the screen and frame, combined with the universal sizes and mounting flexibility, make the bezels usable for a wide range of applications.


A
.313
1.000
Viewing Area
B
1.625
(2) 6-32 X .375 Lg. threaded studs
center to center dimension C



PN	A	B	C
1-258	3.250	2.625	3.000
1-358	4.250	3.625	4.000
1-458	5.250	4.625	5.000

PLASTIC SERIES



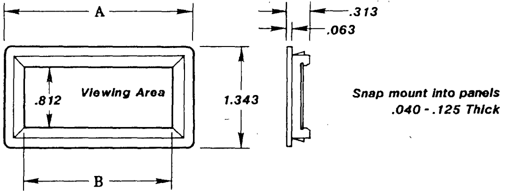
FEATURES

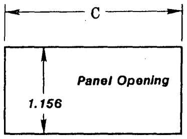
INJECTION MOLDED PLASTIC FRAME

- Nonreflective black finish
- Impact resistant ABS
- Snaps into front panels
- No exposed hardware
- Mounts in panels up to .125" thick
- Available in four sizes
- Filters available in 10 colors and clear

DESCRIPTION

The PLASTIC SERIES of bezels consist of a special plastic screen and an injection molded ABS frame. Mounting is accomplished by a snap-fit into rectangular cut-outs from the outside. The combination of a high quality filter and an inexpensive, easy to mount bezel make this series ideal for a wide range of applications.





PN	A	B	C
1316-138	1.906	1.375	1.750
1316-2	2.531	2.000	2.375
1316-3	3.531	3.000	3.375
1316-4	4.531	4.000	4.375

LOW COST CUSTOM BEZELS

Our new fabricating facility is totally dedicated to the production of non-standard bezels. Using specially designed machines, we can now offer made-to-order sizes in proto-type or production quantities, without costly tooling or extended lead times.

TYPICAL BEZEL MATERIALS

- Aluminum
- Stainless Steel
- Plastic

VARIETY OF FILTER MATERIALS

- Anti-Reflective Coatings
- Polycarbonate
- EMI Shielding
- Large Selection of Colors
- High Scratch Resistance

DESIGN FLEXIBILITY

- Panel Seals
- Welded Studs
- Any Size Viewing Area
- Multi-Opening Bezels

VARIETY OF FINISHING PROCESSES

- Anodizing
- Painting
- Screening
- Plating

Call or write for more information 50 Wheeler Point Rd., Newark, N.J. 07105 (201) 589-4257

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A
AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B
BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C
CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D
D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E
EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F
FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G
GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H
HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I
IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J
JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K
kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L
LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M
MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N
NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O
OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P
PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q
QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R
RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S
SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T
TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U
UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V
VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W
WPS word processing software

Y
YIG yttrium iron garnet

Z
ZIF zero insertion force

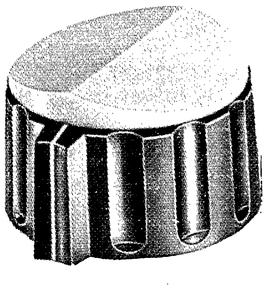
Power Dynamics, Inc.

P.O. Box 539, 59 Lakeside Avenue, West Orange, NJ 07052 • (201) 736-5722 • TWX: 136567 (PDI) • Intl. Telex: 666173 (PDI)

VISE-GRIP COLLET KNOBS

INDUSTRY'S BEST "OFF-THE-SHELF" DELIVERY

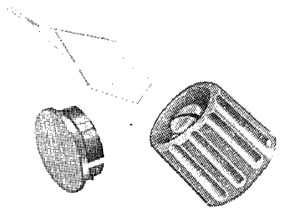
Knobs available in 10mm (0.40), 15mm (0.59), 21mm (0.82), 28mm (1.10) and 36mm (1.42) dia.



PDI knobs are distinguished by their styling, elegance, easy handling, long service life, excellent fit on the shaft as a result of "VISE GRIP" mounting and by their comprehensive accessories program in 24 different colors.

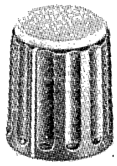
NO FLATS • NO SET SCREW • NO SLIPPAGE

1. REMOVE CAP
2. TIGHTEN COLLET SCREW WITH SCREWDRIVER
3. REPLACE CAP

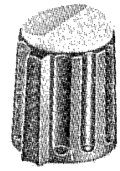


Our exclusive "VISE-GRIP" collet knobs offer distinguished styling, beauty and ease of mounting, as well as long life in the field. The exclusive "VISE-GRIP" collet works much the same way as a drill chuck. Once tightened, it will not work loose. Knobs are mounted with free-drive screws which can be tightened using a Phillips or an ordinary screwdriver.

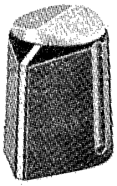
STANDARD KNOB



WING KNOB

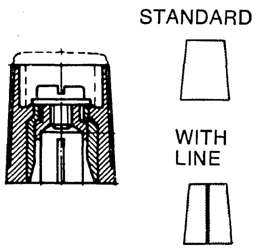


ARROW KNOB



NEW KNURLED DESIGN

TYPICAL CROSS SECTION



MATERIAL

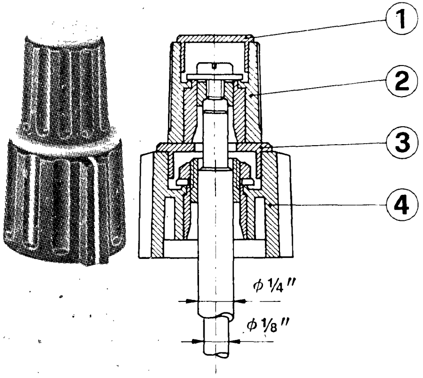
All mouldings of the collet knob are produced from polyamide. Transparent dials are made of luran. Brass 58 is used for the collets, sleeves and nuts. Steel is used for the screws and washers.

TEMPERATURE STABILITY

With normal mechanical stresses: −20°C to +70°C

We can also provide special types of knobs and accessories and custom color matching at lowest prices with prompt delivery. Contact Power Dynamics, Inc.

CONCENTRIC KNOBS

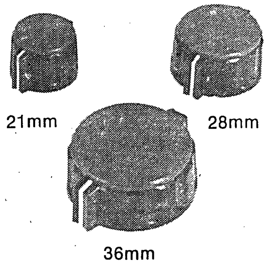


1. Cap 15mm, matte finish, gray
2. Knob 15mm, matte finish, black, collet 1/8 inch
3. Intermediate cap 21mm, matte finish, gray
4. Wing knob 21mm, with line, matte finish, black collet 1/4 inch

Also available in 21mm, 28mm sizes and Lo-Profile Knob.

LO-PROFILE KNOBS

Available in 21mm, 28mm and 36mm styles only



(Not available as "Arrow Knobs")

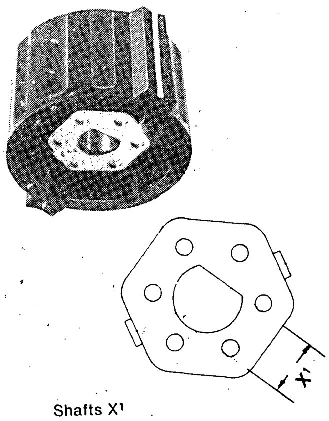
Overall height as follows:

21mm-Overall Height 15mm with cap
13.5mm without cap

28mm-Overall Height 15.5mm with cap
14mm without cap

36mm-Overall Height 16mm with cap
14mm without cap

LOCKING DEVICE

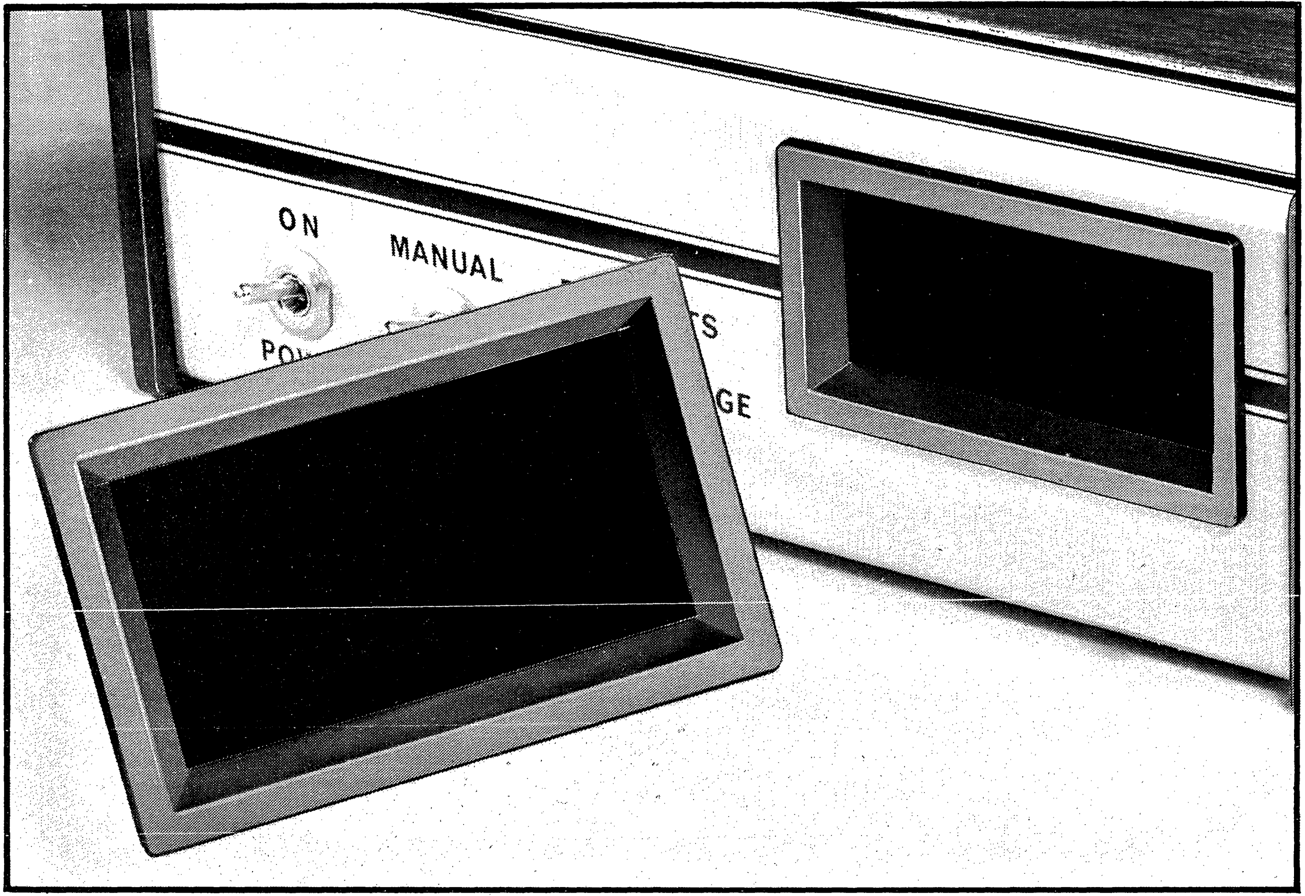


Shafts	X'	
6mm	5.0	49 15 60 0
1/4"	5.08	49 15 61 0

The locking device is a punched part to be pressed separately into the knob, allowing an accurate positioning of the collet knob and giving it an increased torque.

Available for knobs of 21, 28 and 36mm diameters.

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046



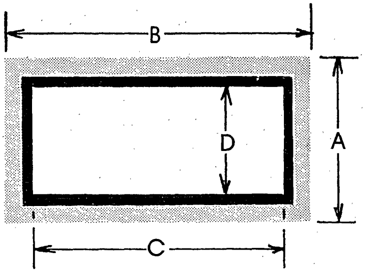
RMF MODEL 140 SERIES BEZEL & FILTER ASSEMBLY

Whatever your application may be, these low-cost bezel and filter assemblies will improve the front panel appearance and make the display itself more readable.

Attractive ABS plastic bezels are available in many sizes to match the most popular types of displays.

The colored acrylic filters have a special non-glare surface to make viewing easier. Standard colors are red and clear for LED and LCD displays although any color is available on special order.

INSTALLATION is fast and simple . . . merely insert the filter into the slots on the rear of the bezel, then push the entire assembly into the panel cutout. A quick and easy operation without the use of any tools, adhesive or hardware. Recommended panel thickness is from .040 to .125 in.



	DIMENSIONS				PANEL OPENING		FILTER*	
MODEL	A	B	C	D	HEIGHT	WIDTH	HEIGHT	WIDTH
140-1	1.343	1.906	1.375	.812	1.156	1.750	.875	1.437
140-2	1.343	2.531	2.0	.812	1.156	2.375	.875	2.087
140-3	1.343	3.531	3.0	.812	1.156	3.375	.875	3.040
140-4	1.343	4.531	4.0	.812	1.156	4.375	.875	4.078
140-5	1.343	5.531	5.0	.812	1.156	5.375	.875	5.078
140-6	1.343	6.531	6.0	.812	1.156	6.375	.875	6.078
140-8	1.343	8.531	8.0	.812	1.156	8.375	.875	8.078
141-2	1.656	2.531	2.0	1.125	1.469	2.375	1.187	2.087

*Filter Material is .030 thick
New sizes are being added continually.
Please check with us if your requirements are not listed.

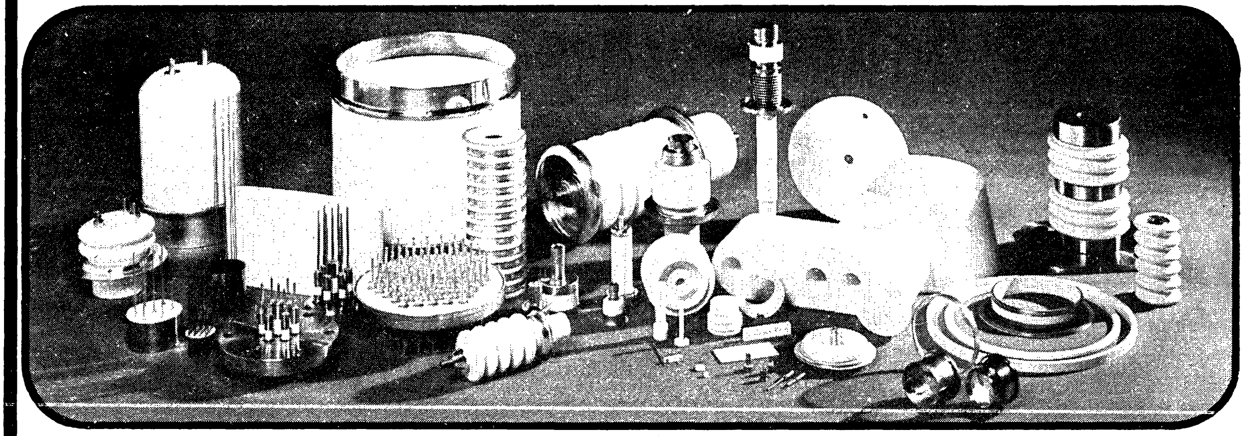
RMF PRODUCTS, INC.
P.O. Box 520, 1275 Paramount Parkway Batavia, IL 60510 312 879-0020

ALBEROX ... *For outstanding performance in high temperature, hermetic terminals.*

We're SPECIALISTS in brazing METAL parts to high alumina CERAMICS for demanding HIGH TEMPERATURE, HERMETIC applications.

CUSTOM HERMETIC CONNECTORS Multipin hermetic connectors for demanding vacuum and space applications requiring 400°C. bakeout — conditions where glass connectors won't stand up — are being produced in a variety of configurations. To save cost, Alberox can also provide connector sub-assemblies such as pin decks to be brazed or welded into shells or flanges by the customer.

MINIATURE TUBE AND PIN SEALS Many high temperature applications require insulated pin or tube feedthrus. These are available with weldable or brazeable metal parts, and can be added to covers or flanges, etc. All Alberox feedthrus are suitable for cryogenic environments.



Since 1961, we have designed and produced a wide variety of seals for custom applications in diverse components such as . . .

- VACUUM FEEDTHRU TERMINALS
- CERAMIC ELECTRON TUBE AND VACUUM SWITCH ENVELOPES
- NUCLEAR REACTOR PENETRATOR FEEDTHRU TERMINALS and INSULATORS
- SQUIBB and DETONATOR CONNECTORS
- SPACE FLIGHT HERMETIC CONNECTORS
- JET ENGINE THERMOCOUPLE COMPONENTS
- HIGH PRESSURE OIL WELL LOGGING FEEDTHRUS
- CAPACITORS and TRANSFORMER TERMINALS

In addition to the above, Alberox has designed and produced state-of-the-art components for critical nuclear devices.

The Alberox plant was designed and built specifically for the efficient production of ceramic-to-metal seals. We manufacture our own A-950 high alumina ceramic, which enables us to optimize on the best metalizing process for this ceramic; thus we can provide superior seals. By making our own ceramic, our customers benefit by fast delivery on custom designs.

Another important feature of Alberox is that all of the plating requirements are met "in-house", including nickel, gold, copper, silver, bright tin and solder plating!

We have several types of BRAZING FURNACES for brazing ceramic-to-metal and metal-to-metal parts in HIGH VACUUM, or HYDROGEN, ARGON or any other specified atmosphere! The standard operating procedure is to custom program the brazing cycle, taking into account the ceramic, the types of metals, braze materials and the atmosphere.

Alberox exercises complete control, from the design stage right through all manufacturing operations — to meet or exceed the highest quality standards and maintain the fastest delivery in the industry. Products made by Alberox are assured to outperform all design parameters set for them!

HIGH PRESSURE FEEDTHRUS *Alberox A-950 Alumina* has extraordinarily high compressive strength (350,000 psi). By using this strength to its best advantage, ceramic-to-metal seals can be produced to withstand high static or dynamic pressures. Thousands of these seals have been manufactured by Alberox.

MULTITERMINAL FEEDTHRUS Multiterminal feedthrus differ from multipin connectors in that individual feedthru terminals are brazed or welded into a metal deck or flange. These feedthrus are generally used for higher voltage applications than can be accommodated by a regular ceramic pin deck or connector. Alberox has an extensive line of catalog tubular terminal bushings which are often used for the individual feedthrus. In this way, custom multiterminal feedthrus can be delivered quickly.

POWER FEEDTHRUS Copper, or just about any other type of metal, from ⅛ inch to over 1 inch in diameter can be provided in power feedthrus. Modifications of our standard catalog tubular and fluted terminal bushings are often perfectly suited, and custom ceramic-to-metal seal designs can be easily accommodated. Weldable or brazeable flanges also can be added to the feedthrus to allow easy installation on existing flanges or bulkheads.

INSULATORS AND STANDOFFS Insulators and standoffs can be supplied in tubular or fluted shapes, bare or glazed, with or without metal adapters or studs. Alberox manufactures plain ceramic parts for use as spacers, insulators, supports, isolators, decks, or washers. Metalized and glazed cylinders are also available for envelopes of high power electron tubes such as Thyratrons or for vacuum switches.

CATALOG HIGH VOLTAGE BUSHINGS Alberox stocks the largest variety of high voltage tubular and fluted high alumina terminal bushings in the industry. Modifications to these catalog items are easily made. Typical modifications are: special studs, brazed-in-center conductors, different metal parts, finishes and ceramic dimensional changes. Fast delivery at reasonable prices can still be maintained. Ask for Catalog #472 which illustrates details of these parts.

Alberox is ready to assist you with your ceramic-to-metal seal design requirements. When you need FAST DELIVERY of SUPERB ceramic-to-metal seals, at realistic prices — contact ALBEROX.

ALBEROX CORPORATION
Industrial Park Dept. G
New Bedford, Massachusetts 02745
Phone 617-995-1725

MINIGLOSSARIES FORMULAS • CHARTS PRODUCT SELECTION GUIDES FORMS CODES TECHNICAL INFORMATION

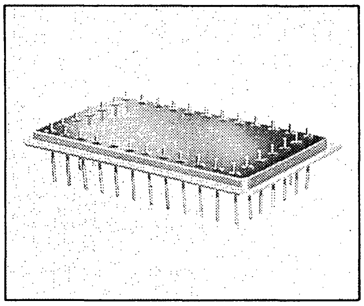
WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

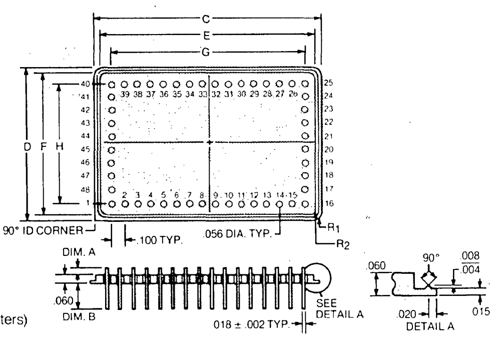
Abbreviations/Acronyms ... **A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code ... **D**•1087
Batteries, Product Selection Guide ... **D**•1413
Batteries & Fuel Cells, Characteristics ... **D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide ... **C**•1003
Capacitors, Basic Formulas ... **A**•1093
Capacitors, Miniglossary ... **A**•1066
Capacitors, Product Selection Guide ... **A**•1003
Circuit Boards (Printed) Product Selection Guide ... **C**•1099
Coils, Chokes, Inductors, Product Selection Guide ... **A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum ... **C**•1863
Connectors, Miniglossary ... **C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide ... **C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude ... **A**•1309
Delay Lines, Product Selection Guide ... **A**•1459
Discrete Semiconductors, Product Selection Guide ... **A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide ... **B**•1015
EBCDIC Code ... **D**•1092
Encapsulation, Miniglossary ... **C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide ... **C**•1623
Filters, Product Selection Guide ... **A**•1583
Instruments, Graphic Recording Product Selection Guide ... **D**•1401
Instruments, Panel Meters, Product Selection Guide ... **D**•1329
Instruments, Test & Measuring Product Selection Guide ... **D**•1175
Interconnection Systems, Product Selection Guide ... **C**•1699
Keyboards & Keypads, Product Selection Guide ... **B**•1705
Logofinder & Trademark Directories ... **B**•901
Microwave Components, Product Selection Guide ... **A**•1701
Military Qualified Products Lists ... **B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide ... **B**•1129
Opto Semiconductors, Miniglossary ... **B**•1214
Oscilloscopes, Product Selection Guide ... **D**•1385
Panel Hardware, Product Selection Guide ... **C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide ... **A**•1991
Power Supplies, Miniglossary ... **D**•1462
Power Supplies, AC, Product Selection Guide ... **D**•1877
Power Supplies, DC, Product Selection Guide ... **D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide ... **B**•1225
Relay Contact Forms ... **B**•1317
Relays, Electromechanical, Miniglossary ... **B**•1308
Relays, Product Selection Guide ... **B**•1261
Resistor Color Codes ... **A**•1828
Resistors, Product Selection Guide ... **A**•1785
Servo Components, Miniglossary ... **D**•1985
Solenoids, Product Selection Guide ... **B**•1463
Switches, Product Selection Guide ... **B**•1477
Thermal Components, Product Selection Guide ... **B**•1741
Thermal Conductivity of Dielectrics at Room Temperature ... **B**•1744
Thyristors/High Power Diodes, Miniglossary ... **A**•2076
Transducers & Encoders, Product Selection Guide ... **B**•1777
Transformers, Product Selection Guide ... **A**•2099
Wire & Cable, Product Selection Guide ... **C**•1743
Wire Gauges—Diameter, Area, Copper Weight ... **C**•1844

REEVES-HOFFMAN
Division, Dynamics Corporation of America
400 West North St., Carlisle, PA 17013 U.S.A.
Phone: 717-243-5929/TWX: 510-650-3510

Hermetic Seal Packages

PLATFORMS KOVAR OR CRS MATERIAL




C
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25
39 38 37 36 35 34 33 32 31 30 29 28 27 26
90° ID CORNER
.100 TYP.
.056 DIA. TYP.
R1
R2
DIM. A
.060
DIM. B
SEE DETAIL A
018 ± .002 TYP.
.060
90°
.008
.004
.020
015
DETAIL A

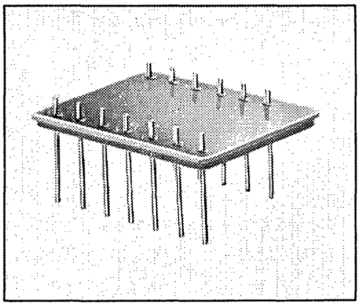
inches (millimeters)

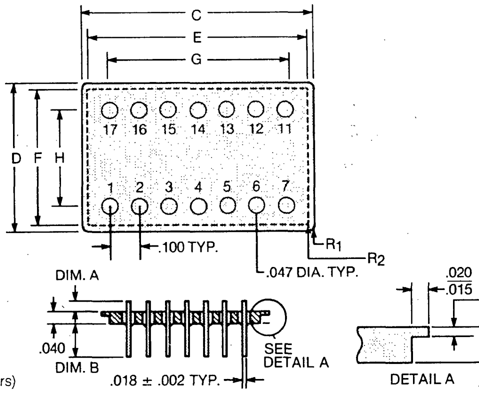
RESISTANCE WELD OR SOLDER SEAL

Part No.	No. Pins*	Pin Location	A**	B**	C	D	E	F	G	H	R1	R2	90°ID
04-20001-000	14	(7 + 7)G	.050	.250	.798	.497	.698	.397	.600	.300	.080	.030	YES
04-19538-000	14	(7 + 7)G	.050	.250	.870	.498	.770	.398	.600	.300	.080	.030	YES
04-19650-000	16	(8 + 8)G	.050	.250	.970	.498	.870	.398	.700	.300	.080	.030	YES
04-19759-000	22	(9 + 9)G/(2 + 2)H	.050	.250	1.070	.498	.970	.398	.800	.300	.080	.030	YES
04-19540-000	26	(8 + 8)G/(5 + 5)H	.050	.250	.970	.795	.870	.695	.700	.600	.080	.030	YES
04-19571-000	34	(12 + 12)G/(5 + 5)H	.050	.250	1.370	.795	1.270	.695	1.100	.600	.080	.030	YES
04-19529-000	32	(14 + 14)G/(2 + 2)H	.050	.250	1.560	.525	1.470	.435	1.300	.300	.080	.035	YES
04-19872-000	42	(14 + 14)G/(7 + 7)H	.050	.250	1.500	1.000	1.400	.900	1.300	.800	.085	.035	YES
04-19873-000	48	(16 + 16)G/(8 + 8)H	.050	.250	1.740	1.140	1.640	1.040	1.500	.900	.155	.105	NO

*Packages available with any quantity of pins less than maximum listed.
**Consult factory for other dimensions.

PLATFORM KOVAR OR CRS MATERIAL




C
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G
D
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17 16 15 14 13 12 11
1 2 3 4 5 6 7
.100 TYP.
R1
R2
.047 DIA. TYP.
DIM. A
.040
DIM. B
.018 ± .002 TYP.
SEE DETAIL A
.020
.015
.018
.012
DETAIL A
.040

inches (millimeters)

REVERSE FLANGE SOLDER SEAL

Part No.	No. Pins*	Pin Location	A**	B**	C	D	E	F	G	H	R1	R2
04-19522-000	14	(7 + 7)G	.050	.250	.740	.540	.700	.500	.600	.400	.045	.025

*Packages available with any quantity of leads less than maximum listed.
**Consult factory for other dimensions.

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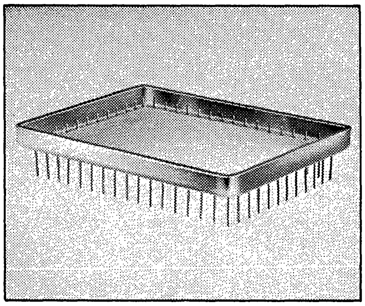
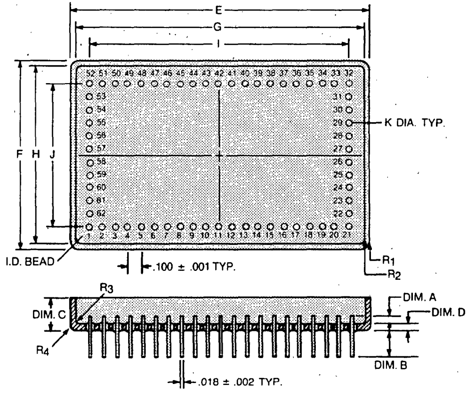
Hermetic Seal Packages

DRAWN TUB PLUG-INS KOVAR OR CRS MATERIAL



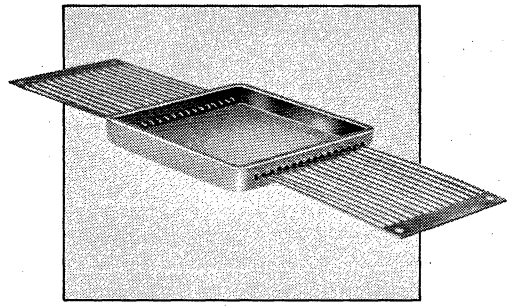


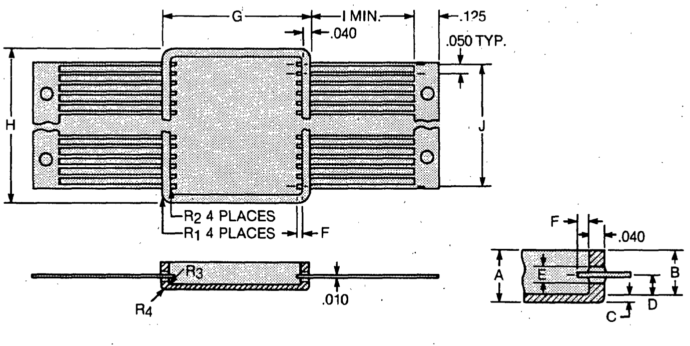
inches (millimeters)

Part No.	No. Pins*	Pin Location	A**	B**	C**	D	E	F	G	H	I	J	K	R1	R2	R3	R4
04-19526-000	18	(7 + 7)I/(2 + 2)J	.050	.250	.140	.040	.795	.470	.715	.390	.600	.300	.047	.060	.020	.010	.050
04-19758-000	22	(9 + 9)I/(2 + 2)J	.050	.250	.200	.040	.998	.490	.918	.410	.800	.300	.047	.060	.020	.010	.050
04-19536-000	30	(10 + 10)I/(5 + 5)J	.050	.250	.170	.040	1.140	.936	1.060	.856	.900	.600	.047	.155	.115	.010	.050
04-19544-000	32	(9 + 9)I/(7 + 7)J	.050	.250	.200	.040	.995	.995	.915	.915	.800	.800	.047	.060	.025	.010	.050
04-19651-000	44	(12 + 12)I/(10 + 10)J	.050	.250	.200	.040	1.250	1.250	1.170	1.170	1.100	1.100	.047	.060	.020	.010	.050
04-19549-000	34	(12 + 12)I/(5 + 5)J	.050	.250	.385	.040	1.270	.770	1.190	.690	1.100	.600	.047	.060	.020	.020	.060
04-19760-000	38	(12 + 12)I/(7 + 7)J	.050	.250	.185	.040	1.270	.970	1.190	.890	1.100	.800	.047	.060	.020	.020	.050
04-19515-000	48	(16 + 16)I/(8 + 8)J	.050	.250	.225	.040	1.740	1.140	1.660	1.060	1.500	.900	.056	.060	.020	.010	.050
04-19574-000	54	(17 + 17)I/(10 + 10)J	.050	.250	.165	.040	1.830	1.330	1.750	1.250	1.600	1.100	.056	.086	.046	.020	.050
04-19550-000	46	(18 + 18)I/(5 + 5)J	.050	.250	.160	.040	1.895	.775	1.815	.695	1.700	.600	.047	.060	.020	.020	.050
04-19566-000	52	(19 + 19)I/(7 + 7)J	.050	.250	.170	.040	1.990	.990	1.910	.910	1.800	.800	.047	.080	.040	.020	.080
04-19761-000	56	(20 + 20)I/(8 + 8)J	.050	.250	.385	.040	2.140	1.140	2.060	1.060	1.900	.900	.056	.060	.020	.010	.050
04-19537-000	62	(21 + 21)I/(10 + 10)J	.050	.250	.215	.050	2.300	1.400	2.200	1.300	2.000	1.100	.056	.090	.040	.010	.060

*Packages available with any quantity of pins less than maximum listed.
**Consult factory for other dimensions.

DRAWN TUB FLAT PACKS KOVAR MATERIAL





inches (millimeters)

Part No.	No. Leads*	A**	B**	C	D**	E	F**	G	H	I min.	J max.	R1	R2	R3	R4
04-19501-000	22	.135	.115	.020	.050	.033	.035	.625	.625	.800	.500	.060	.020	.010	.050
04-20039-000	32	.135	.115	.020	.052	.033	.035	1.000	1.000	.800	.750	.060	.020	.010	.050
04-19691-000	40	.160	.140	.020	.037	.033	.035	1.180	1.180	.800	.950	.060	.020	.010	.050
04-20040-000	64	.160	.140	.020	.037	.033	.035	1.215	1.715	.800	1.550	.060	.020	.010	.050
04-20380-000	74	.160	.140	.020	.050	.033	.035	1.000	2.000	.800	1.800	.060	.020	.010	.050
04-20381-000	46	.160	.140	.020	.050	.033	.035	1.250	1.250	.800	1.100	.060	.020	.010	.050

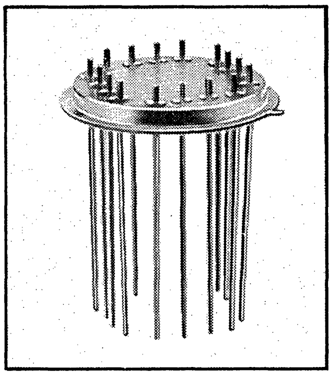
*Packages available with any quantity of leads less than maximum listed.
**Consult factory for other dimensions.

REEVES-HOFFMAN

Division, Dynamics Corporation of America
400 West North St., Carlisle, PA 17013 U.S.A.
Phone: 717-243-5929/TWX: 510-650-3510

Hermetic Seal Packages

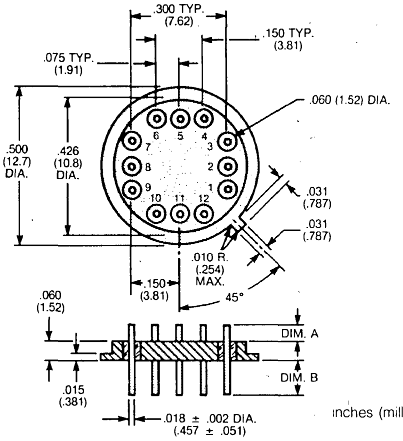
ROUND TO-8 PLUG-IN KOVAR OR CRS MATERIAL



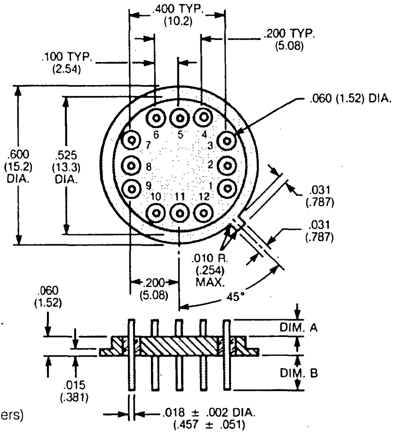
Dimension	Standard	Tolerance
A	0.050 (1.27)	± 0.010 (.254)
B	0.600 (15.2)	Minimum

Dimensions A and B can be adjusted for individual applications. Please consult factory.

PART NO. 04-19525-000

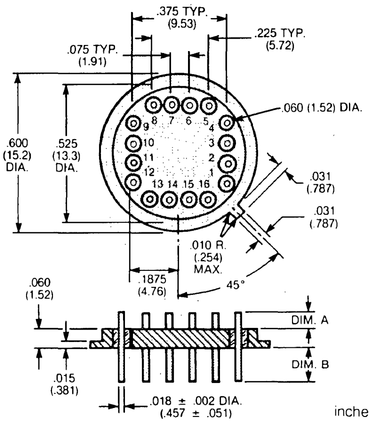

.300 TYP. (7.62)
.150 TYP. (3.81)
.075 TYP. (1.91)
.060 (1.52) DIA.
.500 (12.7) DIA.
.426 (10.8) DIA.
1 2 3 4 5 6 7 8 9 10 11 12
.031 (.787)
.031 (.787)
.010 R. (.254) MAX.
.150 (3.81)
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

PART NO. 04-19561-000

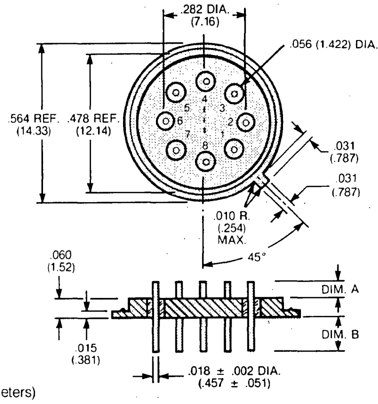

.400 TYP. (10.2)
.200 TYP. (5.08)
.100 TYP. (2.54)
.060 (1.52) DIA.
.600 (15.2) DIA.
.525 (13.3) DIA.
1 2 3 4 5 6 7 8 9 10 11 12
.031 (.787)
.031 (.787)
.010 R. (.254) MAX.
.200 (5.08)
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

inches (millimeters)

PART NO. 04-20027-000

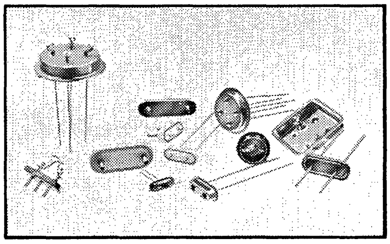

.375 TYP. (9.53)
.225 TYP. (5.72)
.075 TYP. (1.91)
.060 (1.52) DIA.
.600 (15.2) DIA.
.525 (13.3) DIA.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
.031 (.787)
.031 (.787)
.010 R. (.254) MAX.
.1875 (4.76)
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

PART NO. 04-19535-000


.282 DIA. (7.16)
.056 (1.422) DIA.
.564 REF. (14.33)
.478 REF. (12.14)
1 2 3 4 5 6 7 8
.031 (.787)
.031 (.787)
.010 R. (.254) MAX.
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

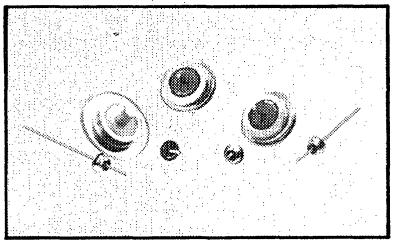
inches (millimeters)

QUARTZ CRYSTAL BASES



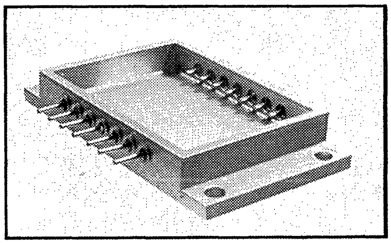
Reeves-Hoffman manufactures an extensive line of crystal bases, either to military standards or customer specification. Send us your prints for review. We may have a design that will satisfy your needs.

SPECIALIZED TERMINALS

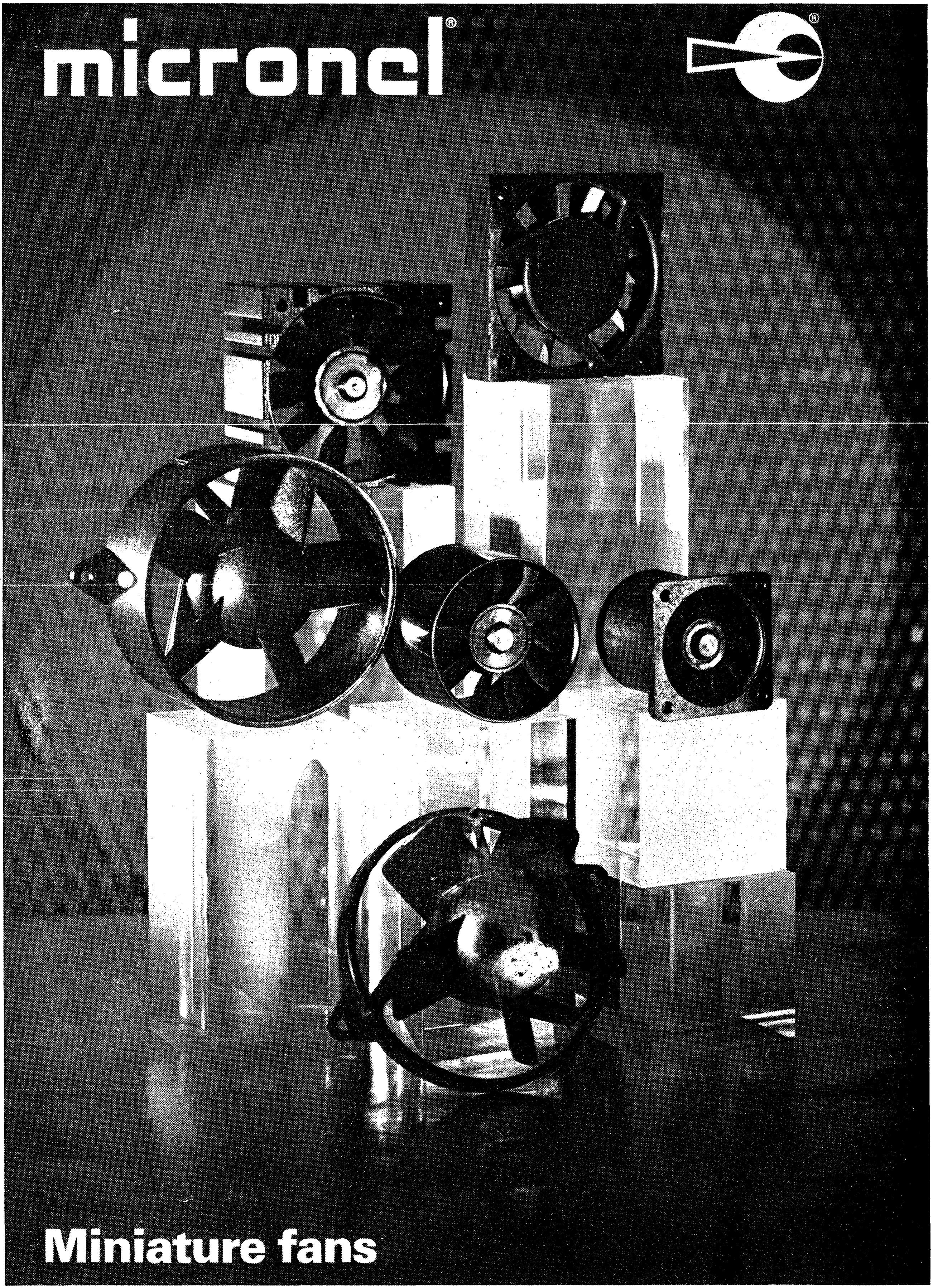


A large variety of single pin terminals are available in numerous materials and platings. From a solderable terminal for an oscillator to a weldable tantalum lead terminal for a lithium battery.

POWER PACKAGES



Custom designs to meet your specific requirements. Our in-house capability allows us to work with various materials and methods to achieve the results you desire; High Thermal Transfer and Mechanical Stability.


micronel®
Miniature fans

. . . see our pages C•1654 - C•1673 for details

FANS & BLOWERS

Manufacturer	EEM Page No.	Model/Series	AC	DC	Type		Noise db	Capacity (CFM)				Variable Speed Control
					Fan	Blower		1-49	49-99	100-499	500 & up	
AMCO Engineering	C•1625	BTA3	●		T		25	27				
		BTA4-LF	●		T		24		60			
		BTA-HF	●		T		38			100		
		BTA6	●		T		47			260		
		BTA10	●		T		41.3-47.6			475 —	540	●
		BDS5	●			SC	51.7-55.8			150-200		●
		BDS8	●			SC	51-55			325-425		●
		BRDS	●			SC	51-55			300-400		●
			●									
ebm Industries	C•1626 C•1628	W2S 075	●	●	T		16-23	18-34				
		W2S 086	●		T		33	46				
		W2S 107	●	●	T		15-34		71 —	106		
		W2S 115	●		T		30-34			106-127		
		W2S 130	●		T		41			233		
		W2S 142	●		T		53			236		
EG&G Rotron	C•1630	Muffin Venturi	●		T		NC-43			105		
		Muffin XL	●		T					115		
		Whisper Venturi	●		T		NC-27		57-75			
		Whisper XL	●		T				50-80			
		Hi-Lo 4715	●		T		NC-22		55 —	115		
		Hi-Lo 5015	●		T		NC-33			105-150		
		Skeleton	●		T		NC-27		57 —	105		
		Sprite	●		T		NC-28	21-35				
		Caravel	●		T		NC-45				550	
		Patriot	●		T		NC-47			240		
		Major	●		T		NC-60			240		
		Feather	●		T		NC-45			245		
		Tarzan	●		T		NC-57			340		
		Biscuit	●			SC	NC-42	22				
	C•1631	Muffin		●	T			40 —	—	130		
		Sprite		●	T			10-40				
		Sprint		●	T		3.9-4.8 Bels	25-35				
		Scamp		●	T			21				
		Patriot		●	T					175-240		
ETRI	C•1638	98	●		T		28, 39		45, 79			
		99	●		T		23, 32, 37	21, 32, 40				
		113	●		T		35		53			
	C•1639	125	●		T		29, 36, 40		57, 83	112		
		126	●		T		9, 19, 16	15, 23, 32				
		141	●		T		23, 33, 41		55, 75	105		
	C•1640	146	●		T		24.7	25				
		148	●		T		33, 39, 45, 51, 50.5			123, 149, 172, 255		
Frederick Components	C•1641	119	●	●	T			44	53, 75	105		
		092	●		T			25, 33				
		080	●	●	T			24, 25, 26, 30				
		880	●		T			16				
Hi-Tech, Inc.	C•1642	All	●		T	T, C					to 2000	
IMC Magnetics	C•1644	Boxer	●		V				50 —	113		
		Fulmar	●		V					230		
		Mini Boxer	●		V			23-46				
		Condor	●		V						560	
		Peewee Boxer	●		V			15-34				
McLean Engrg.*	C•1648	2EB	●			C				130, 290, 300, 350,	500, 700, 800	●
		1EB	●			C				200, 345, 350	550, 1000	●
		4EB	●			C				250, 450		
		IDB	●			C			75			
		IEB	●			C				140, 150, 185		
	C•1649	Fans	●		P					265, 275, 300, 395, 450	725, 1200	

T Tangential, Blowers; T Tubeaxial, Fans; V Vaneaxial; P Propeller; R Radial; SC Scroll; C Centrifugal.

* Mil. Spec.

FANS & BLOWERS (Con't.)

Manufacturer	EEM Page No.	Model/Series	AC	DC	Type		Noise db	Capacity (CFM)				Variable Speed Control
					Fan	Blower		1-49	49-99	100-499	500 & up	
Micronel	C•1656	V241-V249		●	V		37/43	3.15/3.5				
	C•1657	V301-V309		●	V		45/47					
	C•1658	V351-V359 V361-V369		●	V		45-53	11.55-12.6				●
	C•1659	V461-V469		●	V		27/28	10.19				●
	C•1660	V481-V489		●	V		55/58	25.2				●
	C•1661	V571-V579 V581-V589		●	V		27/37	19				●
	C•1662	V591-V599 V601-V609		●	V		53/63		53			●
	C•1663	VD 65		●	V		53/55					
	C•1664	F57		●	V		32	11				
	C•1665	V341-V349 V351-V359	●		V		13-16	1.6-2.5				
	C•1666	V461-V469	●		V		14-26	5.4-6.7				
	C•1667	V571-V579 V581-V589	●		V		24-36	15-17				
	C•1668	V621-V624, V631	●		V		22-28	15-18				
	C•1669	V60	●		V		16, 17	17, 19				
	C•1670	V56-V62	●		V		21, 27	13.7, 17				
	C•1671	V72	●		V		26, 27	23, 26.3				
	C•1672	V72AB-V72JM	●		V		32, 36	36, 40				
Stock Drive Products	C•1674	Flow Max Flow Max	● 	 ●	V V			9 9	— —	277 110		
U.S. Toyo Fan	C•1680	TF	●		T		from 32	27	—	104		
	C•1681	TFD SMF/SL		● ●	T T							

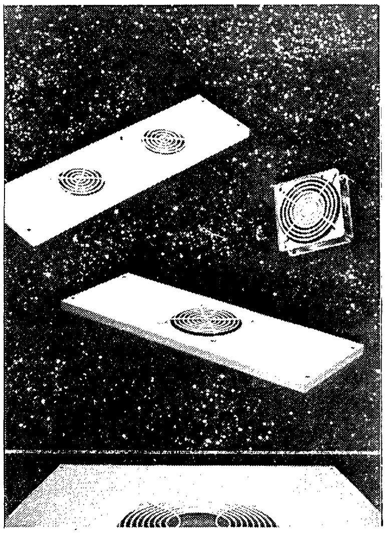
T Tangential, Blowers; T Tubeaxial, Fans; V Vaneaxial; P Propeller; R Radial; SC Scroll; C Centrifugal.

AIR CONDITIONERS, COOLERS, HEAT PUMPS

Manufacturer	EEM Page No.	Type of System	Model/Series	Capacity Cooling (BTU/hr.)	Features/Applications
Electro Impulse	C•1637	Closed Loop Heat Exchangers/Coolers			Military, shipboard, indoor, & outdoor applications
McLean Midwest	C•1650	Air Conditioners	Slimboy Hiboy Loboy	1200-12000 2000-6000 2000-7000	
	C•1651	Heat Exchangers			Operating Range: 0°F to 125°F Enclosure mounting
Melcor	C•1652	Heat Pumps	CP/FC		Operating Range: −150°C to +110°C
TECA/Borg Warner	C•1675- C•1677	Air Conditioners Temperature Controllers	AHP/LHP TC	110-1500	Cool Mode: −39.9°C to +50°C Heat Mode: −55°C to +150°C

AMCO Cooling Devices

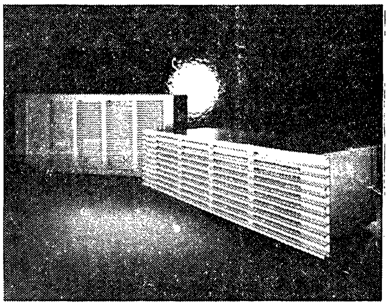
Cooling Devices for Electronics from AMCO Engineering Co.



AMCO Fans

AMCO's new line of high performance tube axial fans offers a variety of quiet air flow speeds and assembly options to meet your spot cooling requirements. Fans are available individually, in tandem assemblies or pre-mounted on attractively colored panels to simplify mounting to enclosure frames. Diameters of 3", 4" (low or high flow), 6" and 10" are offered, providing a range of air flows from 27 to 540 SCFM. AMCO fans include front protection grilles and mounting hardware. Standard panel mounted assemblies are available in 19", 24" and 30" width EIA panels and allow multiple fan configurations. Variable speed control is included with BTA10 fan. Optional accessories are available.

ЯU Recognized
Ⓢ Listed

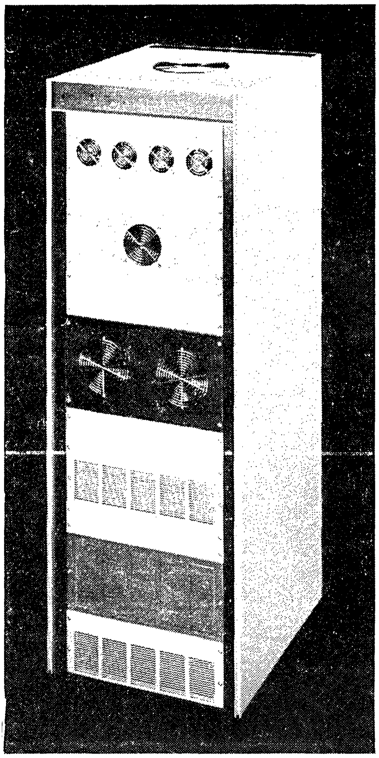


AMCO Blowers

AMCO's line of dual scroll blower assemblies feature solid state variable speed controls incorporating high gain RF noise filters and full wave phase control circuitry to achieve infinite speed variations. Model BDS5 occupies 5¼" panel height and provides 150 to 200 SCFM with quiet operation at 51.7 to 55.8 dB. Occupying 8¾" panel height, Model BDS8 delivers 325 to 425 SCFM at 51 to 55 dB. For recessed base mounted applications, Model BRDS provides 300 to 400 SCFM at 51 to 55 dB, while utilizing only 3½" of vertical panel space. Blower housings are plated and grilles are clear anodized aluminum. All blowers mount in 19", 24" and 30" panel width consoles and are prewired with 3' or 6' three-conductor cords.

Purchase of an AMCO blower assembly includes mounting hardware, formed clear anodized aluminum grille, reusable filter, speed control, grille mounting hardware and blower box mounting hardware (BRDS only). Optional accessories include air deflectors, dust filters, replacement parts, hardware and deluxe grilles (BRDS only).

ЯU Recognized



Sample AMCO Cooling Devices Assembled to Frame.

Pictured above, top to bottom: BTA10-PX21-19-E, BTA3-19-4, BTA4-HF-19-1, BTA6-19-2, BDS5-19-3, BDS8-19-3, BRDS-19-25-3

Fan or Blower Number	Variable Speed Control	*SCFM		Speech Interference Level—db		Standard Mounting
		Min. Speed	Max. Speed	Min. Speed	Max. Speed	
BTA3			27		25	Panel
BTA4-LF			60		24	Panel
BTA4-HF			100		38	Panel
BTA6			260		47	Panel
BTA10	X	475	540	41.3	47.6	Top Panel
BDS5	X	150	200	51.7	55.8	Panel
BDS8	X	325	425	51	55	Panel
BRDS	X	300	400	51	55	Recessed Base Panel

**Because laboratory environment (barometric pressure, temperature and humidity) can vary, all air flow performance ratings are corrected to standard cubic feet per minute—SCFM. This technique is a more accurate method of rating performance than using observed CFM which can vary depending on test conditions.*

Quick Selection Guide

The table at left is presented as a quick reference guide to AMCO Fans and Blowers. For more information on each fan or blower, request AMCO Catalog 803 or call the AMCO representative nearest you—ask about additional models soon to be available and special services provided by AMCO's Cooling Systems Laboratory.

amco

"Quality Is No Accident"

AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

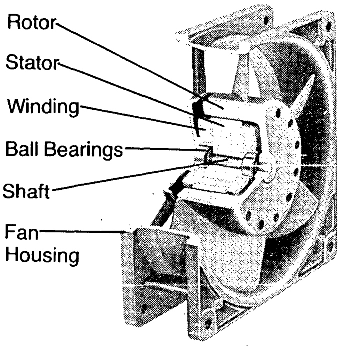
ebm Tubeaxial Fans

External Rotor Motor
All Metal Construction

One simple, reliable design for every electronic application

Motors

The motors used in ebm Tubeaxial fans are either shaded-pole, or PSC designs with Class "B" insulation. Available fans operate at 115V or 230V, 50/60Hz. Dual voltage 115/230V motors and other special models rated from 12V to 240V are also available. All motors are impedence protected in accordance with UL, CSA and VDE requirements. Electromagnetic interference (EMI) is greatly reduced by the self-shielding external rotor. This inherent feature of the ebm design makes it ideal for use in sensitive electronic equipment.



Acoustics

Acoustical sound measurements are made in an anechoic chamber at nominal voltage with a microphone one meter from fan air inlet.

Safety

All fans are designed to meet UL, CSA and VDE standards. Approved products are listed in UL yellow card E54522; CSA file LR3145 and VDE 836 and 11585. It is the responsibility of the user to be sure fans are installed and operated in accordance with all safety codes. Care should be taken to insure that the connecting screws for ground leads do not extend into the housing opening and impede operation of the impeller blades.

Nr. E 54 522 836

Construction

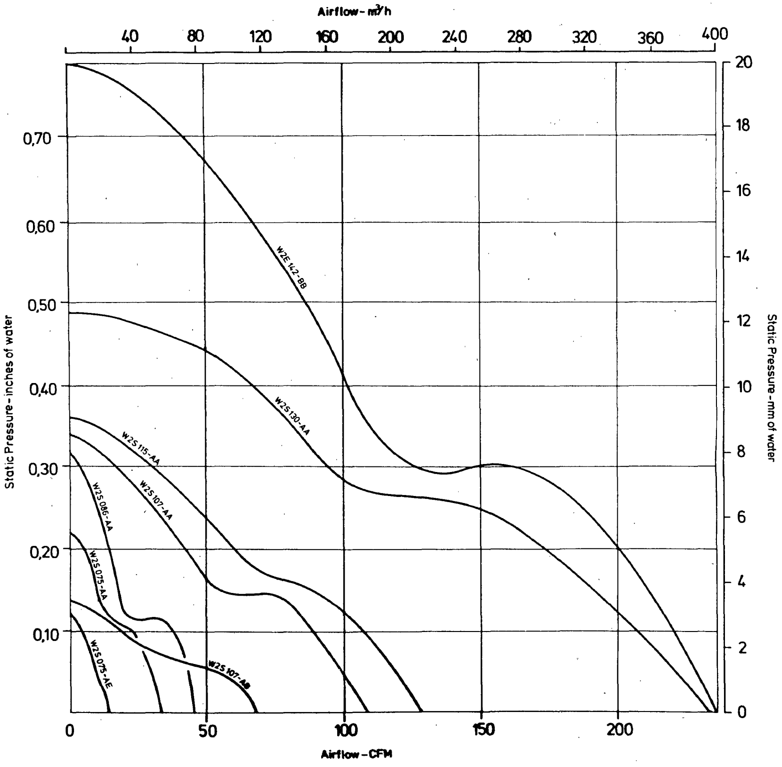
All-metal construction provides excellent heat dissipation, long life and structural stability. The fan itself functions as a heat sink by effectively transferring heat from the motor to the air stream via the metal impeller blades. The impeller blades are sheet steel, precision machined and welded to the metal rotor casing. The housing is die-cast aluminum.

The rotor and impeller blades are dynamically balanced in two planes in accordance with VDI2060. In addition, the fans are finished with an electrostatically applied black varnish to protect against severe environmental conditions.

Bearing System

The type of bearing system selected will directly affect the "life" of the fan. It is recommended that sleeve bearings be used for −10°C to 60°C; ambients and ball-bearings for −30°C to 75°C. With either bearing system, typical operating life is between 20,000 and 40,000 hours. Actual life will depend on ambient temperature, duty cycle, mounting position and environmental conditions; 100,000 hours is not uncommon. Bearings are totally maintenance free.

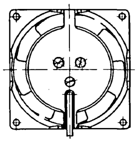
Air Performance



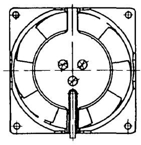
ebm Tubeaxial Fans

AC, DC or Dual Voltage AC (115/230)
UL, CSA, VDE Approved

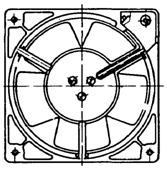
Specifications



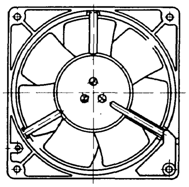
W2S 075
3⅛″ x 1½″



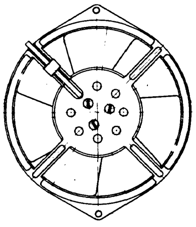
W2S 086
3⅝″ x 1½″



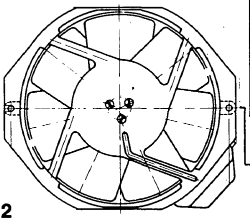
W2S 107
4¹¹⁄₁₆″ x 1½″



W2S 115
5″ x 1½″



W2S 130
6″ x 2″



W2S 142
5.9″ x 6.8″ x 1.5″

Type	Bearing	Volts†	CFM††	db(SIL)††	Max. Oper. Temp. °C
W2S 075-AA11-02	Sleeve	115	32	23	60
W2S 075-AA11-01	Ball	115	32	23	75
W2S 075-AA13-02	Sleeve	230	32	23	60
W2S 075-AA13-01	Ball	230	32	23	75
W2S 075-AA13-81	Sleeve	115/230	32	23	60
W2S 075-AD11-02	Sleeve	115	25	18	60
W2S 075-AD11-01	Ball	115	25	18	75
W2S 075-AD13-02	Sleeve	230	25	18	60
W2S 075-AD13-01	Ball	230	25	18	75
W2S 075-AD13-81	Sleeve	115/230	25	18	60
W2S 075-AE11-02	Sleeve	115	18	16	60
W2S 075-AE11-01	Ball	115	18	17	75
W2S 075-AE13-02	Sleeve	230	18	16	60
W2S 075-AE13-01	Ball	230	18	17	75
W2S 075-AE13-81	Sleeve	115/230	18	16	60
A2S 075-BA11-02*	Sleeve	115	32	23	60
W2G 075-AB22-01	Ball	12 DC	34	23	55
W2G 075-AB24-01	Ball	24 DC	34	23	55
W2G 075-AB26-01	Ball	48 DC	34	23	55
W2S 075 Finger guard accessory 9480-2-4039					
W2S 086-AA07-02	Sleeve	115	46	33	60
W2S 086-AA07-01	Ball	115	46	33	70
W2S 086-AA05-02	Sleeve	230	46	33	60
W2S 086-AA05-01	Ball	230	46	33	75
W2S 086 Finger guard accessory 9483-2-4039					
W2S 107-AA15-39	Sleeve	115	106	34	60
W2S 107-AA15-13	Ball	115	106	34	75
W2S 107-AA01-39	Sleeve	230	106	34	60
W2S 107-AA01-13	Ball	230	106	34	75
W2S 107-AA01-67	Sleeve	115/230	106	34	60
W2S 107-AB07-39	Sleeve	115	71	23	60
W2S 107-AB07-13	Ball	115	71	23	75
W2S 107-AB05-39	Sleeve	230	71	23	60
W2S 107-AB05-13	Ball	230	71	23	75
W2S 107-AB05-67	Sleeve	115/230	71	23	60
W2S 107-AB11-39	Sleeve	115	48	15	60
W2S 107-AB11-13	Ball	115	48	15	75
W2S 107-AB13-39	Sleeve	230	48	15	60
W2S 107-AB13-13	Ball	230	48	15	75
W2S 107-AB13-67	Sleeve	115/230	48	15	60
A2S 107-BA15-02*	Sleeve	115	106	34	60
A2S 107-BB07-02*	Sleeve	115	71	23	60
W2G 107-AB02-01	Ball	12 DC	100	32	55
W2G 107-AB04-01	Ball	24 DC	100	32	55
W2G 107-AB06-01	Ball	48 DC	100	32	55
W2S 107 Finger guard accessory 9497-2-4039					
W2S 115-AA03-39	Sleeve	115	127	34	60
W2S 115-AA03-13	Ball	115	127	34	75
W2S 115-AA01-39	Sleeve	230	127	34	60
W2S 115-AA01-13	Ball	230	127	34	75
W2S 115-AB11-39	Sleeve	115	106	30	60
W2S 115-AB07-39	Sleeve	230	106	30	60
W2S 115 Finger guard accessory 9496-2-4039					
W2S 130-AA25-01	Ball	115	233	41	75
W2S 130-AA03-01	Ball	230	233	41	75
W2S 130, W2E 142 Finger guard accessory 9498-2-4039					
W2E 142-BB05-16	Ball	115	236	53	75
W2E 142-BB01-16	Ball	230	236	53	75
For all models: Plug and cord set 1434-4-6711					

*Skeleton fans without housing

† AC volts rated at 50/60 Hertz

†† 0 static pressure

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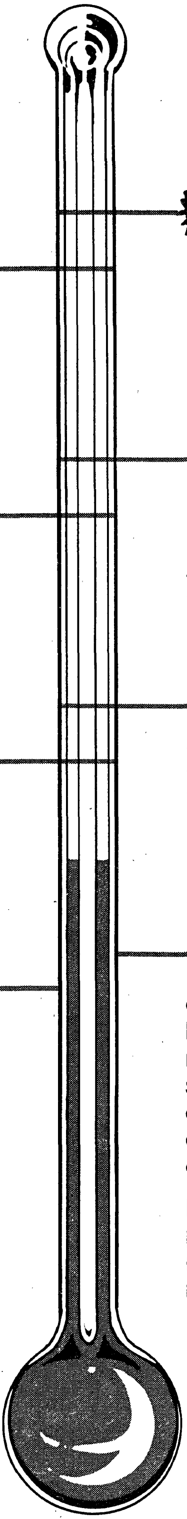
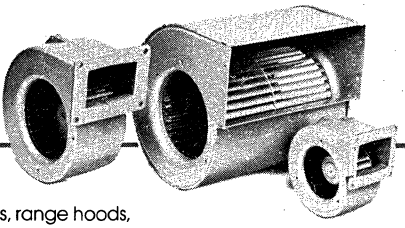
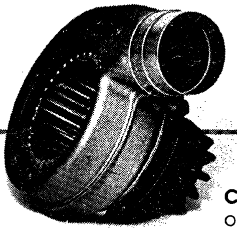
We blow away the problems

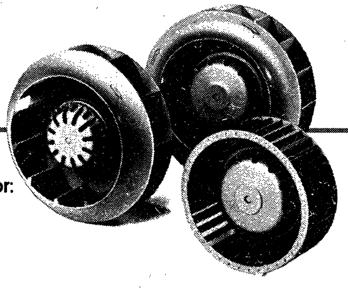




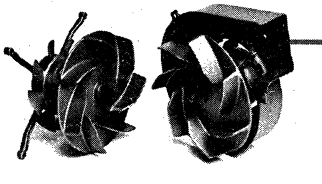
Blowers for:
major appliances, range hoods,
hot air furnaces, air conditioners,
air curtains,
clean rooms



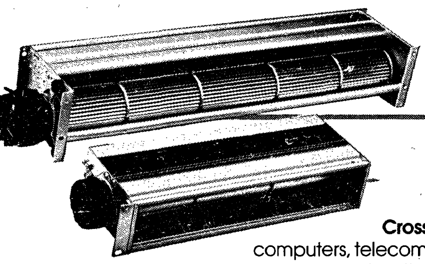
Combustion blowers for:
oil & gas furnaces



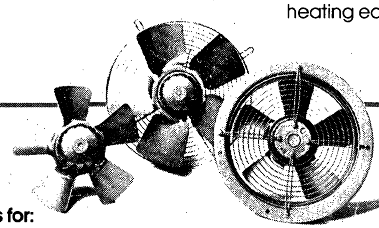
Motorized impellers for:
range hoods,
commercial ovens,
architectural floors,
roof ventilators, office
equipment, telecommunications,
computers



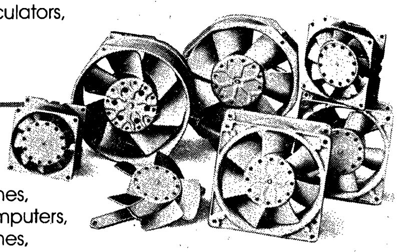
High temperature fans for:
convection ovens,
microwave ovens,
kilns



Crossflow fans for:
computers, telecommunications,
heating equipment



Axial fans for:
solar heat pumps, air conditioners,
greenhouse circulators,
space heaters,
grain dryers



Tubeaxial fans for:
vending machines,
appliances, computers,
business machines,
robotics applications, telecommunications,
instrumentation cooling, sun-tanning equipment,
wood stoves

ebm solves your environmental control problems. Because with ebm's external rotor motor design (impeller attached directly to rotor housing) you get smaller, space-saving sizes and lower operating costs! Plus all metal construction for better heat dissipation and longer life. And they're 100% speed controllable and have UL, CSA and VDE approvals.

It's the kind of superior engineering and performance you'd expect from Europe's largest manufacturer of fans and blowers—now available right here in the U.S.!

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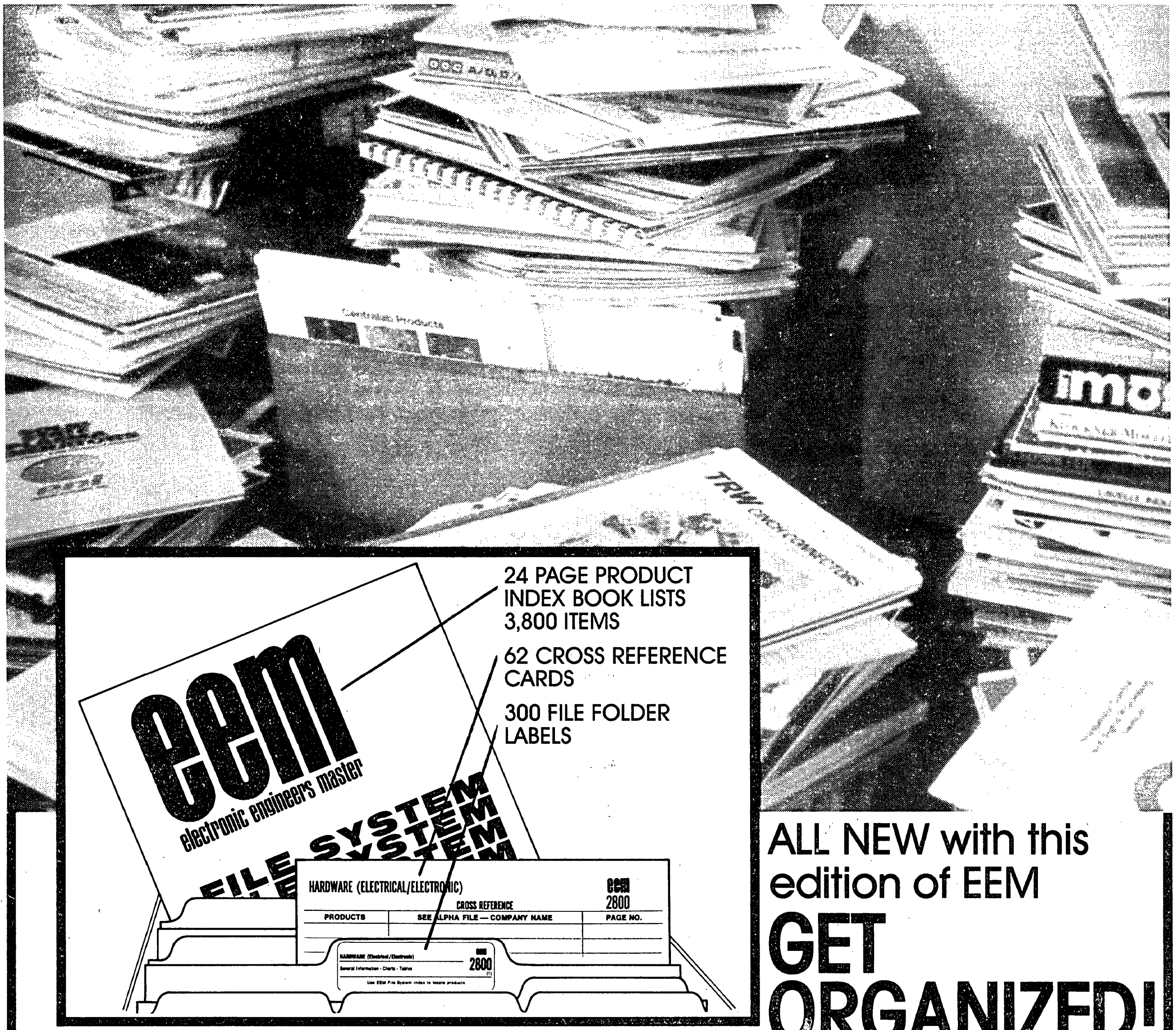
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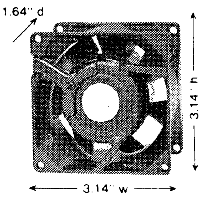
EG&G ROTRON

FAN SELECTION GUIDE

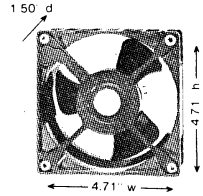
AC FANS AND BLOWERS

SPRITE® FAN



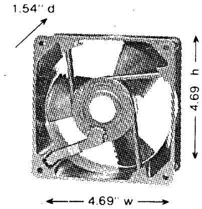
- 20 to 34 CFM (9.5 to 16.0 L/Sec.)
- Size - 3.14" square x 1.64" deep (79.8 mm x 41.8 mm)
- 115 or 220/230 VAC, 50/60 Hz
- Low noise level
- Rugged die-cast zinc housing
- Weight - 18 oz. (.51 Kg)
- Temp. range −28 C to +70°C
- Sleeve or ball bearings
- UL File E31293
- CSA File LR44938
- VDE License No. 25636
- Leadwire or terminal models
- Reverse flow models

WHISPER® FAN



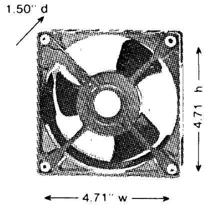
- 57 to 80 CFM (26.9 to 37.8 L/Sec.)
- Size - 4.71" square x 1.50" deep (119.6 mm x 38.1 mm)
- 115 or 220/230 VAC, 50/60 Hz
- Low noise level
- Flame retardant, black phenolic venturi
- Zinc alloy spider
- Weight - 17 oz. (.49 Kg)
- Temp. range −28 C to +70°C
- Sleeve or ball bearings
- UL File E31293
- CSA File LR44938

WHISPER® XL FAN



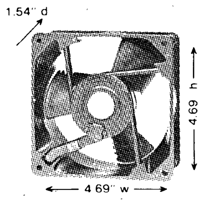
- 50 to 83 CFM (23.5 to 40.0 L/Sec.)
- Size - 4.69" square x 1.54" deep (119.1 mm x 39.1 mm)
- 115 or 220/230 VAC, 50/60 Hz
- Feathered Edge™ blades for lower noise
- Zinc alloy venturi and spiders
- Weight - 21 oz. (.61 Kg)
- Temp. range −28 C to +70°C
- Quiet sleeve bearings
- UL File E31293
- CSA File LR44938
- VDE License No. 25636 on "Y" suffix models

MUFFIN® FAN



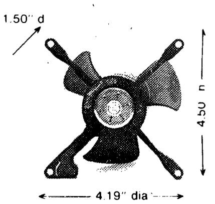
- 105 CFM (49.6 L/Sec.)
- Size - 4.71 " square x 1.50 deep (119.6 mm x 38.1 mm)
- 115 or 220/230 VAC, 50/60 Hz
- Low noise level
- Phenolic venturi
- Zinc alloy spiders
- Weight - 17.2 oz. (.49 Kg)
- Temp. range −28 C to +70 C
- UL File E31293
- CSA File LR44938

MUFFIN® XL FAN



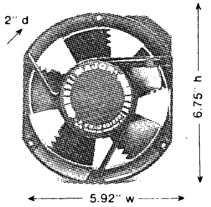
- 108 to 150 CFM (51.0 to 54.3 L/Sec.)
- Size - 4.69" square x 1.54" deep (119.1 mm x 39.1 mm)
- 115 to 220/230 VAC, 50/60 Hz
- Feathered Edge™ blades for lower noise
- Zinc alloy venturi and spider
- Weight - 21 oz. (.61 Kg)
- Temp. range −28 C to +70 C
- Reverse flow models available
- UL File E31293
- CSA File LR44938
- VDE License No. 25636 on "Y" suffix models

SKELETON FANS



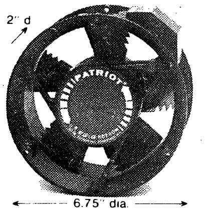
- 57 to 105 CFM (26.9 to 49.6 L/Sec.)
- Size - 4.50" square x 1.50 " deep (114.3 mm x 38.1 mm)
- 115 to 220/230 VAC, 50/60 Hz
- Low noise level
- Zinc alloy spider legs
- Weight - 12.8 oz. (.36 Kg)
- Temp. range −28 C to +70 C
- Sleeve or ball bearing models
- UL File E31293
- CSA File LR44938

MAJOR® FAN



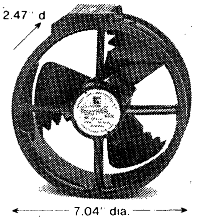
- 114 or 240 CFM (53.8 or 113 L/Sec.)
- Size - 6.75" x 5.92" x 2.00" deep (171.5 mm x 150.4" mm x 50.8 mm)
- 6.375" mounting hole centers
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Feathered Edge™ blade design for lower noise
- Rugged die-cast aluminum housing
- Automatic reset thermal protector or impedance protected
- Weight - 1.84 lbs. (.84 Kg)
- For ambients of −10°C to +70°C
- UL Yellow Card Recognized, CSA certified, VDE approval pending
- Fan Performance Sensor (FPS) available

PATRIOT® FAN



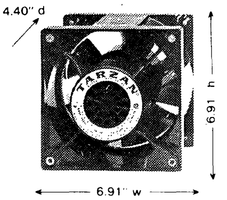
- 114 or 240 CFM (53.8 or 113 L/Sec.)
- Size - 6.75" diameter x 2.00" deep (171.5 mm x 50.8 mm)
- 6.375" mounting hole centers
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Feathered Edge™ blade design for lower noise
- Rugged die-cast aluminum housing
- Automatic reset thermal protector or impedance protected
- Weight - 1.84 lbs. (.84 Kg)
- For ambients of −10 C to +70 C
- UL Yellow Card Recognized, CSA Certified, VDE approval pending
- Fan Performance Sensor (FPS) available

FEATHER® FAN



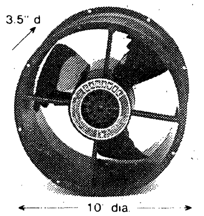
- 245 CFM (116 L/Sec.)
- Size - 7.04" diameter x 2.47" deep (178.9 mm x 62.7 mm)
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Feathered Edge™ blade design for lower noise
- Flame retardant, black, polycarbonate housing
- Automatic reset thermal protector
- Weight - 1.5 lbs. (.68 Kg)
- For ambients of −54°C to +65°C
- UL Yellow Card Recognized and CSA Certified

TARZAN® FAN



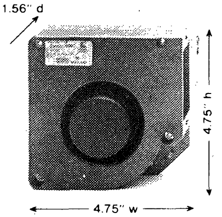
- 340 CFM (160 L/Sec.)
- Size - 6.91" square x 4.40" deep (175.5 mm x 111.8 mm)
- 6.00" mounting hole centers
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Low noise level
- Flame retardant, black, phenolic housing
- Automatic reset thermal protector
- Weight - 5 lbs. (2.27 Kg)
- For ambients of −18 C to +60 C
- UL Yellow Card Recognized and CSA Certified
- Leadwire and terminal models

CARAVEL® FAN



- 550 CFM (260 L/Sec.)
- Size - 10.00" diameter x 3.50" deep (254.0 mm x 88.9 mm)
- 9.688" mounting hole centers
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Feathered Edge™ blade design for lower noise
- Rugged die-cast aluminum housing
- Automatic reset thermal protector
- Weight - 4.4 lbs (2.0 Kg)
- For ambients of −30°C to +60°C
- UL Yellow Card Recognized and CSA Certified
- Leadwire and terminal models

BISCUIT® BLOWER



- 22 CFM (10 L/Sec.)
- High pressure capability
- Size - 4.75" square x 1.56" deep (120.6 mm x 39.6 mm)
- 115 VAC or 220/230 VAC, 1 phase, 50/60 Hz
- Low noise level
- Black, plastic, UL94V-0 housing
- Impedance protected
- Weight - 18 oz. (.51 Kg)
- For ambients of −18°C to +60°C
- UL Yellow Card Recognized and CSA Certified

EG&G ROTRON Commercial Division, North Street, Saugerties, N.Y. 12477

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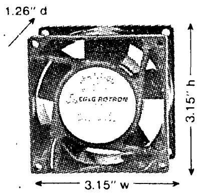
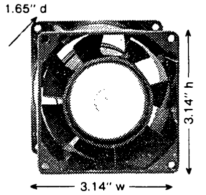
DC FANS AND BLOWERS

SPRINT® DC FAN



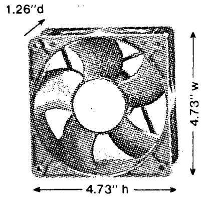
- 12 to 39 CFM (8.0 to 18 L/Sec.)
- Size - 3.15" square x 1.25" deep (80.0 mm x 32.0 mm)
- 2.812" mounting hole centers
- 12 or 24 VDC (nominal)
- Low noise level
- Black, plastic, UL94V-0 housing
- Electronic locked rotor protection or impedance protected
- Polarity protected
- Weight - 6.3 oz. (.18 Kg)
- For ambients of −10°C to +70°C
- Various speed models
- Third wire (tachometer) Output sensor option
- Meets FCC and VDE EMI requirements

SPRITE® DC FAN



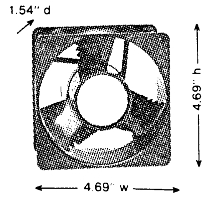
- 10 to 40 CFM (5 to 19 L/Sec.)
- Size - 3.14" square x 1.65" deep (79.8 mm x 41.8 mm)
- 2.812 " mounting hole centers
- 12, 24 or 48 VDC (nominal)
- Low noise level
- Rugged one piece die-cast zinc housing
- Electronic locked rotor protection
- Polarity protected
- Weight - 17.5 oz. (.50 Kg)
- For ambients of −10°C to +70°C
- Leadwire and terminal models
- Third wire (tachometer) Output sensor option
- Meets FCC and VDE EMI requirements

MUFFIN® DC FAN



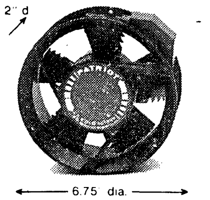
- 50 to 112 CFM (24 to 48.1 L/Sec.)
- Size - 4.73" square x 1.26" deep (120 mm x 32.0 mm)
- 4.125" mounting hole centers
- 12 or 24 VDC (nominal)
- Low noise level
- Black, plastic, UL94V-0 housing
- Electronic locked rotor protection
- Polarity protected
- Weight - 8.5 oz. (.24 Kg)
- For ambients of −10°C to +60°C
- Various speed models
- Third wire (tachometer) Output sensor option
- Meets FCC and VDE EMI requirements

MUFFIN® XL DC FAN



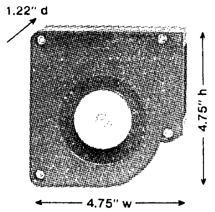
- 40 to 120 CFM (18.9 to 56.6 L/Sec.)
- Size - 4.69" square x 1.54" deep (119.1 mm x 39.1 mm)
- 4.125" mounting hole centers
- 12, 24 or 48 VDC (nominal)
- Feathered Edge™ blade design for lower noise
- Rugged die-cast zinc housing
- Electronic locked rotor protection
- Polarity protected
- Weight - 21.5 oz. (.61 Kg)
- For ambients of −10°C to +70°C
- UL Yellow Card Recognized and CSA Certified
- Sleeve and ball bearing models
- Meets FCC and VDE EMI requirements

PATRIOT® DC FAN



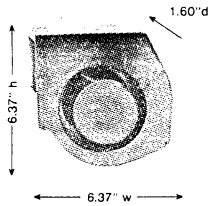
- 100 to 260 CFM (47.2 to 123 L/Sec.)
- Size - 6.75" diameter x 2.00" deep (171.5 mm x 50.8 mm)
- 6.375" mounting hole centers
- 12, 24 or 48 VDC (nominal)
- Feathered Edge™ blade design for lower noise
- Rugged die-cast aluminum housing
- Electronic locked rotor protection
- Polarity protected
- Weight - 1.84 lbs. (.84 Kg)
- For ambients of −10°C to +70°C
- UL Yellow Card Recognized and CSA Certified
- Fan Performance Sensor (FPS) available
- Meets FCC and VDE EMI requirements

BISCUIT® DC BLOWER



- 20 to 28 CFM (9.4 to 13.2 L/Sec.)
- High pressure capability
- Size - 4.75" square x 1.22" deep (120.7 mm x 31.0 mm)
- 12 or 24 VDC (nominal)
- Low noise level
- Black, plastic, UL94V-0 housing
- Electronic locked rotor protection
- Polarity protected
- Weight - 10 oz. (.28 Kg)
- For ambients of −10°C to +50°C
- Third wire (tachometer) Output sensor option
- Meets FCC and VDE EMI requirements

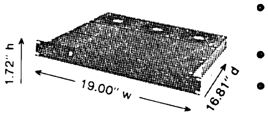
SPINNAKER™ DC BLOWER



- 29 to 72 CFM (14 to 34 L/Sec.)
- High pressure capability
- Size - 6.37" square x 1.60" deep (161.8 mm x 40.6 mm)
- 24 or 48 VDC (nominal)
- Low noise level
- Black, plastic, UL94V-0 housing
- Rugged die-cast zinc baseplate
- Electronic locked rotor protection
- Polarity protected
- Weight - 2.1 lbs. (.953 Kg)
- For ambients of −10°C to +70°C
- Third wire (tachometer) Output sensor option
- Fan Performance Sensor (FPS) available
- Thermal speed control
- Meets FCC and VDE EMI requirements

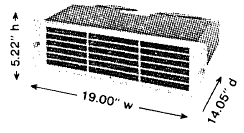
MODULAIR CABINET BLOWERS

MB1000



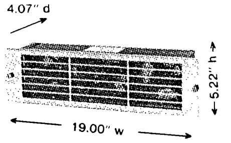
- 280, 620 or 940 CFM (132, 293 or 444 L/Sec.)
- Size - 1.72" high x 16.81" deep x 19.00" wide
- Designed for use in EIA 19" racks
- Utilizes the performance of three, six or nine Muffin® fans
- Each three fan strip may be mounted in any of three locations

MB5100



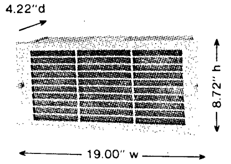
- 400 CFM (189 L/Sec.)
- Size - 5.22" high x 14.05" deep x 19.00" wide (133 mm x 357 mm x 483 mm)
- Designed for use in EIA 19" racks
- Features the performance of two powerful ball bearing Feather® fans
- Unique right angle airflow direction
- Includes grille, cleanable airfilter and finger guards
- Six years continuous duty at 25°C

MB9100



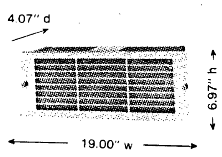
- 240 CFM (113 L/Sec.)
- Size - 5.22" high x 4.07" deep x 19.00" wide (133 mm x 103 mm x 483 mm)
- Designed for use in EIA 19" racks
- Features the performance of three Muffin® fans
- Includes grille, cleanable airfilter and finger guards
- 10 years continuous duty at 25°C

MB9200



- 400 CFM (189 L/Sec.)
- Size - 8.72" high x 4.07" deep x 1900 wide (221 mm x 103 mm x 483 mm)
- Designed for use in EIA 19" racks
- Features the performance at two powerful ball bearing Feather® fans
- Includes grille, cleanable airfilter and finger guards
- Six years continuous duty at 25°C

MB9300

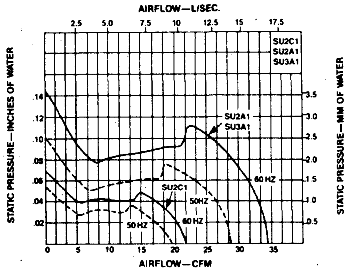


- 400 CFM (189 L/Sec.)
- Size 6.97" high x 4.07" deep x 19.00" wide (177 mm x 103 mm x 483 mm)
- Designed for use in EIA 19" racks
- Powered by two rugged Major® fans
- Includes grille, cleanable airfilter and finger guards
- Five years continuous duty at 25°C

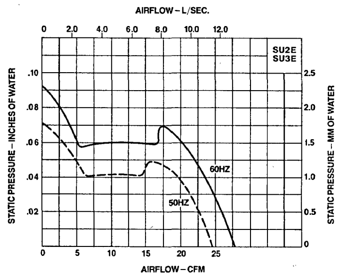
EG&G ROTRON

PERFORMANCE CURVES

AC FANS AND BLOWERS



SPRITE



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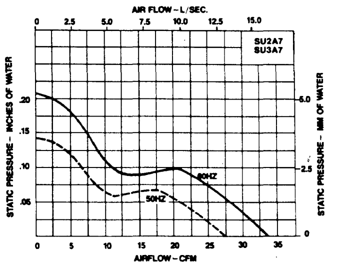
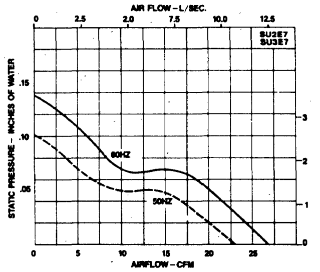
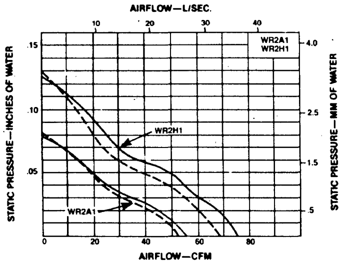


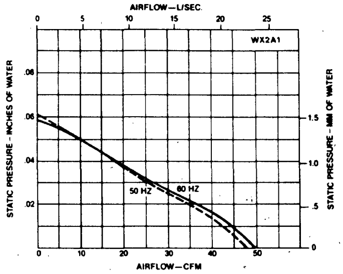
SPRITE REV. FLOW



SPRITE REV. FLOW



WHISPER



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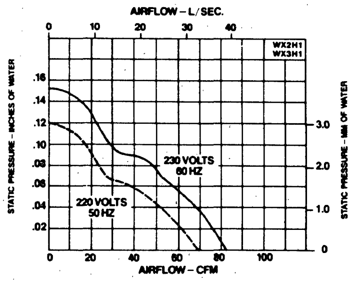

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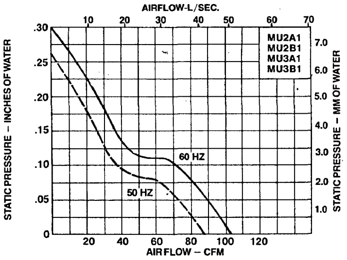
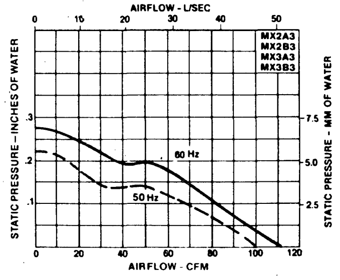


MUFFIN



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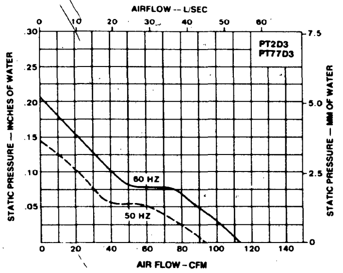
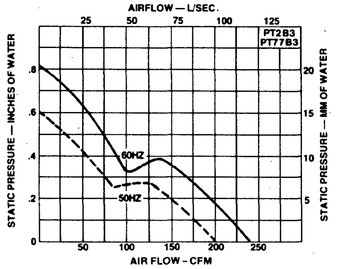
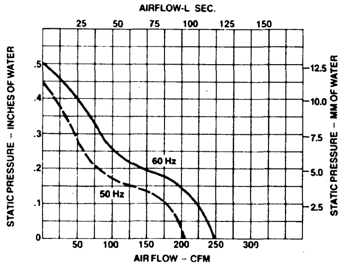


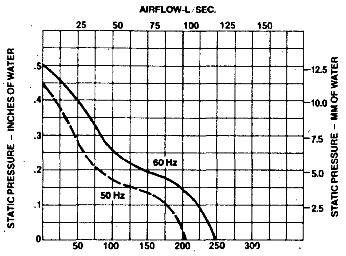
PATRIOT



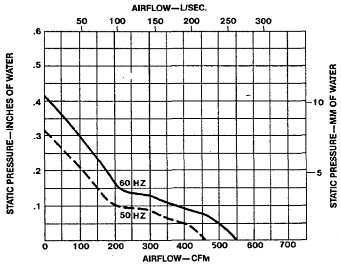
MAJOR



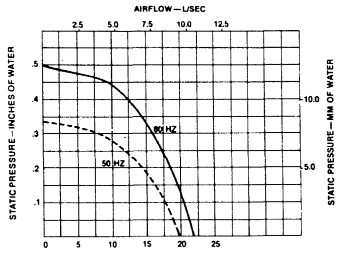
FEATHER



TARZAN



CARAVEL



BISCUIT

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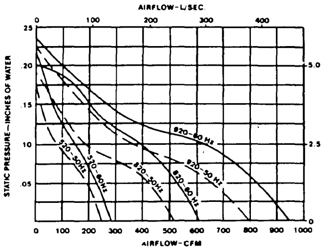
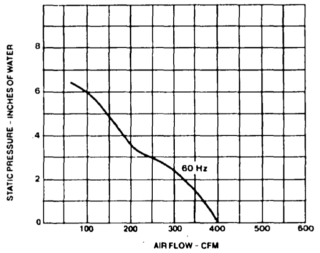
MODULAIR



MB 1000



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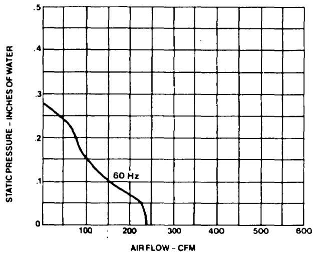

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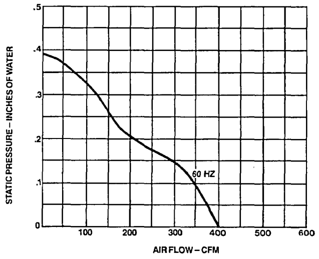

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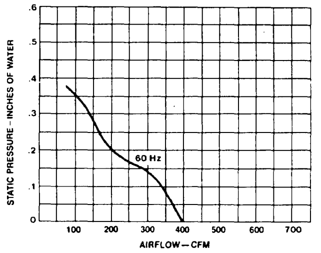
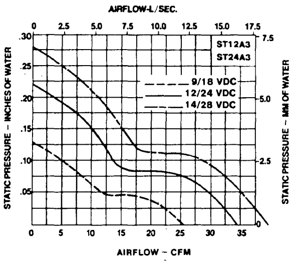
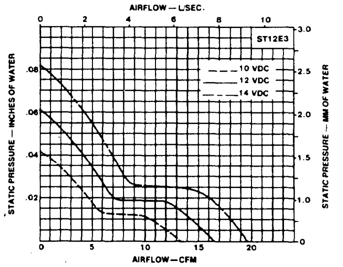


MB 9300

DC FANS AND BLOWERS



SPRINT DC



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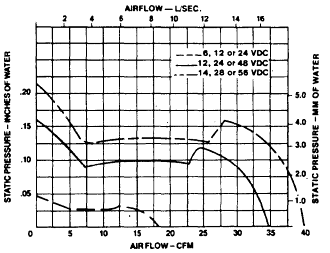

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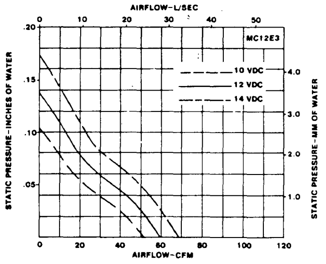
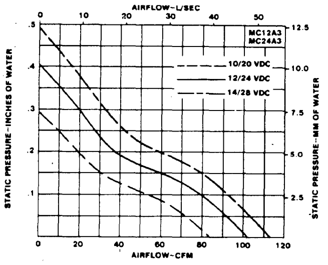


MUFFIN DC



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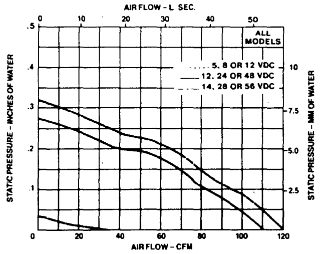
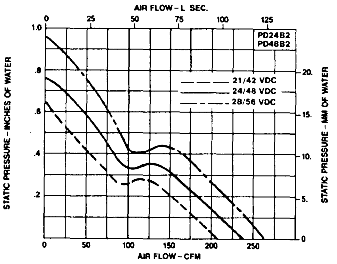
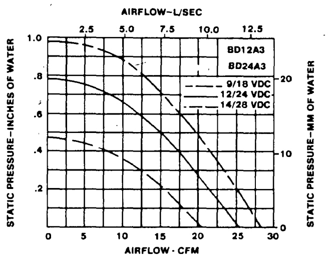


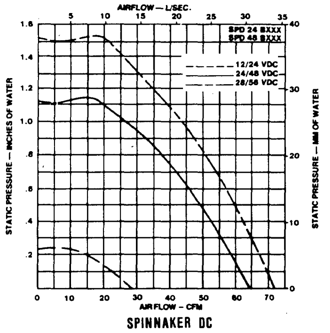
MUFFIN XL DC



PATRIOT DC



BISCUIT DC



SPINNAKER DC

SPECIFICATIONS CHART

AC FANS AND BLOWERS

Model	LEADWIRES		TERMINALS		VDE Approved		Bearing	Volts	Hz	Watts	Line Amps	Locked Rotor Amps	RPM	CFM	L/Sec.
	Model No.	Part No.	Model No.	Part No.	Model No.	Part No.									
SPRITE	SU2C1	028270	SU2C5	028281	-	-	Sleeve	115	50/60	7/6	.08/.07	.09/.08	1750/1900	17/20	8.0/9.5
	SU2E1	028275	SU2E5	028282	-	-	Sleeve	115	50/60	7/6	.08/.07	.09/.08	2200/2600	23/27	10.7/12.7
	SU3E1	028276	SU3E5	028283	-	-	Sleeve	220/230	50/60	11/10	.07/.06	.08/.07	2200/2600	23/27	10.7/12.7
	SU2G1	028278	SU2G5	028406	-	-	Sleeve	115	50/60	10/9	.11/.10	.14/.13	2700/3150	27/32	12.7/15.1
	SU2H1	028379	SU2H5	030426	-	-	Ball	115	50/60	10/9	.11/.10	.14/.13	2700/3150	27/32	12.7/15.1
	SU3G1	028872	SU3G5	028424	-	-	Sleeve	220/230	50/60	10/9	.07/.06	.08/.08	2700/3150	27/32	12.7/15.1
	SU3H1	030425	SU3H5	030427	-	-	Ball	220/230	50/60	10/9	07/.06	.08/.08	2700/3150	27/32	12.7/15.1
	SU2A1	028267	SU2A5	028279	-	-	Sleeve	115	50/60	13/11	.19/.15	.23/.21	2750/3250	28/34	13.2/16.0
	SU2B1	028268	SU2B5	028410	-	-	Ball	115	50/60	13/11	.19/.15	.23/.21	2750/3250	28/34	13.2/16.0
	SU3A1	028269	SU3A5	028280	-	-	Sleeve	220/230	50/60	14/13	.09/.08	.11/.10	2750/3250	28/34	13.2/16.0
	SU3B1	028331	SU3B5	028460	-	-	Ball	220/230	50/60	14/13	.09/.08	.11/.10	2750/3250	28/34	13.2/16.0
SPRITE REVERSE FLOW	SU2C7	030270	SU2C9	030395	-	-	Sleeve	115	50/60	7/6	.08/.07	.08/.08	1700/1950	15/18	7.1/8.5
	SU2E7	030271	SU2E9	030482	-	-	Sleeve	115	50/60	7/6	.08/.07	.09/.08	2370/2750	23/27	10.7/12.6
	SU3E7	030273	SU3E9	030396	-	-	Sleeve	220/230	50/60	11/10	.07/.06	.06/.07	2370/2750	23/27	10.7/12.6
	SU2G7	030384	SU2G9	030433	-	-	Sleeve	115	50/60	10/9	.11/.10	.14/.12	2700/3150	26/32	12.2/15.1
	SU3G7	030385	SU3G9	030485	-	-	Sleeve	220/230	50/60	10/9	.07/.06	.08/.07	2700/3150	26/32	12.2/15.1
	SU2A7	030272	SU2A9	030458	-	-	Sleeve	115	50/60	13/11	.19/.15	.23/.21	2780/3350	27/33	13.0/15.8
	SU3A7	030274	SU3A9	030481	-	-	Sleeve	220/230	50/60	14/13	.09/.08	.11/.10	2780/3350	27/33	13.0/15.8
WHISPER	-	-	WR2A1	027117	-	-	Sleeve	115	50/60	7/7	.07/.06	.08/.07	1640/1660	55/57	26.0/26.9
	-	-	WR3A1	028171	-	-	Sleeve	220/230	50/60	12/12	.07/.07	.07/.07	1800/2000	53/62	25.0/29.3
	-	-	WR2M1	028291	-	-	Sleeve	115	50/60	7/7	.07/.07	.08/.08	2000/1960	63/63	29.7/29.7
	-	-	WR2H1	027119	-	-	Sleeve	115	50/60	11/10	.12/.11	.13/.12	2100/2400	70/80	33.0/37.8
	-	-	WR3H1	028516	-	-	Sleeve	220/230	50/60	12/12	.07/.06	.08/.08	2100/2400	70/80	33.0/37.8
WHISPER XL	-	-	WX2A1	028778	WX2A1Y	030115	Sleeve	115	50/60	6/6	.07/.06	.08/.07	1450/1500	48/50	22.5/23.5
	-	-	WX2M1	028322	WX2M1Y	030116	Sleeve	115	50/60	10/9	.11/.10	.12/.11	1900/2000	65/70	30.7/33.0
	-	-	WX3M1	028330	WX3M1Y	030118	Sleeve	220/230	50/60	12/11	.07/.06	.07/.06	1800/2000	60/70	28.0/33.0
	-	-	WX2H1	028858	WX2H1Y	030117	Sleeve	115	50/60	15/13	.19/.15	.20/.17	2200/2500	70/83	33.0/40.0
	-	-	WX3H1	028860	WX3H1Y	030119	Sleeve	220/230	50/60	14/13	10/.09	.11/.10	2200/2500	70/83	33.0/40.0
MUFFIN	-	-	MU2A1	028021	-	-	Sleeve	115	50/60	15/14	19/.16	.26/.24	2650/3100	88/105	41.5/49.6
	-	-	MU2B1	028027	-	-	Ball	115	50/60	15/14	.19/.16	.26/.24	2650/3100	88/105	41.5/49.6
	-	-	MU3A1	028023	-	-	Sleeve	220/230	50/60	15/14	.10/.09	14/.12	2650/3100	88/105	41.5/49.6
	-	-	MU3B1	028029	-	-	Ball	220/230	50/60	15/14	.10/.09	.14/.12	2650/3100	88/105	41.5/49.6
MUFFIN XL	-	-	MX2A1	028318	MX2A1Y	030373	Sleeve	115	50/60	17/15	20/18	.26/.24	2700/3100	92/108	43.4/51.0
	-	-	MX2B1	028420	MX2B1Y	030488	Ball	115	50/60	17/15	20/18	.26/.24	2700/3100	92/108	43.4/51.0
	-	-	MX3A1	028326	MX3A1Y	030374	Sleeve	220/230	50/60	17/16	10/.09	.14/.12	2700/3100	92/108	43.4/51.0
	-	-	MX3B1	028421	MX3B1Y	030489	Ball	220/230	50/60	17/16	10/.19	.14/.12	2700/3100	92/108	43.4/51.0
	-	-	MX2A3	028316	MX2A3Y	030111	Sleeve	115	50/60	17/15	.20/.18	.26/.24	2700/3100	98/115	46.3/54.3
	-	-	MX2B3	028422	MX2B3Y	030113	Ball	115	50/60	17/15	.20/18	.26/.24	2700/3100	98/115	46.3/54.3
	-	-	MX3A3	028324	MX3A3Y	030112	Sleeve	220/230	50/60	17/16	10/.09	.14/.12	2700/3100	98/115	46.3/54.3
	-	-	MX3B3	028423	MX3B3Y	030114	Ball	220/230	50/60	17/16	.10/.09	.14/.12	2700/3100	98/115	46.3/54.3
SKELETON FANS	-	-	WR2A2	027118	-	-	Sleeve	115	50/60	7/7	.07/.06	.08/.07	1640/1660	55/57	26.0/26.9
	-	-	WR3A2	030021	-	-	Sleeve	220/230	50/60	12/12	.07/.07	.07/.07	1800/2000	53/62	25.0/29.3
	-	-	WR2M2	030104	-	-	Sleeve	115	50/60	7/7	.07/.07	.08/.08	2000/1950	63/63	29.7/29.7
	-	-	WR2H2	027120	-	-	Sleeve	115	50/60	11/10	12/.11	.13/.14	2100/2400	70/80	33.0/31.8
	-	-	WR3H2	030106	-	-	Sleeve	220/230	50/60	12/12	.07/.06	.08/.08	2100/2400	70/80	33.0/37.8
	-	-	MU2A2	028022	-	-	Sleeve	115	50/60	15/14	18/.16	.26/.24	2650/3100	88/105	41.5/49.6
	-	-	MU2B2	028028	-	-	Ball	115	50/60	15/14	18/.16	.26/.24	2650/3100	88/105	41.5/49.6
	-	-	MU3A2	028024	-	-	Sleeve	220/230	50/60	15/14	10/.09	14/.12	2650/3100	88/105	41.5/49.6
	-	-	MU3B2	028030	-	-	Ball	220/230	50/60	15/14	10/.09	14/.12	2650/3100	88/105	41.5/49.6
MAJOR	-	-	MR2B3	028245	-	-	Ball	115	50/60	33/32	.31/.28	.48/.47	2850/3350	200/240	94/113
	-	-	MR77B3	028309	-	-	Ball	220/230	50/60	29/32	.15/.14	.23/.23	2850/3350	200/240	94/113
	-	-	MR2D3	032118	-	-	Ball	115	50/60	18/16	17/.15	.21/.20	1400/1700	94/114	44/53.8
	-	-	MR77D3	032212	-	-	Ball	220/230	50/60	15/16	.09/.08	11/.10	1400/1700	94/114	44/53.8
PATRIOT	-	-	PT2B3	028254	-	-	Ball	115	50/60	33/32	.31/.28	48/.47	2850/3350	200/240	94/113
	-	-	PT77B3	028312	-	-	Ball	220/230	50/60	29/32	15/.14	.23/.23	2850/3350	200/240	94/113
	-	-	PT2D3	032213	-	-	Ball	115	50/60	18/16	17/.15	.21/.20	1400/1700	94/114	44/53.8
	-	-	PT77D3	032214	-	-	Ball	220/230	50/60	15/16	09/.08	11/.10	1400/1700	94/114	44/53.8
FEATHER	-	-	FF113	026165	-	-	Ball	115	50/60	21/20	24/.20	.30/.29	2700/3200	200/245	94.4/116
	-	-	FF213	026166	-	-	Ball	220/230	50/60	19/20	09/.09	14/.14	2700/3200	200/245	94.4/116
CARAVEL	CL2L2	020188	CL2T2	020189	-	-	Ball	115	50/60	67/61	1 0/.88	1 3/1.1	1400/1650	455/550	215/260
	CL3L2	020190	CL3T2	020191	-	-	Ball	220/230	50/60	60/60	47/.43	60/.55	1400/1650	455/550	215/260
TARZAN	TN3C2	020169	TN3A2	020174	-	-	Ball	115	50/60	90/85	1 4/1 2	2 4/2 0	2820/3350	280/340	132/160
	TN3C2	020177	TN3A3	020172	-	-	Ball	220/230	50/60	82/85	.65/.60	1 1/.98	2820/3350	280/340	132/160
BISCUIT	-	-	BT2A1	028448	-	-	Sleeve	115	50/60	17/16	19/.17	22/.20	2500/2700	20/22	9.4/10
	-	-	BT3A1	028449	-	-	Sleeve	220/230	50/60	15/14	09/.08	11/.10	2500/2700	20/22	9 4/10

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Application Engineering Department at (914) 246-3615.

MODULAIR

Model	Model No.	Type	Part No.	Fan No.	Bearing	Volts	Hz	Line Watts	Amps	RPM	CFM	L/Sec.
MODULAIR	1000	520	036368	3	Sleeve	115	50/60	54/44	.60/.54	2700/3100	250/280	118/132
		820	036367	6	Sleeve	115	50/60	108/87	1.2/1.1	2700/3100	530/620	250/293
		920	036366	9	Sleeve	115	50/60	162/130	1.8/1.6	2700/3100	800/940	378/444
	5100	100	020099	2	Ball	115	50/60	44/42	.38/.36	2830/3350	310/400	146/189
		125	020100	2	Ball	220/230	50/60	44/42	.19/.18	2830/3350	310/400	146/189
	9100	100	024475	3	Sleeve	115	50/60	54/44	.60/.54	2700/3100	208/240	98/113
		125	024476	3	Sleeve	220/230	50/60	54/44	.30/.27	2700/3100	208/240	98/113
	9200	100	024488	2	Ball	115	50/60	44/42	.38/.36	2830/3350	310/400	146/189
		125	024489	2	Ball	220/230	50/60	44/42	.19/.18	2830/3350	310/400	146/189
	9300	100	027384	2	Ball	115	50/60	66/64	.62/.56	2850/3350	350/400	165/189
		125	029069	2	Ball	220/230	50/60	66/64	.31/.28	2850/3350	350/400	165/189

DC FANS AND BLOWERS

	LEADWIRES		TERMINALS											
Model	Model No.	Part No.	Model No.	Part No.	Bearing	Nominal VDC	Range VDC	Watts	Running mA	Locked Rotor mA	Inrush mA	RPM	CFM	L/Sec.
SPRINT DC	ST12A3	032107	-	-	Sleeve	12	9-14	3.4	280	600	600	3400	34	16
	ST24A3	032127	-	-	Sleeve	24	18-28	2.9	120	300	300	3440	34	16
	ST12G3	032126	-	-	Sleeve	12	10-14	1.4	120	300	300	2490	25	12
	ST12E3	032162	-	-	Sleeve	12	10-14	0.6	50	140	140	1710	16	7.5
SPRITE DC	SD12B1	028933	SD12B2	032001	Ball	12	5-14	3	250	1000	1000	3500	35	17
	•SD12D1	028993	-	-	Ball	12	5-14	3	250	1000	1000	3500	35	17
	SD24B1	028934	SD24B2	032002	Ball	24	8-28	3	125	600	600	3500	35	17
	•SD24D1	028994	-	-	Ball	24	8-28	3	125	600	600	3500	35	17
	SD48B1	028935	SD48B2	032003	Ball	48	12-56	3	60	300	300	3500	35	17
	•SD48D1	028995	-	-	Ball	48	12-56	3	60	300	300	3500	35	17
MUFFIN DC	MC12A3	032207	-	-	Sleeve	12	9-14	7.1	590	1300	1300	3680	102	48.1
	MC24A3	032208	-	-	Sleeve	24	18-28	6.7	280	700	700	3680	102	48.1
	MC12J3	032167	-	-	Sleeve	12	10-14	5.8	480	1030	1030	3250	93	44
	MC24J3	032168	-	-	Sleeve	24	20-28	5.5	230	550	550	3250	93	44
	MC12G3	032141	-	-	Sleeve	12	10-14	4.9	410	640	640	3000	84	40
	MC24G3	032143	-	-	Sleeve	24	20-28	4.8	200	430	430	3000	84	40
	MC12E3	032140	-	-	Sleeve	12	10-14	1.9	160	400	400	2170	58	27
MUFFIN XL DC	MD12A1	030040	MD12A2	030043	Sleeve	12	7-14	6	500	1500	1500	3100	110	51.9
	MD12B1	028865	MD12B2	028868	Ball	12	5-14	6	500	1500	1500	3100	110	51.9
	•MD12D1	028885	•MD12D2	028888	Ball	12	5-14	6	500	1500	1500	3100	110	51.9
	MD24A1	030041	MD24A2	030044	Sleeve	24	10-28	6	250	750	750	3100	110	51.9
	MD24B1	028866	MD24B2	028869	Ball	24	8-28	6	250	750	750	3100	110	51.9
	•MD24D1	028886	•MD24D2	028889	Ball	24	8-28	6	250	750	750	3100	110	51.9
	MD48A1	030042	MD48A2	030045	Sleeve	48	18-56	6	125	400	400	3100	110	51.9
	MD48B1	028867	MD48B2	028870	Ball	48	12-56	6	125	400	400	3100	110	51.9
	•MD48D1	028887	•MD48D2	028890	Ball	48	12-56	6	125	400	400	3100	110	51.9
PATRIOT DC	-	-	PD24B2	032032	Ball	24	12-28	24	1000	1500	2900	3350	240	113
	-	-	PD48B2	032033	Ball	48	20-56	22	450	700	2000	3350	240	113
	-	-	PD12H2	032215	Ball	12	9-14	20	1700	2550	4930	3000	208	98.2
	-	-	PD24H2	032016	Ball	24	12-28	18	750	1500	2900	3000	210	99.1
	-	-	PD48H2	032017	Ball	48	20-56	19	380	700	2000	3100	210	99.1
BISCUIT DC	BD12A3	032176	-	-	Sleeve	12	9-14	10	850	1700	1700	3000	25	12
	BD24A3	032179	-	-	Sleeve	24	18-28	11	450	850	850	3100	25	12

Model	Model No.	Part No.	Type	Bearing	Nominal VDC	Range VDC	Watts	Line Amps	Locked Rotor Amps	Inrush Amps	RPM	CFM	L/Sec.
SPINNAKER DC	SPD24BA32	032183	w/o Inlet Rim	Ball	24	12-28	30	1.3	1.8	2.5	2500	64	30
	SPD24BC32	032188	with Inlet Rim	Ball									
	SPD48BA32	032196	w/o Inlet Rim	Ball	48	24-56	30	.6	.9	1.8	2500	64	30
	SPD48BC32	032197	with Inlet Rim	Ball									

Notes: Fan performance sensor models available.
All figures are nominal free delivery values at sea level.
Specifications subject to change without notice.

•Third Wire Output Models (Tachometer Output)

EG&G ROTRON **Commercial Division**, North Street, Saugerties, N.Y. 12477

ACCESSORY GUIDE

		SPRITE	WHISPER	WHISPER XL	MUFFIN	MUFFIN XL	SKELETON	MAJOR	PATRIOT	FEATHER	CARAVEL	TARZAN	BISCUIT	SPRINT DC	SPRITE DC	MUFFIN DC	MUFFIN XL DC	PATRIOT DC	BISCUIT DC
FILTERS																			
Filter Mounting Clips	271016		●		●														
Filter Element	271018		●		●														
Filter Coat	271021		●	●	●	●										●	●		
Filter Frame	476000		●		●														
Filter Assembly	477712		●		●														
Filter Assembly	551590			●		●										●	●		
GRILLES																			
Grille (Spiral)	476015		●		●														
Grille (Expanded Metal)	477727		●		●														
Grille Kit	478031		●		●														
Screen Guard	550214		●	●	●	●	●									●	●		
FINGER GUARDS																			
Finger Guard (Metal)	476042		●	●	●	●	●									●	●		
Finger Guard (Metal)	476136											●							
Finger Guard (Metal)	476143	●												●	●				
Finger Guard (Metal)	476323										●								
Finger Guard (Metal) Rim Mount	476646									●									
Mounting Clips for Finger Guard #476651	476649									●									
Finger Guard (Metal) Panel Mount	476651									●									
Finger Guard (Metal)	477626												●						●
Finger Guard (Metal)	550272							●											
Finger Guard (Plastic)	550481		●	●	●	●	●									●	●		
Finger Guard (Plastic)	550648	●												●	●				
Finger Guard (Plastic)	551147		●	●	●	●	●									●	●		
Finger Guard (Metal)	551199								●									●	
Finger Guard (Metal)	552934		●	●	●	●	●									●	●		
MOUNTING CLIPS																			
Mounting Clips (Bag of 3 #476155)	476154									●									
Mounting Clip	476155									●									
#6-32 Flush Mtg. Clip	477663		●		●			●	●									●	
#6-32 Standoff Mtg. Clip	477670		●		●			●	●									●	
#6-32 Mounting Clip	550113			●		●											●		
PLUG & CORD SETS																			
Straight On Plug & Cord	428023									●									
Right Angle Plug & Cord	428056	●	●	●	●	●	●	●	●		●	●	●						
Straight On Plug & Cord	550440	●		●		●	●	●	●		●	●	●						
Polarized Right Angle Plug & Cord	571064														●		●		
VIBRATION ISOLATOR	553148	●	●	●	●	●										●	●		

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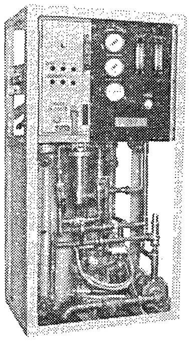
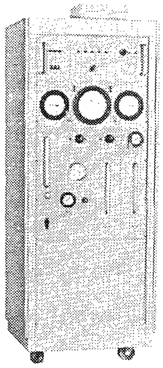
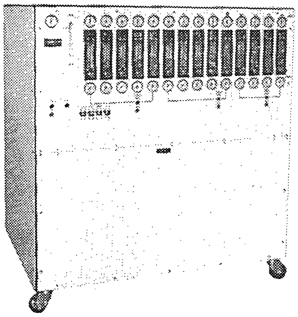
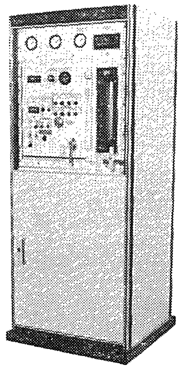
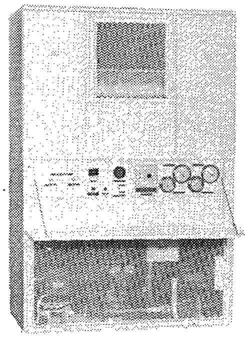
Electro
IMPULSE, INC.
EXCELLENCE IN ENGINEERING SINCE 1949


Shipboard Seawater to ETH/Water. H/E cools advanced radar system.


Coolanol to Air Military Heat Exchanger.


14 Path Cooling Unit with full instrumentation.


Burn in of travelling wave tubes is automatic using solid state systems in this Heat Exchanger.


Outdoor Mobile Heat Exchanger.

Closed Loop Cooling Systems

Self contained cooling packages for a wide variety of applications which allow user to

- **ELIMINATE TAP WATER**
- **CONTROL COOLANT QUALITY**
- **CONTROL COOLANT TEMPERATURES**
- **REDUCE COSTS**
- **IMPROVE PERFORMANCE OF EQUIPMENT**

HIGHEST QUALITY Industrial/Military Packages designed for long life/minimum maintenance.
UNITS AVAILABLE to circulate/cool air, water, coolanols, flourocarbons, hydraulic fluids, or any exotic coolants.
SEALED COOLANT SYSTEMS allow for high degree of purity: Filters, De-Ionizer Systems available.
HIGHLY EFFICIENT HEAT EXCHANGERS keep operating power to a minimum. Hot air exhausts can be used for space heating.
EXCELLENT TEMPERATURE CONTROL utilizing state of the art technology.
WIDE VARIETY OF OPTIONS available for monitoring, interlocking, controls, logic interfaces — customize a unit as you want it.

WRITE FOR COMPLETE INFORMATION

Electro
IMPULSE, INC.

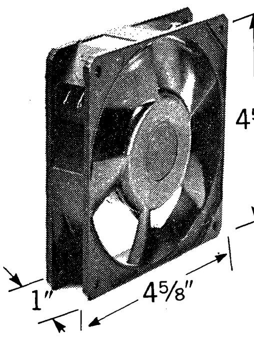
ELECTRO IMPULSE LABORATORY, INC.
DEPT. EM • 116 CHESTNUT ST., PO BOX 870
RED BANK, NJ 07701
TELEPHONE: (201) 741-0404 • TWX: 7107225717

SEE OUR OTHER PRODUCTS ON PAGE D•1211

ETRI tube

ETRI has long been a leader in the design of air-moving devices, from large mine ventilators to miniature flat axial fans. Today, ETRI air movers are cooling and protecting the most sophisticated of electronic packages. Throughout this time, our basic commitment to uncompromising quality and high performance standards has not changed. Our history of innovative designs and materials, coupled with precise manufacturing techniques provide you with an efficient, quality product for long maintenance-free operation.

MODEL 98

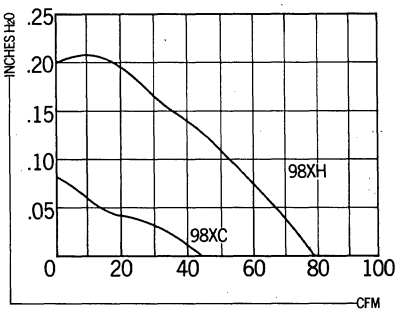


High volume/pressure performance where space is at a premium.

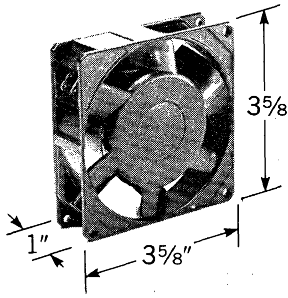
- Unique 1" thin profile on 4⅝" fan.
- Two RPM versions available.
- Available in either sleeve or ball bearing construction.
- Precision engineered blade-to-venturi fit.
- Low input power—as low as 10 watts.
- UL recognized/CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
98XC-2182	115	60	10	110	1700	28	45
98XC-2181	220	60	12	70	1700	28	45
98XH-2182	115	60	11	110	3000	39	79
98XH-2181	220	60	13	65	3000	39	79

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 99

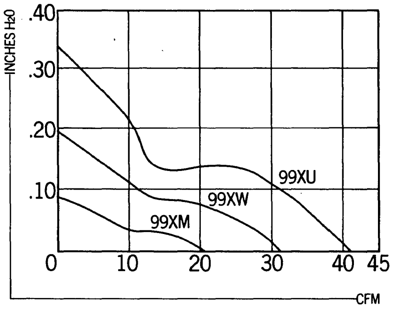


Slim 1" profile takes up less behind-the-panel space.

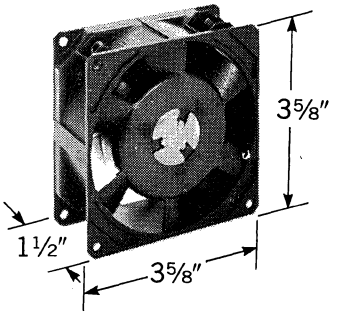
- Three different speed models in two voltage versions.
- Noise levels as low as 23 db (sil).
- True airfoil impeller blades move more air.
- Convenient standard terminals.
- Precision balanced lightweight rotor for longer vibration-free work life.
- UL recognized/CSA approved.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
99XM-2182	115	60	6	65	1700	23	21
99XM-2181	220	60	7	35	1700	23	21
99XW-2182	115	60	6	70	2500	32	32
99XW-2181	220	60	7	40	2500	32	32
99XU-2182	115	60	9	105	3200	37	40
99XU-2181	220	60	11	60	3200	37	40

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 113

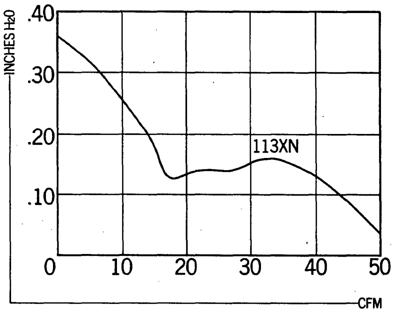


An intermediate size fan. Ideal for power supply applications.

- 3.25" mounting centers.
- Quiet, efficient operation with maximum volume/pressure delivery.
- 94V-O rated glass-filled impeller is heat-stable with high resistance to breakage.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA approved.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
113XN-2182	115	60	11	135	3300	35	53
113XN-2181	220	60	12	80	3300	35	53

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



For information on Etri brushless DC fans, contact the factory

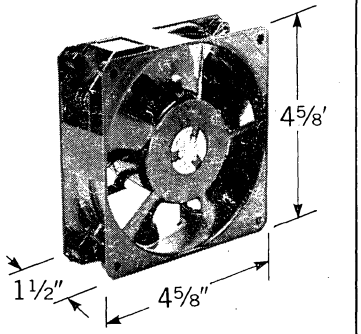
ETRI

ETRI / PO Box 5006 / 608 Broome St. / Monroe, NC 28110 / TWX 810-649-1352 (704) 289-5423

axial fans.

ETRI's popular-sized fans utilize rugged die cast housings for strength and durability. Glass-filled thermoplastic impellers (94V-0 rated) are heat-stable and resistant to breakage. Rotors are lightweight and precision balanced for vibration-free operation. Bearings (either sleeve or ball) are lifetime lubricated. All models operate efficiently at 50Hz or 60Hz and most are available in either 115VAC or 220VAC. Every model is UL Recognized (file E64887) and CSA Certified (file 43861). Many models are VDE approved. For more information call ETRI at 704/289-5423.

MODEL 125

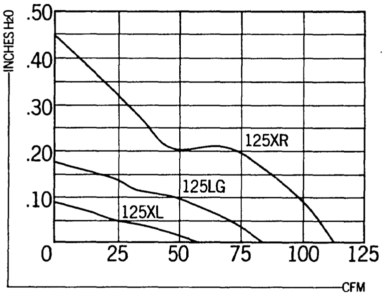


Extremely effective in high density applications where high pressure performance is required.

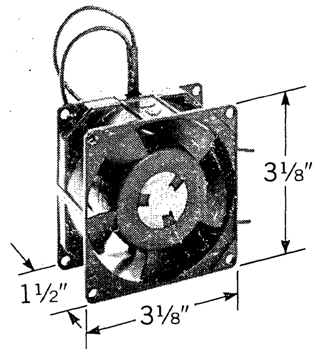
- Develops 90 CFM at .15" H₂O and 75 CFM at .2" H₂O.
- Can replace two conventional fans in demanding applications.
- Produces highest volume of air per watt of power of any fan of its type.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
125XL-2282	115	60	10	115	1650	29	57
125XL-2281	220	60	10	65	1650	29	57
125LG-2282	115	60	13	160	2400	36	83
125LG-2281	220	60	15	90	2400	36	83
125XR-2282	115	60	15	180	3250	40	112
125XR-2281	220	60	15	105	3250	40	112

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 126

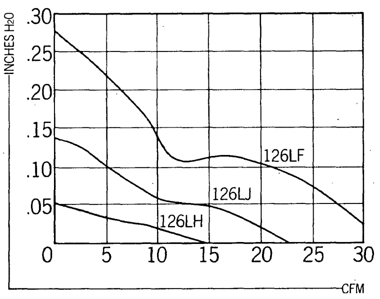


Low input power, low noise, high performance in this fan package.

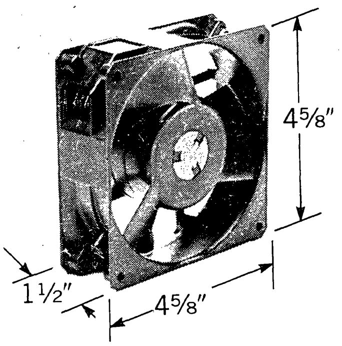
- 2.81" mounting centers.
- Very quiet operation—only 8 db (sil) on Model 126LH.
- #20AWG, 12" long, flying leads.
- Three different RPM models.
- Available in either sleeve or ball bearing construction.
- UL recognized CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
126LH-2182	115	60	3	40	1550	9	15
126LJ-2182	115	60	5	60	2400	19	23
126LF-2182	115	60	8	100	3200	26	32
126LF-2181	220	60	8	60	3200	26	32

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 141

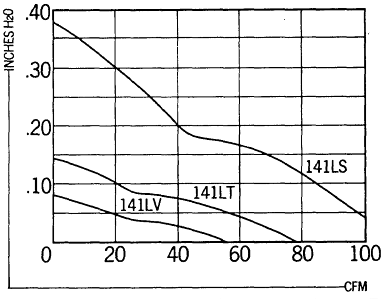


105, 75, and 55 CFM versions are available in this most popular size fan.

- 4.125" mounting centers and standard terminal configuration.
- Low power consumption—only 8 watts on 141LV model
- Tight blade-to-venturi fit assures optimum performance.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified
- Reverse flow models available.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
141LV-2282	115	60	8	100	1700	23	55
141LV-2281	220	60	9	55	1700	23	55
141LT-2282	115	60	9	110	2300	33	75
141LT-2281	220	60	10	65	2400	33	75
141LS-2282	115	60	12	140	3200	41	105
141LS-2281	220	60	12	80	3200	41	105

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



For information on Etri brushless DC fans, contact the factory

SEE FOLLOWING PAGES

ETRI

ETRI / PO Box 5006 / 608 Broome St. / Monroe, NC 28110 / TWX 810-649-1352 (704) 289-5423

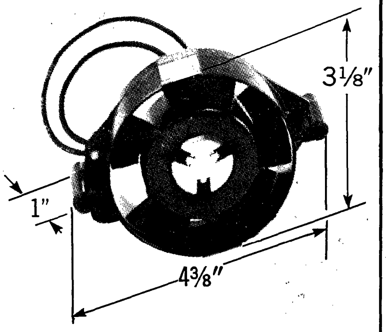
ETRI fans

ETRI's flat tubeaxial fans are quiet, efficient, cost effective components that are ideal for most electronic cooling applications. For complete technical specifications and delivery information call the ETRI factory at (704) 289-5423.

and accessories.

Accessory items assure correct fit on ETRI fans. Finger Guards will retro fit most existing fans.

MODEL 146

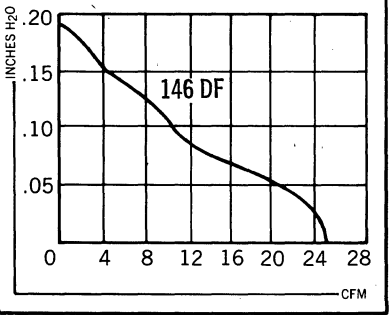


3" x 1" fan specially designed for desk-top electronic applications

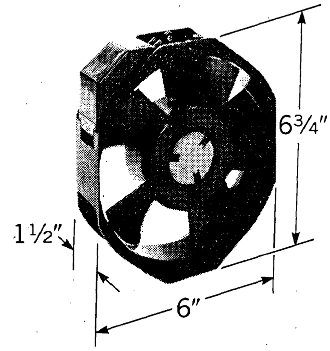
- Low acoustical levels.
- 25 CFM at free air delivery.
- Simplified time saving mounting with bosses and speed nuts provides real economy for high volume installation.
- 115 or 220 volt.
- UL recognized/CSA certified/VDE approved.
- Will fit 3⅛" designs in a 1" profile.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
146DF-2182	115	60	5	60	3100	24.7	25
146DF-2181	220	60	9	50	3100	24.7	25

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 148

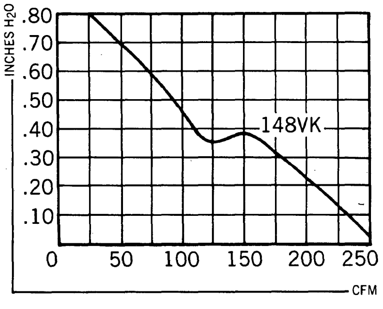


Ideal for high pressure/high flow applications. Develops 180 CFM at .3" H_2O.

- 1½" thick—less than most 6" fans.
- Efficient, permanent split-capacitor motor, thermally protected.
- Pre-loaded ABEC-3, double-shielded, ball bearing system runs quietly in any position.
- UL recognized/CSA certified.
- Reduced speed versions available.
- Provides wide range cooling with low acoustical disturbances.

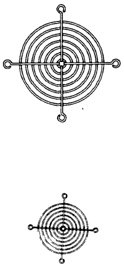
PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
148VE282	115	60	11	90	1650	33	123
148VE281	220	60	14	80	1650	33	123
148VP282	115	60	18	160	2100	39	149
148VP281	220	60	22	100	2350	45	172
148VK282	115	60	32	270	3300	51	255
148VK281	220	60	33	170	3200	50.5	255

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



FINGER GUARDS

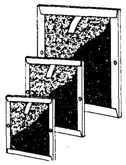
Ensures safe operation in situations that require guarding.



- Standard mounting centers for versatile installation.
- Meets UL Spacing requirements.
- Sturdy .062" steel wire rings welded to .080" ribs.
- Bright zinc-plated finish.

FILTERS

Provides maximum air flow while permitting effective filtering.

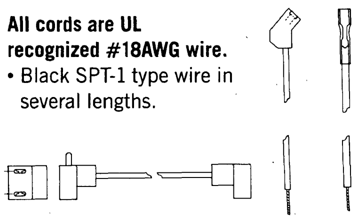


- Expanded/slit aluminum foil traps dust particles.
- Minimum pressure loss.
- Complies with UL requirements.

CORDS

All cords are UL recognized #18AWG wire.

- Black SPT-1 type wire in several lengths.



For information on Etri brushless DC fans, contact the factory

SEE PREVIOUS PAGES

ETRI

QUALITY FANS FOR ELECTRONICS.

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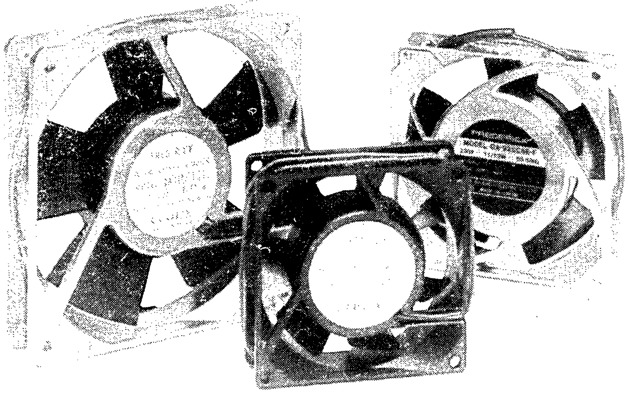
AC and DC FANS



Selection Guide

AC TUBE AXIAL FANS (UL and CSA approved)

MODEL NO.	BEARINGS	VOLTS	CFM	SIZE	WIDTH
OA-119S-T3E-F*	Sleeve	115	105	4.69″	1.50″
OA-119B-T3E-F*	Ball	115	105	4.69″	1.50″
OA-119B-T3LE-F	Ball	115	53	4.69″	1.50″
OA-092S-T3E-F*	Sleeve	115	33	3.62″	.984″
OA-092B-T3E-F*	Ball	115	33	3.62″	.984″
OA-092B-T3LE-F	Ball	115	25	3.62″	.984″
FC-080S-W3	Sleeve	115	30	3.14″	1.50″
FA-080B-W3	Ball	115	25	3.14″	.984″
FA-880B-W3	Ball	115	16	3.14″	.984″

Note: Above available in 230V—change "3" to "6."

*119 and 092 are VDE approved.

DC BRUSHLESS MOTOR FANS

MODEL NO.	BEARINGS	VOLTS	CFM	SIZE	WIDTH
DC-119B-W24-F	Ball	24	105	4.69″	1.50″
DA-119B-W12-F	Ball	12	75	4.69″	.984″
DA-119B-W24-F	Ball	24	75	4.69″	.984″
DA-119B-W12L-F	Ball	12	44	4.69″	.984″
DF-080B-W12-F	Ball	12	25	3.14″	1.25″
DF-080B-W24-F	Ball	24	26	3.14″	1.25″
DA-080B-W12L-F	Ball	12	20	3.14″	.984″
DA-080B-W12-F	Ball	12	24	3.14″	.984″
DA-080B-W24-F	Ball	24	24	3.14″	.984″

Note: Most models available in 48 volts.

FCI

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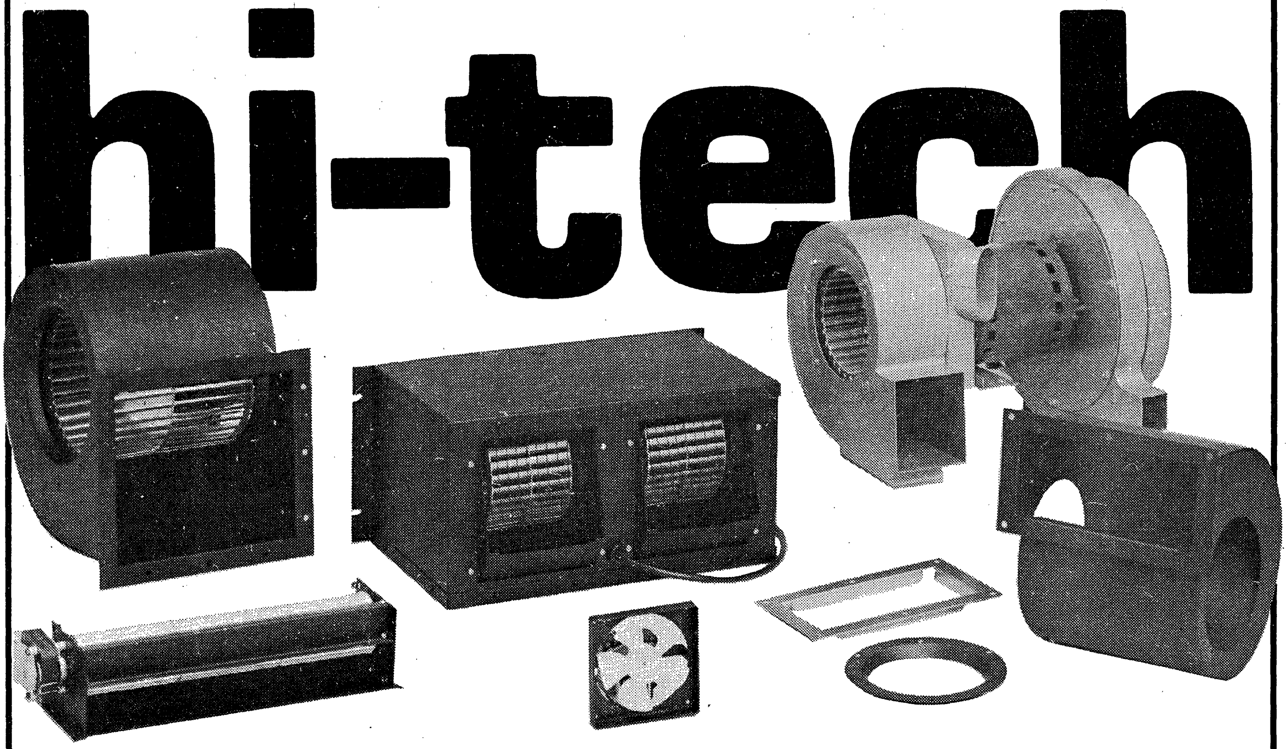
Outside California
(800) 354-0660

FCI
Frederick Components International
20806 Plummer Street
Chatsworth, California 91311
(818) 882-0868

the reliable alternative for fans, blowers and cooling devices



MODULAR CABINET BLOWERS
Applications include heat exchangers, slot blowers, coolers, filter boxes. As a solid state temperature control, unit maintains optimum temperature range.

PACKAGE BLOWERS
Fully assembled high performance blowers feature standard double inlet wheels and automatic reset thermal protection. Housings are heavy-weight steel with a durable flat black finish.

BLOWER HOUSINGS/PARTS
Housings, inlet flanges, cover plates and outlet collars in sizes from 2" to 13" are available for prompt delivery. All parts can be furnished either unpainted or with a hard wearing flat black finish.

AXIAL FLOW FANS
Hi-Tech's axial flow fans are the economical solution for high volume, low static pressure applications; for limited space, spot cooling installations; and where extremely low sound levels are required.

TANGENTIAL BLOWERS
LAMINA-FLO tangential blowers are designed for low profile, wide outlet installations and feature high CFM, even air flow patterns and extremely quiet operation.

SINGLE/DUAL CENTRIFUGAL BLOWERS
Smooth, vibration-free performance assured with balanced wheels and motors. Single and three phase UL approved motors. Static pressures from 0" to 3.0"; outputs to 2000 CFM; wheel diameters from 3" to 12".

When you need a backup source you need them now! When you need assistance with a custom fan or blower you need it now! Hi-Tech will provide that bend-over-backwards service plus first line quality and uncompromising product reliability.

Hi-Tech designs and builds all kinds of cooling components, from axial fans to solid state temperature controllers. Send us your needs. Hi-Tech — The reliable alternative.

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A complete line of Heat Sink/Dissipators for transistors, diodes, integrated circuits and microcircuits.

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- Choose from hundreds of hole patterns
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- More than 3000 dissipator designs available at competitive prices
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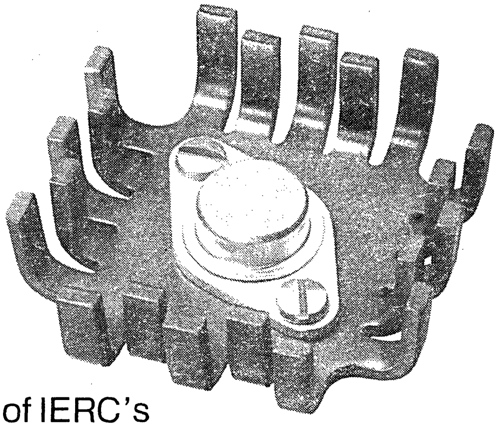

To order products or receive a FREE copy of IERC's Catalog and New Products Bulletins, call the IERC Representative nearest you.

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custom airmovers

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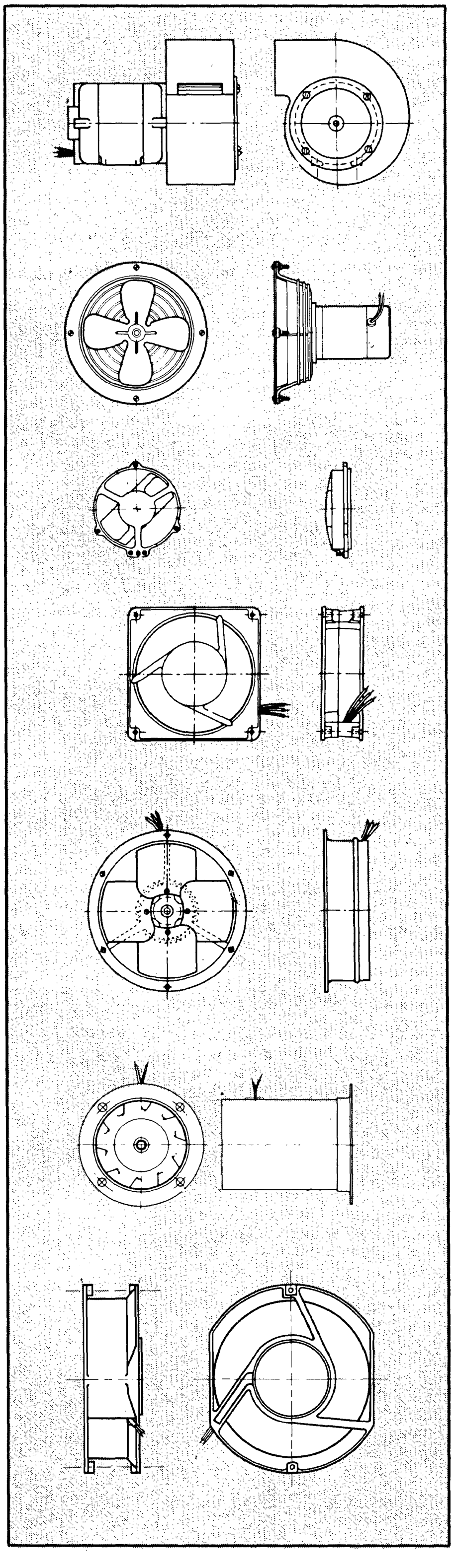


Centrifugal Blowers

Centrifugal blowers have special housings for attachment to ducts, boots, transition pieces or equipment walls. Air is moved by a wheel (containing multiple cut-outs or blades), which is driven by any of the various types of IMC motors or by an external source of rotating energy. They are most often used in applications requiring air that is transported through ducts or for blast cooling of electronic and control enclosures where high velocity air is required.

Sizes: 16 Frame to 55 Frame
Air Delivery: 6.3 cfm to 3,000 cfm
Frequency: 60 HZ-400 HZ – DC and Brushless DC
Accessories: Outlet Flanges Inlet Rims – Inlet Cones
Inlet Filters. Boot Accommodations and Air Vane Switches.

Propeller and Tubeaxial Fans

Commercial and military propeller and tubeaxial fans are noted for their short axial length. This facilitates mounting in electronic compartments and cabinets where space is at a premium. Molded airfoil designed impellers provide high air flow at low noise levels.

Propeller Fans

Sizes: 3″ to 10.5″ diameter.
Air Delivery: 32 cfm to 1,100 cfm.
Frequency: 60 HZ – 400 HZ – Variable and DC.

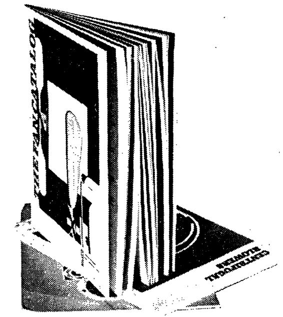
Tubeaxial Fans

Sizes: 3.125″ Sq. to 12.25″ diameter round.
From 1.5″ deep to 3.75.″
Frequency: 60 HZ – 400 HZ – Variable.

Vaneaxial Fans

The vaneaxial fan is an axial flow airmover whose impeller hub is relatively large and which employs straightening vanes to recover a substantial portion of the pressure. The entire airmover – its motor, impeller and housing are a single source of responsibility. IMC features the Turbo-Slot® vaneaxial fan which produces high pressure at low speed, Mixed Flow fans which combine the space-saving advantages of the axial type fan with the desirable performance characteristics of the centrifugal fan and standard vaneaxial fans. "Hi-Slip" models for high altitude applications are available as well as many custom models to fit your specific needs.

Sizes: 1″ to 26″ diameter.
Air Delivery: 6.5 cfm to 12,000 cfm.
Frequency: 60 HZ – 400 HZ – DC and Brushless DC.
Motor driven and gear driven.



FREE CATALOGS ON REQUEST

Centrifugal Blower Catalog EB3
Fan Catalog EF4 (Propeller & Tubeaxial)
Vaneaxial Catalog EV4
Each manual contains comprehensive theory and applications information.

Tel. 516/334-7070 • TWX 510-222-4469

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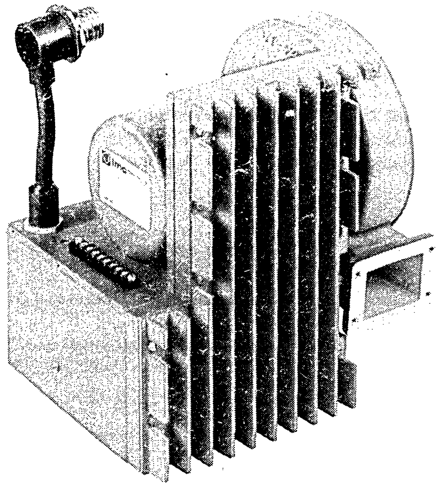
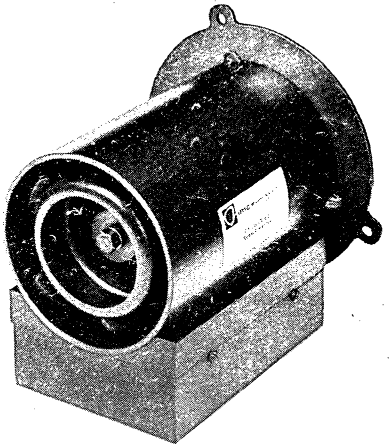
EASTERN DIVISION
570 MAIN STREET, WESTBURY, NEW YORK 11590

Brushless DC Airmovers





CENTRIFUGAL BLOWERS • VANEAXIAL FANS

- Typical Programs: JTIDS and T46A
- Input Power – 115 Volt AC (50/60/400 HZ) or 28 Volt DC per MIL-STD-704A
- Meets EMI Limits per MIL-STD-461B
- Airflow from 20 CFM to 300 CFM
- Static Pressures from 2″ thru 22″, H_2O, Standard Air
- Audible noise designs as low as 70 dB
- Variable speed over 5:1 command range
- Employs JANTX components throughout
- Meets MIL-STD-454, MIL-Q-9858, and MIL-I-45208 requirements
- Integrated or Remote Controller Packages
- Designed for NBC environments
- Meets MIL-STD-810C environments including ambient temperatures to 80°C
- Provides, as required, diagnostic signals of operating states

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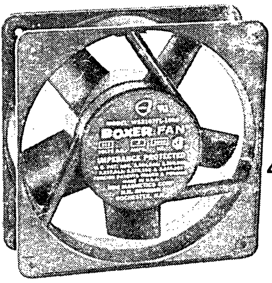
EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

airmovers

BOXER®

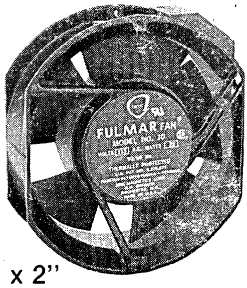


50 to 113 CFM
$4^{11}/_{16}$" x 1½"

STANDARD MODELS	CFM	VOLTS 50/60 Hz
WS2107F-1110	113	115
WS2107FL-3110	113	230
BS2107F-1110	113	115
BS2107FL-3110	113	230
WS2107FL-1000	107	115
WS2107FL-1006	107	230
BS2107FL-1000	107	115
BS2107FL-1006	107	230
WS2107FL-1070	95	115
BS2107FL-1070	95	115
WS2107FL-1072	75	115
WS2107FL-1002	60	115
WS2107FL-1009	50	115
WS2107FL-1004	107/70	115
WS2107FL-1007	107	115/230
BS2107FL-1007	107	115/230

WS = Sleeve Bearing
BS = Ball Bearing

FULMAR®



230 CFM
6¾" x $5^{29}/_{32}$" x 2"

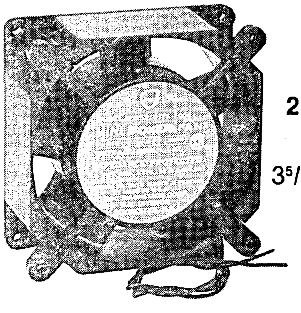
STANDARD MODELS	
Fulmar 10	115 volts 50/60 Hz
Fulmar 20	230 volts 50/60 Hz

Ball Bearing

MINI BOXER®

STANDARD MODELS	CFM	VOLTS 50/60 Hz
MWS2107FL-1000	46	115
MWS2107FL-1006	46	230
MWS2107FL-1002	25	115
MWS2107FL-1004	42/23	115
MWS2107FL-1007	46	115/230
MBS2107FL-1007	46	115/230

MWS = Sleeve Bearing
MBS = Ball Bearing



23 to 46 CFM
$3^{5}/_{8}$" x 1½"

SAFETY CODES

UL Recognized - File #E36707
CSA Certified - File #29590

All models shown can be modified to meet international agency requirements.

ACCESSORIES

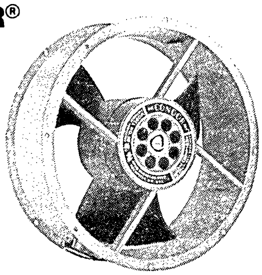
Standard accessories include: plug & cords, finger guards, filters and screens.

OTHER IMC AIRMOVERS

- MIL TYPE BOXER
- DC BOXER
- SKELETON BOXER
- MIL TYPE MINI BOXER
- DC MINI BOXER
- LOW SPEED FULMAR

CONDOR®

560 CFM
10" x 3 ½"

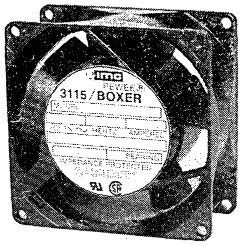


STANDARD MODELS	
Condor 10	115 volts 50/60 Hz*
Condor 12	115 volts 50/60 Hz**
Condor 20	230 volts 50/60 Hz*
Condor 22	230 volts 50/60 Hz**

Ball Bearing
*Terminals **12" leads

PEEWEE BOXER®

15 to 34 CFM
3⅛" x 1½"



STANDARD MODELS	CFM	VOLTS 50/60 HZ
AS115AAAS	34	115
AB115AAAS	34	115
AS230AAAS	34	230
AB230AAAS	34	230
AS115ACAS	20	115
AS115ADAS	15	115
AS115AFES*	26/20	115
AS230BAES*	34	115/230
AS115AAES*	34	115
AS230AAES*	34	230
AS115ACES*	20	115
AS115ADES*	15	115

AS = Sleeve Bearing
AB = Ball Bearing *12" leads

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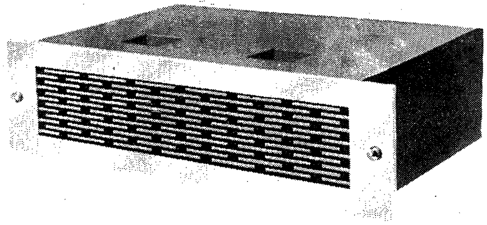
McLEAN PACKAGED COOLING EQUIPMENT

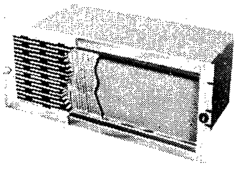
RACK—MOUNTED BLOWERS

Over 100 models available in any panel width. Heights from 3½" to 12¼". Airflows to 1000 CFM. Pressurize systems with cool, filtered air. Prevent dust from entering systems. Standard EIA notching. Quick, easy mounting. No cutting. No filing. Also Packaged Fans for pressurizing or evacuating. Four sizes. Airflows from 275 to 1200 CFM. All units available to Commercial, Military or EMI Shielded Specifications.



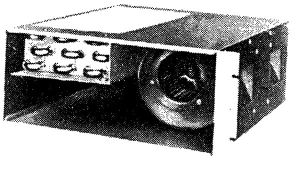
MODEL	CAT. PAGE	CFM	PANEL* HEIGHTS	MOTOR**		REMARKS
				RPM	AMPS OR WATTS	
2EB300	10	130	3½ & 5¼	2900	80W	FOR LIMITED SPACE
†2EB3500	10	290	3½ & 5¼	3000	125W	HIGH PRESSURE-LIMITED SPACE
2EB410	10	300	5¼ & 7	1500	95W	QUIET OPERATION
2EB412	10	350	5¼ & 7	3000	200W	HIGH PRESSURE & VELOCITY
2EB512	10	500	7 & 8¾	1700	130W	LARGE VOL. HIGH VELOCITY
2EB612	10	800	8¾ & 10½	1500	260W	HIGH VOLUME-HIGH VELOCITY
2EB412	16	350 & 700	5¼-7	3000	200W	SIDE DISCHARGE DUCT BLOWER.
1EB800G	—	1000	10½	1100	240W	LOW NOISE-HIGH CFM
1EB920	17	200/350	3½-5¼	1135	412W	SIDEWINDER
1EB980	17	345/550	5¼-7	1350	580W	SIDEWINDER
4EB300	14	250	5¼ x 14⅝D	Two 3100	140W	MULTI-EXHAUST BLOWER
4EB424	14	450	7 x 19½D	Two 1700	130W	MULTI-EXHAUST BLOWER
IDB300	15	75	5¼	3000	40W	HALF PANEL WIDTH
IE220C	15	150	3½	3100	80W	SLOT BLOWER
IEB710	17	140/185	1¾-3½	1400	136W	SIDEWINDER

* ALL MODELS ARE 19" WIDTH EXCEPT IDB300 (HALF PANEL) ** ALL MOTORS ARE 115V 50/60 HZ
UL RECOGNIZED AND CSA CERTIFIED † MODELS AVAILABLE IN 24-48VDC
UNITS ALSO AVAILABLE TO OTHER RACK WIDTHS AND FOR RECESSED INSTALLATION



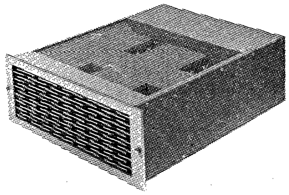
EMI—SHIELDED UNITS

All packaged blowers available with an EMI shield and wave guide media built into the airstream. Cuts signal leakage inward or outward.



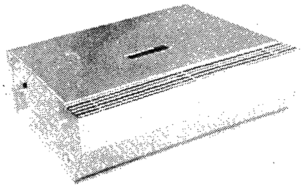
HEAT EXCHANGERS

Maintain cabinet temperature at 80°F maximum with 1 KW heat dissipation. Air recirculates in rack and is cooled by exchanger in blower case.



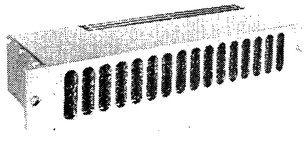
CARD COOLERS

Replaces bulky fan trays. High volume, high pressure filtered air. Low noise, compact, wide cooling discharge. Requires little panel space.



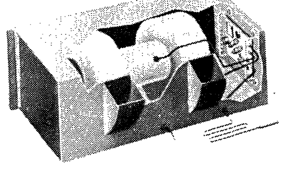
SIDEWINDER BLOWERS

More air. More pressure. Less space. Delivers 180, 350 or 550CFM in a 1/" wide airstream.



SLOT BLOWERS

Ideal for jam-packed circuitry. Delivers 150 CFM from a 3½" panel. Quiet.



SOLID STATE TEMPERATURE CONTROLLERS

Cuts noise level. Modulates blower speed. Keeps operating between 80-90°F. Costs less than air conditioning.

Also a broad line of accessory equipment including grilles, controls, etc.

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72 HOUR

SHIPMENT PROGRAM

OVER 100 MODELS ALWAYS IN STOCK!!

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McLEAN ENGINEERING

DIVISION OF ZERO CORPORATION

70 H Washington Rd., Princeton Junction, NJ 08550 • (609) 799-0100 • TWX 510-685-2543
553 H Constitution Avenue, Camarillo, CA 93010 • (805) 987-5046 • TELEX 18-2223

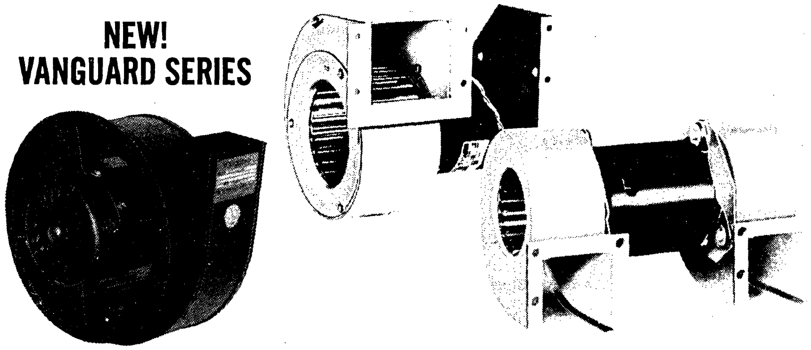
McLEAN SINGLE & DUAL CENTRIFUGAL BLOWERS

Fans—Orifice, Panel, Reversible, Filter Grille Panels

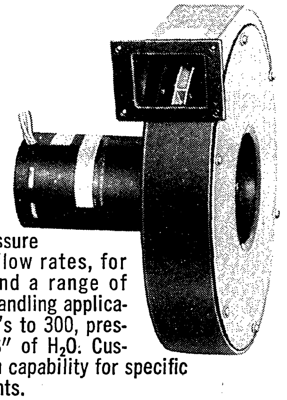
SINGLE & DUAL CENTRIFUGALS

Wide choice of static pressures— 0″ to 3.0″. Outputs range up to 2000 CFM. Wheel diameters range from 3″ to 12″. Motors supplied to any AC frequency or power, single or three-phase. Bearings properly loaded, double-shielded, permanently lubricated. Motors and wheels precision balanced for vibration-free performance. Motors, UL recognized and CSA certified. Units are also available in 24-48VDC.

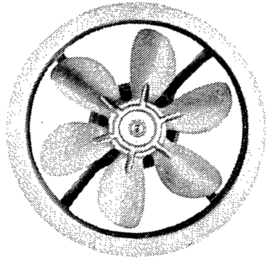
NEW! VANGUARD SERIES



RADIAL WHEEL BLOWERS

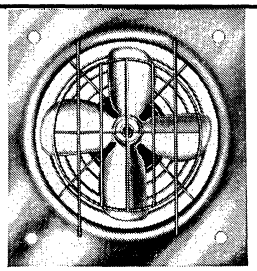


Higher pressure at lower flow rates, for cooling and a range of other air-handling applications. CFM's to 300, pressures to 8″ of H_2O. Custom design capability for specific requirements.



ORIFICE MOUNTED FANS

Push or pull airflow. CFMs 275, 300 or 395. Dim. 4″ x 8½″ or 4¾″ x 10¼″. Quiet, vibrationless 115V/50/60 Hz, 1600 RPM, or 3000 RPM.

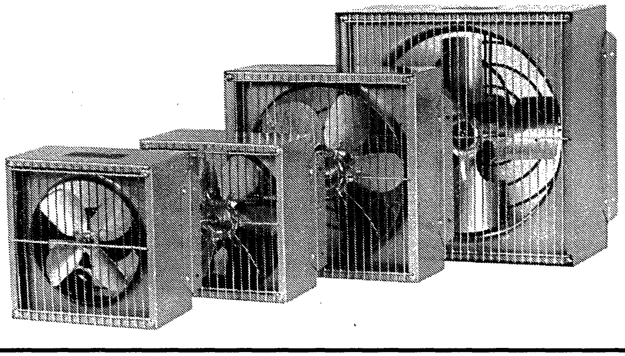


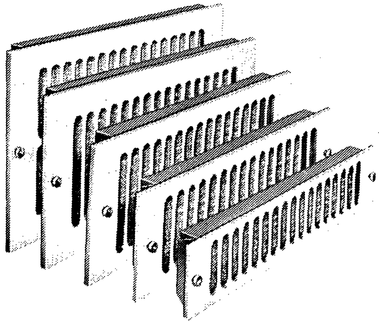
PANEL MOUNTED FANS

Low cost, long life, ready to mount, shaft in any position. 265 CFM, 3100 RPM, 115V/50/60 Hz. Dim. 9″ square panel on 7″ centers, 4²³⁄₃₂″ deep.

REVERSIBLE FILTER BOX PROPELLER FANS

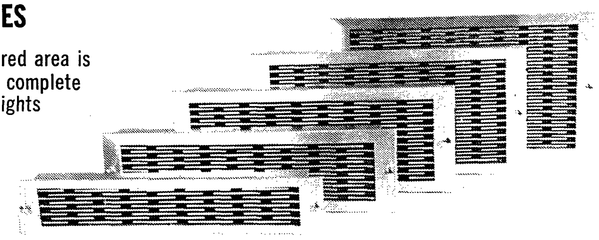
MODEL 1RB65 delivers 275 cfm, 3100 rpm 4½″ deep x 8⅞″ square. MODEL 1RB80 delivers 450 cfm, 1650 rpm 4½″ deep x 8⅞″ square. MODEL 1RB100 delivers 725 cfm, 1600 rpm 4½″ deep x 12⅛″ square. MODEL 1RB120 delivers 1200 cfm, 1450 rpm 7⅜″ deep x 15⅛″ square. MODEL LA120 Back Draft Damper is used in conjunction with Model 1RB120. Louvers automatically open when power is applied and close when power is off. May be used in horizontal or vertical positions.





FILTER GRILLE ASSEMBLIES

For use in cabinets where louvered area is needed for ventilation. Supplied complete with dust filters and in panel heights of 3½″ to 10½″ and widths 9½″, 19″, 24″ and 30″.



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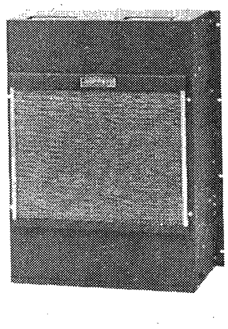
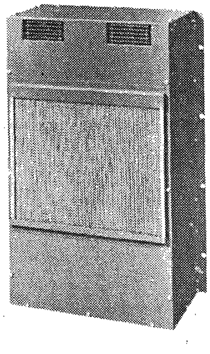
McLEAN MIDWEST AIR CONDITIONERS
For Electronics & Computer-Controlled Machine Tool Systems

SLIMBOY® SERIES 1200 TO 12000 BTU/HR

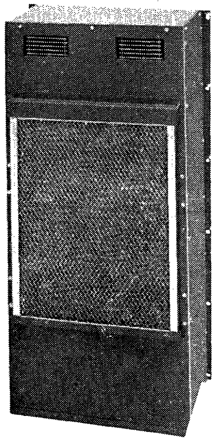
Cool & protect electronic control systems operating in harsh factory settings. "Closed-Loop" design constantly cools and recirculates internal cabinet air locking out heat, moisture & airborne particulates. Components are cooled by clean air only. Continuous duty to 20,000 hours assured at ambients to 125°F. Units mount quickly & easily. Available in 115V/50-60HZ, 115V/60HZ, 230V/50HZ and 230V/60HZ. Send for Condensed Catalog No. 8118 or specific folders indicated below.



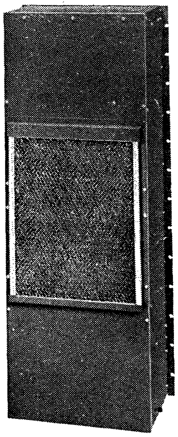
SLIMBOY® 24 SERIES
Capacity: 1400-2000-3000 BTU/HR. Reliable cooling for medium range use. Can be door, side or rack-mounted. 24" high, 9⅛" deep, 19" wide. Specify Catalog Folder 8121.



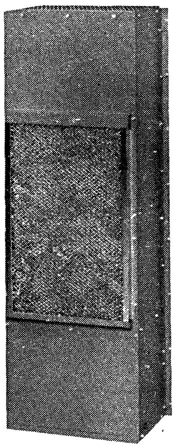
28 SERIES SLIMBOY®
Capacity: 2000-3000-4000 BTU/HR. Effective cooling in a 28½" high package that can be door-mounted, side-mounted or rack-mounted. 28½" high, 9⅛" deep, 19" wide. Specify Catalog Folder 8102.



36 SERIES SLIMBOY®
Capacity: 4000-5000-6000 BTU/HR. Large capacity cooling in a $36\frac{11}{16}$" high package that can be door-mounted, side-mounted or rack-mounted. $36\frac{11}{16}$" high, 10" deep, 19" wide. Specify Catalog Folder 8103.



47 SERIES SLIMBOY®
Capacity: 4000-5000-6000 BTU/HR. Fully interchangeable mounting with competitive models; a 47¼" high package for door-mounting, side-mounting or rack-mounting. 47¼" high, 10" deep, 19" wide. Specify Catalog Folder 8104.

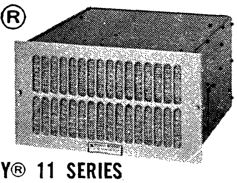


52 SERIES SLIMBOY®
Capacity: 5000-6000-7000-8000-9000-10000-12000 BTU/HR. Maximum range of capacities in a unit for door-mounting, side-mounting or rack-mounting. 52⅝" high, 9½" deep, 19" wide. Specify Catalog Folder 8105.

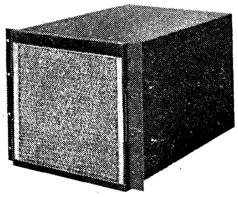
MICRO-MINI SLIMBOY®, HIBOY® & LOBOY® SERIES

MICRO-MINI SLIMBOY® 13 SERIES

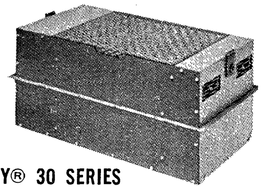
Capacity: 1200 BTU/HR @ 110°F. The 14⅛" width of the MICRO-MINI SLIMBOY® makes it an ideal unit for mounting on enclosures that are only 18" deep. 12⅞" high, 6¼" deep, 14⅛" wide. Specify Catalog Folder 8101.



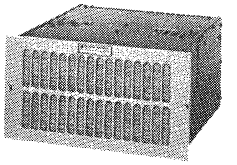
HIBOY® 11 SERIES
Capacity: 2000-3000-4000 BTU/HR. Unit can be rack-mounted inside the enclosure at the top or mounted outside the enclosure on the top surface. $10\frac{15}{32}$" high, 19⅝" deep, 19" wide. Specify Catalog Folder 8106.



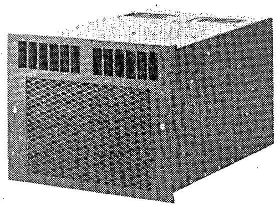
HIBOY® 16 SERIES
Capacity: 5000-6000-7000 BTU/HR. High capacity cooling for enclosures requiring inside or outside top-mounting installation. $15\frac{23}{32}$" high, 24" deep, 19" wide. Specify Catalog Folder 8107.



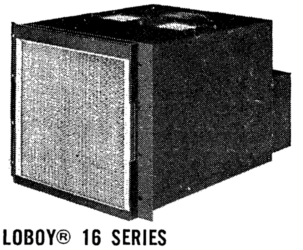
HIBOY® 30 SERIES
Capacity: 4000-5000-6000 BTU/HR. Large capacity package for mounting on top of the enclosure, partially recessed. Special models also available for mounting on the top surface of the cabinet. 14" high, 31⅜" long, 16⅜" wide. Specify Catalog Folder 8108.



LOBOY® 11 SERIES
Capacity: 2000-3000-4000 BTU/HR. Package for rack-mounting inside the enclosure near the bottom. $10\frac{15}{32}$" high, 19⅝" deep, 19" wide. Specify Catalog Folder 8109.



LOBOY® 14 SERIES
Capacity: 4000, 5000, 6000, 7000 BTU/HR. Mounts at or near bottom of enclosure. Cool air blows up. 14¾" high, $24\frac{11}{16}$" deep, 19" wide. Specify Catalog Folder 8120.



LOBOY® 16 SERIES
Capacity: 5000-6000-7000 BTU/HR. High capacity package for mounting inside the enclosure near the bottom. $15\frac{23}{32}$" high, 24" deep, 19" wide. Specify Catalog Folder 8110.

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SUBSIDIARY OF ZERO CORPORATION

4000 83rd Avenue North,
Brooklyn Park, Minnesota 55443
Telephone 612/561-9400 Telex 29-0883 TWX 910-576-2951

See our catalog in
THOMCAT

McLEAN MIDWEST AIR-TO-AIR HEAT EXCHANGERS
For Electronics & Computer-Controlled Machine Tool Systems

McLean Heat Exchangers will remove up to 1000 watts of heat load from a sealed enclosure with only a 30°F temperature differential above the ambient, at a maximum ambient temperature of 125°F.

Heat Exchangers differ from air conditioners in that they can not cool the enclosure below the ambient temperature. But where the ambient air is not excessively hot or moisture-laden, and where the electronic controls can operate in an enclosure temperature slightly above the ambient, it's possible that a McLean Heat Exchanger can be used to transfer heat from inside the electronic enclosure to the outside atmosphere.

McLean Heat Exchangers employ the same closed loop design that's used in the McLean air conditioners. Hostile ambient air is sealed out of the cabinet. Clean air from the enclosure itself is continuously cooled and recirculated.

Full line of package configurations for door-mounting, side-mounting, rack-mounting and top-mounting. Operating temperature range: 0°F to 125°F. Special coating for heat pipe cores available when units are required to operate in corrosive environments.

See our catalog in
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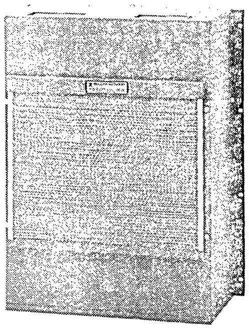
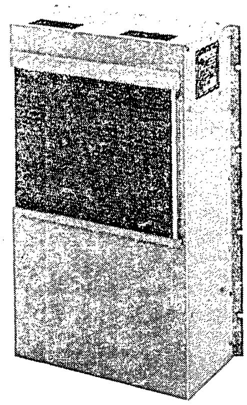


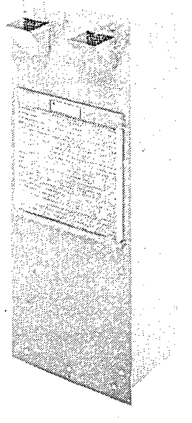
HE-24 SERIES

For door-, side-, or rack-mounting. 24" high, 9⅛" deep, 19" wide. Specify Catalog Folder 8122.



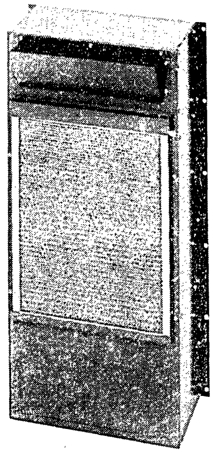
HE-28 SERIES

Unit can be door-mounted, side-mounted or rack-mounted. 28½" high, 8⅝" deep, 19" wide. Specify Catalog Folder 8111.



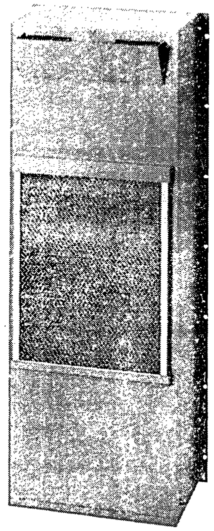
HE-33 SERIES

Narrow width makes it ideal for shallow enclosures. Can be door-, or side-mounted. 34¼" high, 9" deep, 13¾" wide. Specify Catalog Folder 8123.



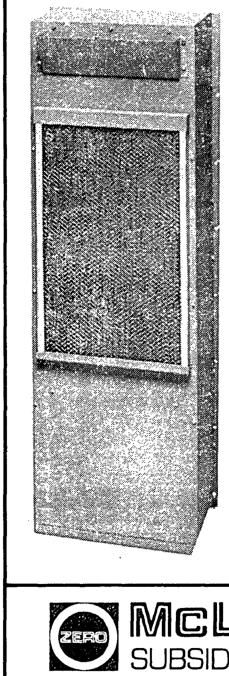
HE-36 SERIES

For door-mounting, side-mounting or rack-mounting. 36 11/16" high, 8⅝" deep, 19" wide. Specify Catalog Folder 8112.



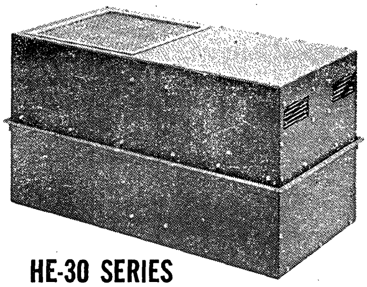
HE-47 SERIES

Package can be door-mounted, side-mounted or rack-mounted. 47⅛" high, 8⅝" deep, 19" wide. Specify Catalog Folder 8113.



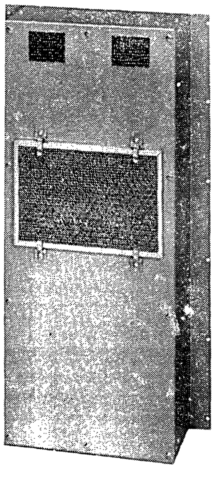
◀HE-52 SERIES

For mounting on door, side or rack. 52 9/16" high, 9½" deep, 19" wide. Specify Catalog Folder 8114.



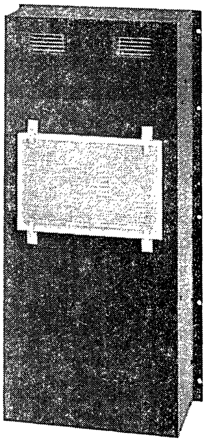
HE-30 SERIES

For mounting on top of the enclosure, partially recessed. Special models also available for mounting on the top surface of the cabinet. 16¾" high, 31⅜" deep, 16⅜" wide. Specify Catalog Folder 8115.



◀HP-3600 SERIES

For mounting on door, side or rack. 36¾" high, 7" deep, 19" wide. Specify Catalog Folder 8116.



HP-3800 ▶ SERIES

For mounting on door, side or rack. 38⅛" high, 8" deep, 19" wide. Specify Catalog Folder 8117.

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SUBSIDIARY OF ZERO CORPORATION

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Brooklyn Park, Minnesota 55443
Telephone 612/561-9400 Telex 29-0883 TWX 910-576-2951

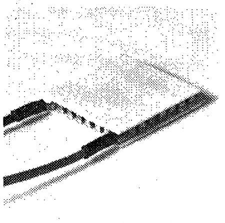
MATERIALS ELECTRONIC PRODUCTS CORP.
994 SPRUCE ST., TRENTON, NJ 08648 USA
TELEPHONE (609) 393-4178/TELEX 843314

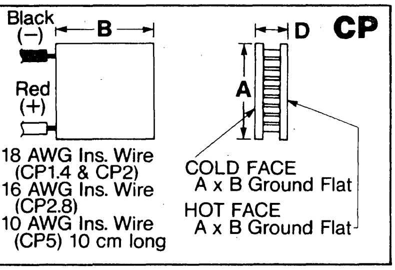
SOLID STATE COOLING WITH THERMOELECTRICS

Thermoelectric (Peltier) Heat Pump Module Specifications

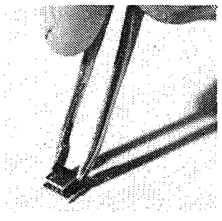
Thermocouples constructed of N & P elements of highest grade bismuth telluride in form of oriented polycrystalline ingots. Ingot ends soldered to copper bus bars interfaced with ceramic plates, affording good mechanical integrity, high dielectric strength and thermal conduction. Temperature range, −150°C to +110°C. Solid state construction. Both hot and cold faces lapped flat, TYPE L. Both faces metallized and tinned, TYPE TT. Hybrid, hot face tinned, cold face lapped, TYPE TL.

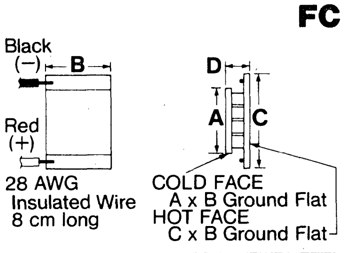
CP SERIES





FC SERIES





			HOT FACE Th = 25°C			UNIVERSAL MULTIPLIERS			DIMENSIONS, MM				
	CATALOG NUMBER	I MAX AMPS	Q MAX WATTS	V MAX VOLTS	△ T MAX °C	N NO. OF COUPLES	G GEOMETRY FACTOR	G x N	A	B	C	D*	WEIGHT GRAMS
CP SERIES	CP 1.0- 7-06L	3.0	1.4	0.85	67	7	0.060	0.42	7.5	7.5		3.6	1.5
	CP 1.0- 14-06L	3.0	2.9	1.69	67	14	0.060	0.84	11	9		3.6	2.1
	CP 1.0- 31-06L	3.0	6.4	3.75	67	31	0.060	1.86	15	15		3.6	3.6
	CP 1.0- 63-06L	3.0	12.9	7.62	67	63	0.060	3.78	15	30		3.6	6.4
	CP 1.0-127-06L	3.0	26.0	15.4	67	127	0.060	7.62	30	30		3.6	12.0
	CP 1.0-127-05L	3.9	33.4	15.4	67	127	0.078	9.91	30	30		3.2	10.5
	CP 1.4- 3-10L	3.9	0.77	0.36	70	3	0.078	0.23	5	10		4.7	0.6
	CP 1.4- 7-10L	3.9	1.85	0.85	70	7	0.078	0.55	10	10		4.7	1.4
	CP 1.4- 11-10L	3.9	2.90	1.33	70	11	0.078	0.86	10	15		4.7	2.2
	CP 1.4- 17-10L	3.9	4.48	2.06	70	17	0.078	1.33	15	15		4.7	3.4
	CP 1.4- 31-10L	3.9	8.15	3.75	70	31	0.078	2.4	20	20		4.7	6.4
	CP 1.4- 35-10L	3.9	9.2	4.24	70	35	0.078	2.73	15	30		4.7	7.0
	CP 1.4- 71-10L	3.9	18.7	8.60	70	71	0.078	5.54	30	30		4.7	14.2
	CP 1.4-127-10L	3.9	33.4	15.4	70	127	0.078	9.91	40	40		4.7	25.4
	CP 1.4- 3-06L	6.0	1.2	0.36	67	3	0.12	0.36	5	10		3.8	0.5
	CP 1.4- 7-06L	6.0	2.8	0.85	67	7	0.12	0.84	10	10		3.8	1.2
	CP 1.4- 11-06L	6.0	4.4	1.33	67	11	0.12	1.32	10	15		3.8	1.8
	CP 1.4- 17-06L	6.0	6.9	2.06	67	17	0.12	2.04	15	15		3.8	2.9
	CP 1.4- 31-06L	6.0	12.5	3.75	67	31	0.12	3.72	20	20		3.8	5.5
	CP 1.4- 35-06L	6.0	14.2	4.24	70	35	0.12	4.20	15	30		3.8	6.0
	CP 1.4- 71-06L	6.0	28.7	8.60	67	71	0.12	8.52	30	30		3.8	12.2
	CP 1.4-127-06L	6.0	51.4	15.4	67	127	0.12	15.24	40	40		3.8	21.8
	CP 1.4-127-045L	8.5	68.8	15.4	65	127	0.17	21.60	40	40		3.3	20.0
	CP 2 - 3-10L	9.0	1.8	0.36	70	3	0.18	0.54	8	15		5.6	1.9
	CP 2 - 7-10L	9.0	4.2	0.85	70	7	0.18	1.26	15	15		5.6	4.3
	CP 2 - 15-10L	9.0	9.1	1.81	70	15	0.18	2.70	15	30		5.6	8.9
	CP 2 - 17-10L	9.0	10.3	2.06	70	17	0.18	3.06	22	22		5.6	10.1
	CP 2 - 31-10L	9.0	18.8	3.75	70	31	0.18	5.58	30	30		5.6	18.5
	CP 2 - 71-10L	9.0	43.1	8.60	70	71	0.18	12.78	44	44		5.6	42.0
	CP 2 - 3-06L	14.0	2.8	0.36	67	3	0.28	0.84	8	15		4.6	1.6
	CP 2 - 7-06L	14.0	6.6	0.85	67	7	0.28	1.96	15	15		4.6	3.6
	CP 2 - 15-06L	14.0	14.1	1.81	67	15	0.28	4.20	15	30		4.6	7.5
	CP 2 - 17-06L	14.0	16.0	2.06	67	17	0.28	4.76	22	22		4.6	8.5
	CP 2 - 31-06L	14.0	29.2	3.75	67	31	0.28	8.68	30.0	30.0		4.6	15.7
	CP 2 - 71-06L	14.0	67.0	8.60	67	71	0.28	19.88	44.0	44.0		4.6	35.6
	CP 2.8- 32-06L	24.0	51.8	3.87	67	32	0.48	15.36	40.0	40.0		5.0	34.0
	CP 5 - 31-10L	39.0	81.5	3.75	67	31	0.78	24.18	55.0	55.0		5.8	73.0
	CP 5 - 31-06L	60.0	125.4	3.75	67	31	1.20	37.20	55.0	55.0		4.9	64.5
FC SERIES	FC 0.45- 4-05L	0.8	0.22	0.48	67	4	0.016	0.064	1.8	3.4	3.4	2.4	All weights below 0.7g
	FC 0.45- 8-05L	0.8	0.43	0.97	67	8	0.016	0.13	3.4	3.4	5.0	2.4	
	FC 0.45- 12-05L	0.8	0.65	1.45	67	12	0.016	0.19	3.4	5.0	5.0	2.4	
	FC 0.45- 18-05L	0.8	0.97	2.18	67	18	0.016	0.29	5.0	5.0	6.6	2.4	
	FC 0.45- 32-05L	0.8	1.72	3.87	67	32	0.016	0.51	6.6	6.6	8.3	2.4	
	FC 0.45- 66-05L	0.8	3.56	7.98	67	66	0.016	1.06	9.9	9.1	11.5	2.4	
	FC 0.6- 4-06L	1.2	0.32	0.48	67	4	0.024	0.096	2.2	4.2	4.2	2.7	All weights below 0.7 g
	FC 0.6- 8-06L	1.2	0.65	0.97	67	8	0.024	0.19	4.2	4.2	6.2	2.7	
	FC 0.6- 12-06L	1.2	0.97	1.45	67	12	0.024	0.29	4.2	6.2	6.2	2.7	
	FC 0.6- 18-06L	1.2	1.46	2.18	67	18	0.024	0.43	6.2	6.2	8.3	2.7	
	FC 0.6- 32-06L	1.2	2.59	3.87	67	32	0.024	0.77	8.3	8.3	10.3	2.7	
	FC 0.6- 66-06L	1.2	5.34	7.98	67	66	0.024	1.58	12.3	11.3	14.4	2.7	
	FC 0.6- 4-05L	1.5	0.40	0.48	67	4	0.030	0.12	2.2	4.2	4.2	2.4	All weights below 0.7 g
	FC 0.6- 8-05L	1.5	0.81	0.97	67	8	0.030	0.24	4.2	4.2	6.2	2.4	
	FC 0.6- 12-05L	1.5	1.21	1.45	67	12	0.030	0.36	4.2	6.2	6.2	2.4	
	FC 0.6- 18-05L	1.5	1.82	2.18	67	18	0.030	0.54	6.2	6.2	8.3	2.4	
	FC 0.6- 32-05L	1.5	3.23	3.87	67	32	0.030	0.96	8.3	8.3	10.3	2.4	
	FC 0.6- 66-05L	1.5	6.67	7.98	67	66	0.030	1.98	12.3	11.3	14.4	2.4	
	FC 0.7- 4-05L	2.0	0.54	0.48	67	4	0.040	0.16	2.4	4.7	4.7	2.4	All weights below 0.7 g
	FC 0.7- 8-05L	2.0	1.08	0.97	67	8	0.040	0.32	4.7	4.7	7.0	2.4	
	FC 0.7- 12-05L	2.0	1.62	1.45	67	12	0.040	0.48	4.7	7.0	7.0	2.4	
	FC 0.7- 18-05L	2.0	2.43	2.18	67	18	0.040	0.72	7.0	7.0	9.3	2.4	
	FC 0.7- 32-05L	2.0	4.31	3.87	67	32	0.040	1.28	9.3	9.3	11.6	2.4	

*Thickness (D, mm) for TYPE L only

MELCOR
MATERIALS ELECTRONIC PRODUCTS CORP.
994 SPRUCE ST., TRENTON, NJ 08648 USA
TELEPHONE (609) 393-4178/TELEX 843314

SOLID STATE COOLING WITH THERMOELECTRICS

How To Use Universal Performance Graphs:

APPROACH #1: Convert universal scale values to those of specific module selected:

1. Convert Q_c/GxN (scale values) to Q_c (watts heat pumped): Multiply Q_c/GxN values by module GxN (from table in module specifications chart).

2. Convert V/N values to V (volts input): Multiply V/N values by module N from table.

3. Convert 50 G, 40 G, etc. to I (amps input) values: Multiply 50 by module G, etc.

APPROACH #2: From application, knowing required Q_c, T_c and T_h, select appropriate module:

1. Calculate $\triangle T = T_h\text{-}T_c$; select operating current I (I max = 50 G).

2. From universals, obtain Q_c/GxN. Calculate GxN.

3. Select appropriate module from GxN table in module specifications chart.

EXAMPLE: Required Q_c = 31 Watts, T_c = +5°C, T_h = +35°C

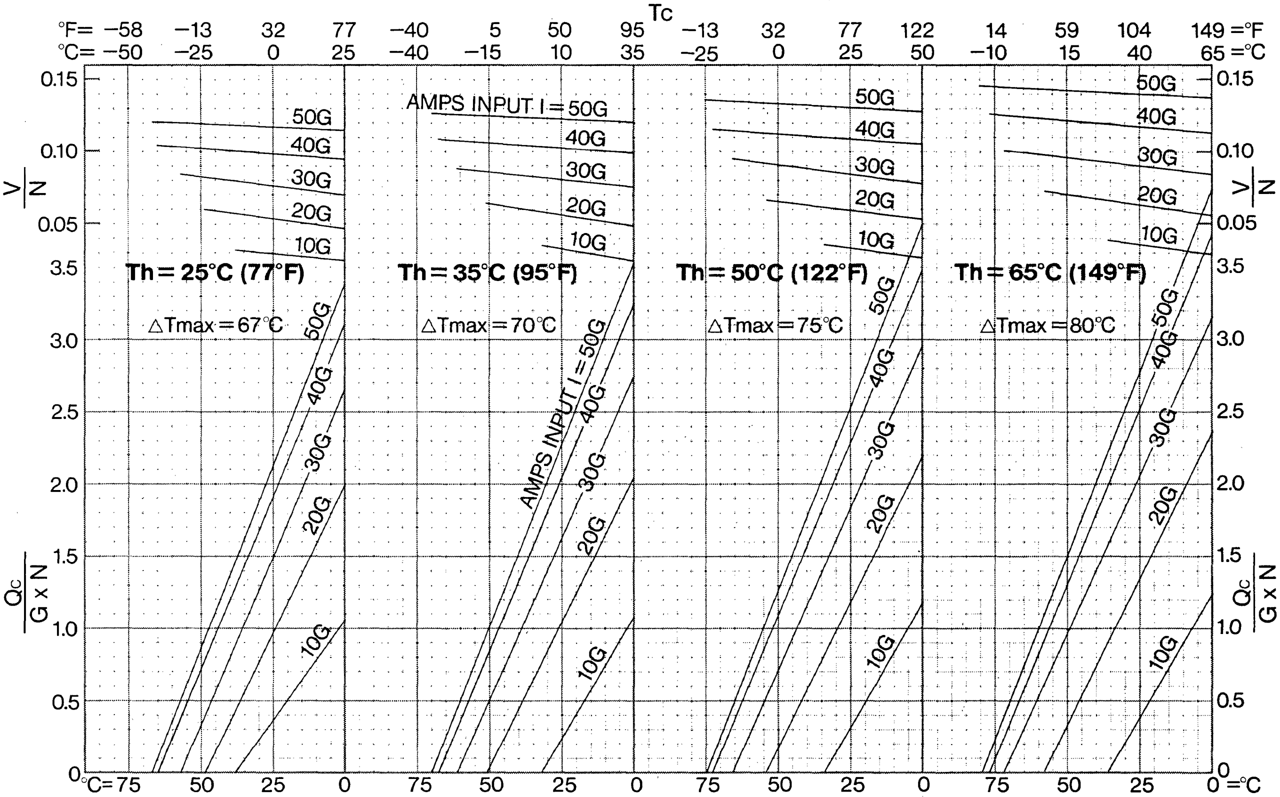
1. $\triangle T = 35° - 5° = 30°C$. Choose operating current (typically from 30 G to 40 G) at 35 G (equals 35/50 = 70% of I max.)

2. From T_h = 35°C graph ($\triangle T$ = 30°, I = 35 G), obtain Q_c/GxN = 1.65; Then GxN = Q_c/1.65 = 31/1.65 = 18.8.

3. Choose module with GxN ≥ 18.8; choose CP1.4-127-045 (GxN = 21.6) or CP2-71-06 (GxN = 19.9).

If desired, approach #1 may now be followed for module selected.

Model CP1.4 - 127 - 06L
CP Series, Type L
1.4 x 1.4mm Thermoelement Cross Section
127 Thermocouples
.06″ Thermoelement Height

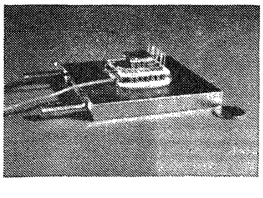


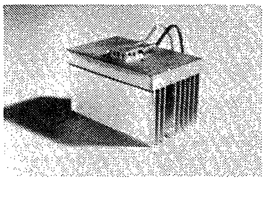
UNIVERSAL PERFORMANCE GRAPHS

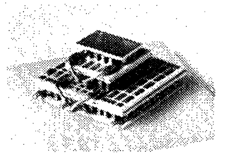
Tc = Cold Face Temperature; Th = Hot Face Temperature; I = Module Current, Amps; V = Module Voltage, Volts; Qc = Watts Heat Pumped; N = Number of Thermocouples; G = Thermoelement Geometry Factor

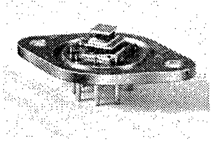
Special Heat Pump Assemblies

Special assemblies are available in O.E.M. quantities, designed to customer requirements using heat exchangers furnished by customer or by Melcor. Multistage cascades also available in standard and custom configuration, with temperatures to −95°C (6 stage). Ceramic construction with solder interfacing between stages.









micronel®
2142F INDUSTRIAL COURT
VISTA, CA 92083
(619) 727-7400

...THE NAME FOR MINIATURE FANS, AC AND DC
...THE NAME FOR THE ULTIMATE IN QUALITY AND RELIABILITY

MICRONEL miniature fans are in service all over the world. MICRONEL miniature fans are demonstrating their dependability in equipment used in space, installed in precision miniature equipment and in medical and optical apparatus. High air delivery with minimum bulk is the result of optimized designs.

MICRONEL is the only manufacturer in the world with a complete range of miniature fans (from 1 inch diameter and up). After 20 years of experience, we now manufacture more than 200 different types: one of them is the solution to your problem.

DC FANS

DC fans are supplied in diameters from 1 inch to 3 inches and in square form 1 × 1 inches to 3 × 3 inches. With nominal voltages of 6, 12, and 24 V available, the speed range lies between 1,000 and 13,000 rpm. By varying the voltage the speed can be optimally matched to requirements. High efficiency motors of the V-series have ironless basket armatures with permanent magnet stators. Commutation is by metal or graphite brushes and a cylindrical commutator of precious metal alloy.

The **electronically commutated disc-motor** of the **F-series** is especially suited for ultra-slim fans. Patent applications for these fans have been filed world wide.

AC FANS

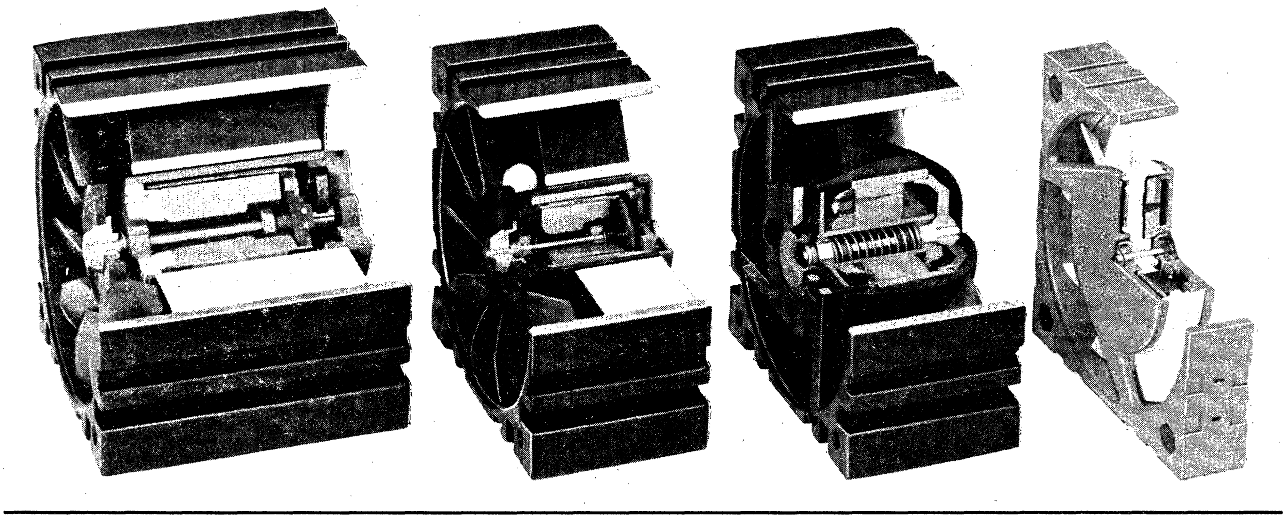
AC fans are supplied in diameters from 1.42 inches to 3.1 inches and in square sizes of 1.5 × 1.5 to 3.1 × 3.1 inches, with voltage ratings of 12, 24, 115 and 220 V, 50/60 Hz. Speed is 3,000 or 3,600 rpm at nominal voltage according to frequency. The hysteresis motors have quadrature windings. With some models the necessary capacitors are built in. The aerodynamically designed blades are mounted on a ferromagnetic rotor. Speed control is possible within a certain range by varying the frequency. Salient features of this motor type are very quiet running and long life.

QUALITY CONTROL

With the proven designs, production facilities reflecting the latest state of the art, and high-grade materials, MICRONEL provides the basis for an unvarying quality standard, which is assured by:

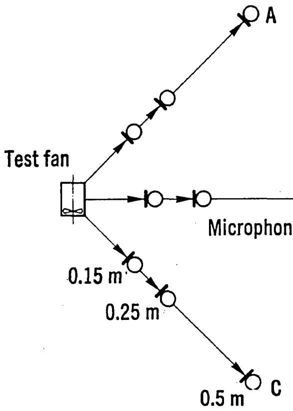
1. INCOMING INSPECTION
   Random tests on individual parts or 100% inspection, depending on complexity.
2. IN PROCESS INSPECTION
   Random checks and in some cases 100% inspection on sub-assemblies at various production stages.
3. FINAL INSPECTION
   No fan leaves our plant without thorough testing of the following:
   — current input
   — revs per minute
   — noise and vibration
   — visual inspection
   — brush pattern (by oscilloscope) on DC fans
   — high voltage tests (with 115/220 VAC)
   — periodic testing of flow rate
   — pressure/suction and acoustic emission
4. PROTECTION
   All fans built by MICRONEL satisfy protection class IP40. Special tests can be carried out on request.
   UL and CSA recognized fans are marked with the respective symbol.
5. LONG-TERM TESTS
   Intensive test runs are performed under various temperature conditions (20°C/45°C/60°C). Great importance is attached to these tests, for they indicate any shortcomings in design, production or materials. Individual tests often take years, yielding information on the life expectations of the different types. The expected life specified in the technical data is based on the Weibull distribution method, which means that 90% of the fans will exceed the value stated (Weibull B10).

MICRONEL'S broad experience and technical expertise in development and design of high performance precision motors and assemblies has been utilized to develop the product shown herein. Our appreciation of the customer's system performance requirements, thermal constraints, mechanical interfaces, and cost factors allows MICRONEL U.S. to offer unique solutions to your problems. TRY US!



NOISE TEST SET-UP

ACOUSTIC EMISSION LEVEL



Noise measurements in accordance with DIN 45635 are carried out in an anechoic chamber with a basic noise level not exceeding 13 dB(A). The fans are mounted with free discharge in a soft suspension. Minimum distance from floor and walls is 1 m.

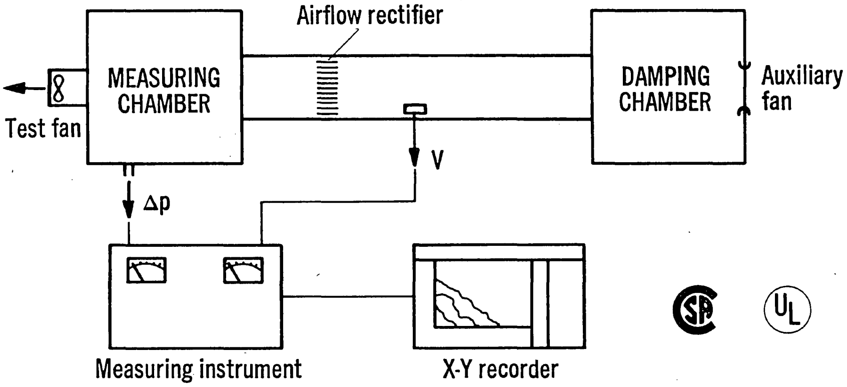
All acoustic emission graphs show mean values.

Evaluation was by the use of three measuring points A, B, C and related to a distance of 1 m.

The acoustic emission graphs also show the corresponding dB(A) values at nominal speed, at 30% below nominal speed and 30% above nominal speed.

AIR DELIVERY

AIRFLOW PERFORMANCE



For measuring the air delivery, a test station was constructed based on the latest available knowledge. It meets the demand for reproducibility of Δp/V values and accommodates all fan sizes. The The measuring principle corresponds with DIN 24163.

The fan to be measured is mounted free-blowing and free-sucking in the cubical chamber in a manner to allow recording on the suction side. The difference in pressure, Δp, is measured in the measuring chamber and the air flow in the measuring tube. Data of the flow rates obtained are transformed into electrical values which are recorded on an X-Y recorder. The graph is plotted using a damping device and an auxiliary fan.

NOISE MEASUREMENTS

CONVERSION OF MEASURING UNITS:

1 l/min = 0,0353 CFM
1 CFM = 28,31 l/min
1 mbar = 10,197 mm H_2O = 0.4 inches H_2O
1 Pa = 10^{-2} bar = 0,10197 mm H_2O = .04 inches H_2O

UL RECOGNIZED

The following models have been tested by Underwriters Laboratories Inc. and bear their symbol:
V621L, V623L, V624L, V631L, V72JM, V72PM, V72TL, V72AB
Nominl voltages 6, 12, 15, 24, 30, 36, 48, 115 and 220 Volts.

CSA RECOGNIZED

MICRONEL has applied for Canadian Standards Authority approval for the following fans:
V621L, V623L, V624L, V631L, V72JM, V72PM, V72CL and V72TL with nominal voltages from 12 to 48 Volts.

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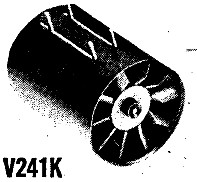
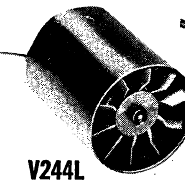
DC miniature fans

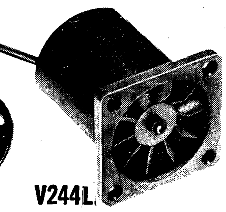
V241-V249



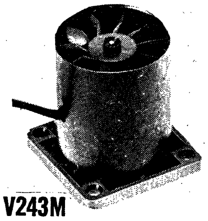
V241K



V244L



V244L



V243M

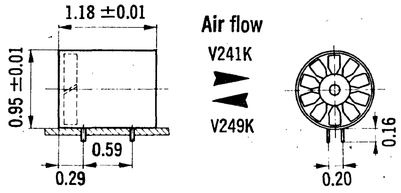
- ☐ Flange types for simple mounting with M.25 screws or self-tapping M3 screws
- ☐ Electrical connection with red and black stranded wires
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber

TECHNICAL DATA

Nominal voltage	U_N	6	12	V
Nominal current max.	I_N	30	25	mA
Nominal power input	P_N	0.18	0.30	W
Stall current	I_H	180	110	mA
Speed typically	n	12,500	14,500	min⁻¹
Flow rate SUCTION	V_S	70, 2.45	75, 2.6	l/min, cfm
Flow rate PRESSURE	V_D	90, 3.15	100, 3.5	l/min, cfm
Static pressure difference, SUCTION	Δp_S	0.65	0.75	mbar
Static pressure difference, PRESSURE	Δp_D	0.28	0.30	mbar
Expected life	t	1,000	1,000	h
Acoustic emission level S/D	LpA	37/43	37/43	dB(A)
Ambient temperature range	T	−20 ... +65		°C
Weight	m	16		g
Bearings		Sleeve bearings		

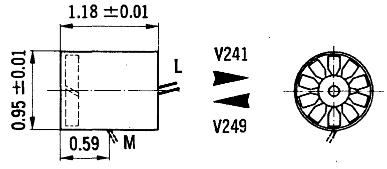
MECHANICAL DATA (inches)

V241K
V249K



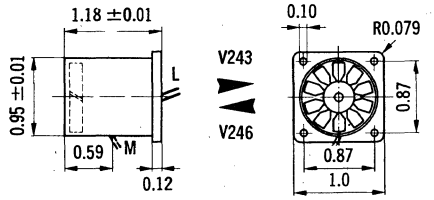
1.18 ±0.01
0.95 ±0.01
0.59
0.29
Air flow
V241K
V249K
0.16
0.20

V241L/M
V241L/M



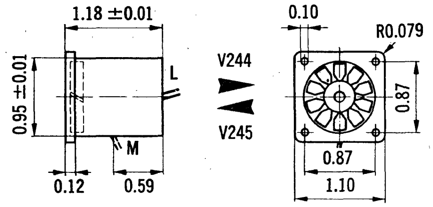
1.18 ±0.01
0.95 ±0.01
L
0.59
M
V241
V249

V243L/M
V246L/M



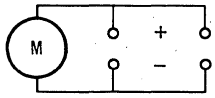
1.18 ±0.01
0.95 ±0.01
L
0.59
M
0.12
V243
V246
0.10
R0.079
0.87
0.87
1.0

V244L/M
V245L/M

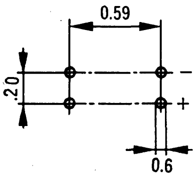


1.18 ±0.01
0.95 ±0.01
L
M
0.12
0.59
V244
V245
0.10
R0.079
0.87
0.87
1.10

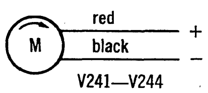
WIRING DATA



Printed circuit pins must be soldered very rapidly max. 5 sec max. 270°C

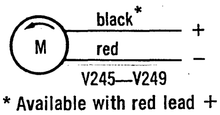


Drilling details (component side)



M
red
black
+
−
V241—V244

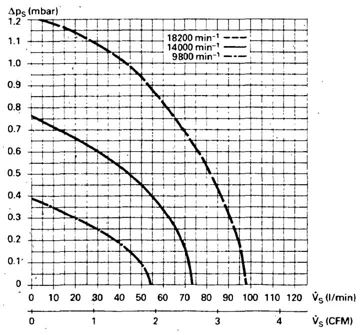
Connecting leads min. 7.88 inches long



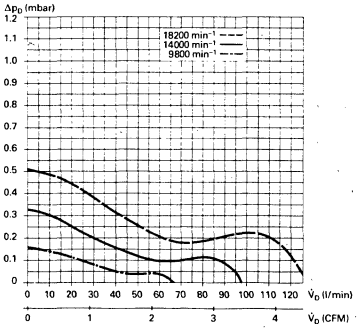
M
black*
red
+
−
V245—V249

* Available with red lead +.

AIRFLOW PERFORMANCE GRAPHS

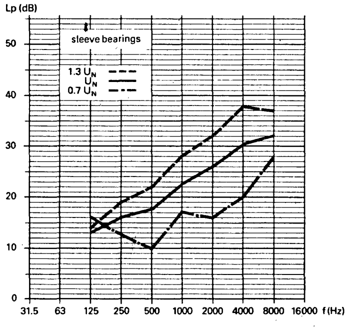


V241-V244

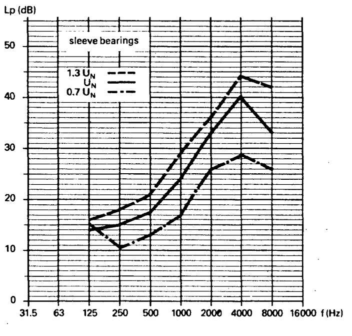


V245-V249

ACOUSTIC EMISSION GRAPHS



V241-V244



V245-V249

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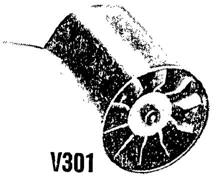
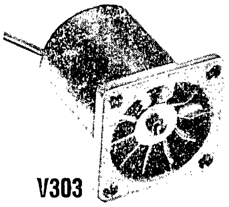
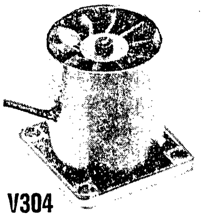
DC miniature fans

V301-V309


V301


V303


V304

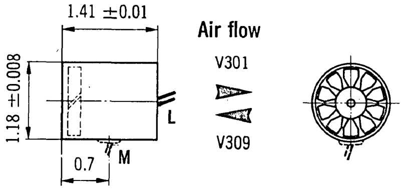
- ☐ Flange types for simple mounting with M2.5 screws or self-tapping M3 screws
- ☐ Electrical connection with red and black stranded wires
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber

TECHNICAL DATA

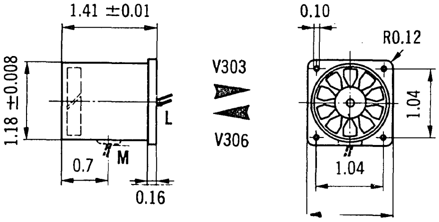
Nominal voltage	U_N	6	12	24	V
Nominal current max.	I_N	150	100	50	mA
Nominal power input	P_N	0.7	1.0	1.0	W
Stall current	I_H	1300	740	370	mA
Speed typically	n	13,000	14,000	14,000	min⁻¹
Flow rate SUCTION	V_S	150, 5	160, 5.6	160, 5.6	l/min, cfm
Flow rate PRESSURE	V_D	—	—	—	l/min
Static pressure difference, SUCTION	Δp_S	1.1	1.2	1.2	mbar
Static pressure difference, PRESSURE	Δp_D	—	—	—	mbar
Expected life	t	1500	1500	1500	h
Acoustic emission level S/D	LpA	45	47	47	dB(A)
Ambient temperature range	T	−20 . . . +65			°C
Weight	m	50			g
Bearings		Sleeve Bearings			

MECHANICAL DATA (inches)

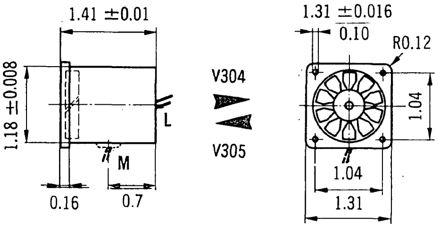
V301
V309


1.41 ±0.01
1.18 ±0.008
L
0.7
M
Air flow
V301
V309

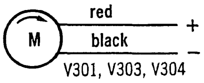
V303
V306


1.41 ±0.01
1.18 ±0.008
L
0.7
M
0.16
V303
V306
0.10
R0.12
1.04
1.04

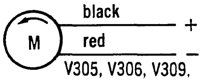
V304
V305


1.41 ±0.01
1.18 ±0.008
L
M
0.16
0.7
V304
V305
1.31 ±0.016
0.10
R0.12
1.04
1.04
1.31

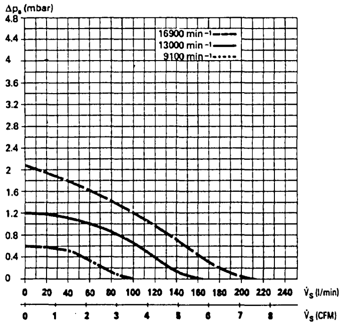
WIRING DATA


M
red
black
+
−
V301, V303, V304

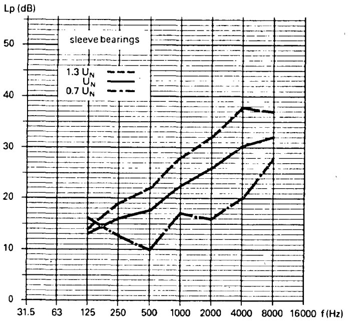
Connecting leads min.
7.88 inches long


M
black
red
+
−
V305, V306, V309.

AIRFLOW PERFORMANCE GRAPH



ACOUSTIC EMISSION GRAPH



V301

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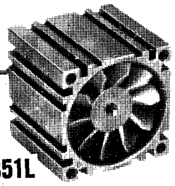
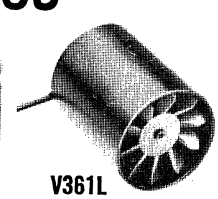
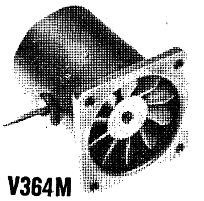
VISTA, CA 92083
(619) 727-7400

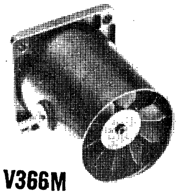
DC miniature fans

V351-V359
V361-V369


V351L


V361L


V364M

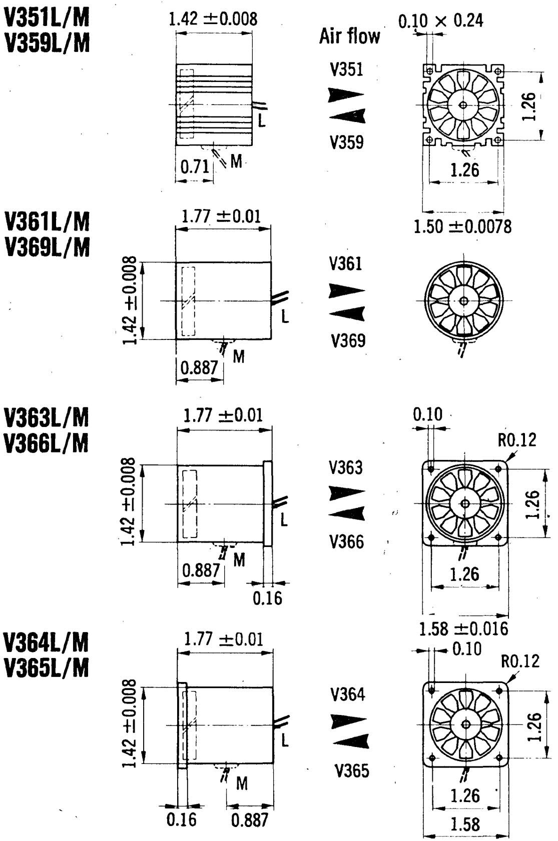

V366M

- ☐ Flange types for simple mounting with M2.5 screws or self-tapping M3 screws
- ☐ Electrical connection with red and black stranded wires
- ☐ V351 and V359 mounting with self-tapping M3 screws on front or rear of fan
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber

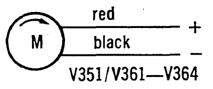
TECHNICAL DATA

Nominal voltage	U_N	6	12	24	V
Nominal current max.	I_N	320	100	50	mA
Nominal power input	P_N	1.92	1.20	1.20	W
Stall current	I_H	1,300	740	370	mA
Speed typically	n	12,000	13,000	13,000	min⁻¹
Flow rate SUCTION	V_S	280, 9.8	300, 10.5	300, 10.5	l/min, cfm
Flow rate PRESSURE	V_D	330, 11.55	360, 126	360, 12.6	l/min, cfm
Static pressure difference, SUCTION	Δp_S	1.50	1.70	1.70	mbar
Static pressure difference, PRESSURE	Δp_D	0.80	0.90	0.90	mbar
Expected life	t	1,500	1,500	1,500	h
Acoustic emission level S/D	LpA	45/52	47/53	47/53	dB(A)
Ambient temperature range	T	−20 . . . +65			°C
Weight	m	50			g
Bearings		Sleeve Bearings			

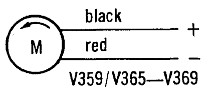
MECHANICAL DATA (inches)


V351L/M
V359L/M
1.42 ±0.008
L
0.71
M
Air flow
V351
V359
0.10 × 0.24
1.26
1.26
1.50 ±0.0078
V361L/M
V369L/M
1.77 ±0.01
1.42 ±0.008
L
0.887
M
V361
V369
V363L/M
V366L/M
1.77 ±0.01
1.42 ±0.008
L
0.887
M
0.16
V363
V366
0.10
R0.12
1.26
1.26
1.58 ±0.016
V364L/M
V365L/M
1.77 ±0.01
1.42 ±0.008
L
M
0.16
0.887
V364
V365
0.10
R0.12
1.26
1.26
1.58

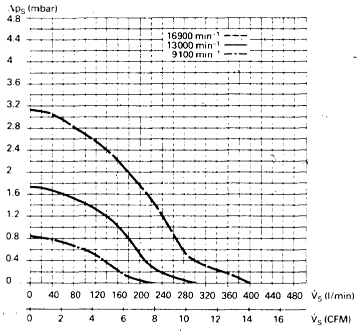
WIRING DATA


M
red
black
+
–
V351/V361—V364

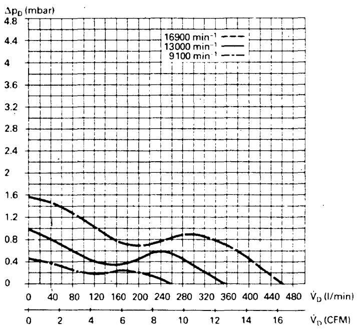
Connecting leads min. 7.88 inches long


M
black
red
+
–
V359/V365—V369

AIRFLOW PERFORMANCE GRAPH

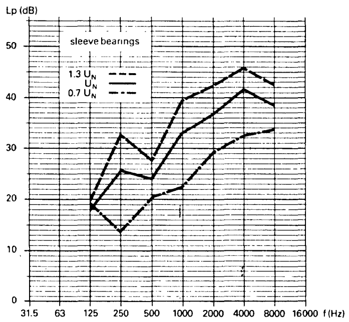


V361-V364

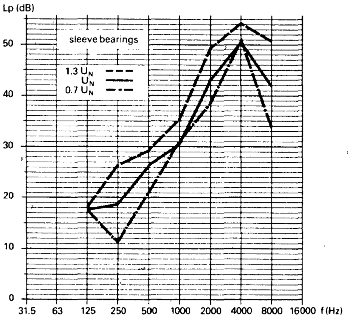


V365-V369

ACOUSTIC EMISSION GRAPH



V351/V361-V364



V359/V365-V369

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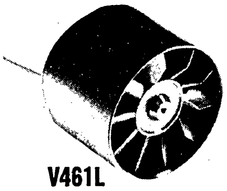
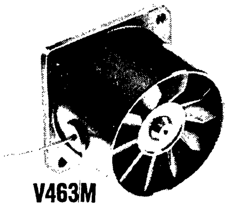
DC miniature fans

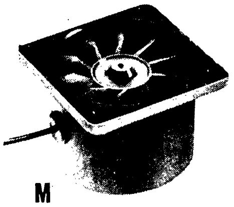
V461-V469



V461L



V463M



M

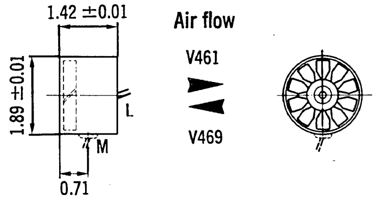
- ☐ Housing and motor support of black anodized aluminium
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Flange 'V464 for simple mounting with M3 screws
- ☐ Electrical connection with red and black stranded wires

TECHNICAL DATA

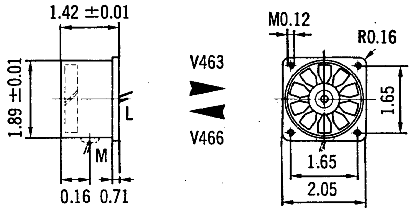
Nominal voltage	U_N	6	12	V
Nominal current max.	I_N	30	20	mA
Nominal power input	P_N	0.18	0.24	W
Stall current	I_H	260	140	mA
Speed typically	n	4,200	4,200	min^{-1}
Flow rate SUCTION	V_S	260, 9.1	260, 9.1	l/min, cfm
Flow rate PRESSURE	V_D	310, 10.9	310, 10.9	l/min, cfm
Static pressure difference, SUCTION	Δp_S	0.32	0.32	mbar
Static pressure difference, PRESSURE	Δp_D	0.22	0.22	mbar
Expected life	t	5,000	5,000	h
Acoustic emission level S/D	LpA	27/28	27/28	dB(A)
Ambient temperature range	T	−20 . . . +65		°C
Weight	m	80		g
Bearings		Sleeve bearings		

MECHANICAL DATA (inches)

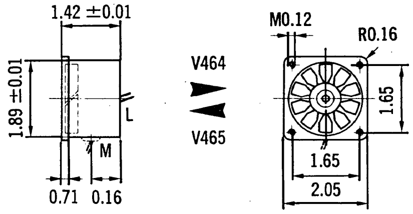
V461L/M
V469L/M


1.42 ±0.01
Air flow
V461
V469
1.89 ±0.01
L
M
0.71

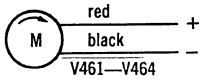
V463L/M
V466L/M


1.42 ±0.01
M0.12
R0.16
V463
V466
1.89 ±0.01
L
M
1.65
1.65
2.05
0.16 0.71

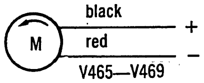
V464L/M
V465L/M


1.42 ±0.01
M0.12
R0.16
V464
V465
1.89 ±0.01
L
M
1.65
1.65
2.05
0.71 0.16

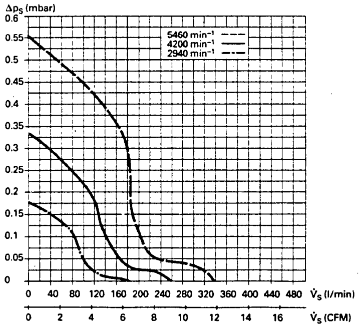
WIRING DATA


red
+
M
black
−
V461—V464

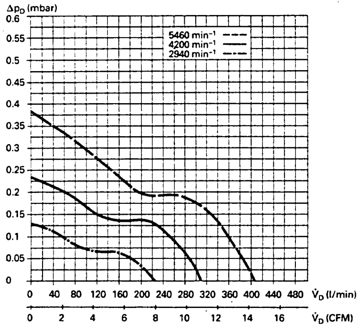
Connecting leads min. 7.88 inches long


black
+
M
red
−
V465—V469

AIRFLOW PERFORMANCE GRAPHS

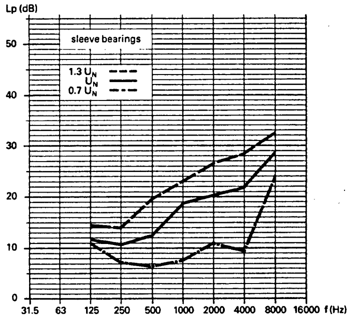


V461-V464

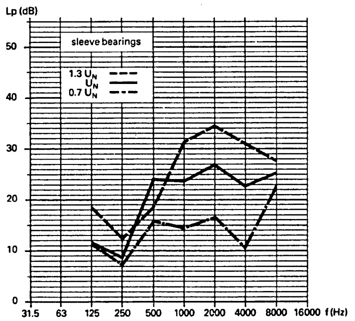


V465-V469

ACOUSTIC EMISSION GRAPHS



V461-V464



V465-V469

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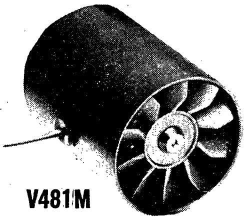
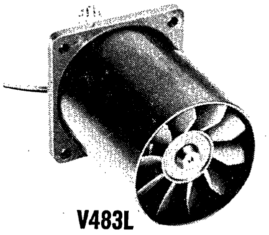
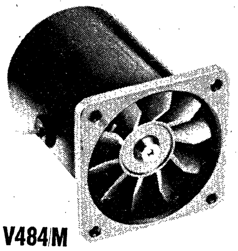
DC miniature fans

V481-V489


V481M


V483L


V484M

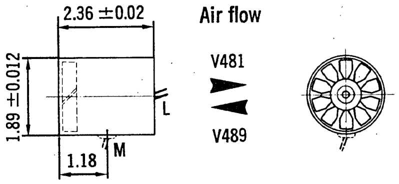
- ☐ Housing and motor support of black anadozied aluminium
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ Electrical connection with red and black stranded wires

TECHNICAL DATA

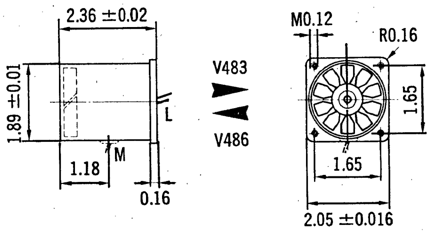
Nominal voltage	U_N	12	24	V
Nominal current max.	I_N	350	170	mA
Nominal power input	P_N	4.20	4.08	W
Stall current	I_H	7.70	3	mA
Speed typically	n	11,000	11,000	min^{-1}
Flow rate SUCTION	V_S	610, 21.4	610, 21.4	l/min, cfm
Flow rate PRESSURE	V_D	720, 25.2	720, 25.2	l/min, cfm
Static pressure difference, SUCTION	Δp_S	2.25	2.25	mbar
Static pressure difference, PRESSURE	Δp_D	1.00	1.00	mbar
Expected life	t	12,000	12,000	h
Acoustic emission level S/D	LpA	55/58	55/58	dB(A)
Ambient temperature range	T	−20 . . . +65		°C
Weight	m	180		g
Bearings		Ball bearings		

MECHANICAL DATA (inches)

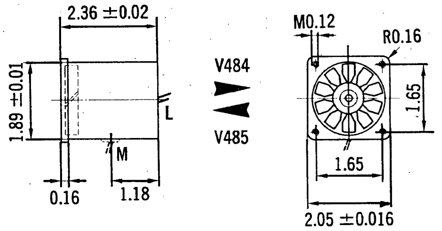
V481L/M
V489L/M


2.36 ±0.02
1.89 ±0.012
L
M
1.18
Air flow
V481
V489

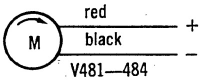
V483L/M
V486L/M


2.36 ±0.02
1.89 ±0.01
L
M
1.18
0.16
V483
V486
M0.12
R0.16
1.65
1.65
2.05 ±0.016

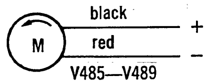
V484L/M
V485L/M


2.36 ±0.02
1.89 ±0.01
L
M
0.16
1.18
V484
V485
M0.12
R0.16
1.65
1.65
2.05 ±0.016

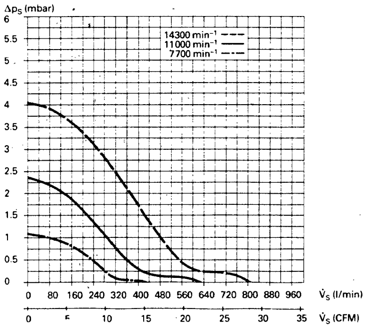
WIRING DATA


M
red
black
+
−
V481—484

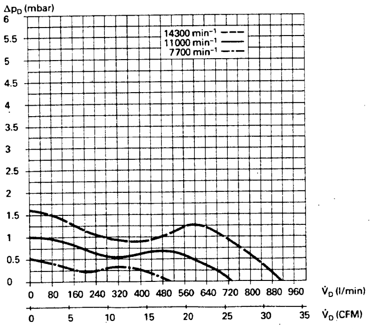
Connecting leads min. 7.88 inches long


M
black
red
+
−
V485—V489

AIRFLOW PERFORMANCE GRAPHS

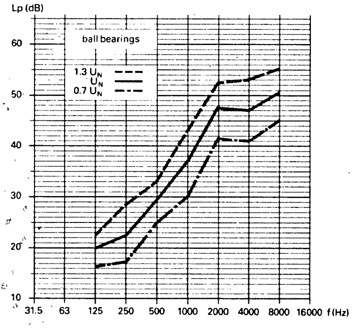


V481-V484

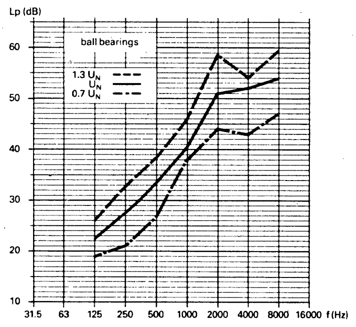


V485-V489

ACOUSTIC EMISSION GRAPHS



V481-V484



V485-V489

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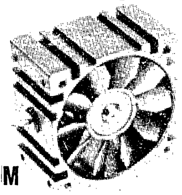
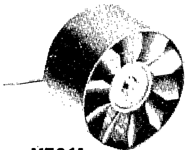
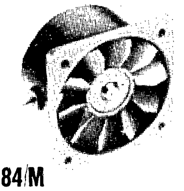
DC miniature fans

V571-V579
V581-V589


V571M


V581L


V584M

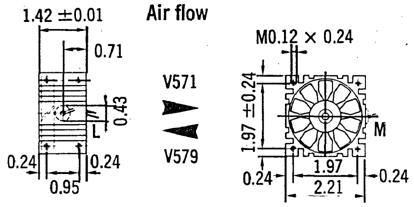
- ☐ Housing and motor support of black anodized aluminum. Types V571 and V579 alternatively available also in black glass-fiber-reinforced plastic
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ V571 and V579 mounting with M3 screws on front, rear or side of fan
- ☐ Electrical connection with red and black stranded wires

TECHNICAL DATA

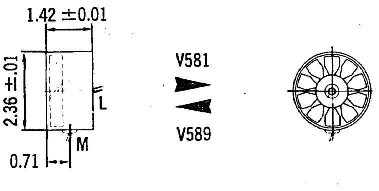
Nominal voltage	U_N	6	12	V
Nominal current max.	I_N	60	35	mA
Nominal power input	P_N	0.36	0.42	W
Stall current	I_H	260	140	mA
Speed typically	n	3,700	3,700	min⁻¹
Flow rate SUCTION	V_S	520, 18	520, 18	l/min, cfm
Flow rate PRESSURE	V_D	540, 19	540, 19	l/min, cfm
Static pressure difference, SUCTION	Δp_S	0.37	0.37	mbar
Static pressure difference, PRESSURE	Δp_D	0.32	0.32	mbar
Expected life	t	5,000	5,000	h
Acoustic emission level S/D	LpA	27/37	27/37	dB(A)
Ambient temperature range	T	−20 . . . +65		°C
Weight	m	160/90		g
Bearings		Sleeve bearings		

MECHANICAL DATA (inches)

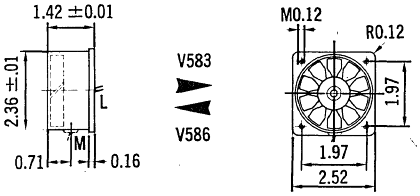
V571L/M
V579L/M


1.42 ±0.01
0.71
0.43
L
0.24
0.24
0.95
Air flow
V571
V579
M0.12 × 0.24
1.97 ±0.24
M
1.97
2.21
0.24
0.24

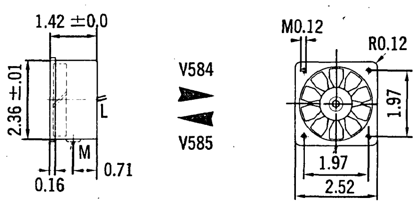
V581L/M
V589L/M


1.42 ±0.01
2.36 ±.01
L
M
0.71
V581
V589

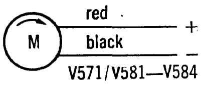
V583L/M
V586L/M


1.42 ±0.01
2.36 ±.01
L
M
0.71
0.16
V583
V586
M0.12
R0.12
1.97
1.97
2.52

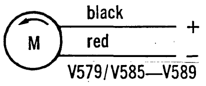
V584L/M
V585L/M


1.42 ±0,0
2.36 ±.01
L
M
0.16
0.71
V584
V585
M0.12
R0.12
1.97
1.97
2.52

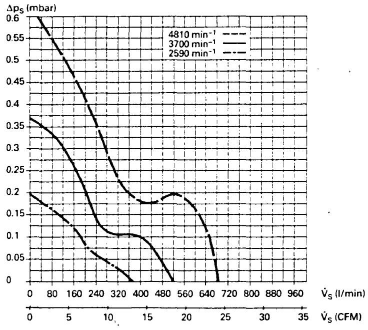
WIRING DATA


red
black
M
+
–
V571/V581—V584

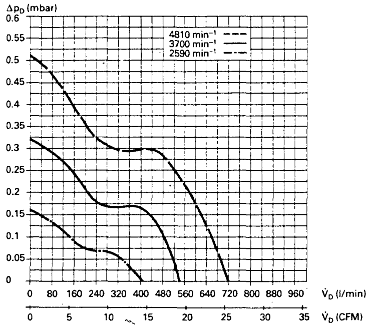
Connecting leads min. 7.88 inches long


black
red
M
+
–
V579/V585—V589

AIRFLOW PERFORMANCE GRAPHS

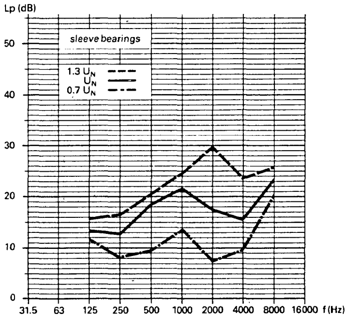


V571/V581-V584

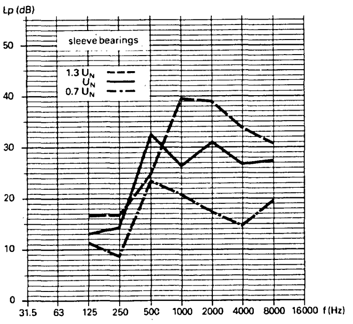


V579/V585-V589

ACOUSTIC EMISSION GRAPHS



V571/V581-V584



V579/V585-V589

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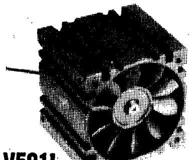
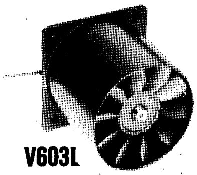
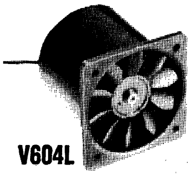
DC miniature fans

V591-V599
V601-V609


V591L


V603L


V604L

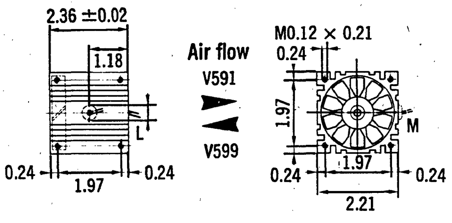
- ☐ Housing and motor support of black anodized aluminium
- ☐ Black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ V591 and V599 mounting with M3 screws on front, rear or side of fan
- ☐ Electrical connection with red and black stranded wires

TECHNICAL DATA

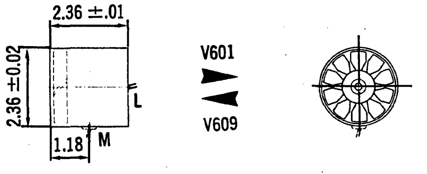
Nominal voltage	U_N	12	24	V
Nominal current max.	I_N	700	300	mA
Nominal power input	P_N	8.40	7.20	W
Stall current	I_H	7.70	3	mA
Speed typically	n	10,200	10,200	min⁻¹
Flow rate SUCTION	V_S	1,300, 46	1,300, 46	l/min, cfm
Flow rate PRESSURE	V_D	1,500, 53	1,500, 53	l/min, cfm
Static pressure difference, SUCTION	Δp_S	3.30	3.30	mbar
Static pressure difference, PRESSURE	Δp_D	2.30	2.30	mbar
Expected life	t	12,000	12,000	h
Acoustic emission level S/D	LpA	56/63	56/63	dB(A)
Ambient temperature range	T	−20 . . . +65		°C
Weight V590/V600	m	310/195		g
Bearings		Ball bearings		

MECHANICAL DATA (inches)

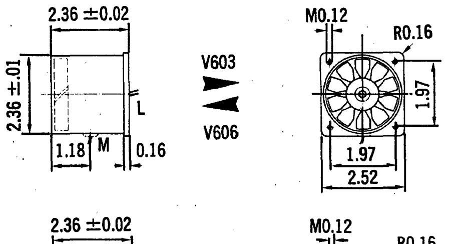
V591L/M
V599L/M


2.36 ±0.02
1.18
L
0.24
1.97
0.24
Air flow
V591
V599
M0.12 × 0.21
0.24
1.97
M
0.24
1.97
0.24
2.21

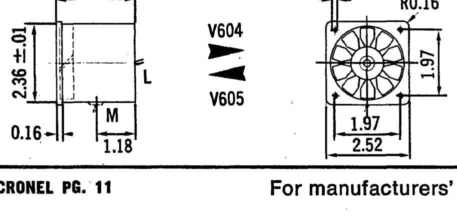
V601L/M
V609L/M


2.36 ±.01
2.36 ±0.02
L
1.18
M
V601
V609

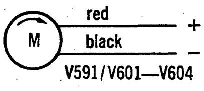
V603L/M
V606L/M


2.36 ±0.02
2.36 ±.01
L
1.18
M
0.16
V603
V606
M0.12
R0.16
1.97
1.97
2.52

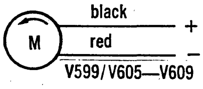
V604L/M
V605L/M


2.36 ±0.02
2.36 ±.01
L
0.16
M
1.18
V604
V605
M0.12
R0.16
1.97
1.97
2.52

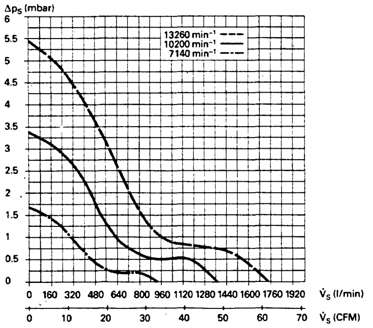
WIRING DATA


M
red
black
+
–
V591/V601—V604

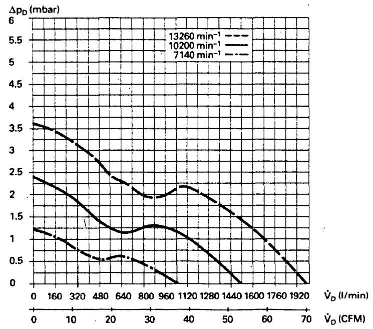
Connecting leads min. 7.88 inches long


M
black
red
+
–
V599/V605—V609

AIRFLOW PERFORMANCE GRAPHS

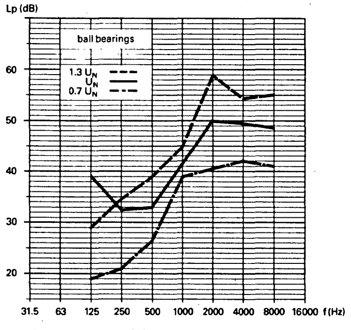


V591/V601-V604

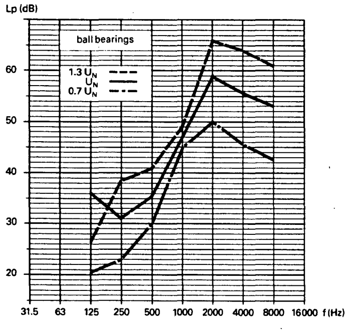


V599/V605-V609

ACOUSTIC EMISSION GRAPHS



V591/V601-V604



V599/V605-V609

DC miniature fans

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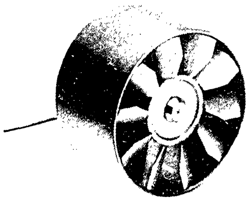
VD 65

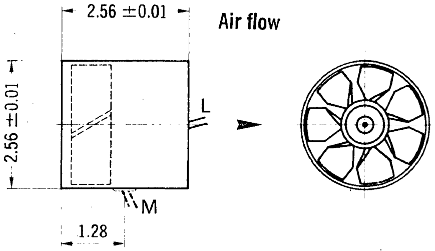


TECHNICAL DATA

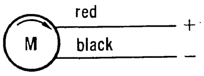
Nominal voltage	U_N	24	24	V
Nominal current max.	I_N	220	380	mA
Nominal power input	P_N	5.28	9.12	W
Stall current	I_H	1.7	2.8	A
Speed typically	n	7,500	8,800	min⁻¹
Flow rate	V	1,200, 42	1,450, 51	l/min, cfm
Static pressure difference	Δp	1.7	2.2	mbar
Expected life	t	15,000	15,000	h
Acoustic emission level	LpA	53	55	dB(A)
Ambient temperature range	T	−20 . . . +65		°C
Weight	m	170		g
Bearings		Ball bearings		

MECHANICAL DATA (inches)

VD 65 L/M

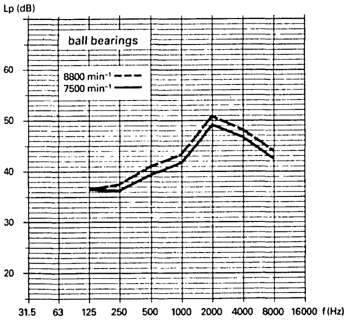


WIRING DATA

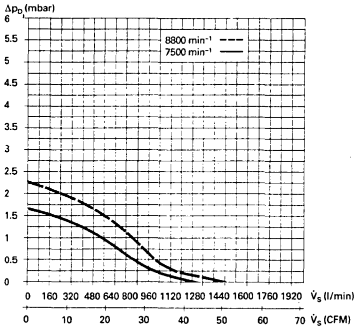


Connecting leads min. 7.88 inches long.

ACOUSTIC EMISSION GRAPH



AIRFLOW PERFORMANCE GRAPH



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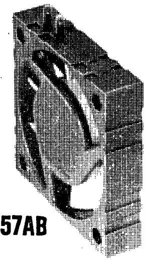
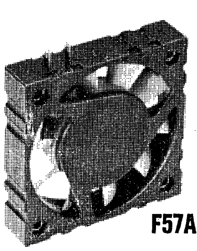
DC brushless ultra-slim fans

F57



F57AB



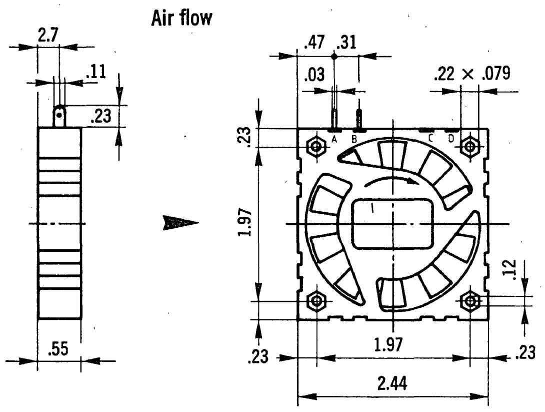
F57AB

- ☐ Housing of blue or black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Impeller of light-grey or black polyphenylene oxide, UL 94 V-1 20% glass fiber
- ☐ Mounting with M3 screws
- ☐ Mounting possible in any orientation
- ☐ Electrical connection by two flat tabs .11 × .03 inches

TECHNICAL DATA

Nominal voltage	U_N	5	12	24	V
Voltage range	U	3.5—7.5	8.5—18	17—36	V
Nominal current max.	I_N	250	110	45	mA
Nominal power	P_N	1.3	1.3	1.1	W
Stall current	I_H	250	110	45	mA
Speed typically	n	3,400	3,400	3,400	min^{-1}
Flow rate	V	320, 11	320, 11	320, 11	l/min, cfm
Static pressure difference	Δp	0.18	0.18	0.18	mbar
Expected life	t	15,000	15,000	15,000	h
Acoustic emission level	LpA	32	32	32	dB(A)
Ambient temperature range	T	−20 . . . +55			°C
Weight	m	45			g
Bearings		Sleeve bearings (spherical)			

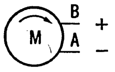
MECHANICAL DATA (inches)



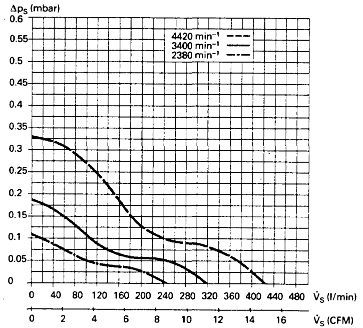
Diameter of air inlet/outlet ⌀ 59 mm

WIRING DATA

CONNECTIONS

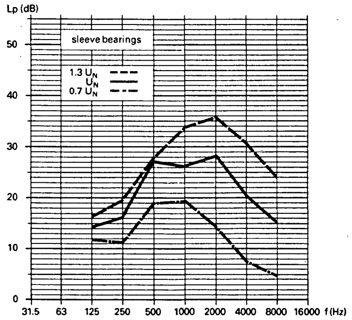


AIRFLOW PERFORMANCE GRAPHS



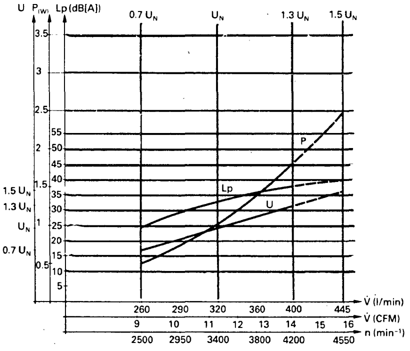
F57AB

ACOUSTIC EMISSION GRAPHS



F57AB

RANGE OF OPERATION



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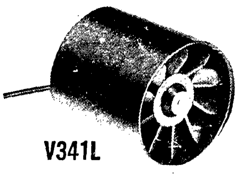
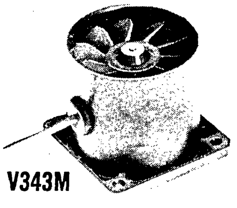
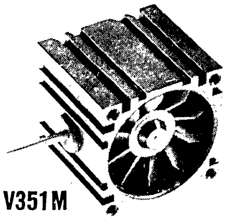
AC miniature fans

V341-V349 AC-50/60 Hz
V351-V359


V341L


V343M


V351M

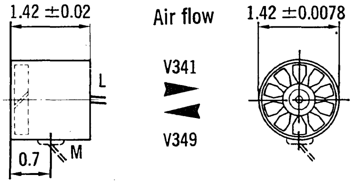
- ☐ Housing and impeller of black polyphenylene sulfide 40% glass fiber
- ☐ Flange types for simple mounting with M2.5 screws or self-tapping #4 plastic-lok screws
- ☐ V351 and V359 mounting with self-tapping #4 plastic-lok screws on front or rear of fan
- ☐ Electrical connection according to diagram
- ☐ External capacitor required

TECHNICAL DATA

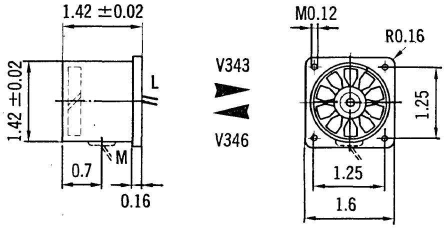
Nominal voltage	U_N	12		24		V
Frequency	f	50	60	50	60	Hz
Nominal current max.	I_N	230	245	125	135	mA
Nominal power input	P_N	2.76	2.94	3.00	3.24	VA
Stall current	I_H	230	245	125	135	mA
Speed typically	n	3,000	3,600	3,000	3,600	min^{-1}
Flow rate SUCTION/PRESSURE	$V_{S/D}$	1.9/1.6	2.5/1.9	1.9/1.6	2.5/1.9	cfm
Static pressure difference SUCTION/ PRESSURE	$\Delta p_{S/D}$	$\leqq 0.1$	~ 0.1	< 0.1	< 0.1	mbar
Acoustic emission level S/D	LpA	14/13	13/16	14/13	13/16	dB(A)
Expected life	t	15,000		15,000		h
Capacitor: Capacitance	C	18		3.3		µF
Voltage over C min.	U_C	25		50		V
Current load min.	I_C	85		45		mA
Ambient temperature range	T	−20 . . . +65				°C
Weight V340/V350	m	36/48				g
Bearings		Sleeve bearings (Ball bearings on request)				

MECHANICAL DATA (inches)

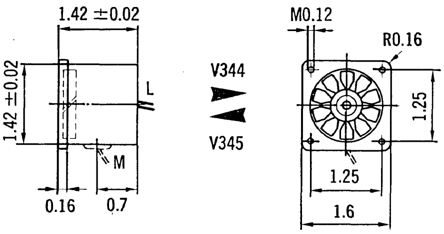
V345L/M
V349L/M


1.42 ±0.02
L
0.7
M
Air flow
V341
V349
1.42 ±0.0078

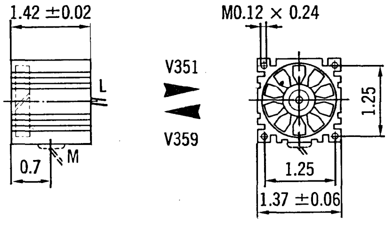
V343L/M
V346L/M


1.42 ±0.02
1.42 ±0.02
L
0.7
M
0.16
V343
V346
M0.12
R0.16
1.25
1.25
1.6

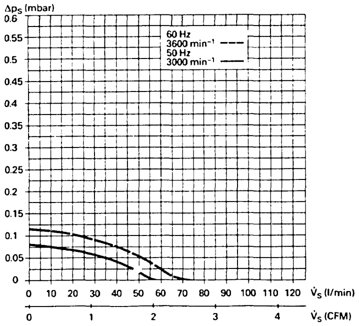
V344L/M
V345L/M


1.42 ±0.02
1.42 ±0.02
L
M
0.16
0.7
V344
V345
M0.12
R0.16
1.25
1.25
1.6

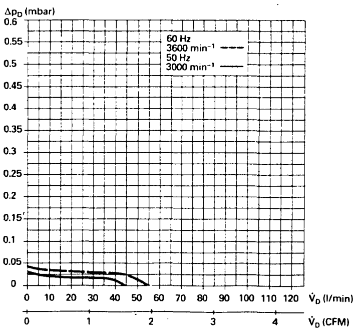
V351L/M
V359L/M


1.42 ±0.02
L
0.7
M
V351
V359
M0.12 × 0.24
1.25
1.25
1.37 ±0.06

AIRFLOW PERFORMANCE GRAPHS



V341-V344/V351

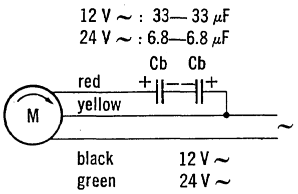


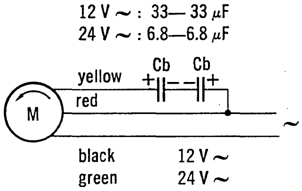
V345-V349/V359

ACOUSTIC EMISSION GRAPHS

Acoustic emission of these types is below the noise level of an ordinary room. The establishing of an acoustic emission graph can therefore be dispensed with.

WIRING DATA


12 V ~ : 33— 33 µF
24 V ~ : 6.8—6.8 µF
Cb Cb
red
yellow
M
~
black 12 V ~
green 24 V ~


12 V ~ : 33— 33 µF
24 V ~ : 6.8—6.8 µF
Cb Cb
yellow
red
M
~
black 12 V ~
green 24 V ~

Cb = 2 electrolytic capacitors connected back to back.
Connecting leads min. 7.88 inches long

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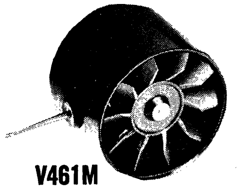
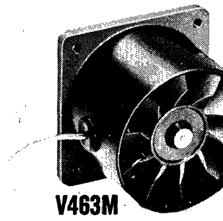
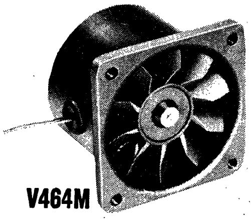
AC miniature fans
V461-V469


V461M


V463M


V464M

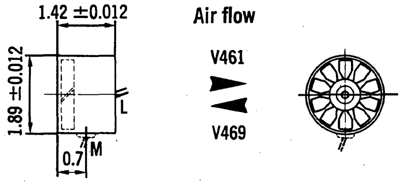
- ☐ Housing of black anodized aluminium
- ☐ Impeller and motor support of black polyphenylene sulfide 40% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ Electrical connection according to diagram
- ☐ Capacitors integrated

TECHNICAL DATA

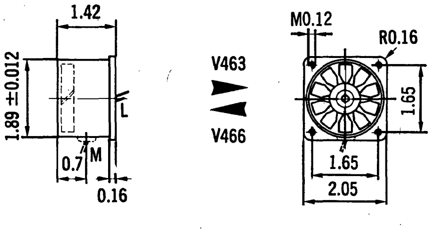
Nominal voltage	U_N	12		24		V
Frequency	f	50	60	50	60	Hz
Nominal current max.	I_N	240	275	130	140	mA
Nominal power input	P_N	2.88	3.30	3.12	3.36	VA
Stall current	I_H	240	275	130	140	mA
Speed typically	n	3,000	3,600	3,000	3,600	min^{-1}
Flow rate SUCTION	V_S	110, 3.9	135, 4.8	110, 3.9	135, 4.8	l/min, cfm
Flow rate PRESSURE	V_D	155, 5.4	190, 6.7	155, 5.4	190, 6.7	l/min, cfm
Static pressure difference, SUCTION	Δp_S	0.15	0.23	0.15	0.23	mbar
Static pressure difference, PRESSURE	Δp_D	0.10	0.15	0.10	0.15	mbar
Acoustic emission level S/D	LpA	14/19	19/26	14/19	19/26	h
Expected life	t	15,000		15,000		dB(A)
Ambient temperature range	T	−20 ... +65				°C
Weight	m	85				g
Bearings		Sleeve bearings (Ball bearings on request)				

MECHANICAL DATA (inches)

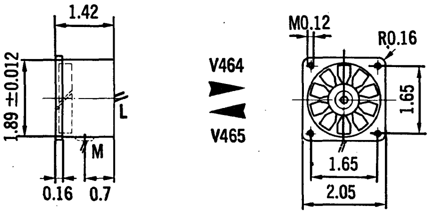
V461L/M
V469L/M


1.42 ±0.012
1.89 ±0.012
L
0.7
M
Air flow
V461
V469

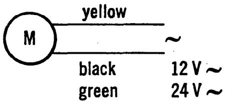
V463L/M
V466L/M


1.42
1.89 ±0.012
L
0.7
M
0.16
V463
V466
M0.12
R0.16
1.65
1.65
2.05

V464L/M
V465L/M

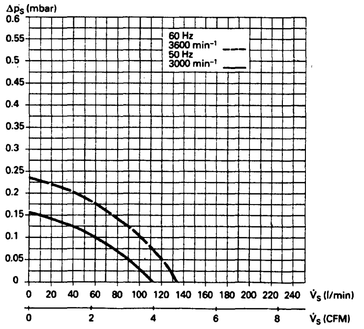

1.42
1.89 ±0.012
L
M
0.16
0.7
V464
V465
M0.12
R0.16
1.65
1.65
2.05

WIRING DATA

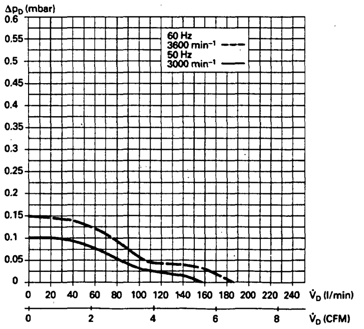

M
yellow
~
black
12 V ~
green
24 V ~

Connecting leads min. 7.88 inches long

AIRFLOW PERFORMANCE GRAPHS

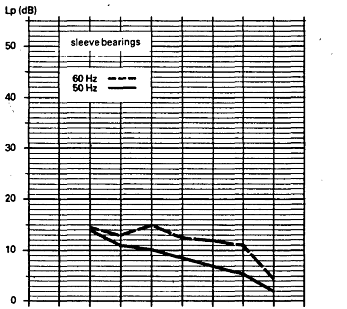


V461-V464

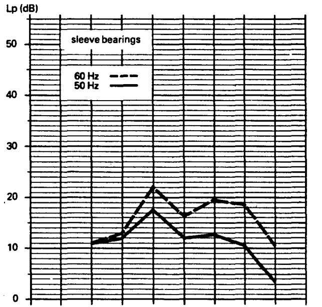


V465-V469

ACOUSTIC EMISSION GRAPHS



V461-V464



V465-V469

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VISTA, CA 92083
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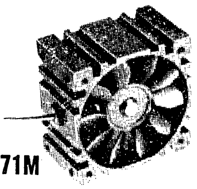
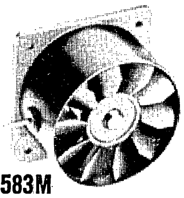
AC miniature fans

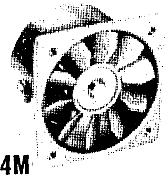
V571-V579
V581-V589



V571M



V583M



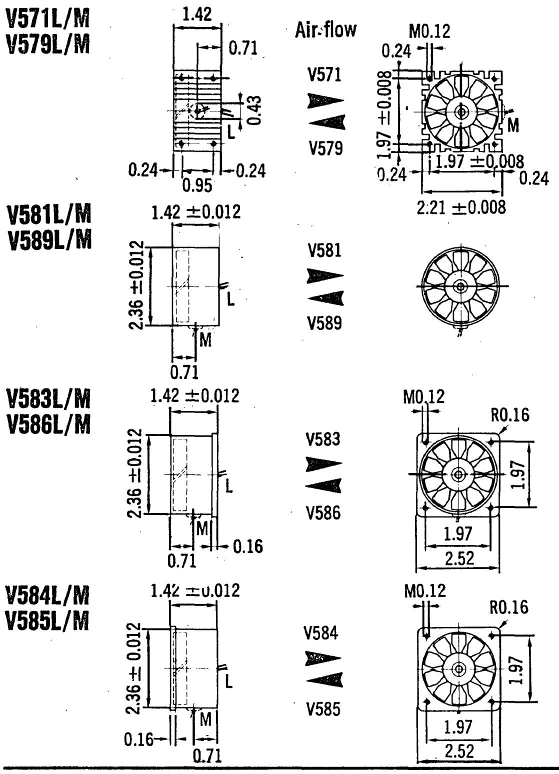
V584M

- ☐ Housing of black anodized aluminum
- ☐ Impeller and motor support of black polyphenylene sulfide 40% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ V571 and V579 mounting with M3 screws on front, rear or side of fan
- ☐ Electrical connection according to diagram
- ☐ Capacitors integrated

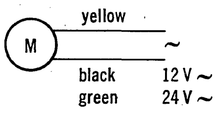
TECHNICAL DATA

Nominal voltage	U_N	12		24		V
Frequency	f	50	60	50	60	Hz
Nominal current max.	I_N	260	275	130	140	mA
Nominal power input	P_N	3.12	3.30	3.12	3.36	VA
Stall current	I_H	260	275	130	140	mA
Speed typically	n	3,000	3,600	3,000	3,600	min⁻¹
Flow rate SUCTION	V_S	310, 10.9	400, 14	310, 10.9	390, 13.7	l/min, cfm
Flow rate PRESSURE	V_D	420, 15	480, 17	420, 15	480, 17	l/min, cfm
Static pressure difference, SUCTION	Δp_S	0.25	0.33	0.25	0.33	mbar
Static pressure difference, PRESSURE	Δp_D	0.20	0.22	0.20	0.22	mbar
Acoustic emission level S/D	LpA	24/30	29/36	24/30	29/36	h
Expected life	t	15,000		15,000		dB(A)
Ambient temperature range	T	−20 ... +65				°C
Weight V570/V580	m	168/95				g
Bearings		Sleeve bearings (Ball bearings on request)				

MECHANICAL DATA (inches)

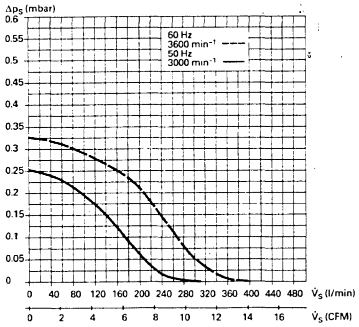

V571L/M
V579L/M
1.42
0.71
0.43
L
0.24
0.24
0.95
Air-flow
V571
V579
M0.12
0.24
1.97 ±0.008
M
1.97 ±0.008
0.24
0.24
2.21 ±0.008
V581L/M
V589L/M
1.42 ±0.012
2.36 ±0.012
L
M
0.71
V581
V589
V583L/M
V586L/M
1.42 ±0.012
2.36 ±0.012
L
M
0.16
0.71
V583
V586
M0.12
R0.16
1.97
1.97
2.52
V584L/M
V585L/M
1.42 ±0.012
2.36 ±0.012
L
M
0.16
0.71
V584
V585
M0.12
R0.16
1.97
1.97
2.52

WIRING DATA

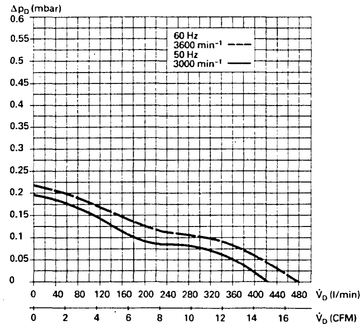

M
yellow
~
black 12 V ~
green 24 V ~

Connecting leads min. 7.88 inches long

AIRFLOW PERFORMANCE GRAPHS

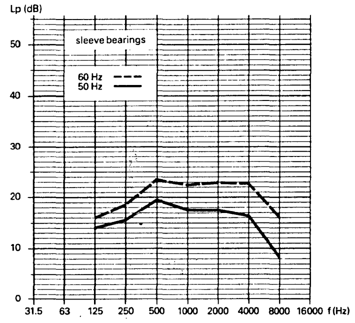


V571/V581-V584

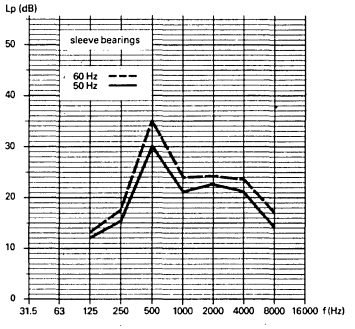


V579/V585-V589

ACOUSTIC EMISSION GRAPHS



V571/V581-V584



V579/V585-V589

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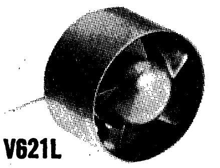
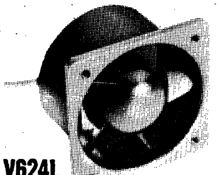
AC miniature fans

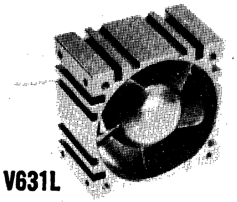
V621-V624 V631



V621L



V624L



V631L

- ☐ Housing and motor support of black anodized aluminum
- ☐ Impeller of black polyphenylene sulfide 40% glass fiber
- ☐ Flange types for simple mounting with M3 screws
- ☐ External capacitor required
- ☐ V631 mounting with M3 screws on front, rear or side of fan
- ☐ Electrical connection according to diagram
- ☐ UL recognized ®Ⓡ 12, 24, 115 and 220 V
- ☐ CSA recognized Ⓢ 12 and 24 V

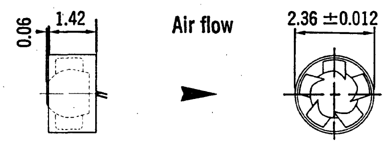
TECHNICAL DATA

Nominal voltage	U_N	12		24		115		220*		V
Frequency	f	50	60	50	60	50	60	50	60	Hz
Nominal current max.	I_N	520	550	280	280	60	65	30	35	mA
Nominal power input	P_N	6.24	6.60	6.72	6.72	6.90	7.47	6.60	7.70	VA
Stall current	I_H	520	550	280	280	60	65	30	35	mA
Speed typically	n	3000	3600	3000	3600	3000	3600	3000	3600	min^{-1}
Flow rate SUCTION	V_S	440, 15	520, 18	440, 15	520, 18	440, 15	520, 18	440, 15	520, 18	l/min cfm
Static pressure difference, SUCTION	Δp_S	0.27	0.38	0.27	0.38	0.27	0.38	0.27	0.38	mbar
Acoustic emission level	LpA	22	28	22	28	22	28	22	28	dB(A)
Expected life	t	15,000		15,000		15,000		15,000		h
Capacitor: Capacitance	C	50		12		2.2		0.68		µF
Voltage over C min.	U_U	25	30	50	60	130		250		V
Current load min.	I_C	300	350	150	180	65	80	40	50	mA
Ambient temperature range	T	−20 . . . +65								°C
Weight V620/V630	m	140/215								g
Bearings		Sleeve bearings (Ball bearings on request)								

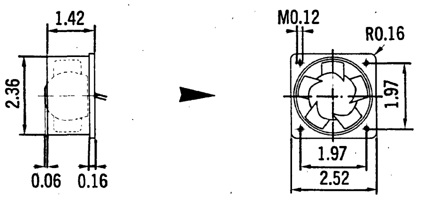
* Also available with motor winding of 80 volts for the use with C-modules (see page 22).

MECHANICAL DATA (inches)

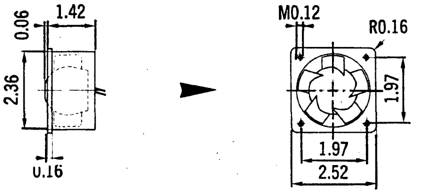
V621L


1.42
0.06
Air flow
2.36 ±0.012

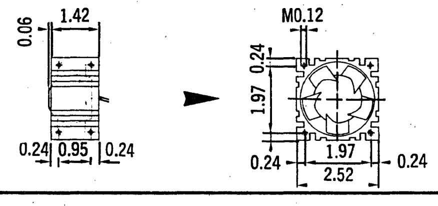
V623L


1.42
2.36
0.06
0.16
M0.12
R0.16
1.97
1.97
2.52

V624L

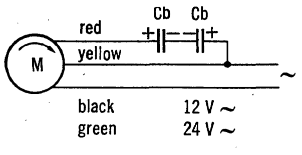

1.42
0.06
2.36
0.16
M0.12
R0.16
1.97
1.97
2.52

V631L


1.42
0.06
0.24
0.95
0.24
M0.12
0.24
1.97
0.24
1.97
0.24
2.52

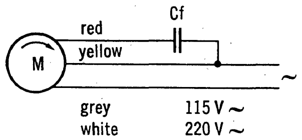
WIRING DATA

12 V ~ : 100—100 µF
24 V ~ : 22— 22 µF

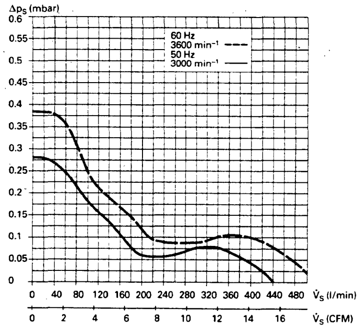

Cb
Cb
red
yellow
M
~
black 12 V ~
green 24 V ~

Cb = 2 electrolytic capacitors connected back to back
Cf = Foil capacitor
Connecting leads min. 7.88 inches long

115 V ~ : 2.2 µF
220 V ~ : 0.68 µF

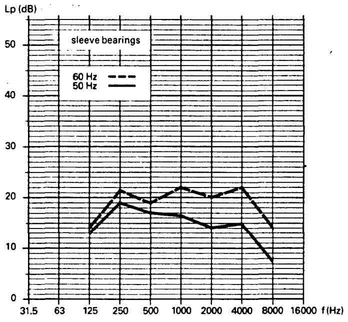

Cf
red
yellow
M
~
grey 115 V ~
white 220 V ~

AIRFLOW PERFORMANCE GRAPHS



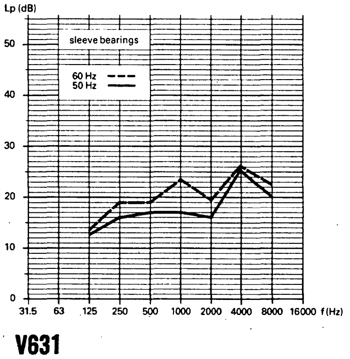
V621-V624/V631

ACOUSTIC EMISSION GRAPHS



V621-V624

Acoustic emission level for V631:
28 dB (A) at 50 Hz and
31 dB (A) at 60 Hz respectively.



V631

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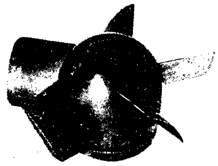
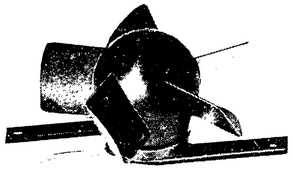
AC miniature fans

V60



V60CL



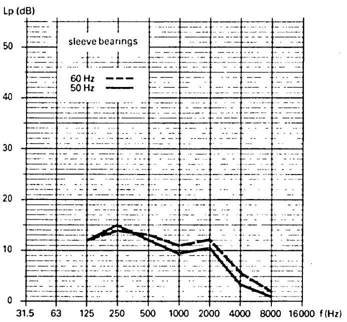
V60TL

- ☐ Propeller of black polycarbonate 100% glass fiber
- ☐ Mounting with M3 screws on flange (CL) or support bar (TL)
- ☐ Electrical connection according to diagram
- ☐ External capacitor required

TECHNICAL DATA

Nominal voltage	U_N	12		24		V
Frequency	f	50	60	50	60	Hz
Nominal current max.	I_N	260	275	130	140	mA
Nominal power input	P_N	3.12	3.30	3.12	3.36	VA
Stall current	I_H	260	275	130	140	mA
Speed typically	n	2,800	3,000	2,800	3,000	min^{-1}
Flow rate SUCTION	V_S	480, 17	540, 19	480, 17	540, 19	l/min, cfm
Acoustic emission level	LpA	16	17	16	17	dB(A)
Expected life	t	15,000		15,000		h
Capacitor: Capacitance	C	25		4.7		µF
Voltage of C min.	U_C	25		50		V
Current load min.	I_C	125	145	55	65	mA
Ambient temperature range	T	−20 . . . +65				°C
Weight	m	55				g
Bearings		Sleeve bearings (Ball bearings on request)				

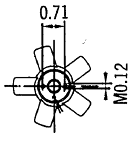
ACOUSTIC EMISSION GRAPHS

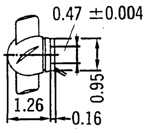


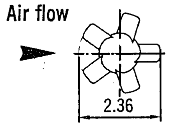
V60CL/V60TL

MECHANICAL DATA (inches)

V60CL

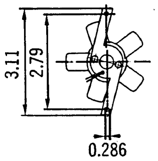


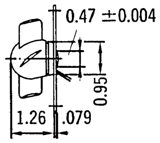


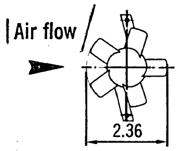


max. depth of thread 3 mm

V60TL



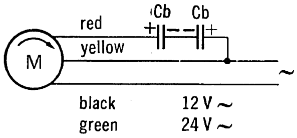




On fans without housing no pressure measurements can be taken.

WIRING DATA

12 V ~ : 47—47 µF
24 V ~ : 10—10 µF



Cb = 2 electrolytic capacitors connected back to back
Connecting leads min. 7.88 inches long

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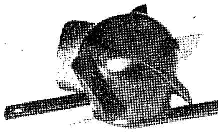
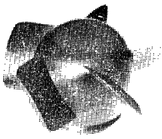
AC miniature fans

V56-V62

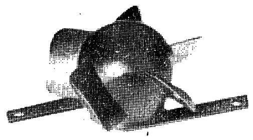
V56CL



V56TL



V62CL



V62TL

- ☐ Propeller of black polycarbonate 100% glass fiber
- ☐ Electrical connection according to diagram
- ☐ Mounting with self-tapping M3 screws on flange (CL) or M3 screws (TL)
- ☐ External capacitor required

TECHNICAL DATA

V56CL/TL

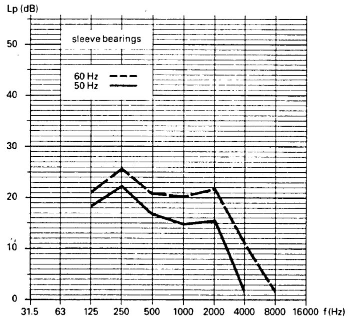
		12		24		115		220*		
Nominal voltage	U_N	12		24		115		220*		V
Frequency	f	50	60	50	60	50	60	50	60	Hz
Nominal current max.	I_N	520	550	280	280	60	65	30	35	mA
Nominal power input	P_N	6.24	6.60	6.72	6.72	6.90	7.47	6.60	7.70	VA
Stall current	I_H	520	550	280	280	60	65	30	35	mA
Speed typically	n	3000	3600	3000	3600	3000	3600	3000	3600	min^{-1}
Flow rate SUCTION	V_S	390, 13.7	480, 17	390, 13.7	480, 17	390, 13.7	480, 17	390, 13.7	480, 17	l/min cfm
Acoustic emission level	LpA	21	27	21	27	21	27	21	27	dB(A)
Expected life	t	15,000		15,000		15,000		15,000		h
Capacitor: Capacitance	C	50		12		2.2		0.68		µF
Voltage over C min.	U_C	25	30	50	60	130		250		V
Current load min.	I_C	300	350	150	180	65	80	40	50	mA
Ambient temperature range	T	−20 . . . +65								°C
Weight	m	120								g
Bearings		Sleeve bearings (Ball bearings on request)								

V62CL/TL

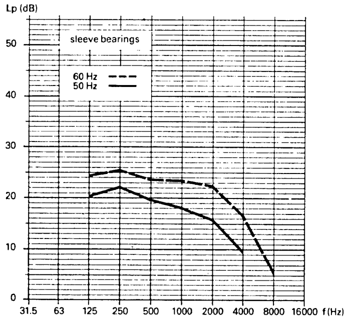
		12		24		115		220*		
Nominal voltage	U_N	12		24		115		220*		V
Frequency	f	50	60	50	60	50	60	50	60	Hz
Nominal current max.	I_N	520	550	280	280	60	65	30	35	mA
Nominal power input	P_N	6.24	6.60	6.72	6.72	6.90	7.47	6.60	7.70	VA
Stall current	I_H	520	550	280	280	60	65	30	35	mA
Speed typically	n	3000	3600	3000	3600	3000	3600	3000	3600	min^{-1}
Flow rate SUCTION	V_S	540, 19	640, 22	540, 19	640, 28	540, 19	640, 22	540, 19	640, 22	l/min cfm
Acoustic emission level	LpA	23	29	23	29	23	29	23	29	dB(A)

Other data identical with data for V56.
* Also available with motor winding of 80 volts for the use with C-modules (see page 22).

ACOUSTIC EMISSION GRAPHS



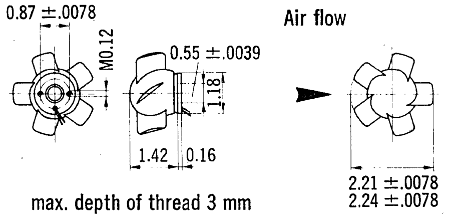
V56CL/V56TL



V62CL/V62TL

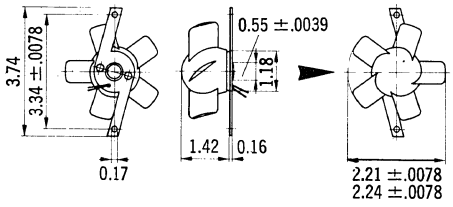
MECHANICAL DATA (inches)

V56CL
V62CL


0.87 ±.0078
M0.12
0.55 ±.0039
1.18
1.42
0.16
Air flow
2.21 ±.0078
2.24 ±.0078

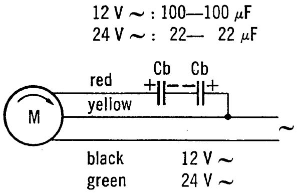
max. depth of thread 3 mm

V56TL
V62TL

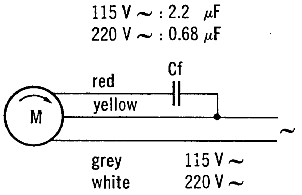

3.74
3.34 ±.0078
0.17
0.55 ±.0039
1.18
1.42
0.16
2.21 ±.0078
2.24 ±.0078

On fans without housing no pressure measurements can be taken.

WIRING DATA


12 V ~ : 100—100 µF
24 V ~ : 22— 22 µF
Cb
Cb
red
yellow
M
~
black 12 V ~
green 24 V ~

Cb = 2 electrolytic capacitors connected back to back
Cf = Foil capacitor
Connecting leads min. 7.88 inches long


115 V ~ : 2.2 µF
220 V ~ : 0.68 µF
Cf
red
yellow
M
~
grey 115 V ~
white 220 V ~

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VISTA, CA 92083
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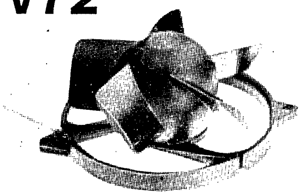
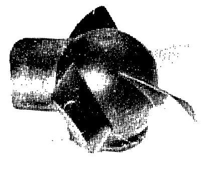
AC miniature fans

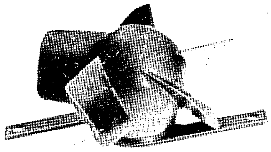
V72



V72PM



V72CL



V72TL

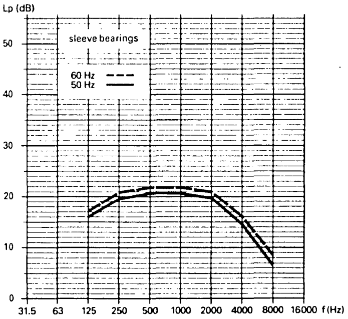
- ☐ Ring (PM) and propeller of black polycarbonate 100% glass fiber
- ☐ Mounting with self-tapping M3 screws on flange (CL) or M3 screws (TL/PM)
- ☐ External capacitor required
- ☐ Electrical connection according to diagram
- ☐ UL recognized 12, 24, 115 and 220 V
- ☐ CSA recognized 12 and 24 V

TECHNICAL DATA

Nominal voltage	U_N	12		24		115		220*		V
Frequency	f	50	60	50	60	50	60	50	60	Hz
Nominal current max.	I_N	520	550	280	280	60	65	30	35	mA
Nominal power input	P_N	6.24	6.60	6.72	6.72	6.90	7.47	6.60	7.70	VA
Stall current	I_H	520	550	280	280	60	65	30	35	mA
Speed typically	n	2900	3350	2900	3350	2900	3350	2900	3350	min^{-1}
Flow rate SUCTION	V_S	660, 23	750, 26.3	660, 23	750, 26.3	660, 23	750, 26.3	660, 23	750, 26.3	l/min cfm
Acoustic emission level	LpA	26	27	26	27	26	27	26	27	dB(A)
Expected life	t	15,000		15,000		15,000		15,000		h
Capacitor: Capacitance	C	50		12		2.2		0.68		µF
Voltage over C min.	U_C	25	30	50	60	130		250		V
Current load min.	I_C	300	350	150	180	65	80	40	50	mA
Ambient temperature range	T	−20 ... +65								°C
Weight	m	120								g
Bearings		Sleeve bearings (Ball bearings on request)								

* Also available with motor winding of 80 volts for the use with C-modules (see page 22).

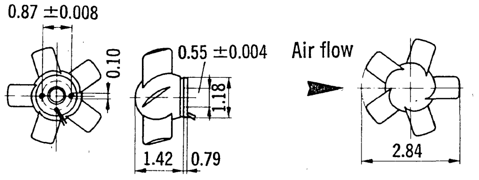
ACOUSTIC EMISSION GRAPHS



V72CL/V72TL/V72PM

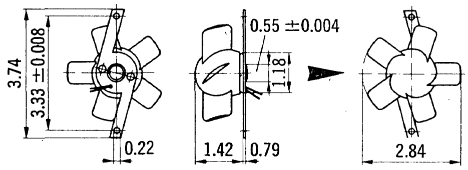
MECHANICAL DATA (inches)

V72CL

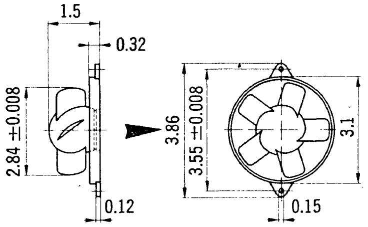


max. depth of thread 3 mm

V72TL

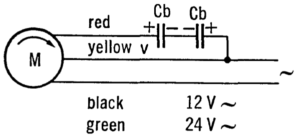


V72PM



WIRING DATA

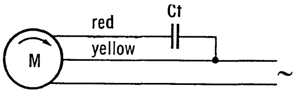
12 V ~ : 100—100 µF
24 V ~ : 22— 22 µF



black 12 V ~
green 24 V ~

Cb = 2 electrolytic capacitors connected back to back
Cf = Foil capacitor
Connecting leads min. 7.88 inches long

115 V ~ : 2.2 µF
220 V ~ : 0.68 µF



grey 115 V ~
white 220 V ~

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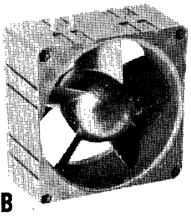
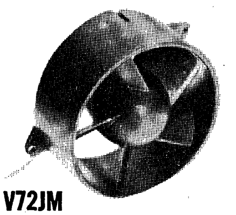
AC miniature fans

V72AB-V72JM



V72AB



V72JM

- ☐ Housing and impeller of black polycarbonate 100% glass fiber
- ☐ Mounting with M3 screws
- ☐ Electrical connection by two flat tabs .11 × .03 inches
- ☐ Capacitor integrated
- ☐ Housing and impeller of black polycarbonate 100% glass fiber
- ☐ Mounting with M3 screws
- ☐ Electrical connection according to diagram
- ☐ External capacitor required
- ☐ UL recognized ® 12, 24, 115 and 220 V
- ☐ CSA recognized 12 and 24 V

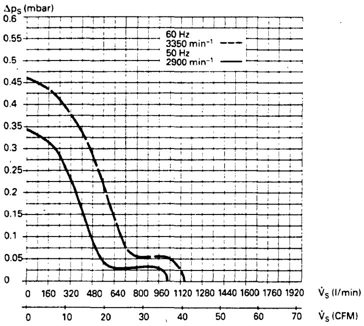
TECHNICAL DATA

Nominal voltage	U_N	12		24		115°		220*		V
Frequency	f	50	60	50	60	50	60	50	60	Hz
Nominal current max.	I_N	520	550	280	280	60	65	30	35	mA
Nominal power input	P_N	6.24	6.60	6.72	6.72	6.90	7.47	6.60	7.70	VA
Stall current	I_H	520	550	280	280	60	65	30	35	mA
Speed typically	n	2900	3350	2900	3350	2900	3350	2900	3350	min^{-1}
Flow rate SUCTION	V_S	1030, 36	1150, 40	1030, 36	1150, 40	1030, 36	1150, 40	1030, 36	1150, 40	l/min cfm
Static pressure difference, SUCTION	Δp_s	0.34	0.46	0.34	0.46	0.34	0.46	0.34	0.46	mbar
Acoustic emission level	LpA	32	36	32	36	32	36	32	36	dB(A)
Expected life	t	15,000		15,000		15,000		15,000		h
Capacitor: Capacitance	C	50		12		2.2		0.68		μF
Voltage over C min.	U_C	25	30	50	60	130		250		V
Current load min.	I_C	300	350	150	180	65	80	40	50	mA
Ambient temperature range	T	−20 . . . +65								°C
Weight V72AB/V72JM	m	190/145								g
Bearings		Sleeve bearings (Ball bearings on request)								

° Type V72AB also with winding for alternative use on 115 V or 220 V.

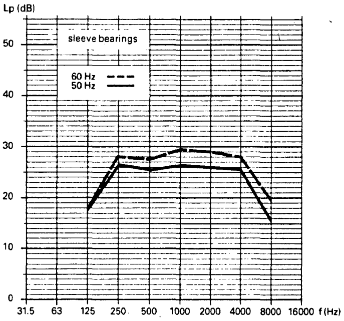
* Also available with motor winding of 80 volts for the use with C-mod ,see page 22).

AIRFLOW PERFORMANCE GRAPH



V72AB/V72JM

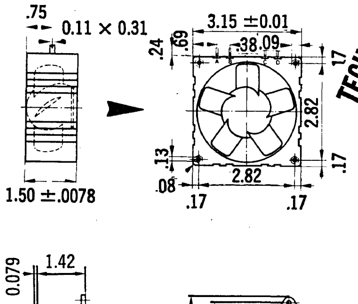
ACOUSTIC EMISSION GRAPH



V72AB/V72JM

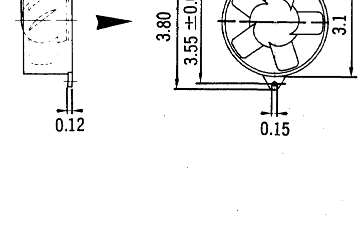
MECHANICAL DATA (inches)

V72JM

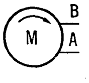


TECHNICAL DATA

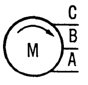
V72AB



WIRING DATA



12, 24, 115, 20 V ~

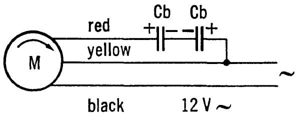


C—A: 115 V ~
B—A: 220 V ~
switchable

A, B, C = connecting tabs 2.8 x 0.8 mm

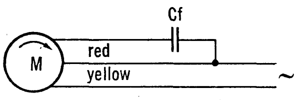
Cb = 2 electrolytic capacitors connected back to back
Cf = Foil capacitor
Connecting leads min. 7.88 inches long

12 V ~ : 100—100 μF
24 V ~ : 22— 22 μF



black 12 V ~
green 24 V ~

115 V ~ 2.2 μF
220 V ~ : 0.68 μF



grey 115 V ~
white 220 V ~

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ACCESSORIES

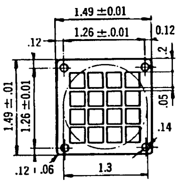
GENERAL

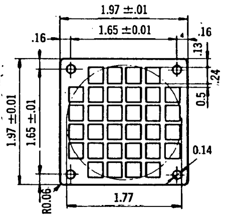
These grids of appealing design are provided to protect the fan aperture. They are also serving as finger protection and thus satisfy the safety class IP 20 according to DIN 40050.

The protection grids are made of aluminium of .08 inches thickness in black finish.

Air delivery will be slightly reduced with the use of grids.

MECHANICAL DATA (inches)


1.49 ±0.01
1.26 ±.0.01
0.12
.12
.2
.24
.05
.14
1.49 ±.01
1.26 ±0.01
.12
.06
1.3

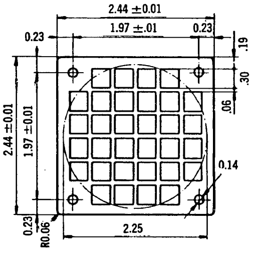

1.97 ±.01
1.65 ±0.01
.16
.16
.13
.24
0.5
0.14
1.97 ±0.01
1.65 ±0.01
R0.06
1.77

For Types:
V343 V363
V344 V364
V345 V365
V346 V366
V351
V359

Order Numbers:
V360X 3B030

For Types:
V463/V483
V464/V484
V465/V485
V466/V486

Order Numbers:
V480X 4C010


2.44 ±0.01
1.97 ±.01
0.23
0.23
.19
.30
.06
0.14
2.44 ±0.01
1.97 ±0.01
0.23
R0.06
2.25

For Types:
V571/V591 V621*
V579/V599 V623*
V583/V603 V624*
V584/V604 V631*
V585/V605
V586/V606 F 57

Order Numbers:
V600X 4D010
V600X 4D011*

D = inside diameter of fan

CAPACITOR MODULES

GENERAL

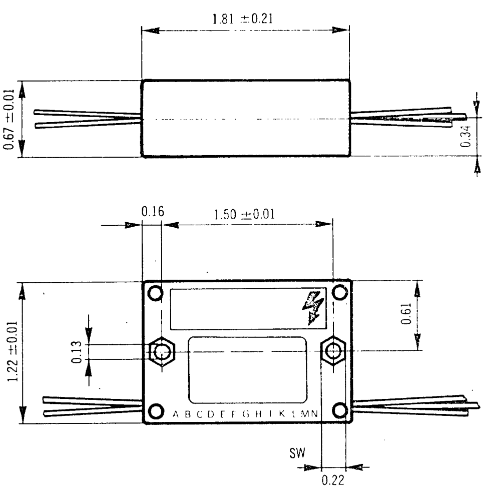
Capacitor modules are available to adapt the fan to the supply voltage. The modules also contain the auxiliary starter capacitors.

The box and lid are of glass-fiber-reinforced black plastic. Mounting by use of two M3 screws. Electrical connection as per diagram.

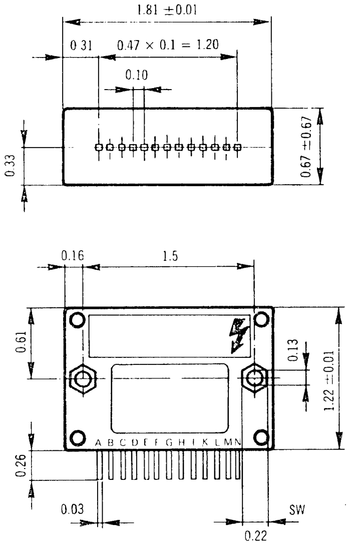
A302L A312L
A303L A313L

A302W A312W
A303W A313W

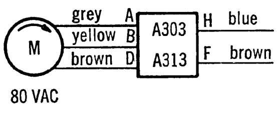
MECHANICAL DATA (inches)

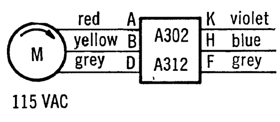

1.81 ±0.21
0.67 ±0.01
0.34
0.16
1.50 ±0.01
1.22 ±0.01
0.13
0.61
A B C D E F G H I K L M N
SW
0.22

Connecting leads AWG 28 min. 180 mm long


1.81 ±0.01
0 31
0.47 × 0.1 = 1.20
0.10
0.33
0.67 ±0.67
0.16
1.5
0.61
0.13
1.22 ±0.01
A B C D E F G H I K L M N
0.26
0.03
SW
0.22

Connecting pins 0.64 □ × 5 mm, suitable for printed circuit board mounting


M
grey A
yellow B
brown D
A303
A313
H blue
F brown
80 VAC


M
red A
yellow B
grey D
A302
A312
K violet
H blue
F grey
115 VAC

A 303	A 313
220 V ~	240 V ~

A 302	A312
K-F 115 V ~	K-F 115 V ~
H-F220 V ~	H-F 240 V ~

unused lead or pin (K or H) is to be insulated

***FLOWMAX*.** Registered Trade Name of NMB Corporation

Axial Motor Fans

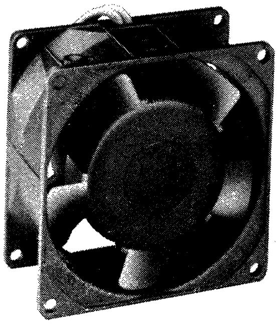


Fig. 1

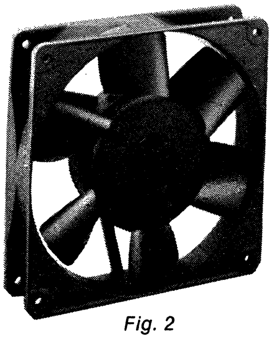


Fig. 2

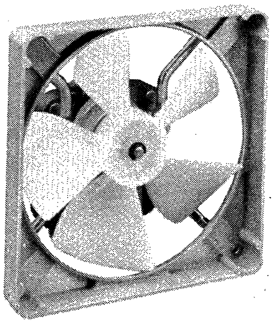


Fig. 3

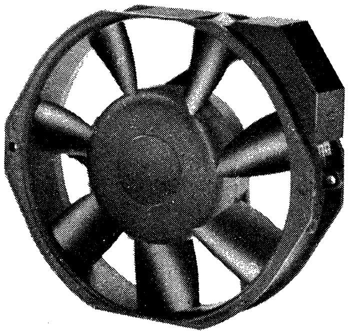


Fig. 4

NOTE: As there are more models than that which can be effectively shown in the space above, these photos, in some cases, only approximate the exact appearance of the product specified.

SDP Part Number	Series	Approx. Size (inches)	Fig. (Ref.)	Speed (RPM)	Hz	Watts	Volts	CFM
	AC MODELS							
D3IN41-4715KTB30	4715PS-12T-B30	4.68 × 1.5	2	2700/3100	50/60	13	115	115
D3IN41-4715KTB20	4715PS-12T-B20	4.68 × 1.5	2	2500	50/60	10	115	85
D3IN41-4715KTB10	4715PS-12T-B10	4.68 × 1.5	2	1500	50/60	6	115	50
D3IN41-4710KTB30	4710PS-12T-B30	4.68 × 1.0	2	2550/2900	50/60	13	115	75
D3IN41-4710KTB20	4710PS-12T-B20	4.68 × 1.0	2	2000	50/60	8	115	52
D3IN41-4710KTB10	4710PS-12T-B10	4.68 × 1.0	2	1700/1800	50/60	7	115	40
D3IN41-3610KTB30	3610PS-12T-B30	3.63 × 1.0	2	2650/3000	50/60	13	115	44
D3IN41-3610KTB20	3610PS-12T-B20	3.63 × 1.0	2	2300/2650	50/60	7	115	31
D3IN41-3610KTB10	3610PS-12T-B10	3.63 × 1.0	2	1600/1800	50/60	6	115	24
D3IN41-3115KWB30	3115PS-12W-B30	3.13 × 1.5	1	2650/3000	50/60	9	115	34
D3IN41-3115KWB20	3115PS-12W-B20	3.13 × 1.5	1	2300/2550	50/60	4	115	24
D3IN41-3115KWB10	3115PS-12W-B10	3.13 × 1.5	1	1650/1850	50/60	4	115	18
D3IN41-3115KWS30	3115PS-12W-S30*	3.13 × 1.5	1	2650/3000	50/60	9	115	34
D3IN41-3115KWS20	3115PS-12W-S20*	3.13 × 1.5	1	2300/2550	50/60	4	115	23
D3IN41-3108KWB30	3108PS-12W-B30	3.13 × 0.8	—	2450/2900	50/60	5	115	16
D3IN41-2412KWB30	2412PS-12W-B30	2.36 × 1.2	1	2300/2800	50/60	5	115	9.5
D3IN41-5915KTB30	5915PC-12T-B30	5.9 × 1.5	4	2700/3100	50/60	16	115	277
D3IN41-5915KTB20	5915PC-12T-B20	5.9 × 1.5	4	2300/2500	50/60	16	115	185
	AC ECONOMY							
D3IN41-4728KWS20	4728QS-12W-S20*	4.68 × 2.8	3	2200	50/60	13	115	81
D3IN41-4730KWS20	4730QS-12W-S20*	4.68 × 3.0	3	2600/2800	50/60	16	115	104
	BRUSHLESS DC MODELS							
D3IN77-4715DWB30	4715PL-04W-B30	4.68 × 1.5	2	3000	—	10.8	12	110
D3IN77-4715EWB30	4715PL-05W-B30	4.68 × 1.5	2	3000	—	10.8	24	110
D3IN77-4710DWB30	4710PL-04W-B30	4.68 × 1.0	2	3000	—	6.3	12	70
D3IN77-4710EWB30	4710PL-05W-B30	4.68 × 1.0	2	3000	—	6.3	24	70
D3IN77-3610DWB30	3610PL-04W-B30	3.63 × 1.0	2	3000	—	3.36	12	37
D3IN77-3610EWB30	3610PL-05W-B30	3.63 × 1.0	2	3000	—	3.36	24	37
D3IN77-3115DWB30	3115PL-04W-B30	3.13 × 1.5	1	3000	—	2.88	12	32
D3IN77-3115EWB30	3115PL-05W-B30	3,13 × 1.5	1	3000	—	2.88	24	32
D3IN77-2412DWB30	2412PL-04W-B30	2.36 × 1.2	1	3000	—	2.40	12	9
D3IN77-2412EWB30	2412PL-05W-B30	2.36 × 1.2	1	3000	—	2.40	24	9

*Available with sleeve bearing only.

Temperature range: −40°C to +70°C (−10°C to +55°C Economy)

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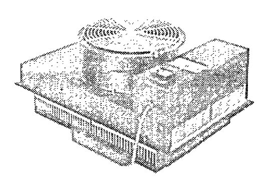
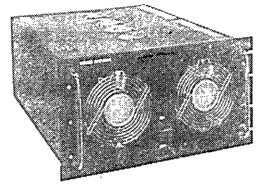
AIR CONDITIONERS

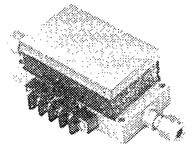
Temperature Control...

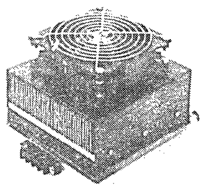
Solid State Cooling & Heating From One Product.

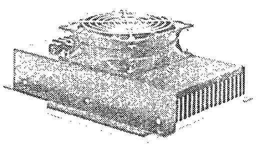
Thermoelectric Air Conditioners are a solid state method of refrigeration, which eliminates the need for a compressor, refrigerant fluids or piping. The only moving parts are highly reliable fans used to dissipate output heat to the ambient air. These air conditioners can be applied in computers, machine tool controls, instrumentation & electronics for hostile environment protection. They offer design flexibility in a wide range of industrial and consumer applications where compactness and reliability are key.

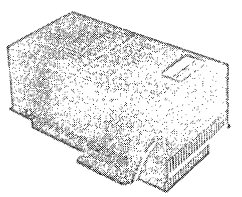

AHP-1700


AHP-3000


LHP-150


LHP-800


AHP-300


AHP-1000

Features:

- *No load cooling to −5°F (−20°C) at room temperature*
- *Lightweight, compact designs*
- *No compressor, no fluids, no coils*
- *Closed system protection from dust, chips, & moisture*
- *No moving parts except fans, means high reliability*
- *Low vibration, noise & maintenance*
- *Metal finishes resist corrosion*
- *Operates in any orientation - horizontal, vertical, etc.*
- *All models available from stock*

Other Products:

- Liquid cooled air conditioners rated to 1500 BTU/HR
- Thermoelectric cooling modules
- Temperature controllers
- Standard DC power supplies

Products

AIR CONDITIONERS (AIR COOLED)

AHP-150, with Cold Plate
Rating: 110 BTU/hr.
Overall Dimensions: 5.0W x 7.0L x 4.25T
AHP-300, with Cold Plate
Rating: 240 BTU/hr.
Overall Dimensions: 7.0W x 10.0L x 4.5T
AHP-300, with Cold Side Fin and Fan
Rating: 240 BTU/hr.
Overall Dimensions: 7.0W x 10.0L x 7.5T
AHP-800, with Cold Plate
Rating: 500 BTU/hr.
Overall Dimensions: 9.0W x 15.0L x 5.25T
AHP-800, with Cold Side Fin and Fan
Rating: 500 BTU/hr.
Overall Dimensions: 9.0W x 15.0L x 8.25T
AHP-1000, with Cold Plate
Rating: 560 BTU/hr.
Overall Dimensions: 8.35W x 15.0L x 7.2T
AHP-1000, with Cold Side Fin and Fan
Rating: 560 BTU/hr.
Overall Dimensions: 8.35W x 15.0L x 9.8T
AHP-1700, with Cold Side Fin and Fan
Rating: 1100 BTU/hr.
Overall Dimensions: 12.25W x 19.0L x 10.4T
AHP-3000
Rating: 2100 BTU/hr.
Overall Dimensions: 19.0W x 23.75L x 10.50T

AIR CONDITIONERS (LIQUID COOLED)

LHP-150, with Cold Plate
Rating: 135 BTU/hr.
Overall Dimensions: 2.7W x 5.2L x 1.65T
LHP-300, with Cold Plate
Rating: 205 BTU/hr.
Overall Dimensions: 6.0W x 4.5L x 1.65T
LHP-300, with Cold Sink and Fan
Rating: 305 BTU/hr.
Overall Dimensions: 6.0W x 4.5L x 4.75T
LHP-800, with Cold Plate
Rating: 740 BTU/hr.
Overall Dimensions: 6.225W x 7.93L x 1.78T
LHP-800, with Cold Sink and Fan
Rating: 740 BTU/hr.
Overall Dimensions: 6.225W x 7.93L x 5.73T
LHP-1700, with Cold Side Fin and Fan
Rating: 1500 BTU/hr.
Overall Dimensions: 7.0W x 19.0L x 8.67T

TEMPERATURE CONTROLLERS

TC-2, Cool Mode
Range: +20°C to 50°C
TC-106, Cool Mode
Range: −39.9°C to +39.9°C
Overall Dimensions: 3.25H x 6.0W x 6.18D
TC-107, Heat Mode
Range: −55°C to +150°C
Overall Dimensions: 3.25H x 6.0W x 6.18D
TC-108, Heat-Cool Mode
Range: −55°C to +150°C
Overall Dimensions: 3.25H x 6.0W x 6.18D

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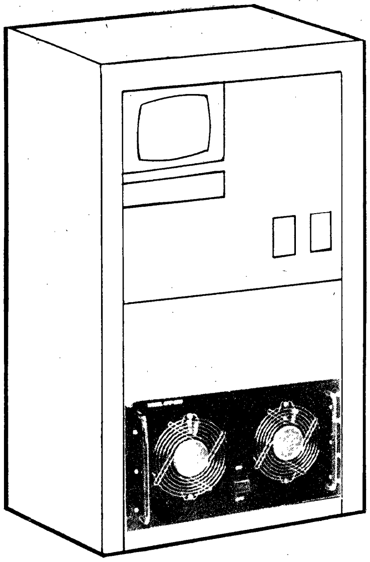
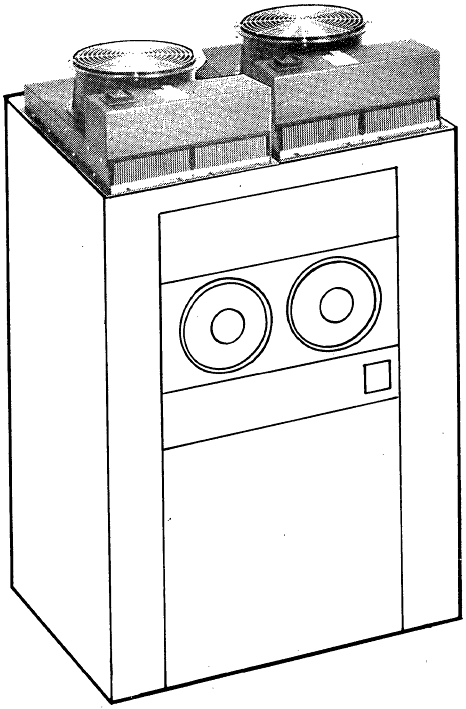
Air Conditioners for Enclosure Cooling

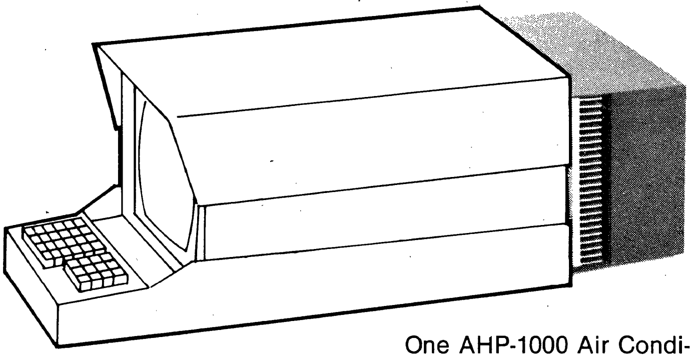
Typical Applications include: Computers, machine tools, instrumentation and electronic component or package cooling.



An AHP-3000 Air Conditioner utilized on a CNC Machine. Where ultimate efficiency requires precise temperature control. The most powerful solid state air conditioner available. Weighs under 100 lbs. and mounts in standard 19" cabinet rack.



Two AHP-1700 Air Conditioners are attached to this enclosure that houses disk drives and microprocessor controls, in a NEMA 12 environment. Standard 19" rack and integral power supply allow for ease of mounting and direct operation from 115 Volt A.C. Weighs under 50 lbs.



One AHP-1000 Air Conditioner, TECA's most versatile unit, mounted to the rear of a programmable controller with CRT display. It's applications range from the factory to the laboratory. A very compact size and weighs under 26 lbs.

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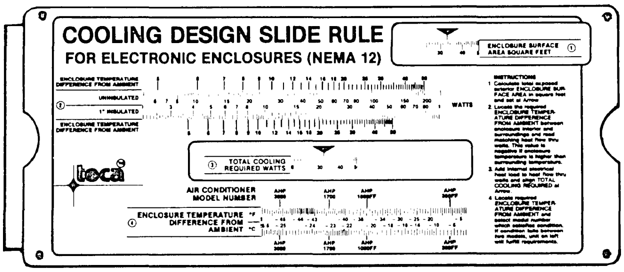
1

Just provide the necessary information below, and we will determine the correct air conditioner.

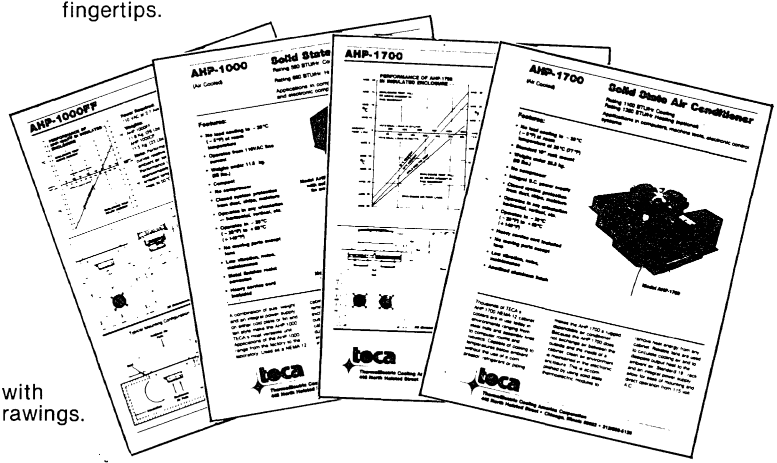
- **Total exposed exterior enclosure surface area of cabinet.**
- **Electrical heat load inside the cabinet.**
- **The outside ambient temperature and desired inside temperature (maximum and minimum).**

2


COOLING DESIGN SLIDE RULE
FOR ELECTRONIC ENCLOSURES (NEMA 12)
ENCLOSURE SURFACE AREA SQUARE FEET ①
ENCLOSURE TEMPERATURE DIFFERENCE FROM AMBIENT
UNINSULATED
②
1" INSULATED
WATTS
③ TOTAL COOLING REQUIRED WATTS
teca
AIR CONDITIONER MODEL NUMBER
AHP 3000
AHP 1700
AHP 1000FF
AHP 300FF
④ ENCLOSURE TEMPERATURE DIFFERENCE FROM AMBIENT °F °C
INSTRUCTIONS

An additional aid that TECA provides to assist in choosing the correct air conditioner is their Cooling Design Slide Rule. A unique and easy to slide chart that places the answers at your fingertips.

3


AHP-1000FF
AHP-1000
Solid State
AHP-1700
AHP-1700
Solid State Air Conditioner
teca

Specification sheets with charts and detailed drawings.

No matter what the enclosure conditions are, our application engineers will match your specifications to the TECA air conditioners that will satisfy the cooling requirements.

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COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M

MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O

OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P

PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

Z

ZIF zero insertion force

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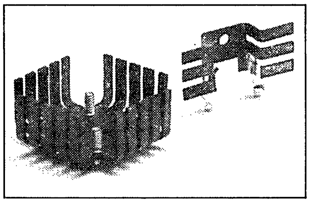
The Innovator in semiconductor accessories.

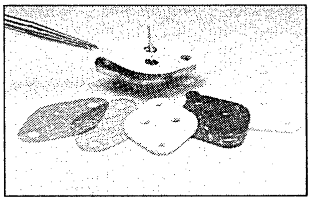


Heat Sinks

- Labor saving.
- Wave solderable using solderable studs, solderable nuts or solderable mounting tabs.
- Vertical and horizontal mount.
- Wide variety of shapes and sizes.

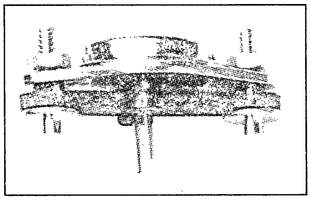
Card Guides, Ejectors and Pullers

- Variety of sizes and shapes.
- A choice of labor saving press-fit card guides or hardware mounted for secure mounting.
- Ejectors and pullers available in one piece snap-on or conventional with roll pin.



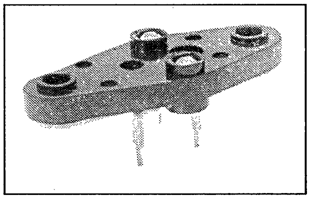
Insulators

- Mica
- Thermalfilm™ (polyimide plastic film)
- Thermalsil™ (silicone rubber)
- Hard Anodized Aluminum
- Aluminum Oxide
- Beryllium Oxide
- Insul-Cote™ — packaged, pre-coated insulators for easy installation.



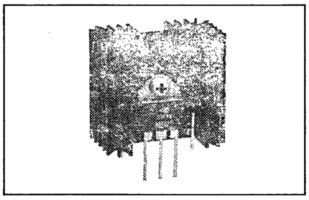
Solderable Transistor Mounts

- Cuts assembly steps by 50%.
- Eliminates hand soldering.
- Tin plated posts offer excellent solderability for mechanical and electrical integrity.
- All work is done from one side of board.
- Reduces hardware requirements.
- Elevates device for cleaning.



Power Sockets

- Tin plated.
- For TO-3 case styles.
- Inexpensive laminated power sockets also available.
- Metric and English mounting plate threads.
- Available with complete mounting kits.



Extruded Heat Sinks

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- Custom design — call on our engineers for your custom design needs.

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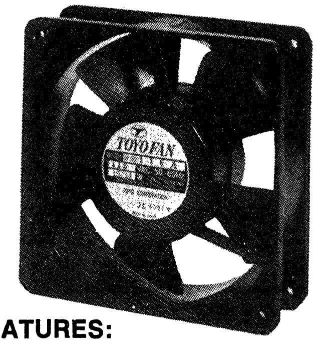
TF120 Series

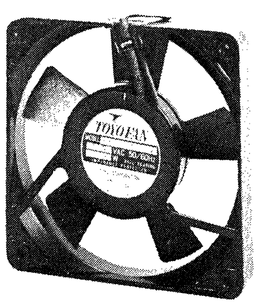


FEATURES:

- 4.70″ sq. x 1.50″ deep (119.5mm x 38mm)
- 104 to 76 CFM free air delivery
- Choice of three speeds for various applications
- Noise rating as low as 38 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or wire leads
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371
- Also available in dual voltage fan Model TF120345 Series

ULTRA THIN FAN

TF120RX Series

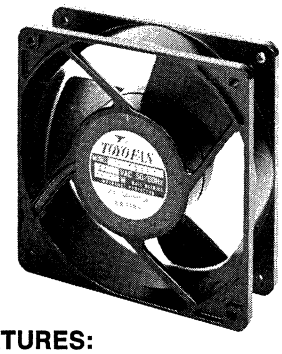


FEATURES:

- The thinnest axial fan available — .787″ (20mm) thick
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371

QUIET FAN

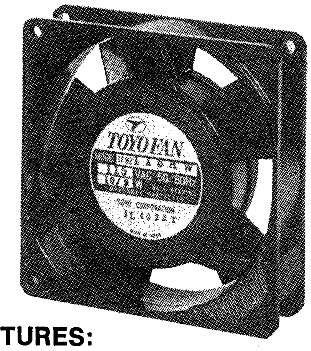
TF120U Series



FEATURES:

- Designed for low noise level applications
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371

TF92 Series

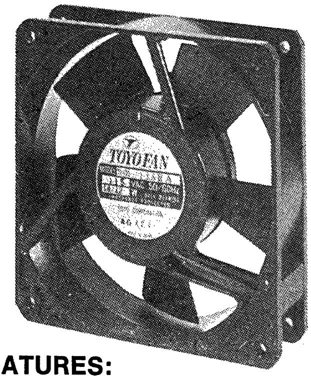


FEATURES:

- Less than 1 inch deep
- 3.62″ sq. x .98″ deep (92mm x 25mm)
- 34 to 27 CFM free air delivery
- Choice of three speeds for various applications
- Noise rating as low as 32 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or wire leads
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371
- Also available in dual voltage fan Model TF92345 Series

THE THIN FAN

TF120R Series

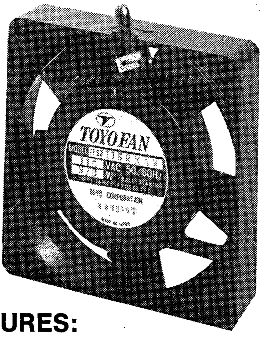


FEATURES:

- Less than 1 inch deep
- 4.70″ x .98″ deep (119.5mm x 25mm)
- 92 to 76 CFM free air delivery
- Choice of two speeds for various applications
- Noise rating as low as 34 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame.
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371

ULTRA THIN FAN

TF92RX Series



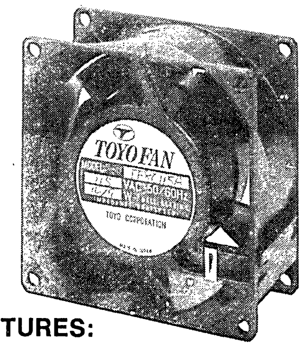
FEATURES:

- The thinnest axial fan available — .787″ (20mm) thick
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371

U.S. TOYO FAN CORPORATION

4915 Walnut Grove Avenue
San Gabriel, California 91776
(818) 287-5297
TWX (910) 589-1540

TF80 Series

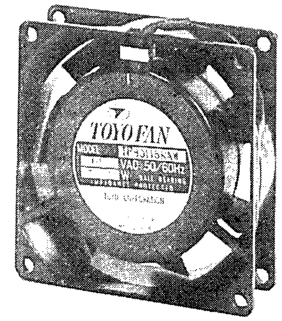


FEATURES:

- Low profile design — 3.15″ sq. x 1.50″ (80mm x 38mm)
- High performance airflow
- Low noise level
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or lead wires
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371
- Also available in dual voltage fan Model TF80345 Series

SMALL-THIN FAN

TF80R Series

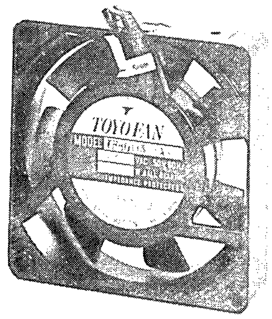


FEATURES:

- Low profile design — 3$^1/_8$″ square
- Less than 1 inch thick — .984″ (25mm)
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

SMALL-ULTRA THIN FAN

TF80RX Series

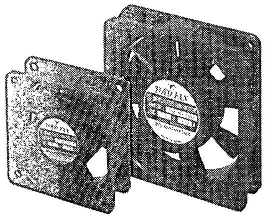


FEATURES:

- The thinnest axial fan available — .787″ (20mm thick)
- Low profile design — 3$^1/_8$″ square
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

DC BRUSHLESS

TFDD60RX Series & TFDD80RX Series

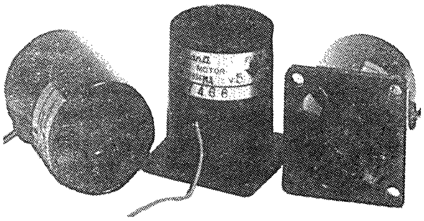


FEATURES:

- Minimum EMI/RFI emission
- High efficiency solid state design
- High performance airflow
- Precision ball bearings provide long service life
- 2.36″ square x .90″ thick—TFDD60RX
- 3.15″ square x .90″ thick—TFDD80RX
- Low acoustical noise
- Available in 12 and 24 Volts
- Polarity protected
- Impedance protected

DC MICRO FAN

SMF1836 Series

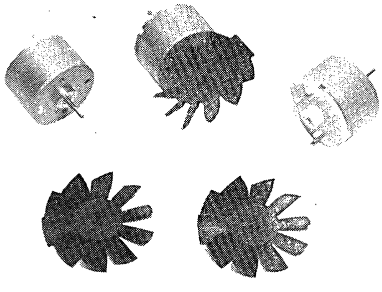


FEATURES:

- Provides cooling in extremely confined areas
- Compact-miniature size — 1.42″ diameter x 1.77″ long
- High performance
- Choice of 5, 10, 12, and 24VDC
- Choice of optional mounting flanges

DC MINI FAN

SL510 Series



FEATURES:

- Low cost
- Miniature size — 1.50″ long x 1.72″ diameter including impeller
- Low acoustical noise
- Dependable performance

WARRANTY — All U.S. Toyo fans are warranted to be free of defects in materials and workmanship for a period of one year from date of delivery.

AIRFLOW PERFORMANCE DATA — Performance data obtained with test chamber and methods in accordance with AMCA Standard 210-74.

ACOUSTICAL NOISE DATA — Acoustical measurements made at distances of 1.0 and 1.5 meters from fan intake. All measurements made on dB (A) scale. Fans operating at 60Hz line frequency.

OPERATING TEMPERATURE — Recommended ambient operating temperature is −30°C to +70°C.

IMPEDANCE PROTECTION — All fans are designed and manufactured to prevent "burn-out" failure caused by restriction of rotating parts.

LIFE EXPECTANCY — Life test data available on request.

SAFETY — All fans are designed and manufactured to meet UL and CSA standards. Approved fans are listed as follows: UL File No. E75082 and CSA File No. 48371M2.

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms	**A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code	**D**•1087
Batteries, Product Selection Guide	**D**•1413
Batteries & Fuel Cells, Characteristics	**D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide	**C**•1003
Capacitors, Basic Formulas	**A**•1093
Capacitors, Miniglossary	**A**•1066
Capacitors, Product Selection Guide	**A**•1003
Circuit Boards (Printed) Product Selection Guide	**C**•1099
Coils, Chokes, Inductors, Product Selection Guide	**A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum	**C**•1863
Connectors, Miniglossary	**C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide	**C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude	**A**•1309
Delay Lines, Product Selection Guide	**A**•1459
Discrete Semiconductors, Product Selection Guide	**A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**B**•1015
EBCDIC Code	**D**•1092
Encapsulation, Miniglossary	**C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**C**•1623
Filters, Product Selection Guide	**A**•1583
Instruments, Graphic Recording Product Selection Guide	**D**•1401
Instruments, Panel Meters, Product Selection Guide	**D**•1329
Instruments, Test & Measuring Product Selection Guide	**D**•1175
Interconnection Systems, Product Selection Guide	**C**•1699
Keyboards & Keypads, Product Selection Guide	**B**•1705
Logofinder & Trademark Directories	**B**•901
Microwave Components, Product Selection Guide	**A**•1701
Military Qualified Products Lists	**B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide	**B**•1129
Opto Semiconductors, Miniglossary	**B**•1214
Oscilloscopes, Product Selection Guide	**D**•1385
Panel Hardware, Product Selection Guide	**C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide	**A**•1991
Power Supplies, Miniglossary	**D**•1462
Power Supplies, AC, Product Selection Guide	**D**•1877
Power Supplies, DC, Product Selection Guide	**D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide	**B**•1225
Relay Contact Forms	**B**•1317
Relays, Electromechanical, Miniglossary	**B**•1308
Relays, Product Selection Guide	**B**•1261
Resistor Color Codes	**A**•1828
Resistors, Product Selection Guide	**A**•1785
Servo Components, Miniglossary	**D**•1985
Solenoids, Product Selection Guide	**B**•1463
Switches, Product Selection Guide	**B**•1477
Thermal Components, Product Selection Guide	**B**•1741
Thermal Conductivity of Dielectrics at Room Temperature	**B**•1744
Thyristors/High Power Diodes, Miniglossary	**A**•2076
Transducers & Encoders, Product Selection Guide	**B**•1777
Transformers, Product Selection Guide	**A**•2099
Wire & Cable, Product Selection Guide	**C**•1743
Wire Gauges—Diameter, Area, Copper Weight	**C**•1844

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Your local AMP Distributor is more than just a place to get any of the hundreds of AMP quality products. He's also the place to get the high level of service and fast delivery to make those products doubly useful.

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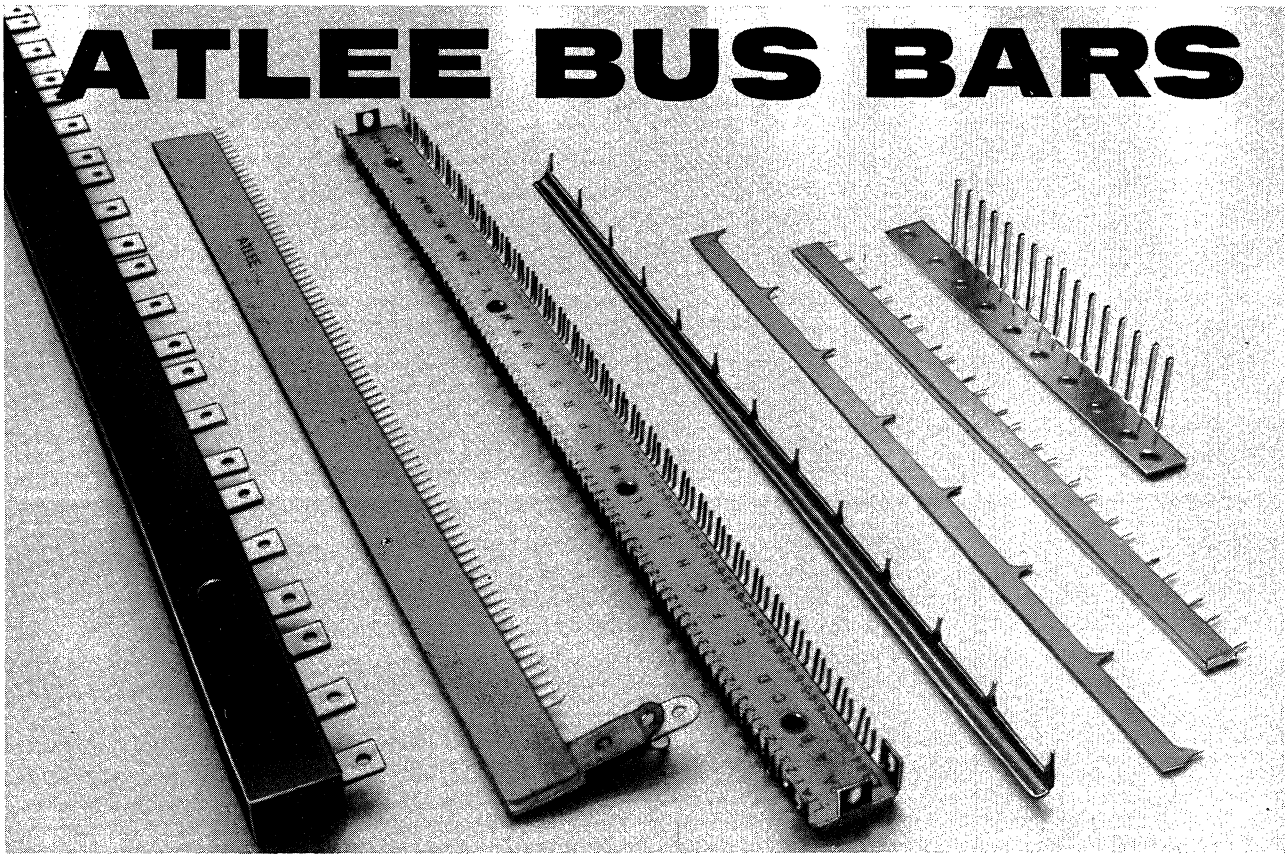
AMP Interconnecting ideas

for AMP

ATLEE BUS BARS



Atlee is a full line manufacturer of bus bars, serving the computer industry, avionics, military contractors and various high tech manufacturers. We have available design and engineering services as well as prototype department. In addition, Atlee has sales representatives nationwide to service our customers. Please contact Atlee to service your bus bar requirements.

TO SPECIFY AN ATLEE BUS BAR

Please contact the factory for a bus bar catalog and any questions you may have.

TO SPECIFY A CUSTOM BUS BAR

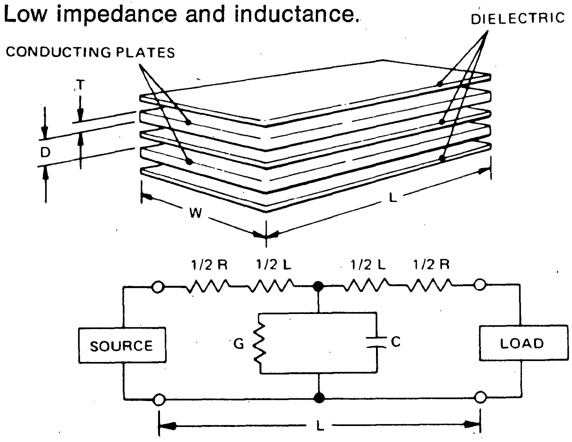
If your requirements do not permit the use of an Atlee Standard Bus Bar, send a drawing print or even a rough sketch of the Bus Bar that would meet your specifications and let Atlee's Sales Engineering Department work out the details and give you a quotation. Atlee will manufacture any type bus bar to your specifications. In general the information required includes:

1. Application and quantity
2. Space available
3. Current paths required
4. Type of terminations
5. Number and location of terminations
6. Current requirements
7. Voltage drop requirements
8. Tab to tab spacing on each conductor
9. Type of mounting
10. Capacitance desired
11. Dielectric strength
12. Environmental requirements
13. Type finish on conductors
14. Marking
15. Quantity

DESIGNER'S NOTES

Atlee laminated bus bars consist of flat conductor layers stacked on one another and separated by appropriate dielectrics. Typically such an assembly is laminated and edge-sealed or encapsulated so that the final product becomes a rigid unit with high reliability and stable electrical and mechanical properties. These properties provide uniform capacity, low impedance, and high-speed transmissions of signal and current. Atlee bus bars are an economical alternative to multi-layer printed circuit boards and wire harnesses. They offer:

- Lowered production costs, because assembly is simple and fast.
- Reduced volume which permits higher density packaging than possible with wire harnesses.
- Reduced noise with ideally distributed capacitance and isolation of conductors.
- High current-carrying capacity.
- Low impedance and inductance.



ATLEE

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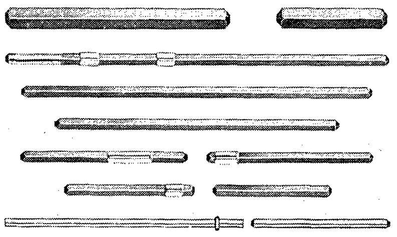
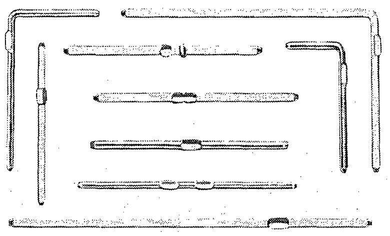
Precision formed and plated metal parts for electronic and electrical applications.

WRAPOST® TERMINALS



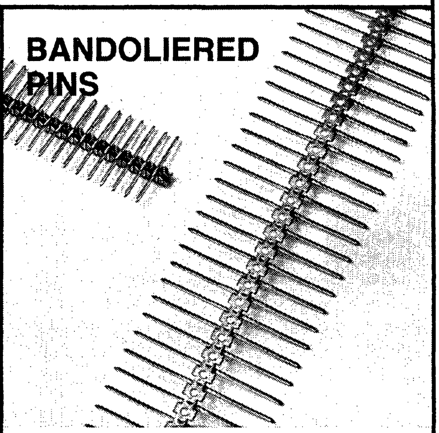
Industry's finest. Square and/or round, .025" or .045", up to 3" lengths, single or double locking stars. Standard and custom sizes.

FLAT CABLE HEADER PINS



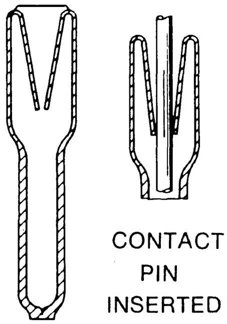
Provides smooth mating in female connectors. Straight or 90°, with or without locking stars. Lead-in angles perfectly blended for low insertion force.

BANDOLIERED PINS



Standard and custom bandolier styles. In-house selection plating allows zone or striped plating to cut precious metal plating costs.

SPRING SOCKET PINS

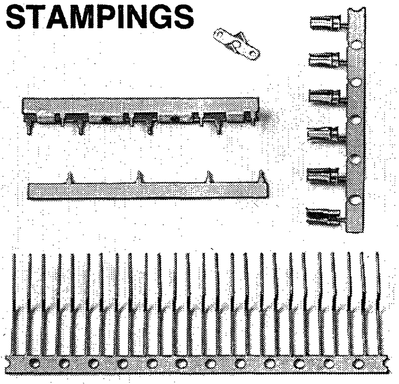


Low cost, low profile spring socket pins. Accepts .185" lead length . . . used in .075" and up grids. Takes round or square pins without orientation.

DIE SWAGED PARTS

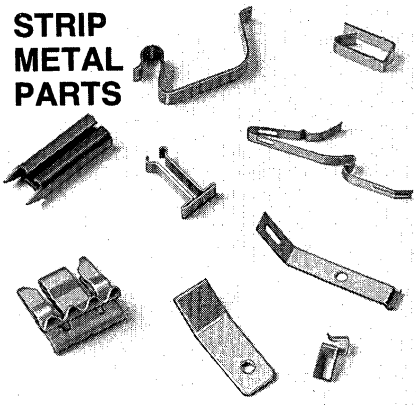
Cut cost of screw machine parts by 50–70%. High speed, scrapless forming to precision tolerances.

STAMPINGS



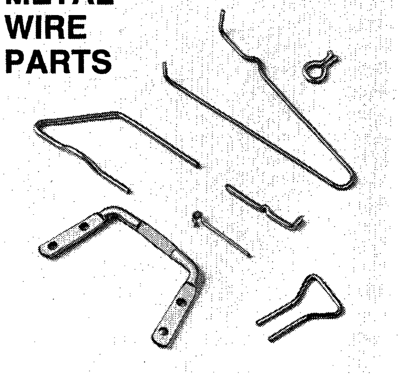
Simple blanking to complex forming with progressive dies.

STRIP METAL PARTS



Tubular parts or complex stampings. Our fourslide expertise can help cut your part costs.

METAL WIRE PARTS



Intricate forming even in difficult materials. Capability includes combination wire and strip metal parts.

Auto-Swage specializes in high speed, precision forming of terminals, pins, contacts, leads, spacers, clips, sockets, etc. Die swaging, pin rolling, fourslide forming and stamping operations allows selection of lowest cost forming method. In-house plating (both barrel and selective zone) assures single source responsibility on all your orders. Send parts today for our quotation.

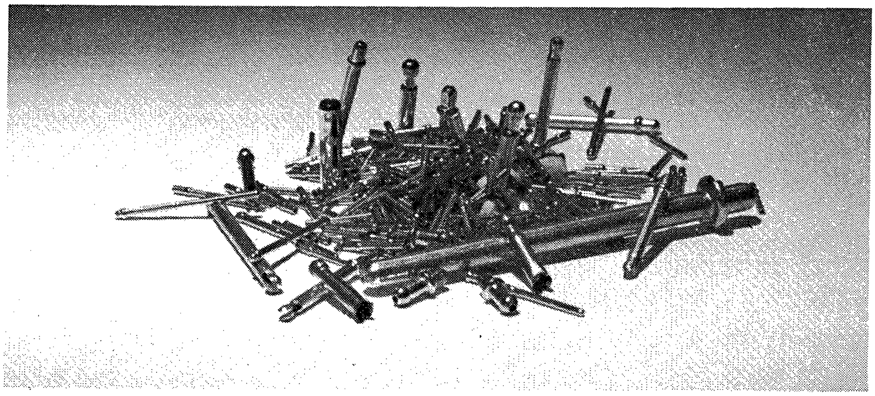
Write to Auto-Swage
Products, Inc.
726 River Road
Shelton, CT 06484
Phone 203/929-1401

auto-swage

Bead Electronics

110 Mountain Grove St. • P.O. Box K • Bridgeport, CT 06605 • Tel. (203) 334-4124

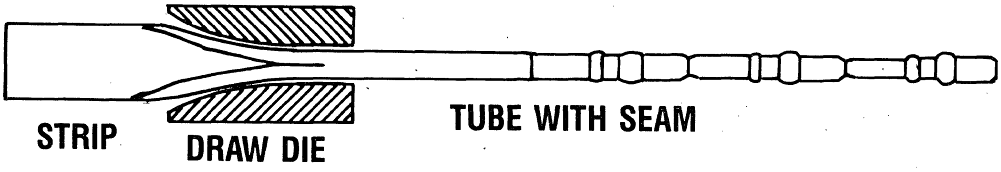
TUBULAR PINS



Bead's multi-swaged pins are widely used as electrical and electronic contacts and as hinge pins, fasteners and spacers. The method allows both round and non-round cross-sections of varying sizes to be incorporated into the same part, and is used to manufacture both hollow and solid pins. The process is fast, accurate and produces parts of high finish quality.

FEATURES

- Low cost
- High accuracy
- Shape flexibility
- High quality finish
- Variety of materials
- Mating parts
- Spherical or tapered ends



In Multi-Swaging, Metal is Moved, Not Removed.

Pressures of a swaging die rearrange the molecular structure of the entering material into a shape different from that of the original.

TUBE: Flat strip, slit to the width required by the largest diameter on the pin, is drawn through a round die, changing the strip to a tube having a longitudinal seam.

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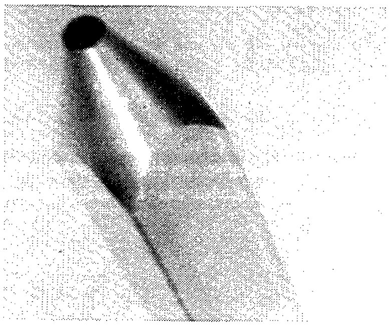
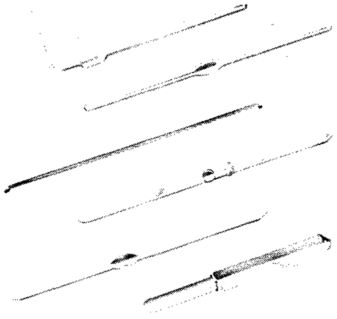
SQUARE WIRE WRAP PINS





Bead square wire wrap pins are precisely made. They are straight to within .003″ up to 1.000″ in. length and .004″ over 1.000″ in length, and burr free, reducing production problems. They feature the finest conical ends in the industry for insertion into preplated holes.

Available Material

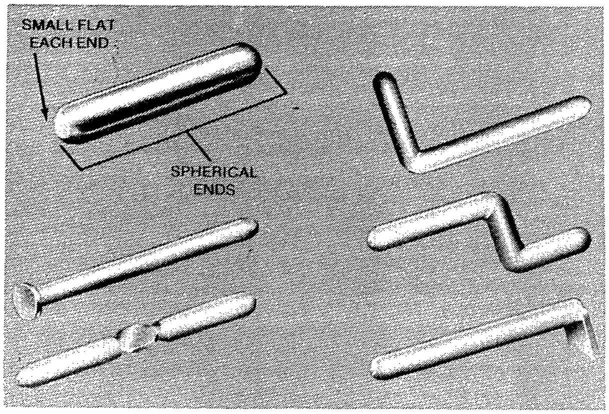
Base Metal

- Phosphor Bronze Alloy #510
- Brass Alloy #260
- Copper/Nickel/Tin Alloy #725
- Other Workable Metals Up to Full Hard Temper

Plating

- Bright Acid Tin
- Tin/Lead
- Gold
- Other

SOLID WIRE PINS



- Have rounded or conical ends
- Can be upset, flattened, headed
- Can have notches, barbs, ears, grooves
- Size range
  Diameter: .012″-.125″
  Length: Up to 2.0″

Bead Electronics

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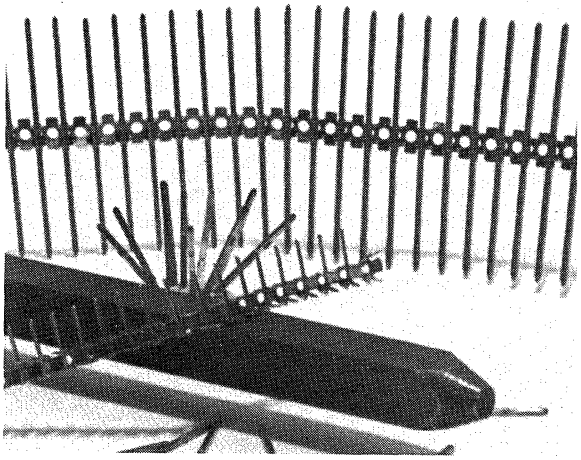
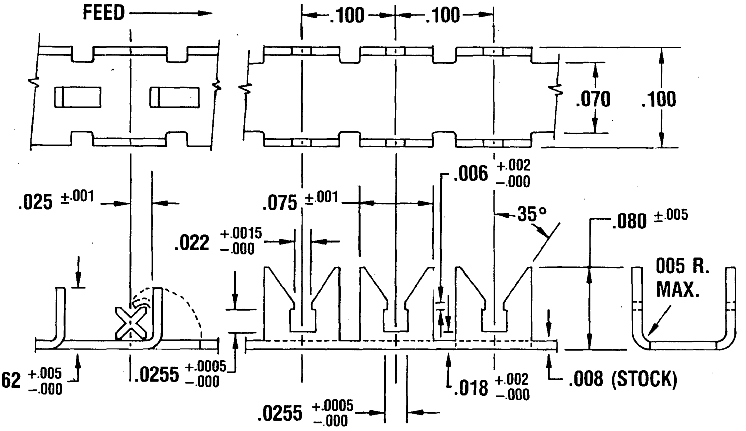
.100 CENTER REEL-MOUNTED BANDOLIER WITH .025 SQUARE WIRE-WRAP PINS




FEED
.100
.100
.070
.100
.006 +.002 −.000
.025 ±.001
.075 ±.001
35°
.080 ±.005
.022 +.0015 −.000
005 R. MAX.
.062 +.005 −.000
.0255 +.0005 −.000
.018 +.002 −.000
.008 (STOCK)
.0255 +.0005 −.000

Now you can take advantage of the increased efficiency and economic benefits of bandoliering without concern about such factors as incomplete plating or pin 'fallout.' Bead's new .100 center bandoliers have been uniquely designed to ensure 100 percent plating coverage and to keep the pins they carry in place before, during and after plating. They're also available with or without center fingers, allowing them to be specifically geared to whatever degree of pin push-out force your operation may entail.

FEATURES

- Reel mounted
- .100 centers
- .025 square wire-wrap pins
- Ultra-precision process eliminates burrs, stress and waste
- Ideal for insertion in pre-plated PCB holes
- Conical ends, with a smooth blend radius
- A variety of lengths available
- Variety of plating options available
- Standard and custom designs available
- Ideal for single or multiple-pin insertion applications

MARKEL CORPORATION

High Temperature Wire and Cable and Heat Shrinkable Tubing

SILICONE RUBBER WIRE AND CABLE

FLEXLEAD

Flexlead Silicone Rubber Leadwire and Cable are recommended for high temperature applications in motors, heaters, high voltage power supplies, switches, consumer appliances, medical equipment, nuclear plant wiring, and fire resistant control cables. Markel Flexlead Silicone Rubber Leadwire and Cable styles offer economy, reliability, compliance with UL, CSA, and Military requirements, ultra flexibility and a wide range of operating temperatures. ASK ABOUT OUR NEW 250°C UL APPROVED WIRE FOR GAS IGNITION SYSTEMS AND OTHER APPLICATIONS. **Write for a free copy of our brochure.**

FLUOROCARBON WIRE AND CABLE

FLEXLEAD

Flexlead Fluorocarbons (PFA, TFE, FEP, ETFE) are recommended for personal care and home appliances, aircraft, commercial and private communication systems, computers, business machines, electrical motors and traction equipment — Anywhere the ultimate in performance is required.

HYGRADE ELECTRICAL AND THERMAL INSULATING SLEEVINGS

HYGRADE

Constructed of carefully braided fiberglass yarn, impregnated and coated with specially formulated varnishes, vinyls, resins or silicone rubber compounds. A wide range of types, grades and sizes meet virtually every requirement for dielectric and mechanical strength under all kinds of operating conditions. Write for a free copy of our brochure.

FLEXITE

SHRINKDOWN

Flexite Shrinkdown Tubings are available in eleven different products to meet the requirements of a wide range of applications. These tubings recover 50% in diameter upon application of moderate heat and can be used at operating temperatures ranging from −67°C to 250°C. Flexite Shrinkdown Tubings have good dielectric properties and possess excellent resistance to oils and chemicals. **Write for a free copy of our brochure.**

MARKEL CORPORATION

P.O. Box 752, Adv. Dept. #4
Norristown, Pennsylvania 19404

Telephone: (215) 272-8960
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*DuPont Trademark

PERMA POWER®

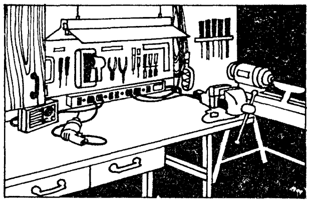
Sockets Plus™

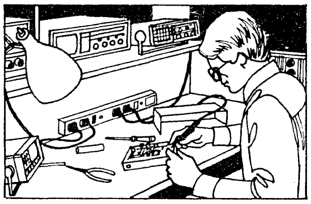
Multiple Outlet Strips

A safe and convenient way to distribute power where it's needed

- Acts as power control center; most units have on/off switch and indicator light.
- Overload protected, built-in 15 amp circuit breaker shuts off power *here*—not down the line.
- Rated 1875 watts, 125 V., 15A.
- Double insulated #14/3 "SJT" line cord.
- U-ground outlets with electrically-wired ground; phosphor bronze, dual wiping contacts.
- Heavy duty, 22 gauge metal construction.
- Tough silver and black industrial finish, corrosion resistant zinc phosphate undercoat.

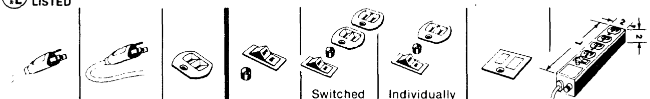
INDUSTRIAL MODELS





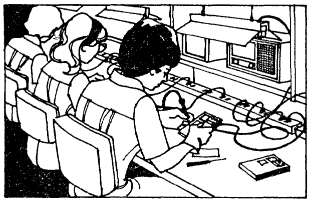
INDUSTRIAL MODEL SELECTOR CHART All UL Listed All Circuit Breaker Protected

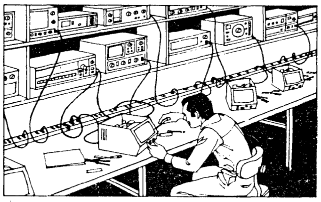
UL LISTED

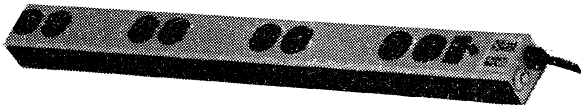


6 Ft. Cord Model No.	12 Ft. Cord Model No.	Number of Outlets	Master Switch & Indicator Light	Switched Outlet Pairs with Indicator Lights	Individually Switched Outlets with Indicator Lights	"Live" Outlets (For clock, etc.)	Case Length (inches)
K400	K402	4	—	—	—	—	9
K410	K412	4	1	—	—	—	9
K420	K422	4	—	2	—	—	12
K440	K442	4	—	—	4	—	15
K450	K452	4	1	—	4	—	15
K510	K512	5	1	—	—	1	12
K520	K522	5	—	2	—	1	12
K540	K542	5	—	—	4	1	15
K600	K602	6	—	—	—	—	12
K610	K612	6	1	—	—	—	12
K630	K632	6	—	3	—	—	15
K710	K712	7	1	—	—	1	15
K800	K802	8	—	—	—	—	15
K810	K812	8	1	—	—	—	15
UNITS WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION							
K410G	—	4	1	—	—	—	9
K610G	—	6	1	—	—	—	12

2, 4, & 6 FOOT INDUSTRIAL MODELS

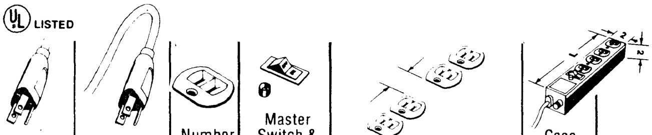






2, 4 & 6 FOOT INDUSTRIAL MODELS All UL Listed All Circuit Breaker Protected

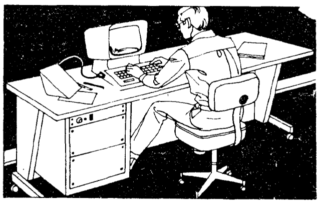
UL LISTED

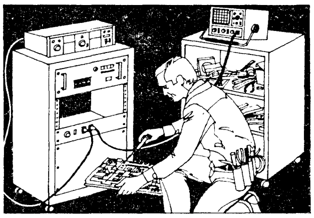


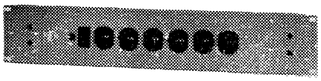
6 Ft. Cord Model No.	12 Ft. Cord Model No.	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (inches)	Case Length (inches)
J082A011	J082A211	8	1	3	24
J084A011	J084A211	8	1	9	48
J164A011	J164A211	16	1	3	48
J126A011	J126A211	12	1	9	72
J246A011	J246A211	24	1	3	72

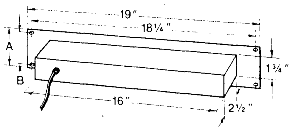
Models shown in silver finish. For black finish add "B" to end of model number.

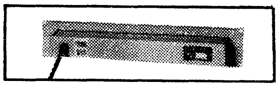
INDUSTRIAL RACK MOUNT MODELS





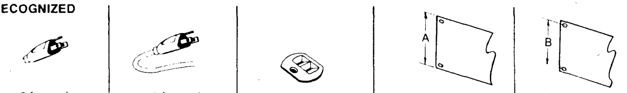






INDUSTRIAL RACK MOUNT MODELS All circuit breaker protected

RECOGNIZED



6 ft. cord Model No. Silver	6 ft. cord Model No. Black	12 ft. cord Model No. Silver	12 ft. cord Model No. Black	Outlets Front	Outlets Back	Front Panel Height 'A'	Mounting Centers 'B'
J06A0	J06A0B	J06A2	J06A2B	0	6	3½″	3″
J06B0	J06B0B	J06B2	J06B2B	0	6	1¾″	1¼″
J24A0	J24A0B	J24A2	J24A2B	2	4	3½″	3″
J24B0	J24B0B	J24B2	J24B2B	2	4	1¾″	1¼″
J60A0	J60A0B	J60A2	J60A2B	6	0	3½″	3″
J60B0	J60B0B	J60B2	J60B2B	6	0	1¾″	1¼″

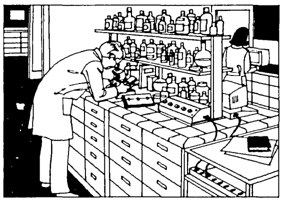
PERMA POWER® Electronics Inc.
5615 West Howard Avenue
Chicago, Illinois 60648
Telephone (312) 647-9414

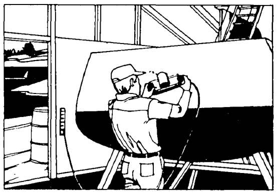
PERMA POWER®

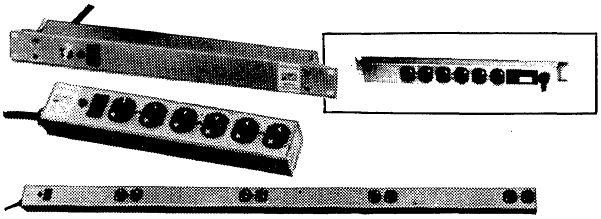
Multiple Outlet Strips

Sockets Plus™

INDUSTRIAL/SCIENTIFIC/MEDICAL "HIGH ABUSE" MODELS with Hospital Grade components







SPECIFICATIONS FOR PLUGS AND RECEPTACLES

Designated by a green dot—your assurance the components are U.L. Hospital Grade

- UL Hospital Grade Standards #498 and #544
- Federal Specification WC 596E (8200, 8210, 8300, 8310)
- NEMA Standard WD1
- NEMA 5-15R and 5-20R
- CSA Certified (8200-8210 series only)
- Corrosion-resistant per ASTM B-117-73

This industrial/scientific/medical series of Multiple Outlet Strips is specifically designed for high-abuse applications, for special safety requirements, or where equipment is exposed to fumes from corrosive chemicals or liquids.

When conditions require an outlet strip that "measures up," you need components that measure up. The plugs and receptacles in these strips are "Hospital Grade"—verified by Underwriters' Laboratories to have passed a series of torturous tests assuring the user of continuous, safe operation, even in the face of human negligence and corrosive environments.

Plugs and receptacles meet or exceed these "Hospital Grade" UL tests: ■ Abrupt removal of plug ■ Ground pin retention ■ Terminal strength ■ Assembly security ■ Face impact ■ Ground contact temperature ■ Ground contact resistance ■ Fault current test ■ Mold stress relief

All units have 6-foot double-insulated #14/3 "SJT" line cord. All are overload-protected by a built-in 15-amp circuit breaker that shuts off the power *here*, not down the line.

"HIGH ABUSE" MODEL SELECTOR CHART

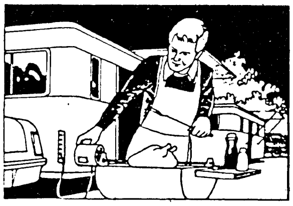
All Models circuit-breaker-protected

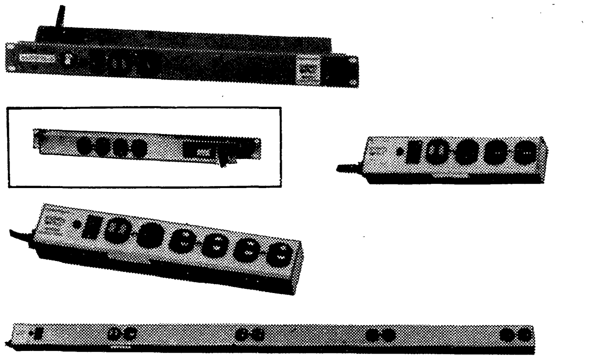
INDUSTRIAL UL LISTED	Number of Outlets	Master Switch & Indicator Light	Case Length (Inches)
K410H	4	1	9
K610H	6	1	12

RACK MOUNT RECOGNIZED	Number of Outlets Front	Number of Outlets Back	Master Switch & Indicator Light	Front Panel Height A (Inches)	Mounting Centers B (Inches)
J24AOH	2	4	1	3½	3
J24BOH	2	4	1	1¾	1¼
J06AOH	0	6	1	3½	3
J06BOH	0	6	1	1¾	1¼

4-FT. & 6-FT. STRIPS UL LISTED	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (Inches)	Case Length (Inches)
J084A011H	8	1	9	48
J126A011H	12	1	9	72

GROUND FAULT CIRCUIT INTERRUPTER MODELS





Moisture or dampness, improper or faulty wiring, or worn insulation can all contribute to a condition where the electric current in an appliance takes an unexpected path "to ground." If a person using such an appliance is in this current path, the resultant electric shock can cause injury or even death.

Perma Power GFCI Multiple Outlet Strip Models provide protection from these potentially hazardous ground fault currents. These models detect ground fault leakage current before it reaches hazardous levels, and instantly shut off all power to tools, appliances or equipment, thus guarding the user and providing assurance of maximum personal safety. When properly used and maintained, the GFCI Fault Finder device interrupts the circuit upon detecting any leakage greater than 0.006 amperes. Built-in "Test" and "Reset" buttons provide maximum user confidence.

The Perma Power GFCI outlet strips also have a built-in 15-amp circuit breaker to guard *the line* from overload conditions, but it's the GFCI device that guards individuals. Each strip has a double-insulated, #14/3 "SJT" line cord, and is rated at 1875 watts, 125 volts, 15 amps. To act as a power control center, each unit has an on/off switch and indicator light.

GROUND FAULT MODEL SELECTOR CHART

INDUSTRIAL UL LISTED	Number of Outlets	Master Switch & Indicator Light	Case Length (Inches)
K410G	4	1	9
K610G	6	1	12
RESIDENTIAL UL			
R410G	4	1	9
R610G	6	1	12

RACK MOUNT RECOGNIZED	Number of Outlets Front	Number of Outlets Back	Master Switch & Indicator Light	Front Panel Height "A" (Inches)	Mounting Centers "B" (Inches)
J24AOG	2	4	1	3½	3
J24BOG	2	4	1	1¾	1¼
J26AOG	2	6	1	3½	3
J26BOG	2	6	1	1¾	1¼

4-FT. & 6-FT. STRIPS UL LISTED	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (Inches)	Case Length (Inches)
J084A011G	8	1	9	48
J126A011G	12	1	9	72

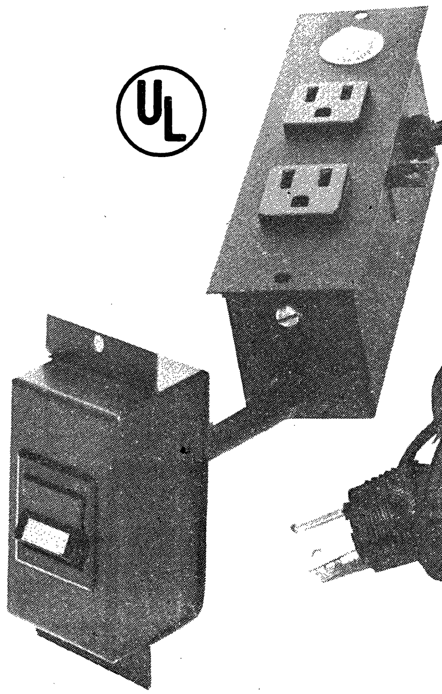
NOTE: GFCI device protects all outlets in strip.

PERMA POWER®
Electronics Inc.

5615 West Howard Avenue
Chicago, Illinois 60648
Telephone (312) 647-9414

Free Customizing.

Let our Engineering and R&D Depts. design a product for your specific needs.



If you need 50 or more multiple outlet strips, SL WABER® has the expertise to help you develop a product with one or all of the following variations:

- Case size and shape (longer, shorter, deeper, wider, etc.)
- Relocation of components
- Increased or decreased number of outlets, switches, pilot lights, fuses, circuit breakers
- Special grade outlets, timers, motors, switches, pilot lights (e.g., hospital grade)
- More circuits or different capacity circuits
- 1 amp to 20 amps; 1 volt to 250 volts AC
- Length, type, and size of power supply cord
- Special configurations to meet local code requirements
- Over 480 UL Listed and 310 CSA Certified non-stocking designs are available to meet your specific need
- Other unusual characteristics

We are pleased that our customers keep coming back to SL WABER to use our experience and capability to create those special quality electrical interconnections to fit their most exacting applications.

Let us be of service to you. Call or write us today!
THERE IS NO OBLIGATION ON YOUR PART.

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Westville, NJ 08093
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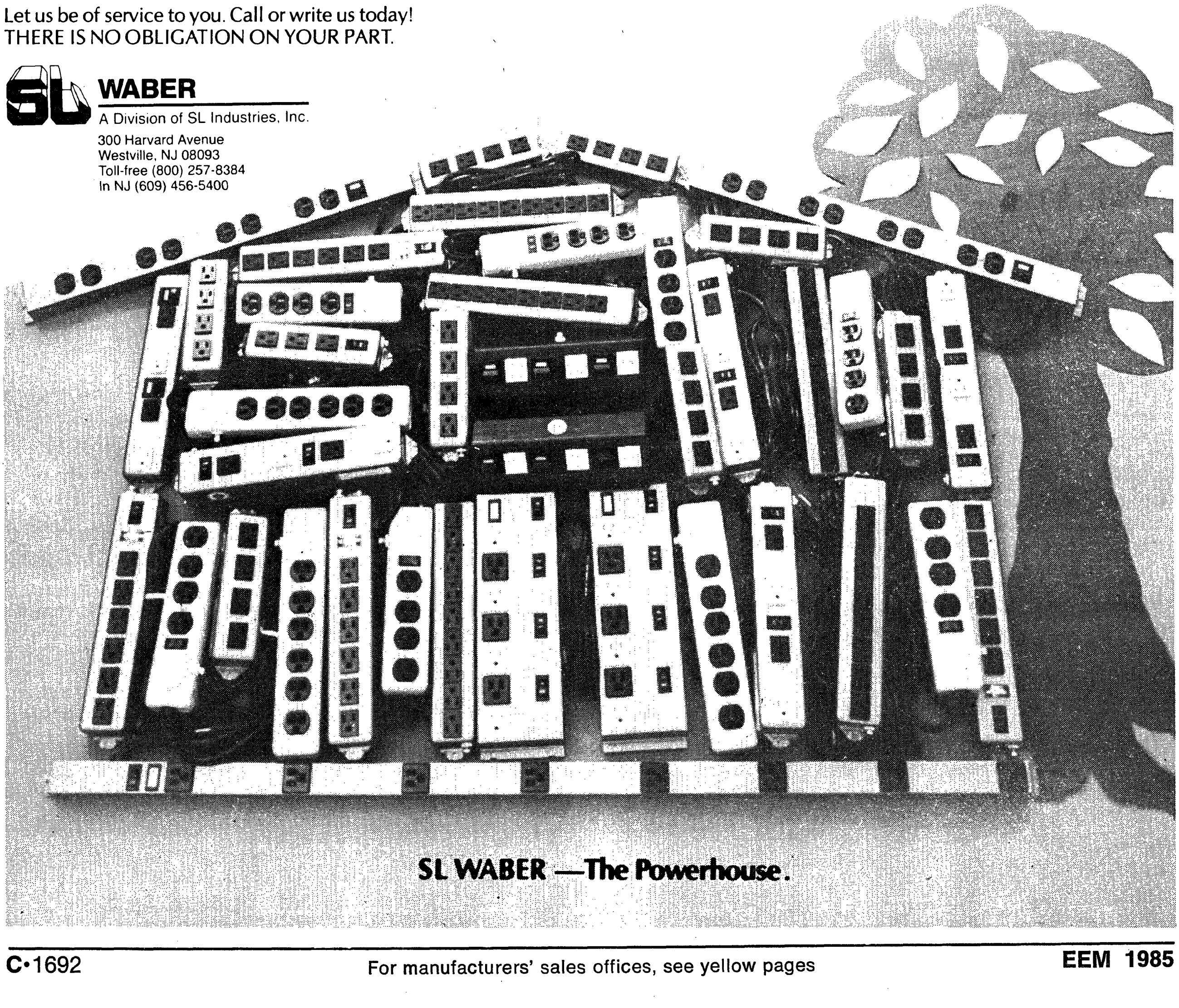
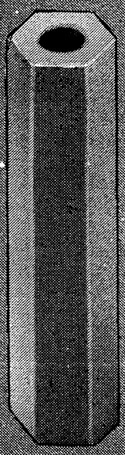
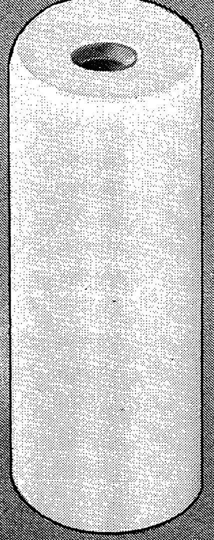


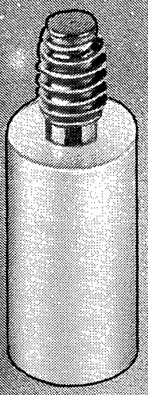
HHSmith

FUTURETECH™

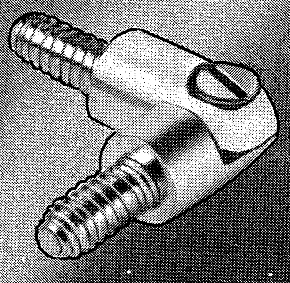
Spacers and Standoffs

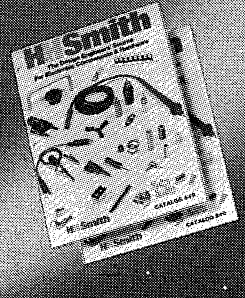






The largest quality selection in the industry! Choose from a broad range of brass, aluminum or insulated. Sizes from 1/8" to 6"L. Hex, round, male/female, swage and more. Clearance hole and threaded. Need standoffs? Insulators? Yes! Smith also produces custom spacers to meet special requirements. Contact our "rep" or distributor.





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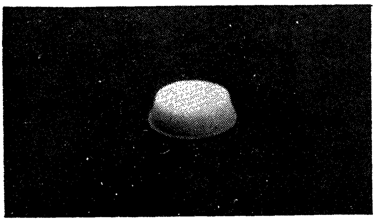
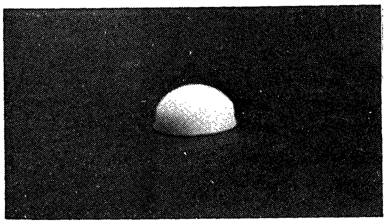
Products *corporation*

Self-Adhesive Bumpers

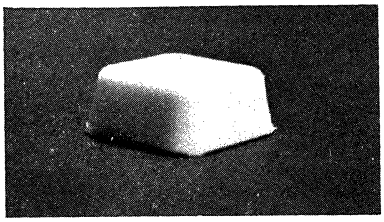
Assorted Popular Styles



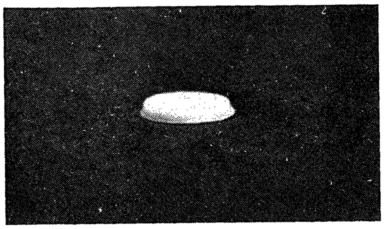
GD-1, 4000/case,
Kiss-Cut 50/pad
0.50 dia, 0.15 thick,
equals 3M
SJ-5012



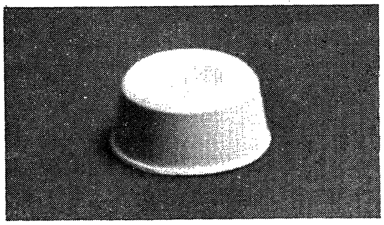
GD-2, 4000/case,
Kiss-Cut 50/pad
0.45 dia, 0.20 thick,
equals 3M
SJ-5003



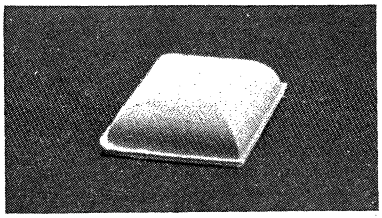
GD-4, 4000/case,
Kiss-Cut 48/pad
0.75 sq, 0.34 thick



GD-5, 4000/case,
Kiss-Cut 50/pad



GD-17, 2000/case,
Kiss-Cut 48/pad
.88″ dia. x
.40″ thick
equals 3M
SJ-5009



GD-19, 4000/case,
Kiss-Cut 48/pad
.81″ sq. x
.30″ thick
equals 3M
SJ-5023

Typical Applications

- Electronics
- Telecommunications
- Appliances
- Cabinets
- Desk Top Equipment
- Computers
- Computer Pheripherals
- Isolation Mounts

COMPARISON CHART

Bumper Product Style No.	3-M No.	Min. Order Qty.	Size	Description
GD-1	SJ 5012	4000	ht. .14″ dia. .50″ ht. 3.5mm dia. 12.7mm	Cylindrical
GD-2	SJ 5003	4000	ht. .20″ dia. .45″ ht. 5.0mm dia. 11.1mm	Hemisphere
GD-3	SJ 5018	4000	ht. .20″ sq. .50″ ht. 5.6mm sq. 12.7mm	Square
GD-4		4000	ht. .34″ sq. .75″ ht. 8.6mm sq. 19.1mm	Square
GD-5		4000	ht. .06″ dia. .50″ ht. 1.6mm dia. 12.7mm	Cylindrical
GD-6		4000	ht. .250″ dia. .50″ ht. 5.1mm dia. 12.7mm	Cylindrical
GD-10		4000	ht .26″ sq. .50″ ht. 6.6mm sq. 12.7mm	Square
GD-11		4000	ht. .40″ dia. .62″ ht. 10.2mm dia. 15.9mm	Cylindrical
GD-15	SJ 5027	4000	ht. .32″ dia. .63″ ht. 7.9mm dia. 16.0mm	Hemisphere
GD-17	SJ 5009	2000	ht. .40″ dia. .88″ ht. 10.1mm dia. 22.3mm	Circular Depressed
GD-18		4000	ht. .14″ dia. .50″ ht. 3.5mm dia. 12.7mm	Cylindrical Concavity
GD-19	SJ 5023	4000	ht. .30″ sq. .81″ ht. 7.6mm sq. 20.6mm	Tapered Square
GD-22		5000	ht. .125″ sq. .625″ ht. 3.1mm sq. 15.9mm	Square
GD-24		5000	ht. .125″ dia. .810″ ht. 3.1mm dia. 20.5mm	Cylindrical
GD-25		5000	ht. .250″ dia. .810″ ht. 6.2mm dia. 20.5mm	Cylindrical
GD-26		4000	ht. .090″ dia. .50″ ht. 2.4mm dia. 12.7mm	Cylindrical
GD-29		5000	ht. .325″ dia. .50″ ht. 7.9mm dia. 12.7mm	Cylindrical
GD-30	SJ 5532	500	ht. .66″ dia. 1.88″ ht. 16.7mm dia. 47.7mm	Circular Depressed
GD-31		4000	ht. .117″ dia. .50″ ht. 2.90mm dia. 12.7mm	Cylindrical
GD-32	SJ 5008	4000	ht. .12″ sq. .50″ ht. 3.1mm sq. 12.7mm	Tapered Square
GD-33		4000	ht. .157″ sq. .37″ ht. 3.9mm sq. 9.5mm	Tapered Square

STOCK COLORS: White, Black, Grey, Brown and Clear. Special colors available on request.

Bumper Products Corporation
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HIGHEST RATIO OF PERFORMANCE TO THICKNESS OF CURRENTLY AVAILABLE MATERIALS.**

PROTECT

precision electronics from damage due to handling and shock.

STOP

sensitive, high speed parts safely . . . within controlled parameters.

QUIET

vibrating sheet metal parts or housings.

TYPICAL APPLICATIONS

DISK DRIVES

- Shock, Vibration Isolation Grommets
- Crash Stops
- Stepper Motor Inertial Dampers
- Grounding Strap Dampers

PRINTERS

- Print Head Bumper Stops
- Cabinet Damping/Sound Absorbing Composites
- Metal Parts Damping
- Striker Bar Damping

ELECTRONICS CABINETRY

- Shock, Vibration Isolation Mounts
- Damping/Sound Absorbing Composites

PRECISION EQUIPMENT

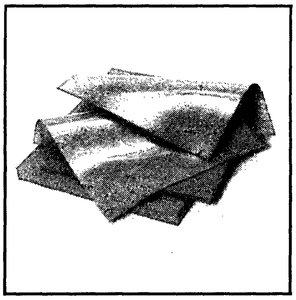
- Structural Damping
- Lab-Type Isolation Mounts

PRINTED CIRCUIT BOARD DAMPING

MOTOR, FAN

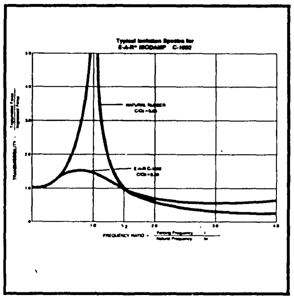
- Isolation Mounting Grommets
- Plenum Sound Absorbers

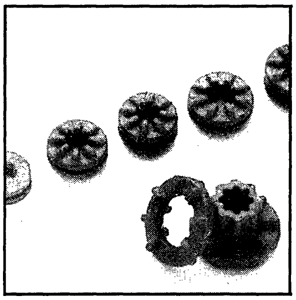
ACOUSTIC GASKETS AND SEALS



C-1002 "SOFT BLUE" ISOLATION

- Highly damped vibration isolation material
- Uniquely effective for shock or vibration over a broad frequency range
- Excellent wear and physical properties
- Available in sheets, die cut or custom injection molded parts
- Ideal for:
  - — Disk drive shock protection grommets
  - — Crash stops
  - — Stepper motor inertial dampers
  - — Isolation grommets for fractional HP motors and small fans
  - — Precision equipment mounts
  - — Acoustic gaskets and seals



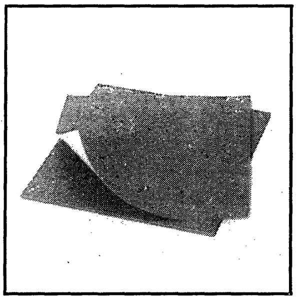


C-1002 GROMMETS

- Available in standard sizes for common metal thicknesses, bolt dimensions and loading parameters

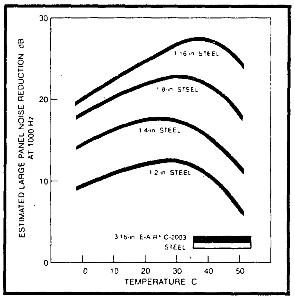
ISODAMP® GROMMETS

PRODUCT NUMBER	BOLT SIZE	PLATE THICKNESS	UNITS/BOX
Grommet 1	3/16″	1/16″	500
Grommet 2	3/16″	1/8″	500
Grommet 3	1/4″	1/16″	500
Grommet 4	1/4″	1/8″	500
Grommet 5	3/16″	1/16″	500
Star Grommet	1/4″	varies	500



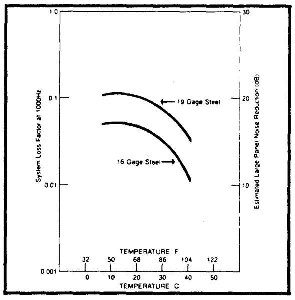
C-2003 "HARD BLUE" DAMPING

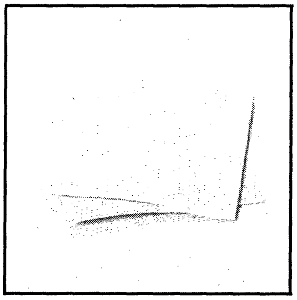
- Uniquely efficient damping material
- Easily applied with strong pressure sensitive adhesive backing
- Available in sheets or custom die-cut parts
- Ideal for:
  - — Disk drive grounding strap damping
  - — Metal parts damping
  - — Electronics cabinetry damping



C-2200 DAMPING MATERIAL

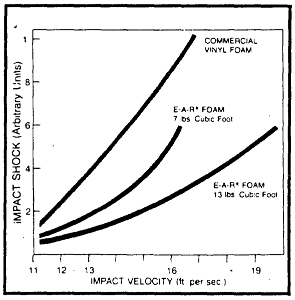
- Cost effective vibration damping for metal, plastic and structural foam
- Available in composite with plain and embossed sound absorbing foams for easy installation
- Available in sheets or die-cut parts; Also may be injection molded or vacuum formed for special applications
- Ideal for:
  - — Printer housings
  - — Electronics cabinetry
  - — Metal parts damping



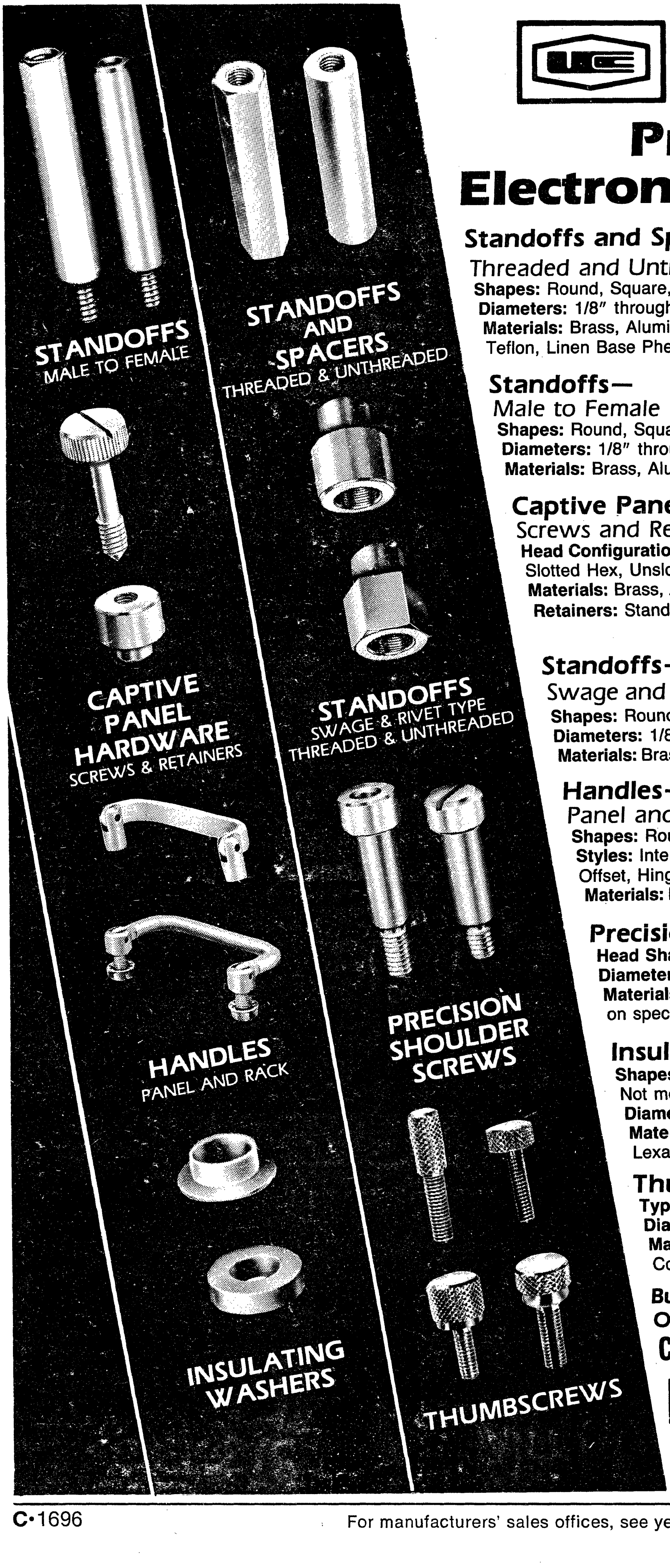


C-3001, 3002 DAMPING FOAMS

- Energy absorbing, PVC alloy, closed cell foam
- Superior damping; light weight
- Available in sheets, rolls, or die-cut parts
- Ideal for:
  - — Printed circuit board damping
  - — Acoustic gaskets and seals
  - — Low load crash stops
  - — Protective packaging for shipment of delicate instruments



LEADERSHIP IN NOISE CONTROL


STANDOFFS
MALE TO FEMALE
STANDOFFS AND SPACERS
THREADED & UNTHREADED
CAPTIVE PANEL HARDWARE
SCREWS & RETAINERS
STANDOFFS
SWAGE & RIVET TYPE
THREADED & UNTHREADED
HANDLES
PANEL AND RACK
PRECISION SHOULDER SCREWS
INSULATING WASHERS
THUMBSCREWS

UNICORP

Precision Electronic Hardware

Standoffs and Spacers

Threaded and Unthreaded

Shapes: Round, Square, Hex
Diameters: 1/8″ through 5/8″
Materials: Brass, Aluminum, Stainless Steel, Cold Rolled Steel, Nylon, Teflon, Linen Base Phenolic, 10% Glass Filled Lexan®

Standoffs—

Male to Female

Shapes: Round, Square, Hex
Diameters: 1/8″ through 1/2″
Materials: Brass, Aluminum, Stainless Steel, Carbon Steel, Nylon

Captive Panel Hardware

Screws and Retainers

Head Configurations: Knurled and Slotted, Knurled and Unslotted, Slotted Hex, Unslotted Hex
Materials: Brass, Aluminum, Stainless Steel, Carbon Steel
Retainers: Standard and Spring-Loaded

Standoffs—

Swage and Rivet Type Threaded & Unthreaded

Shapes: Round, Hex
Diameters: 1/8″ through 3/8″
Materials: Brass, Aluminum, Stainless Steel, Cold Rolled Steel

Handles—

Panel and Rack

Shapes: Round,Oval, Rectangular, Half-Round
Styles: Internal Thread, External Thread, Straight, Offset, Hinged, Extruded
Materials: Brass, Aluminum, Stainless Steel, Carbon Steel

Precision Shoulder Screws

Head Shapes: Slotted Round, Allen Round
Diameters: 1/4″ to 3/4″
Materials: Type 303 Stainless Steel-Other materials on special order

Insulating Washers

Shapes: Shoulder, Flat, Precision Machined—Not molded
Diameters: Shoulder .187 to .505; Flat .093 to .386
Materials: Nylon, Teflon, Glass Filled Lexan® Phenolic

Thumbscrews

Types: Knurl, Sholder, Plain, Push
Diameters: 3/16″ through 1/2″
Materials: Brass, Aluminum Stainless Steel, Cold Rolled Steel

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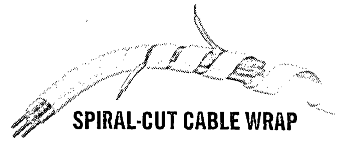
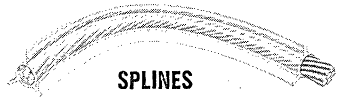
Withstands heat extremes to 500°F. Absolutely uniform. Superior lubricity. Zero water absorption. Inert to virtually all corrosives. High dielectric strength. Flexing unlimited. Shock, high pressure, and abrasion resistant. Non-toxic. Non-contaminating. Easily sterilized. Compatible with human tissues and fluids.



SPIRAL-CUT CABLE WRAP



SPLINES

SUB-LITE-WALL™ — World's smallest tubing! Walls as thin as 0.0015″ in I.D.s of 0.022″+. Also walls of 0.007″ with I.D.s less than 0.002″. (Note: The average human hair is 0.003″.)

HEAT-SHRINK — Provided in expanded state with shrink ratios up to 4 to 1. A brief application of heat produces a skin tight jacket that overpowers hell, high water, and the acid test.

DUAL-SHRINK — Outer tubing of TFE and an inner tubing of FEP. Outer tubing shrinks for tight fit when heat is applied. FEP melts and flows to form a fit so tight it can withstand severe stresses and resists moisture, acids, etc.

HEAVY CONSTRUCTION — For extra strength and durability. Ideal for automotive, chemical, electrical, and mechanical applications.

SPAGHETTI — Unmatched concentricity and tolerances. Wide range of AWG sizes, fractional inch and industrial grades.

SNAPTUBE® — For the restoration and reutilization of conductors with damaged cables. Snaps into place quickly. Available in long lengths and sizes to accommodate wire bundles.

FEP TUBING — Chemically inert, excellent dielectric properties. Continuous use at 400°F. Non-aging, anti-stick. Great tensile strength.

PFA TUBING — Tough, flexible. Continuous use near 500°F. Features clarity, chemical inertness, excellent flex-life, and chemical flow. Exceptional stress/crack resistance and great dielectric properties.

"C" SHAPE GUIDE RAIL COVERS — Slick surface increases conveyor-line speed. Doubles system life for beer, soda and food packagers and manufacturers of cans and containers.

APPLICATIONS

WATER & AIR SAMPLING • CHROMATOGRAPHY
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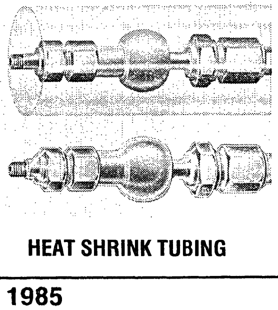
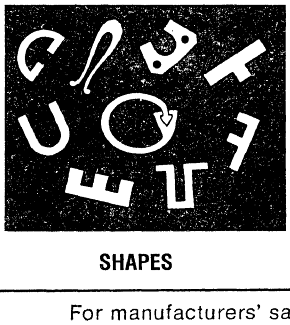
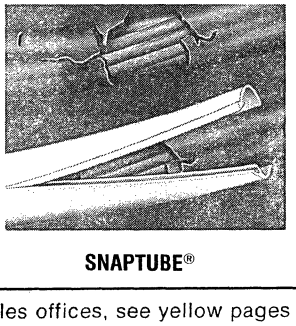


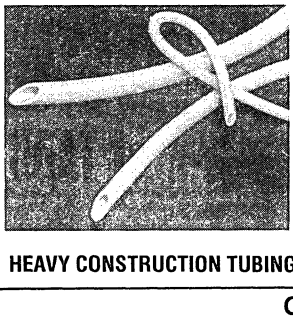
HEAT SHRINK TUBING



SHAPES



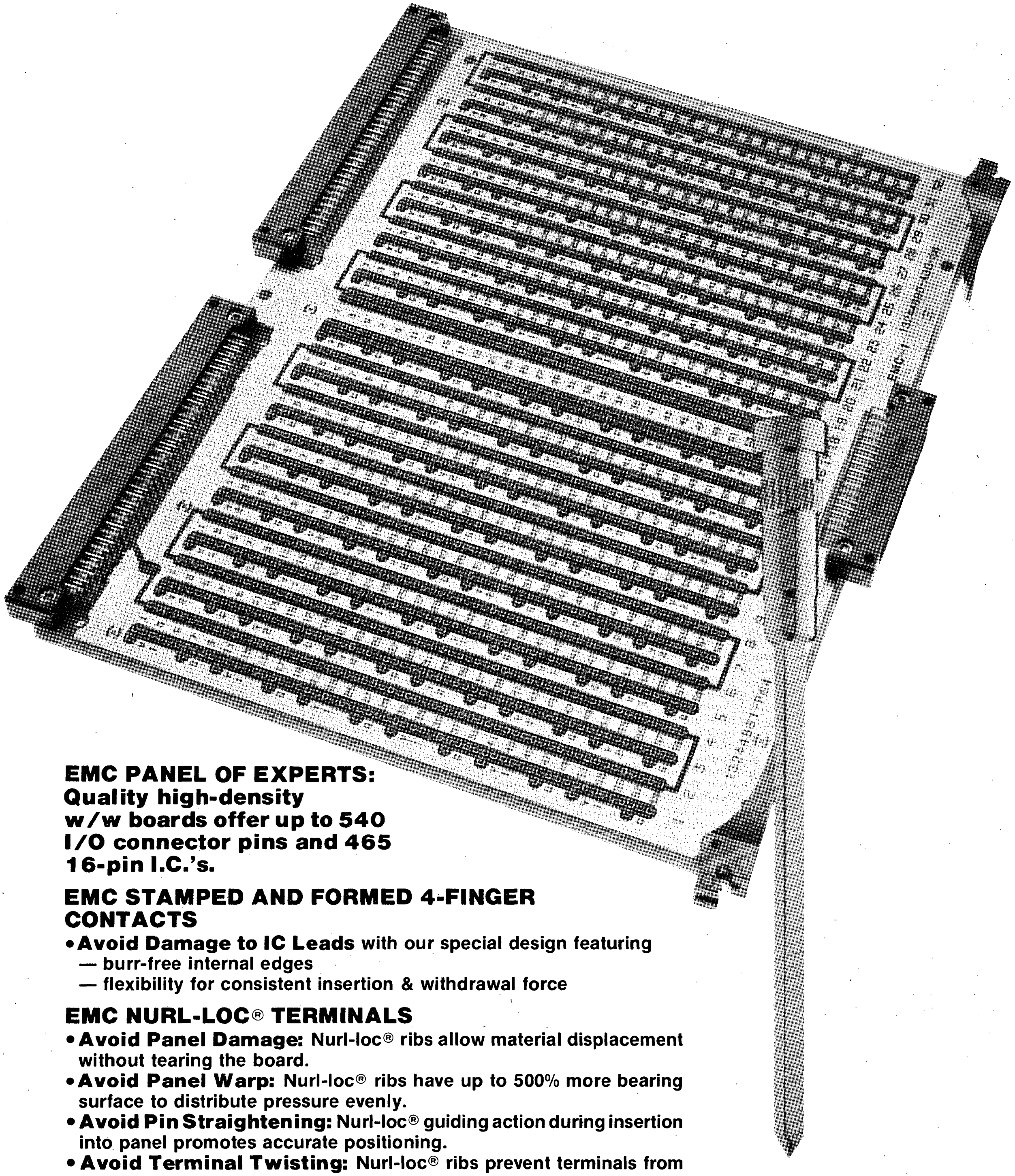
SNAPTUBE®



HEAVY CONSTRUCTION TUBING

A PANEL OF EXPERTS

EMC NOW OFFERS COMPATIBLE WIRE WRAPPABLE BOARDS FEATURING 108-PIN CONNECTOR!



EMC PANEL OF EXPERTS:
Quality high-density w/w boards offer up to 540 I/O connector pins and 465 16-pin I.C.'s.

EMC STAMPED AND FORMED 4-FINGER CONTACTS

- **Avoid Damage to IC Leads** with our special design featuring
  - — burr-free internal edges
  - — flexibility for consistent insertion & withdrawal force

EMC NURL-LOC® TERMINALS

- **Avoid Panel Damage:** Nurl-loc® ribs allow material displacement without tearing the board.
- **Avoid Panel Warp:** Nurl-loc® ribs have up to 500% more bearing surface to distribute pressure evenly.
- **Avoid Pin Straightening:** Nurl-loc® guiding action during insertion into panel promotes accurate positioning.
- **Avoid Terminal Twisting:** Nurl-loc® ribs prevent terminals from spinning during wire-wrapping.

EMC®
The Leader in Nurl-Loc® Technology

Electronic Molding Corporation
96 MILL ST., WOONSOCKET, R.I. 02895 (401) 769-3800 TWX 710-387-1350
SEE OUR PAGES THIS SECTION C•1706 - C•1709
ALSO SEE OUR PAGES IN SECTION 2100 — PAGES C•1186 - C•1188

BOARDS, PLUG-IN

Manufacturer	EEM Page No.	Extender	Interface	Memory	Processor	Prototype
Augat	C•1702, 1703		●	●		
Electronic Molding	C•1706-1708	●	●	●	●	●
Hybricon Corp.	C•1710	●	●	●	●	●
ITI	C•1711	○	○	○		●
Prototek	C•1714		●			●

BACKPANELS

Manufacturer	EEM Page No.	Model/ Series	Plug-in	Interface Computer/ Peripheral	Spacing in Inches	Power BUS	Pattern
Assembly Specialists	C•1700	Services, Wirewrapping					
Augat	C•1703	R	○	○			Universal
	C•1703	8136	○	○	.3, .6, .9	●	Universal
	C•1703	8136	○	○	.3, .4, .6, .9		Universal
	C•1703	8136	○	○	.3, .4, .6, .9		Universal
dataCon	C•1705	Services, Wirewrapping					
Electronic Molding	C•1706		●	●		●	Eurocard
	C•1709	Services, Wirewrapping					Universal
Hybricon Corp.	C•1710		●	○			Universal,
	C•1710	Services, Wirewrapping					Eurocard
ITI	C•1711	Metric				●	Eurocard

PROGRAMMING BOARDS/SYSTEMS SWITCHING MATRICES

Manufacturer	EEM Page No.	Series/Model	Type of Connections	No. of Connections	Fixed	Contact Spacing
Mac Panel	C•1712, C•1713	96	Plugboard	1200 - 7200		
		140	Plugboard	240 - 5120		
		157	Plugboard	200 - 5120	●	
		157	Plugboard	200 - 1280		

BUS BARS & SYSTEMS

Manufacturer	EEM Page No.
Atlee Inc.	C•1701
Lear Siegler	C•1430
Rogers Corp.	C•1715

ASI

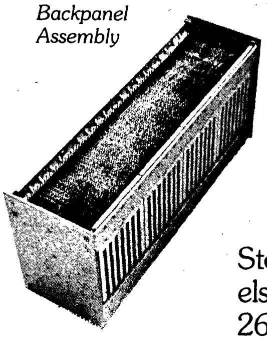
Established 1968

WIRE WRAPPING AND ASSEMBLY SERVICES

THE PIONEER IN WIRE WRAPPING

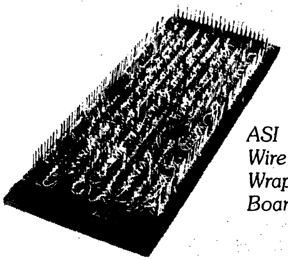
All you have to provide us with is a board, schematic diagram, and chip layout. We will take care of the rest. If you prefer, we can even supply you with the boards. We have a large supply of Augat or Mupac compatible, and ASI custom boards in stock.

3 TO 5 DAYS TURNAROUND TIME



Backpanel Assembly

With 21 machine wire wrapping stations we can handle single prototypes to large production runs.



ASI Wire Wrappable Boards

Additionally

Stock and custom manufactured wire wrappable panels. Pre-cut and stripped Kynar wire in 30 AWG and 26 AWG.

ASSEMBLY SERVICES

Large production and equipment facilities versatile enough to be able to handle small, medium and large production orders.

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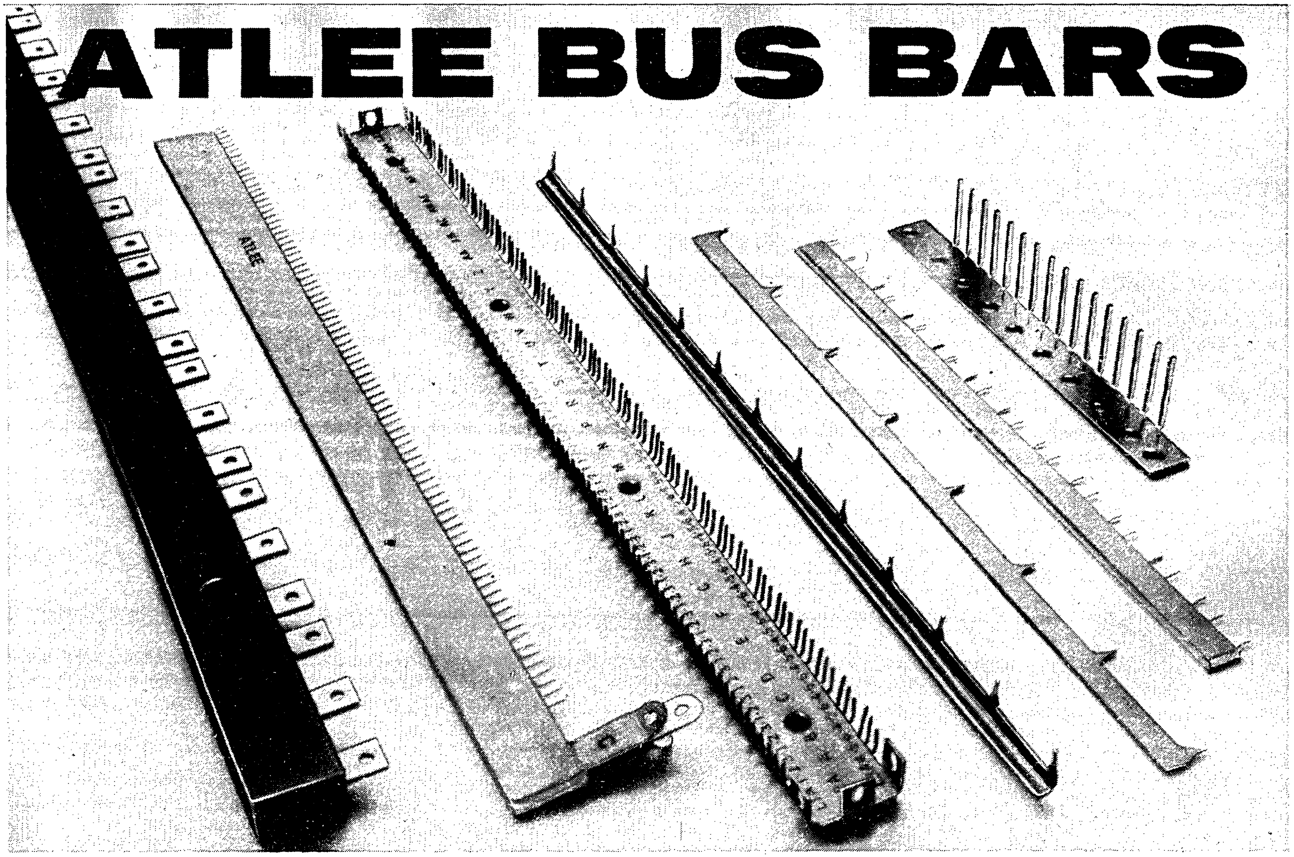
ATLEE BUS BARS



Atlee is a full line manufacturer of bus bars, serving the computer industry, avionics, military contractors and various high tech manufacturers. We have available design and engineering services as well as prototype department. In addition, Atlee has sales representatives nationwide to service our customers. Please contact Atlee to service your bus bar requirements.

TO SPECIFY AN ATLEE BUS BAR

Please contact the factory for a bus bar catalog and any questions you may have.

TO SPECIFY A CUSTOM BUS BAR

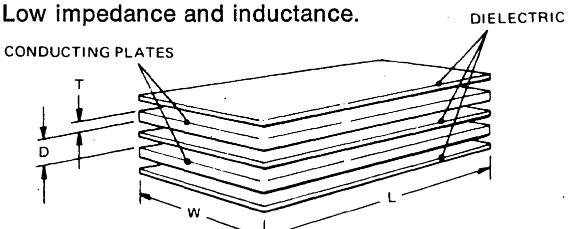
If your requirements do not permit the use of an Atlee Standard Bus Bar, send a drawing print or even a rough sketch of the Bus Bar that would meet your specifications and let Atlee's Sales Engineering Department work out the details and give you a quotation. Atlee will manufacture any type bus bar to your specifications. In general the information required includes:

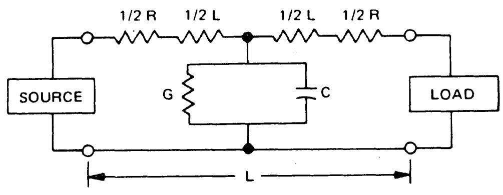
1. Application and quantity
2. Space available
3. Current paths required
4. Type of terminations
5. Number and location of terminations
6. Current requirements
7. Voltage drop requirements
8. Tab to tab spacing on each conductor
9. Type of mounting
10. Capacitance desired
11. Dielectric strength
12. Environmental requirements
13. Type finish on conductors
14. Marking
15. Quantity

DESIGNER'S NOTES

Atlee laminated bus bars consist of flat conductor layers stacked on one another and separated by appropriate dielectrics. Typically such an assembly is laminated and edge-sealed or encapsulated so that the final product becomes a rigid unit with high reliability and stable electrical and mechanical properties. These properties provide uniform capacity, low impedance, and high-speed transmissions of signal and current. Atlee bus bars are an economical alternative to multi-layer printed circuit boards and wire harnesses. They offer:

- Lowered production costs, because assembly is simple and fast.
- Reduced volume which permits higher density packaging than possible with wire harnesses.
- Reduced noise with ideally distributed capacitance and isolation of conductors.
- High current-carrying capacity.
- Low impedance and inductance.





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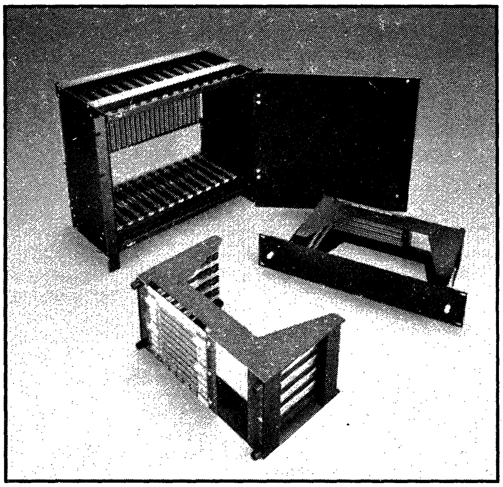
AUGAT® Interconnection Systems

Electronic Packaging Solutions

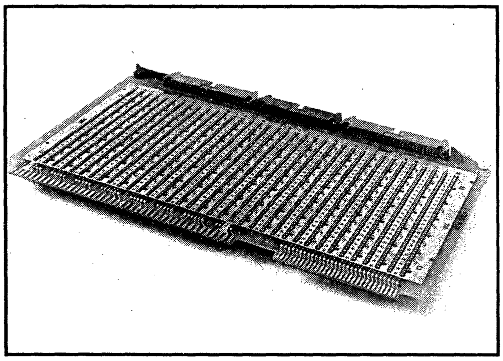
Multibus Card Cages



Multibus card cages/backplanes are available in a wide variety of card spacing, card slots, and P2 backplane options. The parallel priority option is field installable in all chassis with 8 or more slots.

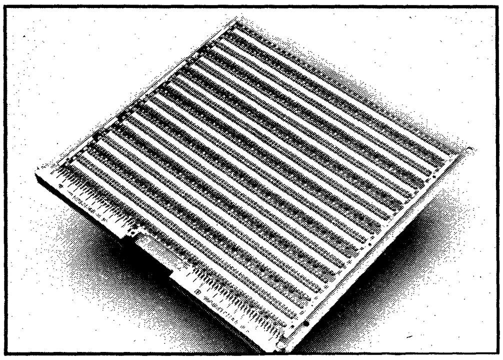
Connector spacing	Range of slots	Options	P2 backplane	
			with power	w/o power
.6"	4-26	Parallel Priority, −5V Reg.	yes	yes
.75"	5-21	Parallel Priority, −5V Reg.	yes	yes

Multibus Panels



Model Number	IC Pattern	# of IC's	I/O
8136-UG159	Universal	108	3 Ribbon Cable Headers
8136-HPG10	Hi-Pak	132	3 Ribbon Cable Headers
8136-LG912	Universal	108	126 Card Edge Fingers
8136-LG918	Universal	108	100 Card Edge Fingers
8136-HPG20	Hi-Pak	132	126 Card Edge Fingers
8136-SHPG56	Hi-Pak/PGA	90/6	User supplied header
8136-HPG41	Hi-Pak/PGA	106/4	User supplied header
8136-LG1311	Hi-Pak/PGA	254/8	User supplied header
8136-ISBX36(44)	Adapter for 36 or (44) pin iSBX boards		
8136-EXT17	Extender Card		

Multibus II Panels



Model Number	IC Pattern	# of IC's	I/O
8136-MB2-10	Hi-Pak	35	2 96-pin DIN
8136-MB2-30	Hi-Pak	135	2 96-pin DIN

AUGAT® INTERCONNECTION SYSTEMS
Quality and Innovation

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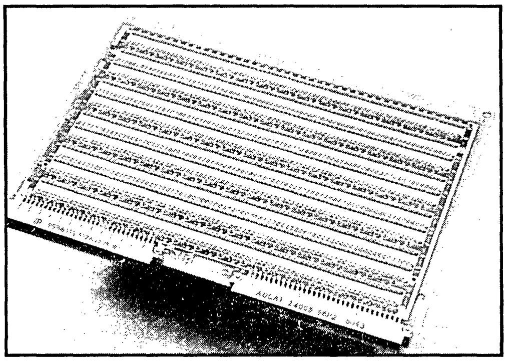
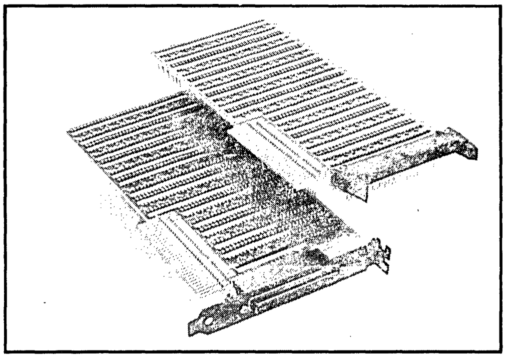
VME

Model Number	Dimensions	# of IC's	Construction	I/O
8136-VME10	100x160mm	42	TTL	1 96-pin DIN
8136-VME20	233x160mm	90	TTL	2 96-pin DIN
8136-VME30	233x220mm	135	TTL	2 96-pin DIN
8136-VME40	366x280mm	270	TTL	3 96-pin DIN
8136-SVME10	100x160mm	42	Schottky	1 96-pin DIN
8136-SVME20	233x160mm	90	Schottky	2 96-pin DIN
8136-SVME30	233x220mm	135	Schottky	2 96-pin DIN
8136-SVME40	366x280mm	270	Schottky	3 96-pin DIN



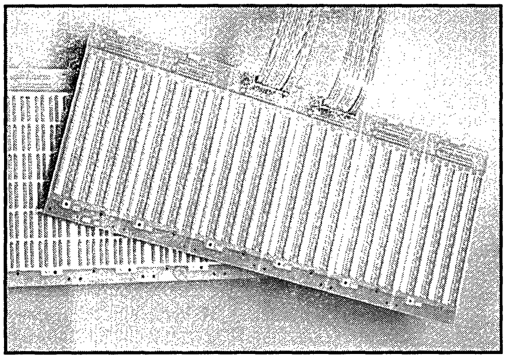
IBM

Model Number	Length of panel	# of IC's	I/O
8136-HPG8-2	5.2"	25	50 pin Ribbon Cable
8136-HPG18-2	9.2"	57	50 pin Ribbon Cable
8136-HPG28-2	13.2"	89	50 pin Ribbon Cable
8136-IPC1-25-2	5.2"	25	25 pin D-Sub
8136-IPC2-25-2	9.2"	54	25 pin D-Sub
8136-IPC3-25-2	13.2"	86	25 pin D-Sub
8136-IPC1-37-2	5.2"	25	37 pin D-Sub
8136-IPC2-37-2	9.2"	54	37 pin D-Sub
8136-IPC3-37-2	13.2"	86	37 pin D-Sub



Modular Series

The Modular Series panels fit into a 16.35" x 7.30" frame that is held in a rack-mountable card cage. Up to six panels (each 2.675" x 6.875") can be placed in the frame. 7.475 panels with widths on 2.675" increments are also available. Each panel may have a unique hole pattern (TTL, ECL, etc.) and a unique I/O pattern.



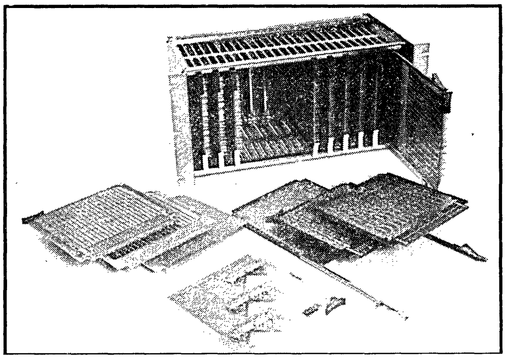
IC Patterns

- TTL Universal
- 16 and 20 pin committed TTL
- Schottky
- ECL (10K, 100K, TTL/ECL translators)

I/O Styles

- .3" DIP Header
- 26 pin Ribbon Cable Header
- 28 pin High Density Plug (Augat 9P28 Series)
- 40 pin Ribbon Cable Header

R Series



IC Patterns

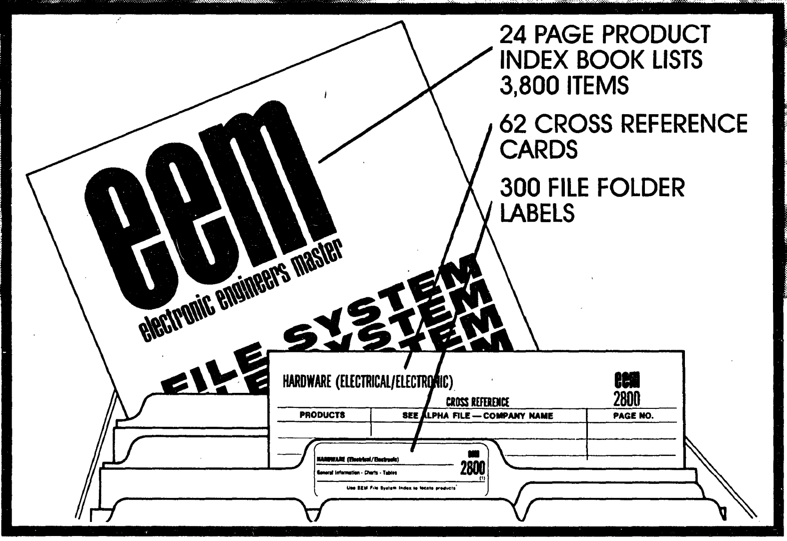
- TTL Universal
- 16 and 20 pin committed TTL
- TTL Hi-Pak
- Schottky
- ECL (10K, translators)

Accessory Cards

- Extender Cards (TTL and ECL)
- TO-3 and DIP
- Blank Cards
- Pre-Drilled only

Card Cages

- 1.2" centers with 3, 6, 9 or 13 slots
- TTL or ECL (controlled impedance) backplanes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electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
eem
2800

24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS

62 CROSS REFERENCE CARDS

300 FILE FOLDER LABELS

ALL NEW with this edition of EEM

GET ORGANIZED!

Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

The EEM File System was invented over twenty-five years ago to help people who specify, buy, or work with electronic products and equipment. It is upgraded on a constant basis to reflect the current state of the art. It's easy to use and easy to customize to your particular needs.

You say you want to file catalogs by type of product? That's easy to do with The System. But, what are you going to do when there are multiple products in one catalog? Take Mallory for example. There are all kinds of products in the Mallory Short Form Catalog. With the EEM File System all you do is file the catalog under "M" for Mallory and refer to it on all of the cross reference cards that apply.

There are thousands of EEM File Systems in everyday use in engineering and procurement offices all over the world. Shouldn't you be using this proven system?

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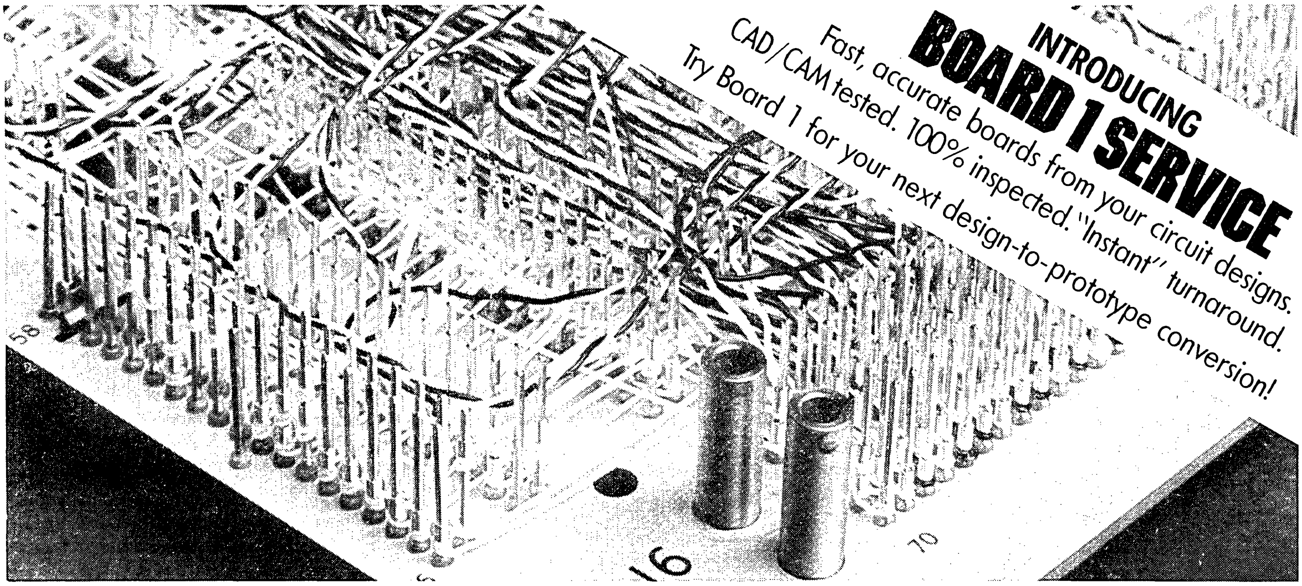
Don't waste any more time. Get organized now!

EEM FILE SYSTEM,
645 stewart ave., garden city, ny 11530


INTRODUCING
BOARD 1 SERVICE
Fast, accurate boards from your circuit designs.
CAD/CAM tested. 100% inspected. "Instant" turnaround.
Try Board 1 for your next design-to-prototype conversion!
58
16
70

DATACON

EVERYTHING YOU NEED FOR WIRE WRAPPING SERVICE.

☐ You provide the panel and wiring information, and dataCon can do everything else. If you prefer, dataCon can even furnish the panel of your choice.

☐ Schematic to machine-wired panel in one week.

☐ Prototype or production capacity.

☐ Automatic and semi-automatic wrapping.

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☐ Round-the-clock operations for on-time deliveries.

Wire wrapping is our only business. And we've become so good at it we're the largest contract wire wrapping company in the world. We've shown many of the biggest companies in electronics that we can do their wire wrapping better and at less cost than their own departments. Let us show you.

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The Wire Wrappers.

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Mid-Atlantic Division—89 Carlough Rd., Bohemia, NY 11716/(516) 589-1100 Telex: 5102220161
Mid-Western Division—502 Morse Ave., Schaumburg, IL 60193/(312) 529-7690 Telex: 722474
Southwestern Division—1829 Monetary Lane, Carrollton, TX 75006/(214) 245-6161
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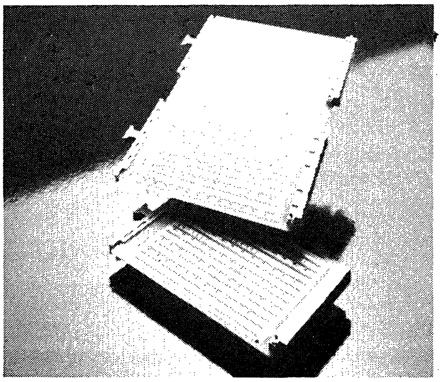
EUROCARDS WITH 96 PIN DIN CONNECTORS

- Eurocard Designed to DIN Standards
- Compatible with VME Bus
- Available in Single (100mm x 160mm), and Double (235.35mm x 160mm) Sizes
- Screw-Machine Sleeve and Stamped BeCu Contact for High Reliability
- Backpanels, Cages, Extender Cards, Sold Separately or as a System
- Designed for Automatic Wrapping

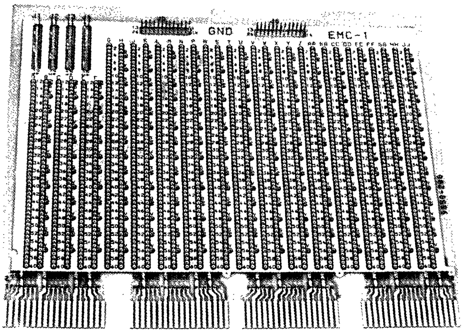


MICROPROCESSOR PANELS

HI-DENSITY, SCHOTTKY, ECL, COMMITTED PATTERNS ALSO AVAILABLE.

D.E.C. QUAD

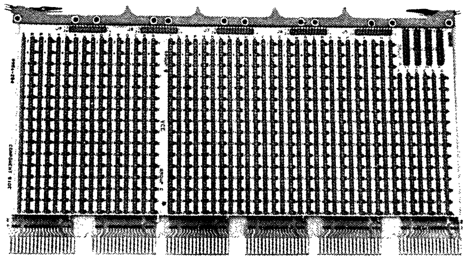
PDP-8 and PDP-11
UNIVERSAL PATTERN



P/N CA09558-B3G-OHF

D.E.C. HEX

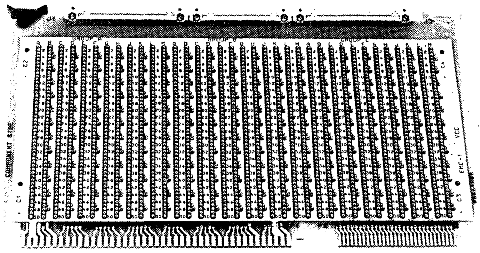
For PDP-11
UNIVERSAL PATTERN



P/N CA09556-B3G-OHF

MULTIBUS

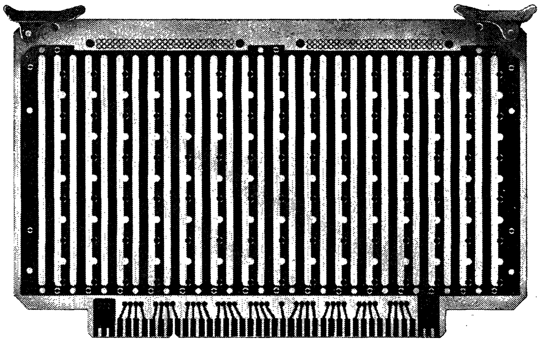
(INTEL SBC 80/10 BUS)
UNIVERSAL PATTERN



P/N CA09546-B3G-OHP

MOTOROLA M6800 BUS

UNIVERSAL PATTERN



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EMC

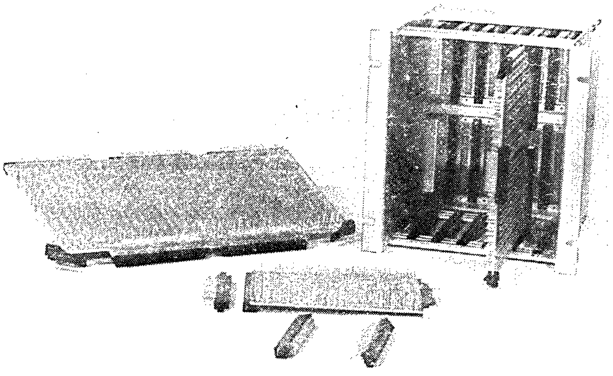
ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, RI 02895 • (401) 769-3800 • TWX 710-387-1350

108-PIN CONNECTOR PANEL SYSTEMS

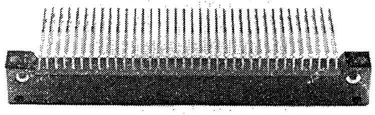
SCHOTTKY HI-DENSITY STYLES ALSO AVAILABLE

- High Density I/O (108 Pins)
- DIN Style Connector
- Voltage Plane Divided into 2 Discrete Sections
- Available in Single, Double and Triple Configurations
- Cages, Backpanels, and Extender Cards — Complete The System Mil-Specs
- VERTICALLY-INTEGRATED FACILITY ENSURES LOW COST, FAST DELIVERY AND TOP QUALITY

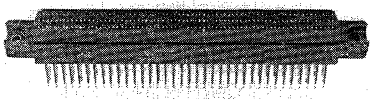


Panels — Mil-P-55110
Socket Terminals — Mil-S-83505

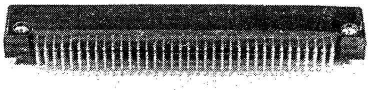
CONNECTORS AVAILABLE



38108-63-343



38108-73-343



38108-67-343

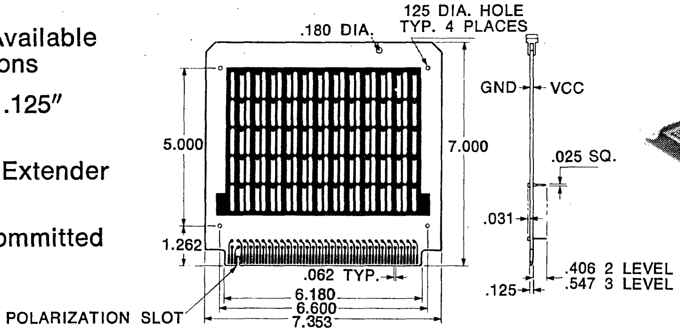
ELECTRONIC MOLDING CORPORATION

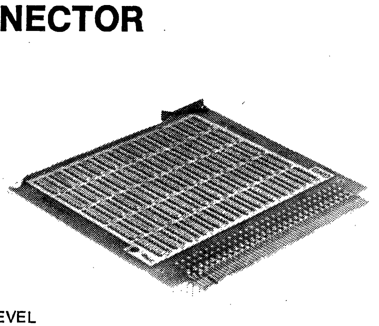
96 MILL ST., WOONSOCKET, RI 02895 • (401) 769-3800 • TWX 710-387-1350

"R" SERIES SOCKET PANEL SYSTEMS

WITH 122 POSITION EDGE-CARD CONNECTOR

- Five Pattern Styles Available for up to 60 IC Positions
- Available in .062″ or .125″ Thickness
- Cages, Backpanels, Extender Cards Available
- Committed and Uncommitted I/O Styles Available

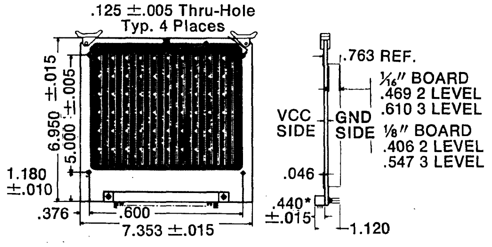

125 DIA. HOLE
TYP. 4 PLACES
.180 DIA.
GND
VCC
5.000
7.000
.025 SQ.
.031
1.262
.062 TYP.
.406 2 LEVEL
.547 3 LEVEL
.125
6.180
6.600
7.353
POLARIZATION SLOT

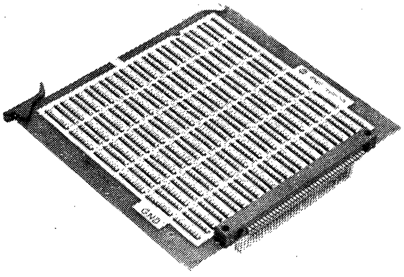


"W" SERIES SOCKET PANEL SYSTEMS

WITH MOLDED 120 PIN RIGHT ANGLE CONNECTOR

- 60 or 72 IC Locations
- 14 and 16 Pin Committed, Uncommitted and Universal Patterns Available
- Male Connector Supplied with Panels
- Cages, Backpanels, Extender Cards Available

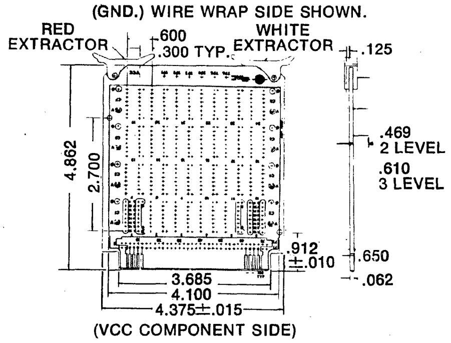

.125 ±.005 Thru-Hole
Typ. 4 Places
6.950 ±.015
5.000 ±.005
1.180
±.010
.376
.600
7.353 ±.015
.763 REF.
1⁄16″ BOARD
.469 2 LEVEL
.610 3 LEVEL
VCC SIDE
GND SIDE
1⁄8″ BOARD
.406 2 LEVEL
.547 3 LEVEL
.046
.440*
±.015
1.120

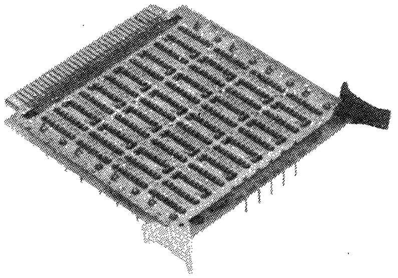


MINI SOCKET PANEL SYSTEMS

WITH 72 PIN EDGE-CARD CONNECTOR

- Choice of 12, 18, 24 or Universal IC Locations
- Panels Have Six Test Points Plus up to 16 Bifurcated Pins for Component Mount
- Cages, Backpanels, Extender Cards Available


(GND.) WIRE WRAP SIDE SHOWN.
RED EXTRACTOR
.600
.300 TYP.
WHITE EXTRACTOR
.125
4.862
2.700
.469
2 LEVEL
.610
3 LEVEL
.912
±.010
.650
.062
3.685
4.100
4.375±.015
(VCC COMPONENT SIDE)

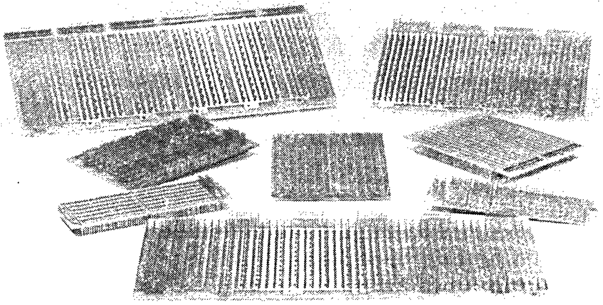


ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, RI 02895 • (401) 769-3800 • TWX 710-387-1350

SECTIONAL SOCKET PANELS

- Nurl-Loc® Pins for Firm .125″ Panel
- Four Plug - Compatible I/O Styles
- Choice of Socket, Hollow or Nailhead Pins in V & G
- Committed, Uncommitted, and Universal Styles Available
- Also in Hi-Density, Schottky, and ECL Styles
- May be Bought in One to Six Sections
- Stamped, Four-Finger BeCu Contact for High Reliability
- Two or Three Level Wire-Wrap Posts
- Gold or Tin Plated Sleeves



EMC

ELECTRIC MOLDING CORPORATION

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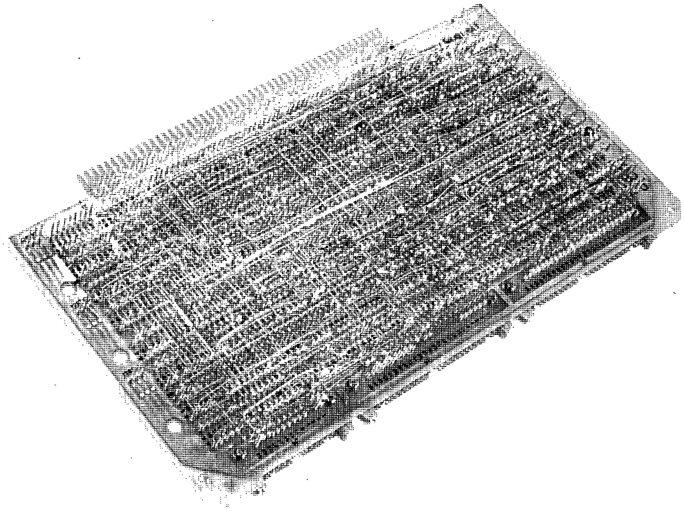
WIRE-WRAP* SERVICE - - - WRAPEX

- Automatic and Semi Automatic Capabilities
- Input from Logic Diagrams, Card Decks, Mag Tape, Floppy Disk, and Printed Wire List
- Accepts Input Through Future Net™ Systems
- Will Wrap Customer Supplied Panels
- Can Supply Complete Packaging Systems Including Panels



* Trademark of Gardner-Denver

WRAPEX CORP.
Specialists in Wire Wrapping

WRAPEX CORPORATION

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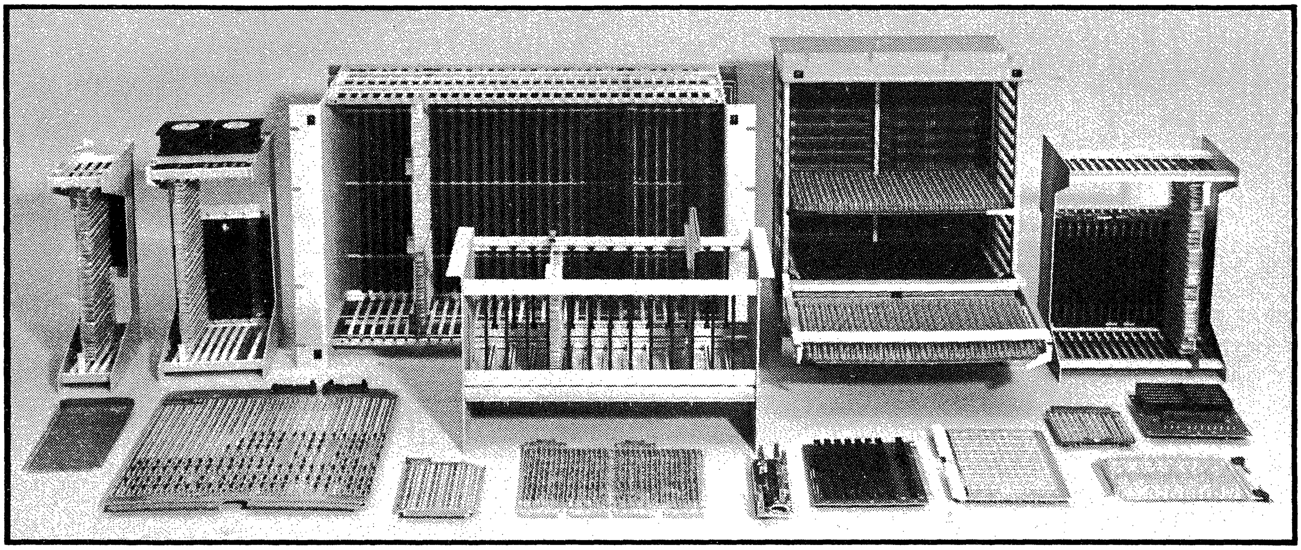
Hybricon Corporation



DESCRIPTION	**MULTIBUS**[1]	**VERSABUS**[2]	**VME**	**DEC**[3]
WIRE WRAPPABLE BOARDS				
Plated through holes	●	▲	▲	●
Socket Pinned	●	●	●	●
High Density Version	●	●	●	▲
★ *VHF Series (up to 500 Mhz)*	★	★	★	★
Double Height (Extended)	●	●	●	●
Eurocard, Double, Triple	■	■	●	■
★ *Multilayer Double Height*	★	▲	●	▲
★ *Custom Pinning, Socket-Sert®*	★	★	★	★
Flat Cable I/O	●	●	●	●
Edge Connector I/O	●	▲	▲	▲
CUSTOM CONFIGURATIONS	▲	▲	▲	▲
EXTENDER BOARDS				
Double Sided	●	▲	▲	●
Multilayer	●	●	●	●
★ *Double Loop Test Points*	★	★	★	★
Side Braces	●	●	▲	▲
CUSTOM CONFIGURATIONS	▲	▲	▲	▲
BACKPLANE & CARD FRAME ASSEMBLIES				
Press-fit/Solder Tail	●	●	●	●
Double Sided	●	●	■	●
Multilayer	●	●	●	▲
3 to 31 slots	●	●	●	●
★ *Parallel Priority Resolution*	★	■	■	■
★ *P2 Auxiliary Board*	★	■	■	■
Fan and Bracket Assemblies	●	●	●	●
Drawer Mountable	●	●	●	●
19.0" Rack Mountable	●	●	●	●
Long Side Plates	●	●	●	●
CUSTOM CONFIGURATIONS	▲	▲	▲	▲
AUTOMATED SERVICES				
CAD Based Engineering Design	●	●	●	●
Documentation Systems	●	●	●	●
★ *Custom pinning wire wrap boards*	★	★	★	★
Wire Wrap Programming	●	●	●	●
Wire Wrapping Service	●	●	●	●
Assembly Service	●	●	●	●
Automatic Testing	▲	▲	▲	▲

Registered trademarks
1 - Intel Corporation
2 - Motorola Inc.
3 - Digital Equipment Corporation

● **Standard, "Off-the-Shelf"**
★ **Unique to HYBRICON**
▲ **Custom**
■ **Not Applicable**

Call for information today

Hybricon Corporation 410 Great Road Littleton, Massachusetts 01460 (617) 486-0311 TWX 710-347-0654

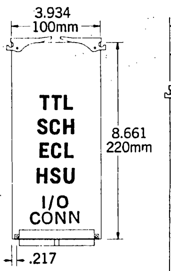
Total project control off-the-shelf with THE METRIC SERIES™

World Class Packaging System

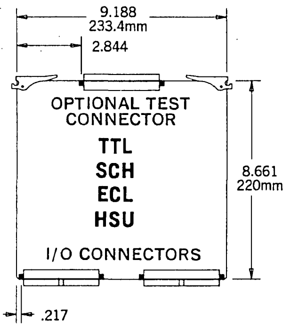
High-Speed Circuit Performance in DIN/Eurocard standard format.

24 Socket Pin PC Boards

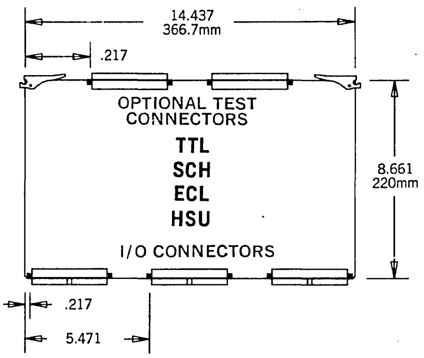
Model 11


3.934
100mm
TTL
SCH
ECL
HSU
I/O
CONN
8.661
220mm
.217

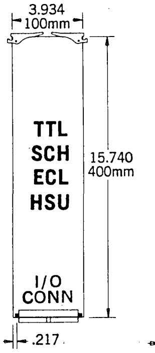
Model 21


9.188
233.4mm
2.844
OPTIONAL TEST CONNECTOR
TTL
SCH
ECL
HSU
8.661
220mm
I/O CONNECTORS
.217

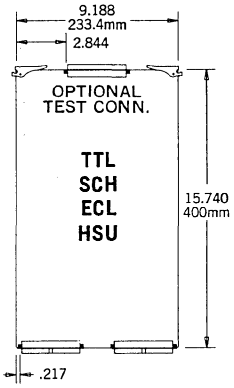
Model 31


14.437
366.7mm
.217
OPTIONAL TEST CONNECTORS
TTL
SCH
ECL
HSU
8.661
220mm
I/O CONNECTORS
.217
5.471

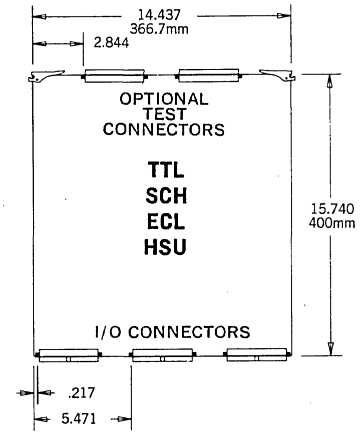
Model 12


3.934
100mm
TTL
SCH
ECL
HSU
15.740
400mm
I/O
CONN
.217

Model 22


9.188
233.4mm
2.844
OPTIONAL TEST CONN.
TTL
SCH
ECL
HSU
15.740
400mm
.217

Model 32


14.437
366.7mm
2.844
OPTIONAL TEST CONNECTORS
TTL
SCH
ECL
HSU
15.740
400mm
I/O CONNECTORS
.217
5.471

All Metric Series boards contain high density 96 pin inverse DIN connectors.

24 Extender Cards

Ruggedly framed and supported extender card with 96 pin Reverse DIN connectors, 5-layers, 96 patched test points for each board size and logic option.

12 Backplanes

For .800″ or 1.200″ card centers. 96 pin Reverse DIN connectors, press-fit V&G wrap-pins. Massive power and ground planes. Wire wrap interconnections. TTL, Schottky, ECL and High-Speed Universal.

16 Card Racks

6 free standing and 6 Retma mount vertical racks for each size board .800″ and 1.200″ card spacing. 2 horizontal (free standing or Retma mount) racks for Model 32 boards, and mixer racks for different board sizes.

Three Pin Technologies

Stitch-Wire

MIL-approved wiring technique providing optimum performance for ECL and fast Schottky devices. Fast, easy and low cost changeability with the highest reliability of difussion bonding.

Wire-Wrap

Tin or gold plated 1 to 3 level wrap pins. Suitable for TTL and some Schottky applications.

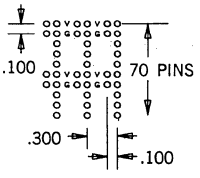
Insulation Displacement. Fast, convenient breadboarding for a test circuit. Available only in TTL boards in the Metric Series. Easy conversion to Stitch-Wire.

Design, Wiring Services and Equipment.

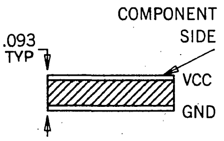
Logic conversion, Stitch-wiring, Insulation Displacement wiring. Numerically controlled and manually operated Stitch-Wire machine. Custom Board Design.

All ITI Metric Series Boards are available in four configurations:

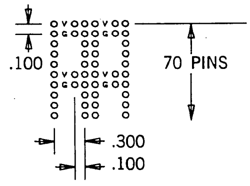
TTL 2-Layer Board
Typical TTL Pin Pattern


.100
70 PINS
.300
.100

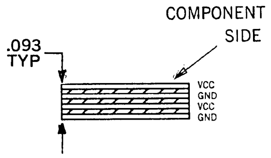
TTL BOARD LAYERS


COMPONENT SIDE
.093 TYP
VCC
GND

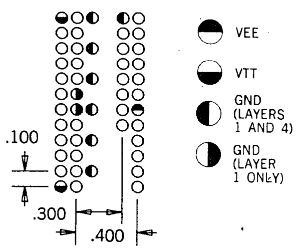
Schottky 4-Layer Board
Typical Schottky Pin Pattern


.100
70 PINS
.300
.100

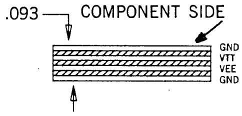
SCHOTTKY BOARD LAYERS


COMPONENT SIDE
.093 TYP
VCC
GND
VCC
GND

ECL 4-Layer Board
Typical ECL Pin Pattern

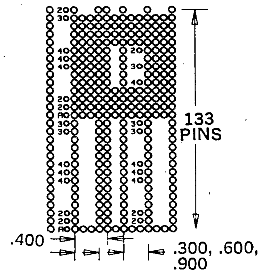

VEE
VTT
GND (LAYERS 1 AND 4)
GND (LAYER 1 ONLY)
.100
.300
.400

ECL BOARD LAYERS

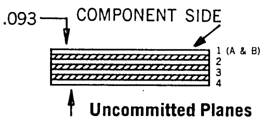

.093
COMPONENT SIDE
GND
VTT
VEE
GND

High-Speed Universal
HSU 4-Layer Board

TYPICAL HSU PIN PATTERN


133 PINS
.400
.300, .600, .900

HSU BOARD LAYERS


.093
COMPONENT SIDE
1 (A & B)
2
3
4

Uncommitted Planes
Allows mixing of TTL & ECL

ITI-Where quality starts -- and never stops!
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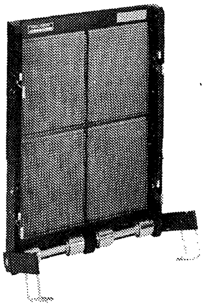
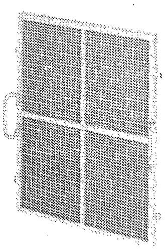
MAC PANEL

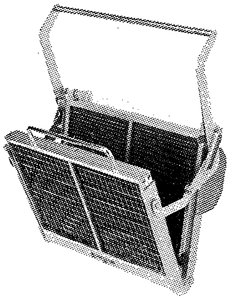
1958-1986 Our 28th Year
PLUGBOARD PROGRAMMING SYSTEMS

SERIES 157 PLUGBOARD SYSTEMS

Reliable economical program control with Spring-Lock, Lever-Arm or Cam-Arm mechanism. Removable plugboard, patched with Series 157 Plugwires.

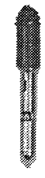






Model 927
(3264 Positions)

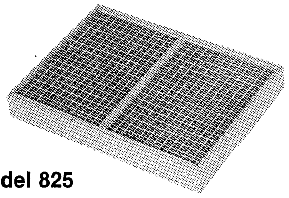
Model 921
(1600 Positions)



Series 157 Plugwire Tip

SERIES 157 FIXED SYSTEMS

Used where program change requirements do not dictate the use of removable plugboards. Patched with Series 157 Plugwires.



Model 825
(1632 Positions)

IN-STOCK CONNECTORS & TOOLS

We maintain shelf stock on connectors, and crimping, insertion and extracting hand tools. Used for interconnecting the plugboard system to external equipment.

SERIES 157

REMOVABLE PLUGBOARD SYSTEMS

(Accepts Series 157 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR. - VERT.	LOCKING MECHANISM	RECEIVER DIMENSIONS W	H	D
200	902	10 x 20	SPRING	4.1	10.4	3.0
320	903	16 x 20	SPRING	5.6	10.4	3.0
440	904	22 x 20	SPRING	7.1	10.4	3.0
440	905	20 x 22	SPRING	6.6	11.0	3.0
680	901	20 x 34	LEVER-ARM	8.6	14.1	6.0
748	906	22 x 34	LEVER-ARM	8.6	14.1	6.0
816	907	24 x 34	LEVER-ARM	9.2	14.1	6.0
1280	922	40 x 32	LEVER-ARM	13.4	13.6	6.0
1600	921	50 x 32	LEVER-ARM	16.3	13.6	6.0
680	918	20 x 34	CAM-ARM	8.0	12.1	2.5
748	920	22 x 34	CAM-ARM	8.0	12.1	2.5
816	919	24 x 34	CAM-ARM	8.6	12.2	2.5
1088	988	32 x 34	CAM-ARM	11.0	12.1	2.5
1280	924	40 x 32	CAM-ARM	12.5	11.6	2.5
1496	923	44 x 34	CAM-ARM	16.0	12.5	4.0
1632	925	48 x 34	CAM-ARM	17.0	12.5	4.0
2560	926	40 x 64	CAM-ARM	13.0	23.0	4.0
3264	927	48 x 68	CAM-ARM	17.5	24.0	4.0
4896	928	48 x 102	CAM-ARM	17.5	35.0	4.0
5120	929	80 x 64	CAM-ARM	24.5	23.0	4.0

FIXED PLUGBOARD SYSTEMS

(Accepts Series 157 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR. - VERT.	DIMENSIONS W	H	D
200	802	10 x 20	3.4	6.9	2.0
320	803	16 x 20	4.9	6.9	2.0
440	804	22 x 20	6.4	6.9	2.0
680	801	20 x 34	6.4	10.8	2.0
748	811	22 x 34	6.4	10.8	2.0
816	809	24 x 34	7.6	10.6	2.0
1280	822	40 x 32	10.9	10.3	2.0
1496	823	44 x 34	12.3	11.2	2.0
1632	825	48 x 34	14.7	10.8	2.0
2560	826	40 x 64	10.9	19.6	2.0
3264	827	48 x 68	14.7	21.6	2.0
4896	828	48 x 102	14.8	32.5	2.0
5120	829	80 x 64	21.4	20.5	2.0

Series 157 Systems: Reliable Economical Programmable Control. Taper pin or wire wrap termination to external equipment. Removable and fixed systems standard sizes 200 to 5120 positions special designs up to 9600 positions can be made to order.

SERIES 140
REMOVABLE PLUGBOARD SYSTEMS

(Accepts Series 140 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR. - VERT.	LOCKING MECHANISM	RECEIVER DIMENSIONS W	H	D
240	930	10 x 24	CAM-ARM	5.2	8.9	2.0
480	931	20 x 24	CAM-ARM	7.7	8.9	2.0
640	932	20 x 32	CAM-ARM	7.7	10.9	2.0
816	933	24 x 34	CAM-ARM	8.7	11.4	2.0
1280	934	40 x 32	CAM-ARM	13.1	10.9	2.0
1632	935	48 x 34	CAM-ARM	15.1	11.4	2.0
2560	939	40 x 64	CAM-ARM	13.5	22.0	2.5
3264	937	48 x 68	CAM-ARM	15.9	23.0	2.5
5120	938	64 x 80	CAM-ARM	20.1	26.0	2.5

Series 140 Systems: Feature cam closing mechanism. Choice of taper pin of wire wrap termination to external equipment, on .250 x .250 center line.

SERIES 96
REMOVABLE DOUBLE DENSITY PLUGBOARD SYSTEM

(Accepts Series 96 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR. - VERT.	LOCKING MECHANISM	DIMENSIONS W	H	D
1200	943	40 x 30	CAM-ARM	10.5	8.8	4.0
2400	946	40 x 60	CAM-ARM	10.5	15.0	4.0
3600	949	40 x 90	CAM-ARM	16.9	20.5	4.0
2400	983	80 x 30	CAM-ARM	16.9	8.8	4.0
4800	986	80 x 60	CAM-ARM	16.9	15.0	4.0
7200	989	80 x 90	CAM-ARM	16.9	20.5	4.0

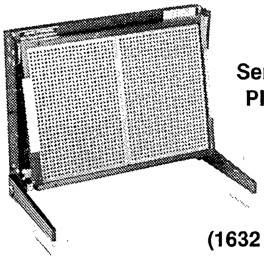
Series 96 Systems: Feature twice the contact density of our series 140 and 157 systems. Also available in Hybrid version having combination signal, power and coax capabilities.

MAC PANEL CO. • 216 Pine St., P. O. Box 5027 • High Point, NC 27262, U.S.A • Phone: (919) 884-8111 TWX: 510-926-1542

1958-1986 Our 28th Year
PLUGBOARD PROGRAMMING SYSTEMS

MAC PANEL

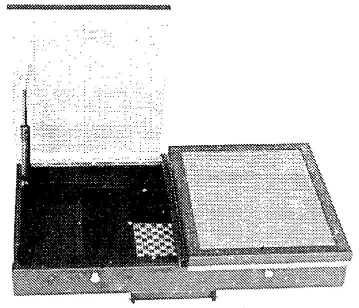
SERIES 140 PLUGBOARD SYSTEMS
Extremely strong and compact systems with removable plugboards. Features cam-closing mechanism. Choice of taper pin or wrap terminations for connecting to external equipment. A complete line of SERIES 140 plugwires is offered.



Model 935
(1632 Positions)

Series 140 Plugwire Tip

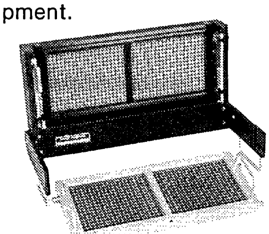
VACUUM FIXTURE KITS
Single and Duel Fixture Kits for use with HEWLETT PACKARD (3060/61/62 & 65) and DIGALOG SYSTEMS printed circuit board testers.



Duel Fixture Kit

SERIES 96 DOUBLE DENSITY SYSTEM
Introduced in 1983, offers twice the contacts per total space required when compared with SERIES 157 & 140 Removable Plugboard SYSTEMS. A choice of Modular Plug or wrap termination for connecting to external equipment.

Series 96 Plugwire Tip



Model 983
(2400 Positions)

APPLICATIONS OF REMOVABLE PLUGBOARD SYSTEMS

MAC PANEL Plugboard Programming Systems are used whenever there is a need for frequent or fast changes in the functions performed by electrical equipment and circuits or in the interconnection of two or more machines and/or circuits. Removable Plugboards are prewired with plugwire assemblies to provide a given pattern of interconnection. Changes can be made either by changing the program wired in the removable Plugboard or by simply replacing the Plugboard in the Receiver with another pre-programmed Plugboard in a matter of seconds. **MAC PANEL** Plugboard Programming Systems are used as large connectors with up to 7200 contact positions on standard models. Thousands of **MAC PANEL** systems have been installed in the United States and in over forty foreign countries since 1958.

GENERAL PRODUCT DESCRIPTION

Each system consists of a Receiver and one or more removable Plugboards. The Receiver is the frame and the engaging mechanism that accepts the removable Plugboard. Depending on the system there are from one to six molded black phenolic or blue diallyl phthalate panels in the Receiver and Plugboard frames. A molded panel will contain up to 1280 holes or contact positions. These panels are silk screened with a grid pattern that provides a unique alphanumeric address for each contact position in the system. Special customized printing in any number of colors can be provided on either the Plugboard or Receiver.

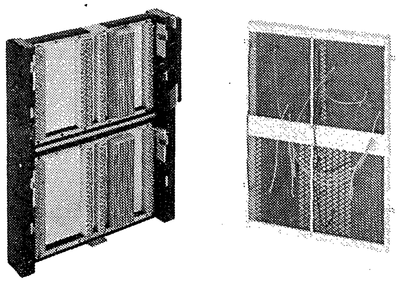
A contact spring is factory installed in each Receiver contact position. The front portion of these nickel or gold plated contact springs mates with nickel or gold plated plugwire tips inserted in the appropriate contact position of the Plugboard when the Plugboard is inserted in the Receiver. All Receivers are equipped with a mechanical interlock that assures proper mating of contact springs and plugwire tips. Each contact position can also be directly connected to the equipment from the rear of the Receiver by soldering, insertion of taper pins, or wire-wrapping. The desired method of connection must be determined prior to ordering so that the appropriate type of contact springs will be provided in the Receiver.

SERIES 96
The more sophisticated mechanism of the SERIES 96 allows for precise alignment of a more dense array of mating contacts. The system consists of up to 6 precisely drilled sections. The removable plugboard has alphanumeric silk screening of each of the nylatron sections. Systems are in multiples of 1200 contact points ranging from 1200 to 7200 points. The receiver sections made of G-10, hold 1200 female sockets with gold plated BE-CU contacts. Termination for wiring to external equipment can be done through wire-wrap, ribbon cable or using single conductor wire. Each cable assembly may contain up to 60 conductors for mass termination through a 2 x 30 modular connector.

The SERIES 96 is also designed for hybrid applications incorporating Signal, Power and Coax capabilities in one compact mechanism.

MAC PANEL maintains shelf stock on over 500 types of plugwire assemblies. These include single conductor and multi-conductor unshielded and shielded plugwires as well as crimpable and wire-wrappable plugwire tips.

MAC PANEL customer service personnel and design engineers invite your inquiries. We can promptly and economically design, build, and install a special custom system or plugwire if our standard product will not meet your requirements.



MODULAR AUTOMATIC TEST EQUIPMENT (MATE) INTERFACE SYSTEMS:
Please see our ad in Volume D Section 3475.

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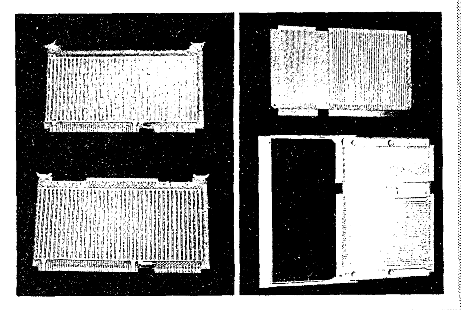
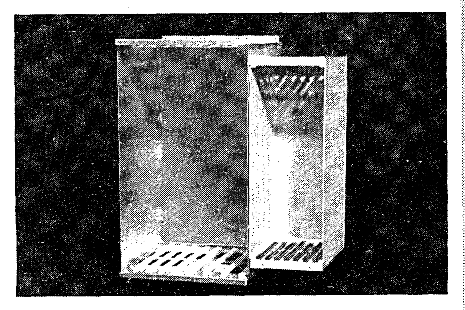
PROTOTEK INC

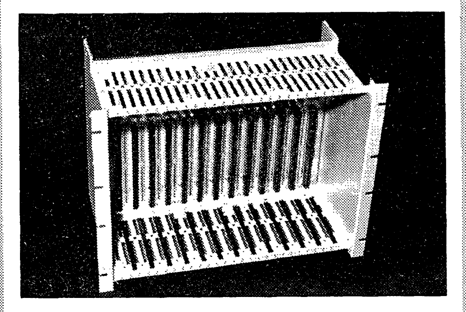
CAN support your BUS Developments from Prototype through Production



Wire Wrap Cards/Extender Cards - MBI

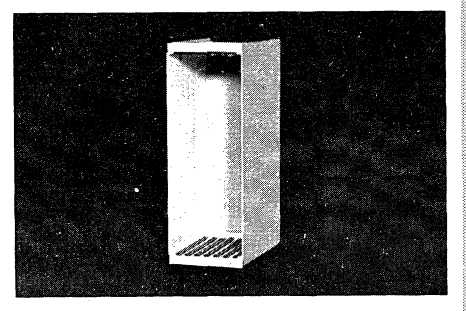


Multibus II Products

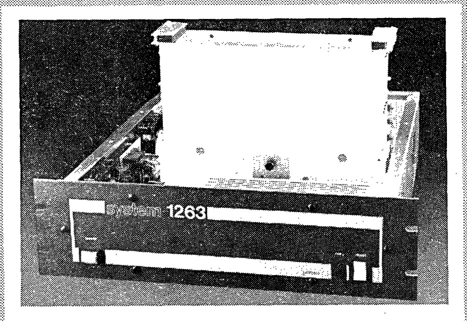


26 Slot Card Cage - MBI

- Also Available in 5, 7, 9, 11, 14, and 18, Slot

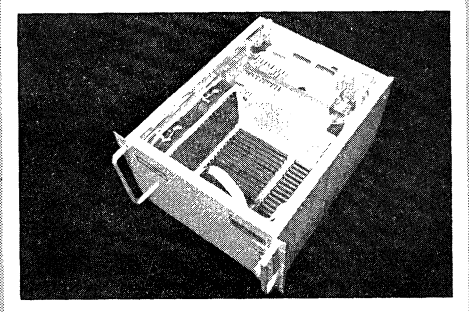


VME Products



Industrial
Power Ready Chassis - MBI/MBII

- Meets FCC Class A EMI Requirements
- Available in 4, 11, and 18 Slot



Military EMI/RFI
Power Ready Chassis - MBI

- Meets MIL STD 461 EMI Requirements

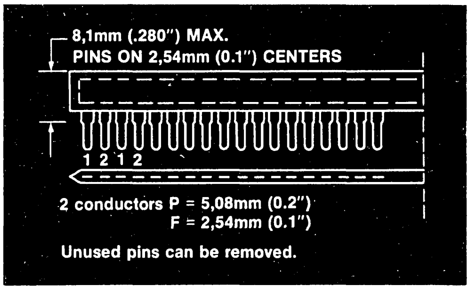
Call and discuss your requirements with us

PT PROTOTEK INC

P.O. Box 46512 • Cincinnati, Ohio 45246 • Phone (513) 874-5094

Mini/Bus® PRINTED CIRCUIT BOARD BUS BARS

M833 2-LAYER VERTICALLY MOUNTED



Unused pins can be removed.

PITCH (P)

Pin-to-pin spacing on the same conductor layer.

OFFSET (F)

Dimension from the first pin of layer 1 to the first pin of layer 2.

SPACES (X)

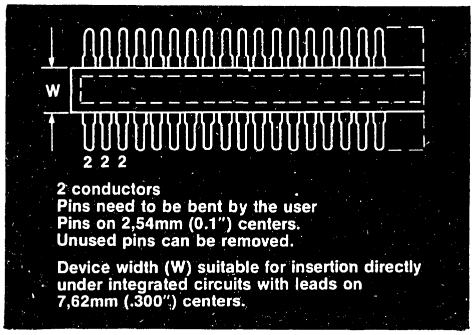
Number of spaces on the same conductor layer.

Mini/Bus Standard Parts — M833

Part Number L.P.F.	X	L
M833 20.2.1	20	107,95mm (4.25")
M833 25.2.1	25	133,35mm (5.25")
M833 30.2.1	30	158,75mm (6.25")
M833 35.2.1	35	184,15mm (7.25")
M833 40.2.1	40	209,55mm (8.25")
M833 50.2.1	50	260,35mm (10.25")
M833 60.2.1	60	311,15mm (12.25")

WORKING VOLTAGE: Maximum working voltage is 50 VDC
TEMPERATURE RANGE: Mini/bus bus bars are suitable for the commercial temperature operating range of -10°C to +85°C
STORAGE TEMPERATURE: -55°C to +105°C

M832 2-LAYER HORIZONTALLY MOUNTED



2 conductors
Pins need to be bent by the user
Pins on 2,54mm (0.1") centers.
Unused pins can be removed.

Device width (W) suitable for insertion directly under integrated circuits with leads on 7,62mm (.300") centers.

P = 2,54mm (0.1")
F = 0.0mm (0.0")

PITCH (P)

Pin-to-pin spacing on the same conductor layer.

OFFSET (F)

Dimension from the first pin of layer 1 to the first pin of layer 2.

SPACES (X)

Number of spaces on the same conductor layer.

Mini/Bus Standard Parts — M833

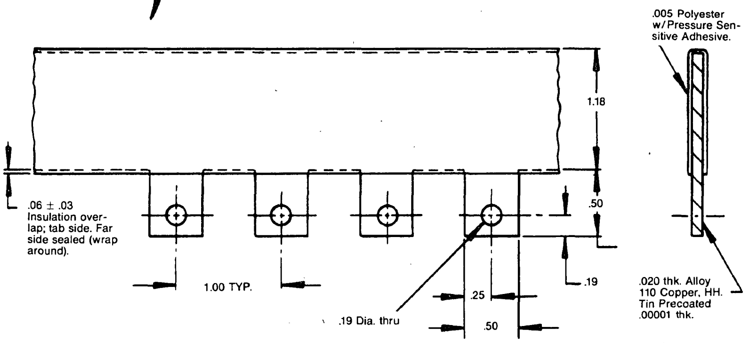
Part Number X.P.F.	X	L
M832 40.1.0	40	105,4mm (4.15")
M832 50.1.0	50	130,3mm (5.15")
M832 60.1.0	60	156,2mm (6.15")
M832 80.1.0	80	207mm (8.15")
M832 100.1.0	100	257,8mm (10.15")

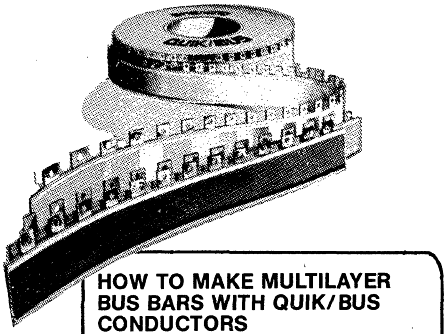
WORKING VOLTAGE: Maximum working voltage is 50 VDC

TEMPERATURE RANGE: Mini/bus bus bars are suitable for the commercial temperature operating range of -10°C to +85°C

STORAGE TEMPERATURE: -55°C to +105°C

Quik/Bus® CONDUCTORS FOR MULTILAYER BUS BARS


.005 Polyester w/Pressure Sensitive Adhesive.
1.18
.06 ± .03 Insulation overlap; tab side. Far side sealed (wrap around).
.50
1.00 TYP.
.19
.25
.19 Dia. thru
.50
.020 thk. Alloy 110 Copper, HH. Tin Precoated .00001 thk.



SPECIFICATIONS/AVAILABILITY

Quik/Bus conductors are available in reels of 50 conductor feet, standard. Conductor is .020" thick copper, HH, tin precoated. Current carrying capacity is 74 AMPS @ 30°C temperature rise.

QUIK/BUS APPLICATIONS

Quik/Bus was developed by Rogers to provide a fast, economical way to make multi-layer bus bars with no tooling cost, no waiting for custom parts. This do-it-yourself Quik / Bus approach is especially useful for prototypes and low volume uses. It retains all the advantages of custom fabricated laminar power distribution bus bars.

FOR OTHER STYLES OF QUIK/BUS CONDUCTORS CONTACT THE FACTORY.

HOW TO MAKE MULTILAYER BUS BARS WITH QUIK/BUS CONDUCTORS

1. Unroll conductors from reel.
2. Cut to length.
3. Remove unneeded input and output tabs where necessary.
4. For large end tabs peel back insulation and cut. Punch holes as required.
5. Form tabs as required.
6. Align conductors and form bus bar body as required.
7. Bundle securely with cable ties.
8. Check finished part for shorts.

MEKTRON®
INTERCONNECTION PRODUCTS

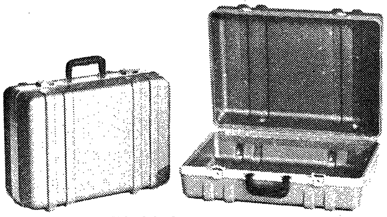
For price/delivery or to place an order: Contact Customer Service Department.

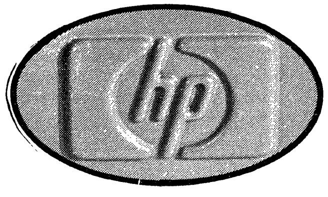
For technical information or design assistance Contact Strip/Bus or Quik/Bus Product Specialist.

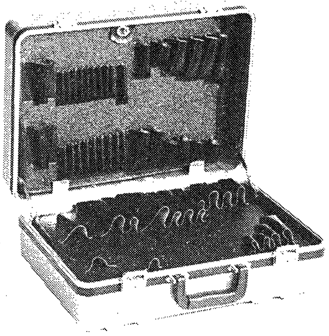
ROGERS

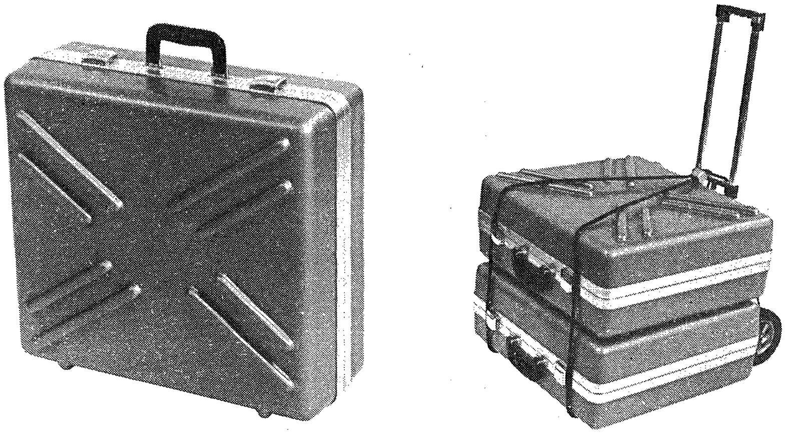
Rogers Corporation
Bus Products Division
5750 East McKellips Road, Mesa, AZ 85205
602 830-3370

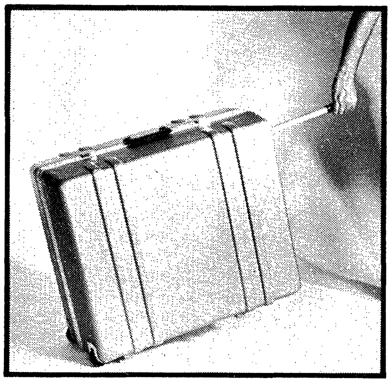
INDUSTRY STANDARD CASES

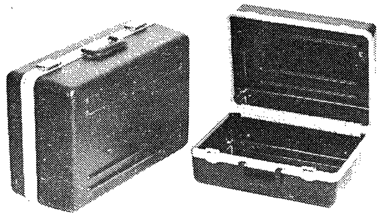

TRANSIT CASE

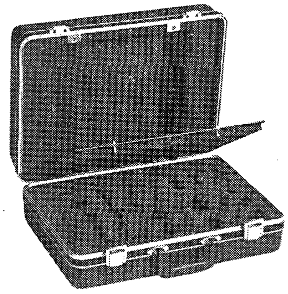

MOLDED LOGOS

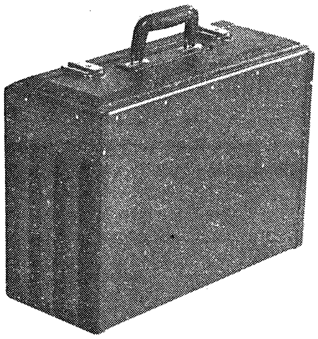

TOOL CASE

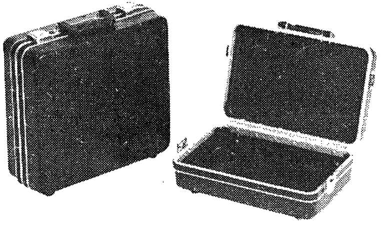

X-STACKING TRANSIT CASE & CART

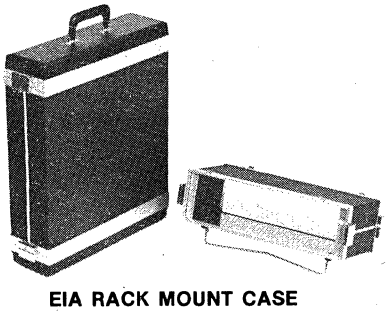

WHEEL CASE

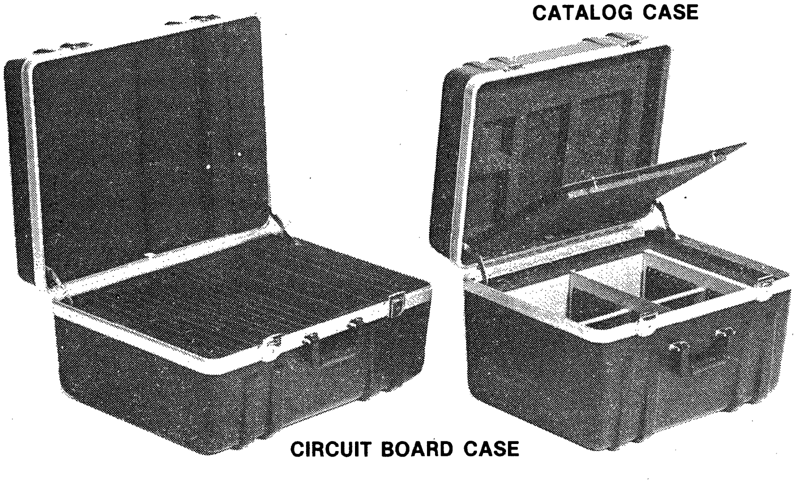

HEAVY DUTY CARRYING CASE


DOORS/HINGED DIVIDERS
DIE-CUT FOAM INSERTS


CATALOG CASE


ATTACHE STYLE CASE


EIA RACK MOUNT CASE


CIRCUIT BOARD CASE

Contact factory for:
- Special hardware selections available
- Special colors
- Flame retardant material
- Special brackets
- Door/dividers/formed inserts
- EMI/RFI shielding
- Foam filled
- Foam die cut
- Foam molded
- Printed circuit board racks

GEMINI
INCORPORATED

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Cannon Falls, MN 55009-0018
PHONE: (507) 263-3957

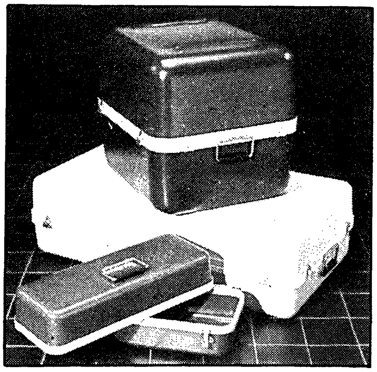
Quality Protection for Advanced Technology

If it measures, computes, records or controls...Skydyne makes it portable.

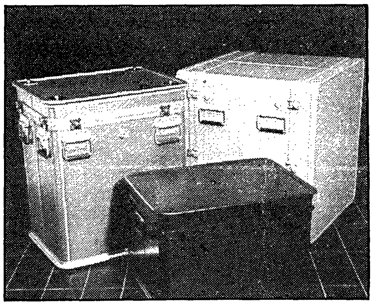
Standard Fiberglass Cases—Excellent commercial/shipping containers. Can be modified to meet mil-specs or other specific requirements. 34 sizes.

Standard Mounting Flange Cases—Adapt display or test equipment to field use with a standard, built-in mounting flange. 38 sizes.

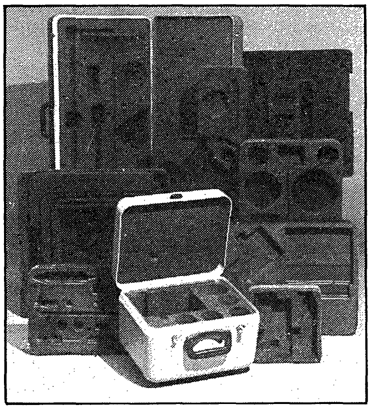
Standard Econoglass Cases—An economical fiberglass carrying case. Has standard mounting clips available for easy panel installation. 28 sizes.



Standard ABS Cases—Excellent commercial/shipping containers. Combine high strength with light weight. Easily modified. 33 sizes.



Aluminum Sandwich Cases—Skydyne can make any size case using a unique aluminum sandwich construction without expensive tooling costs.



Foam Interiors—For additional equipment protection, Skydyne can supply virtually any type of foam insert to meet your requirements.

Since 1938, Skydyne has met the growing need for durable, lightweight protective enclosures. Keeping pace with today's advancing technologies, Skydyne products are found in a wide variety of applications including Fiberoptics, Geophysical Instruments, Portable Computers, Pollution Control, Meteorological Instruments, Aircraft Maintenance, Aerospace and Military Electronics.

Customers in these and many other fields have come to call on Skydyne when quality packaging is required for portable equipment. Commercial or military; prototype or production...Skydyne's engineering staff will work with you from preliminary design through delivery. They have the ability and know-how to solve the most difficult of packaging problems. Call or write for more information, today.

Call Toll Free: 1-800-428-CASE

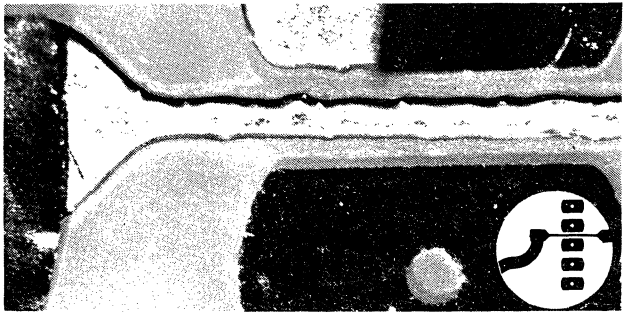
QUALITY PROTECTION FOR ADVANCED TECHNOLOGY
SKYDYNE
AAR Brooks & Perkins/Skydyne Division
RIVER ROAD
PORT JERVIS, NY 12771
(914) 856-6655

DATAK - PRINTED CIRCUIT KITS

PHOTO ETCH™ Printed Circuit Kit

Photograph original 1:1 master art or PC patterns directly from a magazine page using remarkable POS-NEG™ system (patented). No darkroom or camera needed. Set has all materials to make original artwork masters, film negatives and positives. Use the 5"x 6" print frame, copper clad boards, negative photoresist and chemicals to sensitize, expose, develop and etch printed circuit boards. 12 page instruction book covers the theory and practical instructions. Photoflood bulb must be purchased separately at any camera store.

ER-4 PHOTO ETCH PRINTED CIRCUIT KIT $34.95



Dry Transfer DIRECT ETCH™ Resist in Action

OTHER PRINTED CIRCUIT PRODUCTS

TINNIT™ Electroless Bright Tin Plate

TINNIT is supplied as a dry powder. Dissolved in a pint of water, it will plate about 700 sq. ins. of clean copper with a bright tin plating. No electricity is needed. Use to enhance solderability and conductivity on edge card connector patterns.

ER-18 TINNIT™ BRIGHT TIN PLATE $3.50

Etch Resist Pen

Felt pen has lacquer ink that is impervious to PC etchants.

ER-15 ETCH RESIST PEN $1.80

Dry Concentrated Etchant

¼ pound anhydrous ferric chloride in vapor tight pack makes 1 pint etchant, enough for 200 sq. in. of copper board. Cost less than liquids.

ER-3 DRY CONCENTRATED ETCHANT $2.50

Power Etch Pump Kit

Circulates etchant with air to speed etch rate. Kit has pump, coupling hose, perforated distributor tube.

ER-12 POWER ETCH PUMP $7.25

POS-NEG™ Photocopy Film and Accessories

Makes negatives or positives from opaque or translucent original art in one step without a camera. No darkroom needed but use subdued light. Use with yellow filter (ER—17) and EAL photoflood lamp. Read ER-16 Photo Etch Manual before opening this film.

ER-5 SIX SHEETS 5" x 6" POS—NEG FILM $6.50
ER-9 TWO SHEETS 8" x 11" POS-NEG FILM 6.50
ER-16 PHOTO ETCH MANUAL 1.50
ER-17 8½" x 11½" YELLOW FILTER 2.00

Contact Printing Frame

A solidly made plated steel and glass exposure frame. Spring back adjusts for film or circuit board exposure. Kit includes ER-17 yellow filter and ER-16 Photo Etch Manual. 9" x 12" size.

ER-10 CONTACT PRINTING FRAME, 9" x 12" $12.95

Film Process Chemicals

Three packets make 1 pint lithographic film developer and 1 pint acid fixer. Handles 15 sheets 5" x 6" Pos-Neg film.

ER-6 FILM PROCESS CHEMICALS $3.25

Negative Photo Resist Liquid and Developer

Spray on PC board and expose through negative. Unexposed areas are dissolved by developer. Exposed areas harden and are etch resistant. Four ounce bottle with pump spray coats over 1700 sq. in. Develop ONLY with ER-8 or Kodak KPR developer.

ER-71 PHOTO RESIST LIQUID, 4 ounce $6.95
ER-8 NEGATIVE RESIST DEVELOPER, 16 ounce $4.20

DIRECT ETCH™ Printed Circuit Kit

This one step kit uses a unique dry transfer resist that makes razor-sharp patterns on copper clad boards. Lay out circuits right on the copper with these etch resistant dry transfers. Connect with dry transfer lines or the special tape, then etch in ferric chloride or in any commercial PC etchant. Results are equal to or better than commercial boards. Kit includes PC boards, dry transfer resist patterns, resist tapes, ferric chloride etchant, etch tray and instructions.

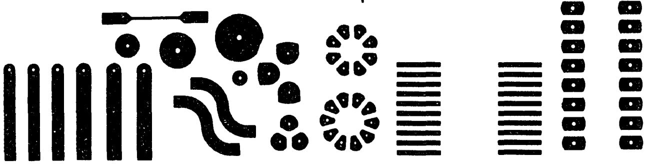
ER-1 DIRECT ETCH PRINTED CIRCUIT KIT $9.50

DRY TRANSFER ETCH RESIST PATTERNS

DATAK prints a broad range of dry transfer resist patterns with an ink that is impervious to all commercial etchants. This ink is identical to that used in printing the JotDraft and Microseries range of donuts and connector patterns. See our full line catalog for additional etch resist patterns.

17.6X BLOWUP shows .015" line between .100" spaced DIP pads. Resist pattern is from DATAK ER-2 set. Circuit board is 2 ounce copper etched in a still bath of ferric chloride for 30 minutes at 125°F. Measured undercut is less than .0015".

Resist Pattern and Tape Assortment



Our best selling set includes 8 sheets of donuts, .125" and .156" connector fingers, transistors, round IC's, DIPs of any size, dry transfer traces and 2 rolls of resist tape. This set is in the ER-1 and ER-4 kits.

ER-2 DRY TRANSFER ETCH RESIST ASSORTMENT . . $5.75

Resist Donut Pad Assortment

Set contains 4 sheets of donuts 1/16" through ¼" dia. with .025" center holes.

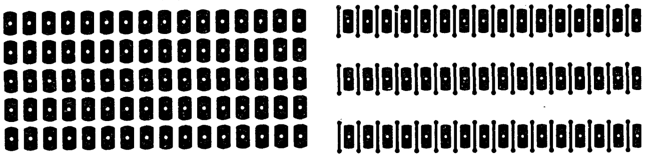
ER-13 DONUT PAD ASSORTMENT $2.95

Resist DIP Pattern Assortment

Set has 4 sheets of continuous .100" x .300" DIP patterns and .050" spaced flatpack fingers. Rub down the length you need. See also JD-171, JD-174.

ER-14 DIP PATTERN ASSORTMENT $2.95

Continuous Resist DIP Pads



From JD-171 **From JD-174**

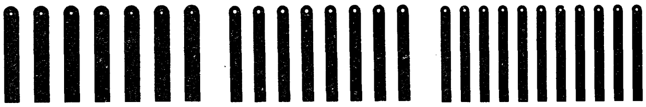
JD-171 set contains 24 sheets of continuous .125"D x .070" cut pads spaced on .100" x .150" centers. Transfer pads on any multiple of .150" or .100". Do any size DIP pattern accurately and fast.

JD-171 RESIST DIP PADS $11.95

JD-174 has 24 sheets of continuous .125"D x .053" cut pads spaced on .100" x .150" centers with a trace between adjacent pads. Pads transfer alone or with traces on any multiple of .100" or .150". Do a large ROM or a ½ DIP with equal ease.

JD-174 RESIST DIP PADS WITH TRACES $11.95

Edge Card Connector Fingers



.156 Spacing **.125 Spacing** **.100 Spacing**

Sets contain 24 strips of spaced connector fingers. Each strip of fingers is 8" long. Butt strips for any connector length.

JD—122R ASST. CONNECTOR FINGERS: .156" & .125" $11.95
JD-168 CONNECTOR FINGERS: .100" $11.95

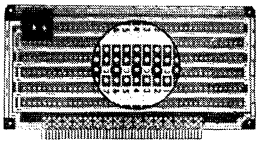
See Sections 2400 and 6000 for DATAK Panel Marking Sets and Wire Markers

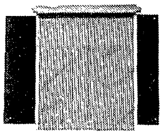
MICROCOMPUTER PRODUCTS

Prototyping Boards • Rack Mount Card Cages • Mother Boards • Connectors • Drop-In Card Racks • Extenders • Enclosures

Vector

S100 AND IEEE 696 SYSTEM PACKAGING


8804


3690-12

Plugbords for interface, memory expansion, breadbording. Nickel/gold plated contacts, 50 each side on 0.125" centers. 0.042" holes on 0.10" grid for DIP sockets, push-in terminals and socket pins. Fire retardant epoxy glass composite material.

8804: "ANY DIP" -- full power and ground planes back-to-back on opposite board sides with offset pads. Two regulator positions provided, one heat sink furnished. Holds 70 16-pin DIPs.

8800V: Power distributed to each DIP location by heavy copper tinned power and ground planes on opposite board sides for low impedance. Prewired regulator circuit and two heat sink provisions. Holds 36 16-pin DIPs.

8801: Individual tinned square pads surround most holes. Heavy tinned power and ground buses are provided and prewired regulator position. Pads for mounting I/O connectors. Holds 82 14-pin DIPs.

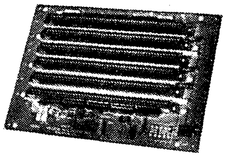
8801-1: No etched circuitry except plug contacts. Holds 121 14-pin DIPs.

3690-12: Provides 7.5" long extension to facilitate testing. Mounted connector.

Connectors with 50/50 gold/nickel plated contacts on .125" centers:

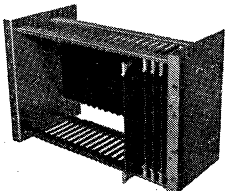
R681 Dip Solder Tail. **R681-1** Wrap Post Tail. **R681-2** for mother board use.

MOTHER BOARDS


8803-6-1A

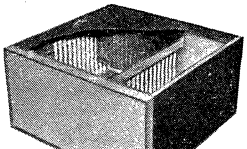
Hi speed - up to 10MHz, shielded, two-sided, plated thru holes, FR4 epoxy glass, .000050" gold plated connector contacts, liberal decoupling capacitors, "reset" switch wiring pads, fully assembled.

8803-6-1A 6-position **8803-18-1A** 18-position.



CCK100
Rack Mounting Cage

Especially designed to accommodate S100, Exorciser and Micromodule Plugbords. 19" w. x 12.2" h. x 8.9" d. Furnished with 21 pairs of guides. Adjustable rear struts mount mother boards or connectors.

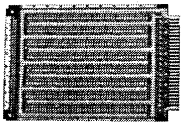


VP2
Assembled Case

Sturdy blue vinyl finished aluminum, fully assembled, with card guides, mounting for mother board or connectors. Power supply chassis plate, and I/O rear connector panel with 10 cutouts for DB25S connectors included.

STD BUS

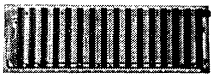
Plugboards for interface, memory expansion, experimentation. Flame retardant epoxy glass composite .062" × 4.5" × 6.5" with 2 oz. tinned copper buses and pads. 28/56 nickel/gold plated contacts on .125" centers. Power and ground bus terminations per STD Bus .042" dia. holes on 0.1" grid. I/O connector pads.

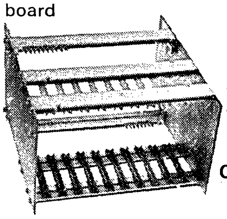

4610

4610: for soldering or wire wrapping
4610-2: for wire wrapping
4610-1: no etched circuitry except for plug contacts
3690-12: extender board has nickel/gold contacts to mounted receptacle.

STD BUS MOTHER BOARDS - RACKS

Hi speed—up to 10MHz, shielded, 2-sided, plated thru holes, FR4 epoxy glass, .000050" gold plated connector contacts, liberal decoupling capacitors, • **4610-8-1** 8-position board • **4610-16-1** 16-position board

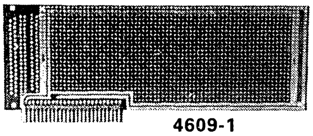

4610-16-1A


CCK19S

CCK19S "drop in" card rack, all aluminum 5¼" h. × 8¼" × 8½" d. 20 nylon card guides supplied for card mounting on .250" increments, rear cross members for mother board or connector mounting.

CCK19SMB8: CCK19S rack with 4610-8-1 motherboard.

APPLE II, IIe


4609-1

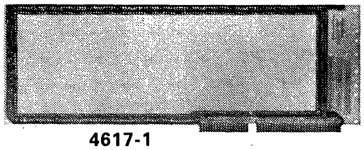
4609 Plugbord: Hi capacity, mounts 22 16-pin DIPs. .1" grid of .042" holes. 7.7" × 3.06". Two sets of gold plated I/O card edge contacts wrap wire or solder. Tinned 2 oz. copper, power and ground buses.

4609-1: +5V & ground—no pads. Mounts 46 16-pin DIPs. One set of edge contacts; also dual purpose pattern on board edge for up to 40-pin .1 × .1 header, or 37-pin "D" sub connector.

IBM AT, PC PROTOTYPING PLUGBOARDS

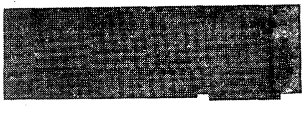
COMMON FEATURES • Gold plated edge contacts on 0.1" centers • Power & ground buses terminated to connectors. • Pads on board & bracket accepts DB9-, 15, 25 or 37-pin I/O connector • Accepts Vector's press-in terminals for wiring or soldering. **FEATURES UNIQUE TO IBM AT ONLY** • Plugs into any IBM AT slot with dual connectors. • Pads for mounting a dual row 0.1" spaced header.

IBM AT PLUGBOARDS


4617-1

4617: 3-hole solder pads & buses
4617-1: Peripheral buses
4617-2: Voltages Planes
4617-3: Pad-Per-Hole
3690-26: Extender board

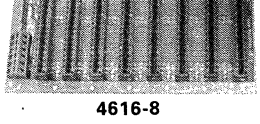
IBM PC PLUGBOARDS

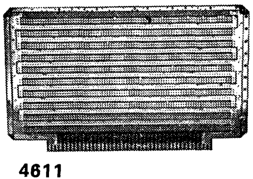

4613

4613: 3-hole pad and bus board
4613-1: Bare board with Peripheral buses
4613-2: Wire wrapping bus board
4613-3: Pad-Per-Hole, Plated through
3690-22: Extender board

44-LINE BUS SYSTEM MOTHERBOARD

4616-8: • RCA Cosmac compatible. • Connectors on 0.75" centers with 22/44 contacts spaced 0.156" centers. • 6.75" × 4.33" × .062" • 6-pin quick disconnect connector installed for external power. • Pads provided for decoupling capacitors between each connector.

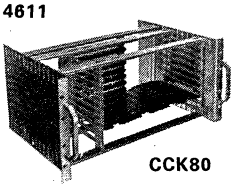

4616-8


4611

MOTOROLA EXORCISOR MICROMODULE

4611 Plugbord: 3-hole pads + 2 buses per Motorola standard, 43/86 nickel/gold contacts on .156" centers. Epoxy glass composite with .042" dia. holes on 0.1" grid for solder or wrap pins.

4611-1: Same as 4611 except no etched circuitry except plug contacts.


CCK80

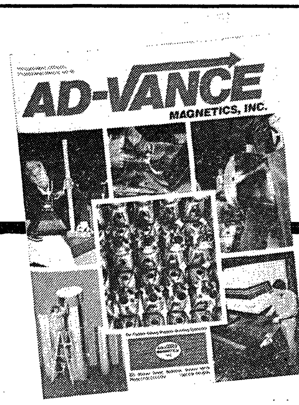
HORIZONTAL CARD CAGE

CCK80: Horizontal card cage for S100 Bus—Multibus—Motorola Exorcisor, Micromodule

10 adjustable card positions. Fully assembled.

Many other models available -- contact your local distributor or factory. For wiring terminals and tools, see Sec. 1700, P. C•1102.

VECTOR ELECTRONIC COMPANY, 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 Phone (818) 365-9661



YOUR MAGNETIC SHIELDING PROBLEMS END HERE!

Request AD-VANCE Magnetics' new 84-Page Procurement Catalog/Engineering Manual; offers magnetic shielding users the major technical guideline data needed to design or choose the optimum magnetic shielding solution for a given application.

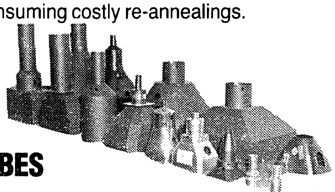
CUSTOM FABRICATED SHIELDS FOR COMPONENTS AND SYSTEMS

Any Specified Configuration or Shielding Requirement

From the simplest component to the most complex system, Ad-Vance Magnetics can design and fabricate an AD-MU shield incorporating your magnetic shielding performance requirements.

These include magnetic isolation chambers, shields for low field research, magnetic shielding components required in systems (such as CRT's), transformers, motors, tachometers, reed relays and computers, dewars for cryogenic research, various test chambers, video cameras, scan converter tubes, photomultiplier tubes, storage tubes, aircraft weather radar display tubes, etc.

Lasting shielding protection is provided because AD-MU alloys do not saturate when properly used, will not suffer excessive permeability loss from shock, and display minimum retentivity. Accordingly, there is no need for repeated time consuming costly re-annealings.



AD-MU CUSTOM FABRICATED SHIELDS FOR CATHODE RAY TUBES

Enhance CRT performance by eliminating effects of external magnetic fields on the electron beam.

Ad-Vance already owns tooling for many types of magnetic shields used during the past quarter century, making tooling savings possible. Or, our Engineering Dept. will gladly help design and produce the optimum shield for your application.

AD-MU TAPE DATA PROTECTORS ASSURE FIDELITY OF VALUABLE TAPES

1 Assure fidelity of vital recorded information by keeping data on magnetic tapes free from distortions caused by unforeseen external magnetic fields.
2 Minimize erasure accidents during safekeeping or transport.
3 Discourage and deter the covert saboteur or vandal.
4 Excellent insurance against possible expensive, or irreplaceable losses.

8 ROUND SIZES

Part No.	A Inches	A Centimeters	B Inches	B Centimeters
TDP 72R07	7-1/4	18.42	3/4	1.91
TDP 72R15	7-1/4	18.42	1-1/2	3.81
TDP 86R07	8-5/8/	21.91	3/4	1.91
TDP 96R13	9-5/8	24.45	1-3/8	3.49
TDP 106R08	10-5/8	26.99	7/8	2.22
TDP 106R15	10-5/8	26.99	1-1/2	3.81
TDP 116R15	11-5/8	29.53	1-1/2	3.81
TDP 116R15P				

Made of AD-MU-00 .031" thick with protective .125" polyurethane foam liner in both top and bottom.

10 SQUARE/RECTANGULAR SIZES

Part No.	A Inches	A Centimeters	B Inches	B Centimeters	C Inches	C Centimeters
CTDP 25S40 (Cassette)	5/8	1.588	5/8	10.48	2-5/8	6.67
TDP 2	12	30.48	12	30.48	3-1/4	8.55
TDP 5	12	30.48	12	30.48	7-3/4	19.685
TDP 75S50	7-1/2	19.05	7-1/2	19.05	5	12.7
TDP 97S30	9-3/4	24.76	9-3/4	24.76	3	7.62
TDP 97S70	9-3/4	24.76	9-3/4	24.76	7	17.78
TDP 117S17	11-3/4	29.845	11-3/4	29.845	1-3/4	4.445
TDP 117S32	11-3/4	29.845	11-3/4	29.845	3-1/4	8.55
TDP 117S77	11-3/4	29.845	11-3/4	29.845	7-3/4	19.685
TDP 117S150	11-3/4	29.845	11-3/4	29.845	15	38.1

Made of AD-MU-00 .050" thick. Finished in durable textured enamel.

INEXPENSIVE INSURANCE IN THESE UNCERTAIN TIMES

Proven AD-MU Tape Data Protectors and Cassette Tape Data Protectors provide inexpensive insurance against such hidden hazards.

Satisfied customers include all branches of the armed forces, NASA, and numerous private firms as well as other governmental organizations.

There is not a single reported instance in which tapes enjoying such secure protection have ever been affected by stray magnetic fields. The investments in such tapes have remained uniformly safe from harm.

"WHY TAKE MY MAGNETIC SHIELDING PROBLEMS TO AD-VANCE MAGNETICS?"

Over 90% past and present magnetic shield designs have been created and fabricated by engineers and production personnel with Ad-Vance. With such a record of experience, it seems likely that Ad-Vance people are the logical ones to solve your particular problem.

"What facilities does Ad-Vance have?"

Two modern, fully equipped plants in Rochester, Indiana, are across the street from each other. They contain up-to-date equipment for:

All types of metal forming
heliarc and spot welding
complete in-house tool room
deep drawing
CNC equipment
processing control of heat
treating and finishing
in-house quality control

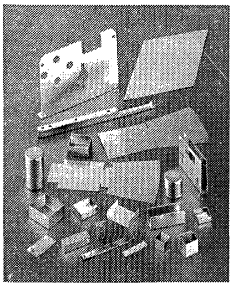
"What's Ad-Vance's industry and market position?"

Ad-Vance is the industry's largest, oldest and most experienced firm exclusively manufacturing magnetic shielding. Products from its factory are used off-planet in spacecraft and satellites as well as world-wide in exacting industrial, military, laboratory and consumer applications.

AD-MU SHEET STOCK—DELIVERY FROM STOCK

- For your in-house designing and manufacturing convenience.
- Easy to work, bend, stamp, draw, finish, etc. on ordinary sheet metal working equipment. SHIELDS MUST BE HEAT TREATED before end use or further finishing by plating, painting, etc.

JUST CUT AD-MU FOILS TO THE EXACT SHAPE YOU NEED



These Time-Saving High and Low Permeability Foils offer convenient, economical magnetic shielding. In many applications, their use can eliminate the costs of designing and manufacturing pre-fabricated shields. Foil shielding is also useful in hard-to-get-at-places. In addition, it permits more compact assemblies, accomplished by placing magnetically reacting components closer together with no performance degradation.

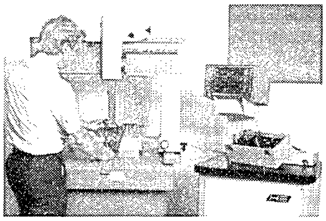
The foils exhibit useful ductility, so are readily hand trimmed to your desired outline on an ordinary cutting board, or with shears. They are then easily hand formed around the structure or component to be shielded. Simple adhesive tape can be used to hold them in place. They have already been properly heat treated so are ready for immediate use.

AD-VANCE MAGNETICS, INC.

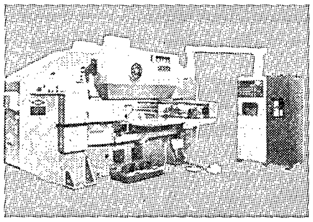
625 MONROE STREET, ROCHESTER, INDIANA 46975
(219) 223-ADMU TWX 810 290 0294

The Problem Solving Magnetic Shielding Specialists—4 Decades of Magnetic Shielding Leadership amuneal

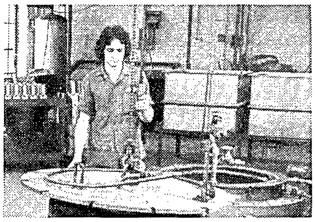
the ONLY magnetic shielding manufacturer with all this IN-HOUSE capability!



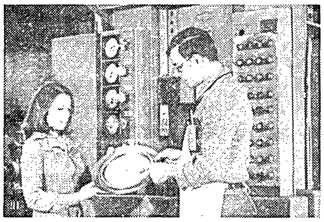
STATISTICAL QUALITY CONTROL... fully documented system. Conforms to MIL-45208A and ASTM 698-74. Computerized XYZ CMM checks the dimensional accuracy.



CNC CONTROL CAPABILITY... superior precision and cost efficiency for multiple hole punching. Up to ±.005" accuracy and ±.001" repeatability.



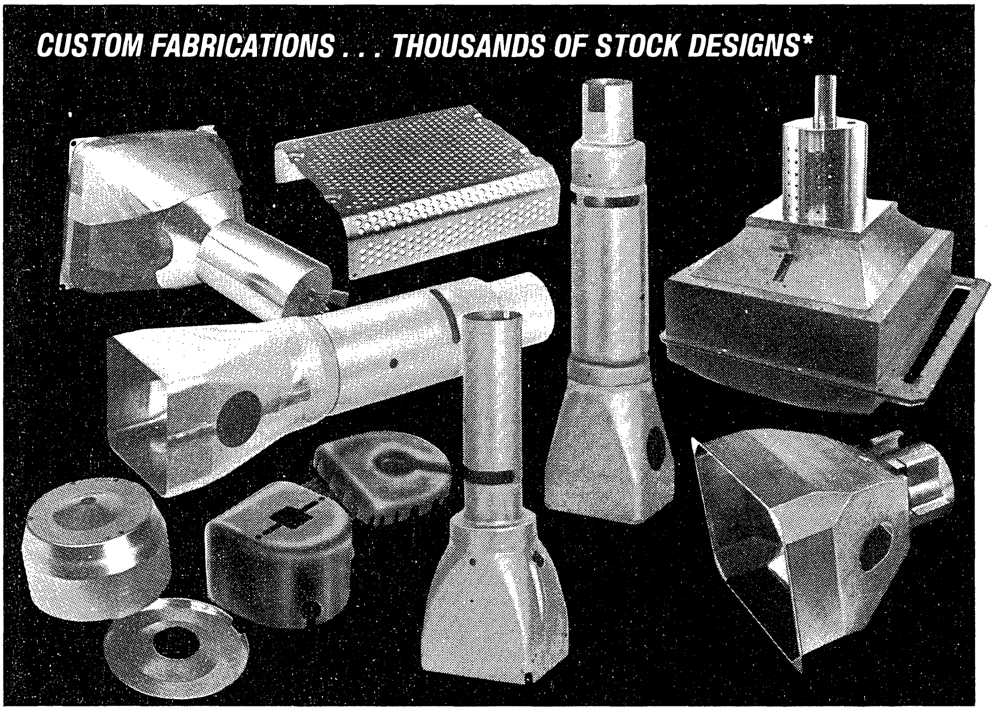
HYDROGEN ANNEALING . . . each shield is annealed after fabrication in one of our six cam-controlled furnaces with strip-chart readout.



HYDROFORMING... the truest, deep-drawing technique available for highly accurate contouring of shields.
and . . . a complete TOOL & DIE Department.

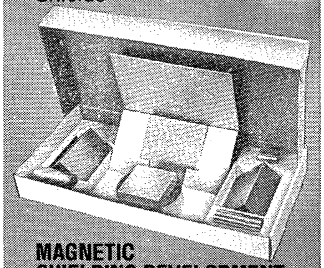
no other shielding manufacturer can match our ability to deliver ON TIME... ON SPEC... ON BUDGET!

That's because no other manufacturer can match our in-house capability or design experience. Give us a drawing of the device you want shielded, and we'll select the proper alloy and suggest the most cost-effective way to design, fabricate, anneal, and test your shields. Try us with one shield—or a production run of a million—and you'll see why we've become the largest magnetic shielding manufacturer in America.



*CUSTOM FABRICATIONS... THOUSANDS OF STOCK DESIGNS**

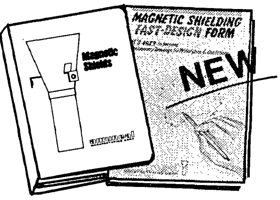
*CRT Shields • Photomultiplier Shields • Transformer Shields • Computer Shields • Power Supply Shields • Chassis Shields • Motor Shields • Printer Head Shields • Special Purpose Shields



MAGNETIC SHIELDING DEVELOPMENT AND EXPERIMENTAL KIT

This kit provides design engineers with various sizes and shapes of amumetal shielding alloy. All nine components are fully hydrogen-annealed to provide optimum EMI shielding properties.

Ask for our FREE 64-page catalog and NEW FAST-DESIGN FORM that makes it easy to prepare drawings for prototypes or quotations.

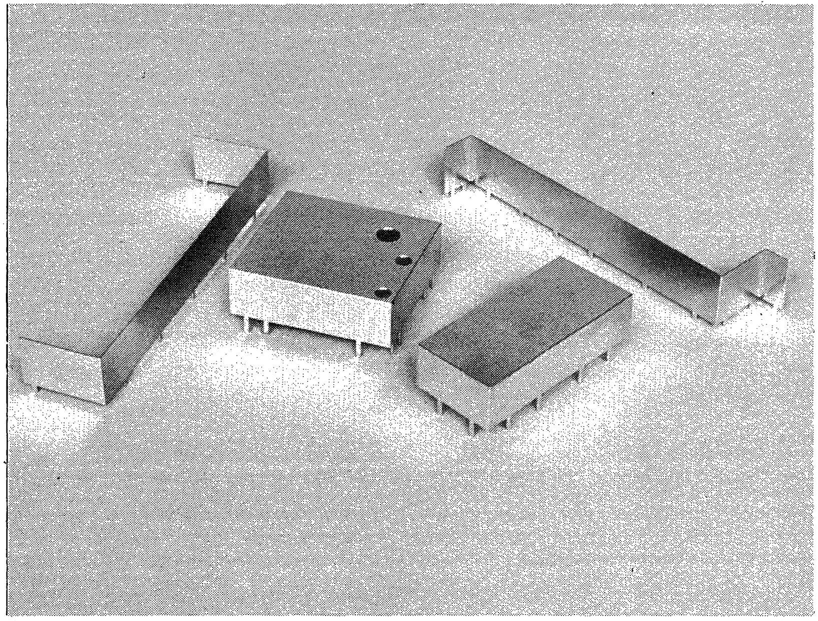


Immediate Delivery from Stock on Foil and Sheet.
Amumetal (80% nickel): Amunickel (49% nickel)
Material Thicknesses . . . .014", .020", .025", .030", .040", .050", .060"

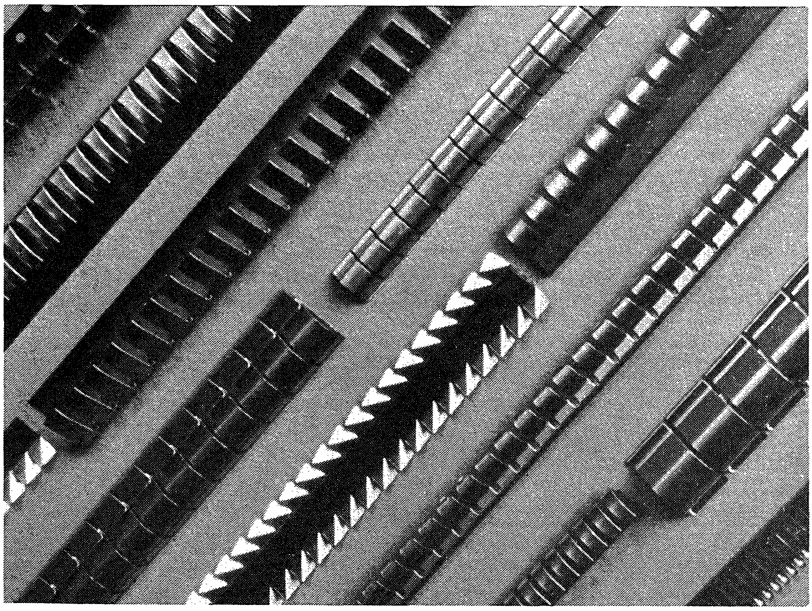
amuneal
MANUFACTURING CORP.
4737 DARRAH STREET, PHILADELPHIA, PA 19124
215/535-3000

RFI/EMI SHIELDING

Atlee manufactures custom RFI/EMI shielding made from beryllium copper, brass or nickel silver. These shields are used to isolate the source of RFI on the circuit board.



Atlee finger contacts and gasketing made from beryllium copper are used for grounding and shielding applications. Ideal for electronic enclosures and chassis.



ATLEE

1 Gill Street
Woburn, MA 01801
(617) 933-3510 TELEX 949407

Magnetic Shield Manufacturing

REPRODUCIBLE QUALITY — ON COMMAND!

COMPETITIVE EDGE

Eagle Magnetic's willingness to invest in expandable state-of-the-art automated manufacturing and control equipment reflects our desire to continue our competitive edge, serving our customers, well into the future.

CAD/CAE to CAM

Productivity begins with our sophisticated Computer process control center. Here advanced high-level programming, link design/engineering specifications to optimum machine operation. Precise monitoring compounds value added by increased machine uptime, reduced waste, and repeatable accuracy in reproducing your exact design specifications —now—or a year from now.

MORE THAN AUTOMATION

CNC/DNC and NC machines provide the precision and long term repeatability required to produce the consistent, high quality—value added products you deserve.

In addition to automated equipment, our up-rated semi-automatic and operator directed machines provide important alternatives for selecting the most cost-effective process methods.

CRAFTSMENSHIP

Talented craftsmen combine knowledge and experience, with proven CAM and up-to-the-minute fabrication techniques.

Pride of workmanship and a creative environment, result in quick, practical solutions to production problems.

You will benefit from our improved process consistency and greater productivity.

BENCHMARK QUALITY

Eagle Magnetic Benchmark Quality is our manufacturing standard. We believe value added quality is a **design-in** feature not an inspect-in incident. Skillful management of committed individuals operating state-of-the-art CAD/CAE/CAM equipment increase **design-in** value added quality with each process.

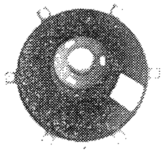
Quality begins when design specifications are CAD/CAE enhanced and continue through master programming, down-loading, and station process control.

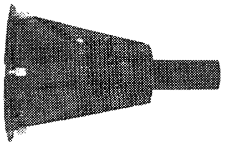
Careful handling and shipping insures that you receive a high quality value added product.

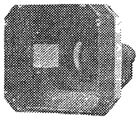
RESPONSIVE

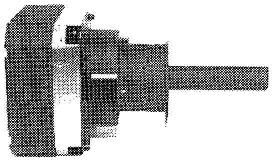
If you expect high quality, value added shield products, manufactured to your exacting specifications, by the latest automated technology, then you should contact Eagle Magnetic Co.—the technology leader in the material selection and production of shields to solve EMI problems.

Design **Prototype** **Production**





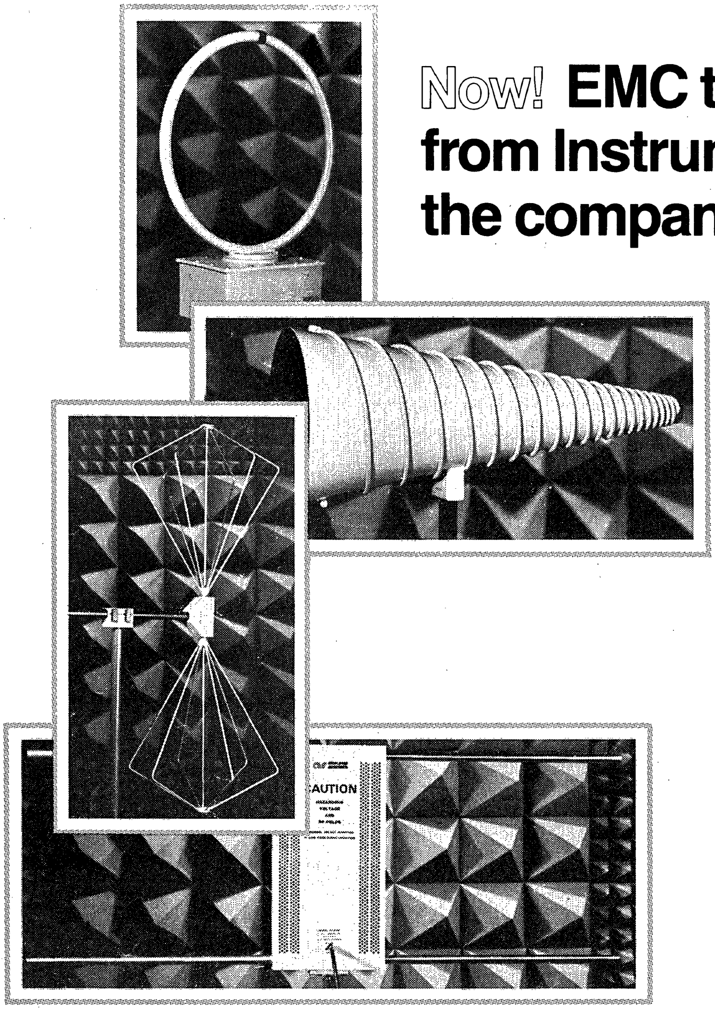




EAGLE MAGNETIC COMPANY, INC.

Eagle Magnetic Co. Inc.

Magnetic Shields (CRT—XTM—PM) Sheet & Foil
P.O. Box 24283, Indianapolis, IN 46224
317-297-1030



Now! EMC testing services from Instrument Specialties— the company that knows shielding inside and out!

If you're involved with keeping RFI/EMI in or out, you already know about Instrument Specialties. You've probably used our beryllium copper shielding strips...received our engineering help ...even used our new line of ESD devices.

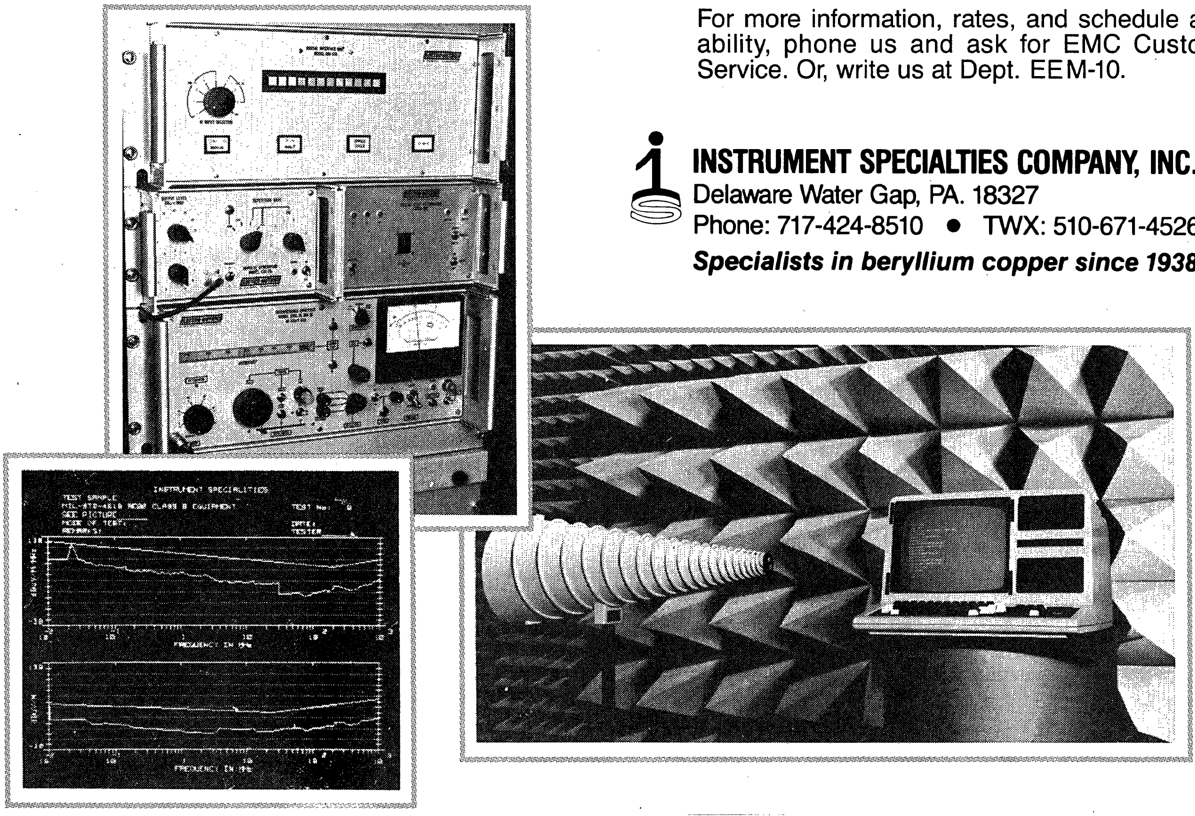
And *now*—the superb EMC testing facilities we use to assure performance of our products is *available to you for the first time.* You now can access the sophisticated equipment you don't have—but *must* have—to secure the test results you need!

State-of-the-art computer-controlled emission and susceptibility measurements from 10 kHz to 1 GHz...RF gasket evaluation...FCC/VDE/CISPR and MIL-STD-461A/B Tests...networks for power line conducted RF emission tests...semi-anechoic shielded enclosure...confirming open field test site...computer-produced hard copy readout of test results—all are yours at Instrument Specialties.

Following testing, you'll leave our facility with the precise documentation you need. In the event you need help to meet required interference specifications, we can supply that as well. All this, from one qualified source!

For more information, rates, and schedule availability, phone us and ask for EMC Customer Service. Or, write us at Dept. EEM-10.

INSTRUMENT SPECIALTIES COMPANY, INC.
Delaware Water Gap, PA. 18327
Phone: 717-424-8510 • TWX: 510-671-4526
Specialists in beryllium copper since 1938



Now! A low-compression electronic gasket that also provides environmental protection!

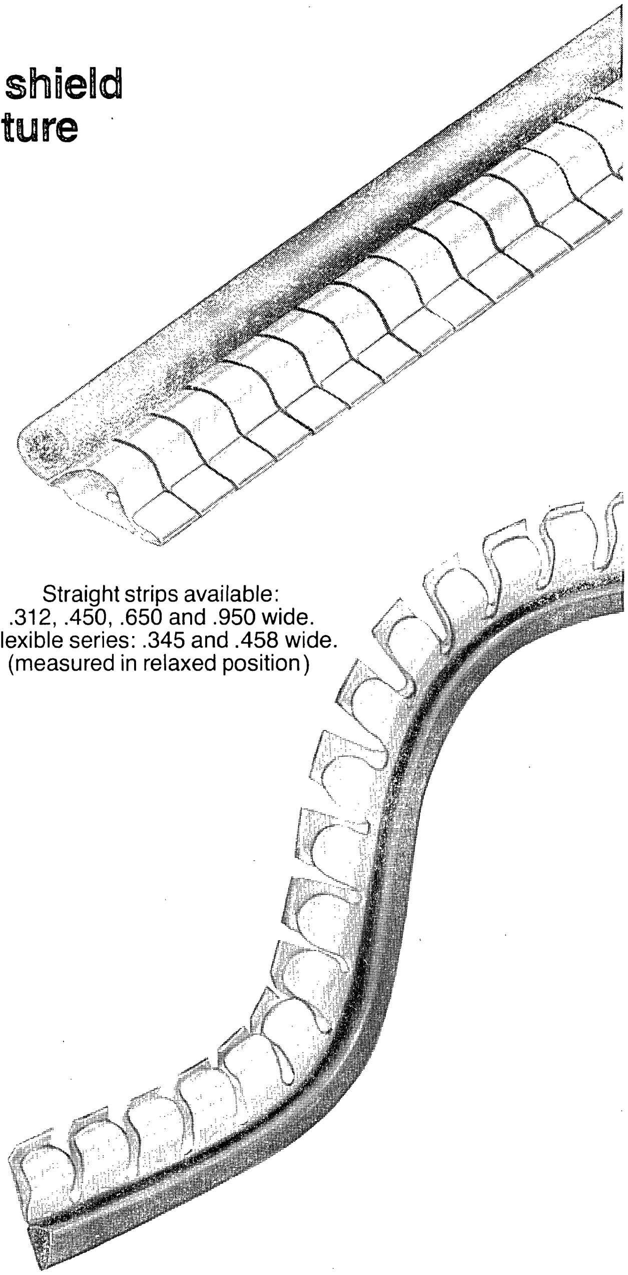
New Instrument Specialties strips shield RFI/EMI; control noise, dust, moisture and chemical contaminants!

These new Sticky Fingers® electronic gaskets combine beryllium copper finger strips with a neoprene rubber seal. Providing shielding characteristics comparable to other Instrument Specialties shielding strips, they also serve as an environmental seal. Thus, they are especially suited to applications where protection against noise, dust, moisture, and chemical contaminants is required as well as electronic interference protection.

The unique design of these sealing strips permits the use of extremely low compression forces, compared to conventional elastomers, to make contact with the surface of both the environmental and electromagnetic shield.

Complete continuity of the neoprene gasket is assured by using a straight joint coupler, or mitering or butting at corners. No special tools or soldering required. And as with all Instrument Specialties Sticky Fingers strips, installation is fast and secure with the strips' self-adhesive backing. The flexible series provide the same advantages, for use where a continuous shield must conform to irregular shapes and turn tight-radius corners in either direction.

Catalog E^3-58 provides complete information, including exact specifications, dimensional drawings, etc., on these and other Instrument Specialties shielding strips. Use this publication's Reader Service Card, or write to us directly at Dept. EEM-19.



Straight strips available:
.312, .450, .650 and .950 wide.
Flexible series: .345 and .458 wide.
(measured in relaxed position)

INSTRUMENT SPECIALTIES COMPANY, INC.
P.O. Box A • Delaware Water Gap, PA. 18327
Phone: 717-424-8510 • TWX: 510-671-4526
Specialists in beryllium copper since 1938

More EMI/RFI Protection

MORE SHIELDING SYSTEM OPTIONS

We offer a complete line of modular enclosures, cabinets, and custom rooms.

Shielding materials, in solid-sheet or screen, cover nearly every shielding requirement.

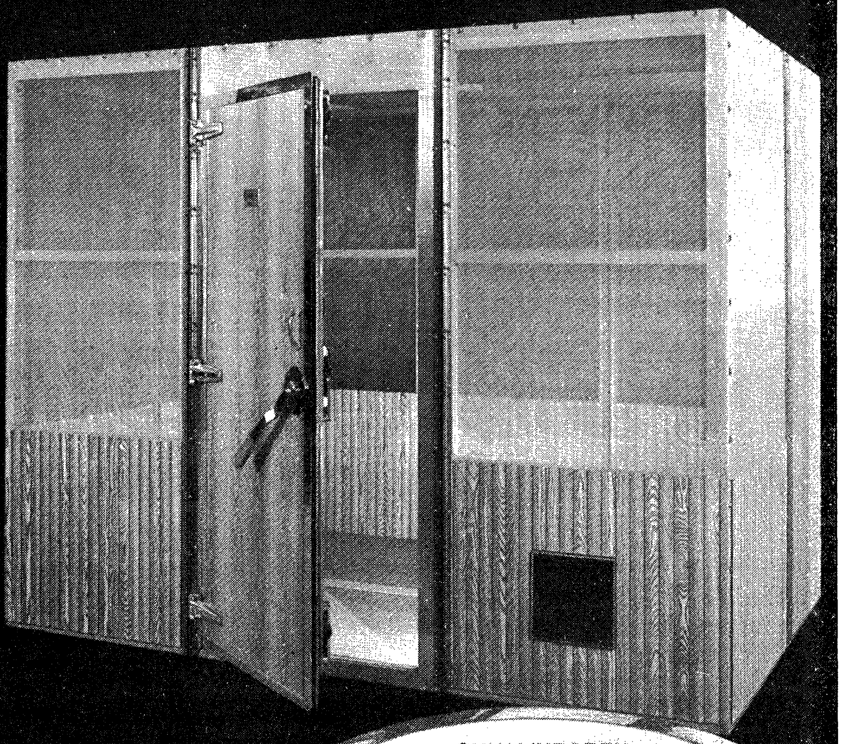
Our application engineers will help you design enclosures that meet your requirements for windows, filters for power and signal lines, wave guide feedthrus and lights.

Other options include RF connectors, fiber-optics, special access panels, automatic doors, emergency exits, permanent ramps, and flush floors with low-rise thresholds.

EASY MODULAR ASSEMBLY

Our patented resilient clamping system permits easy assembly. Enclosures can be modified and relocated again and again without specially trained personnel.

Call us for more information and applications assistance. 312-628-9100



ONLY LINDGREN MODULAR SHIELDING SYSTEMS are assembled, tested, & guaranteed to meet specifications before they're shipped.

ATTENUATION CHARACTERISTICS

Exterior Shield	Interior Shield	Magnetic 60Hz	Magnetic 14KHz	Electric Field 14KHz	Planewave 450MHz	Planewave 1GHz	Microwave 10GHz
Bronze Screen	Bronze Screen	0db	40db	120db	100/120db	90/110db	40/70db
Copper Screen	Copper Screen	2/3db	68db	120db	110/120db	100/120db	50/80db
24 ga. gal. steel	24 ga. gal. steel	15db	80db	100/120db	100/110db	100/110db	90/100*
24 ga. gal. steel	3 oz. copper	8db	75/80db	120db	120db	120db	104*/112*
3 oz. copper	3 oz. copper	3db	64db	120db	120db	120db	110*/120*
24 ga. gal. steel	24 oz. copper	18/25db	86/93db	120db	120db	120db	106*/120*
Four Shield 24 oz. copper & 24 ga. Si steel	Four Shield 24 oz. copper & 24 ga. Si steel	30/36db	110/120db	120db	120db	120db	120db*

*with optional Microwave Absorber on door.

Higher Performance

Independent tests show that Lindgren double-electrically-isolated (DEI) enclosures give more protection in low-frequency magnetic and high-frequency electric fields.

LINDGREN
RF ENCLOSURES
1228 Capitol Drive
Addison, Illinois 60101
312-628-9100

CO-NETIC & NETIC magnetic shielding material

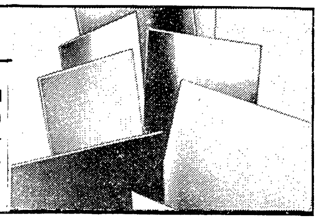
MAGNETIC SHIELD DIVISION

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
(312) 766-7800 TWX (910) 256-4815

A complete stock of CO-NETIC (high permeability) and NETIC (high saturation) shielding alloys is available in foil and sheet form. Our engineering department will gladly assist you in the development of shield designs to meet your prototype or production requirements. Request catalog MG-5, material and fabrication guide.

sheet stock: (standard—30″ x 120″) Shipped immediately from stock.

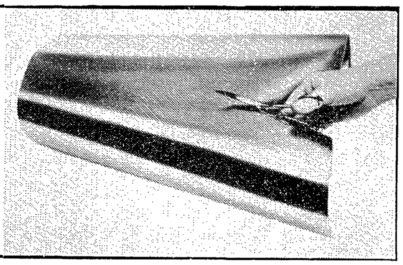
STD. THK. (Inch)	NETIC S3-6 ALLOY SHEET	CO-NETIC AA STRESS ANNEALED	CO-NETIC AA PERFECTION ANNEALED
.014			
.020	High saturation capability.	High permeability characteristics. Stress annealed for ease of fabrication. Must be final annealed for maximum attenuation characteristics. Also stocked in .100″.	High permeability characteristics. Perfection Annealed material has been fully hydrogen annealed for optimum magnetic properties. No further annealing after fabrication is necessary if severe forming is avoided.
.025			
.030			
.040	.040 NETIC not stocked.		
.050			
.062	Also stock .095″		



foil stock: (standard coils—50 and 100 linear ft.)

STD. THK. (Inch)	NETIC PERFECTION ANNEALED WIDTH (Inch)	CO-NETIC PERFECTION ANNEALED WIDTH (Inch)
.002	—	4
.004	4	4
.004	15	15
.006	—	4
.006	—	15
.010	—	4
.010	—	15

Standard foils shipped immediately from stock. All sizes available with double-faced pressure sensitive tape and release coated liner. Foils can be slit to a minimum width of 1/4″, with or without backing. Width tolerance ±.010. Backed and slit foils shipped one week after receipt of order. All foil is Perfection Annealed for maximum attenuation.



physical & magnetic data:

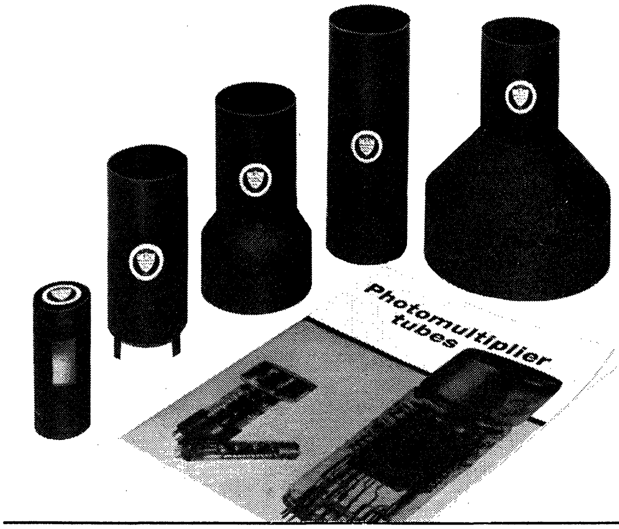
	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Specific Gravity	8.74	8.74	7.86
Coefficient of expansion per °C x 10^{-6}	12.6	12.6	13.7
Tensile strength in PSI x 10^3	64	85	42
Yield strength PSI x 10^3	18.5	33	27
Hardness, Rockwell B	50±5	70±5	50±5
Elongation in 2 inches, percent	27	32	38
Melting point (°F)	2650	2650	2790
Thermal conductivity (cal/sec/cm²/cm/°C) at 20°C	.138	.138	.118
Curie Temp. (°F)	850	850	1420

	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Electrical Resistivity ohms/cir mil foot	330	330	60
Microhm centimeters	55	55	11
Thickness tolerance	±10%	±10%	±10%
Saturation Induction (Gauss)	8000	8000*	21,400
Initial Permeability	30,000	30,000*	200
Permeability at 200 gauss	135,000	135,000*	500
Maximum Permeability	450,000	450,000*	4000
Induction at μmax.	3000	3000*	8000
Coercive force, H_c, oersteds	.015	.015*	1.0

* Magnetic Properties after Hydrogen Anneal.

magnetic shields for photomultiplier tubes

Magnetic shields shipped from stock for 90% of photomultiplier tubes.



MAGNETIC SHIELD DIVISION

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
(312) 766-7800 TWX (910) 256-4815

CO-NETIC magnetic shields improve the amplification characteristics of photomultiplier tubes by providing significant attenuation of magnetic fields. Effective shielding is ensured over a wide range of field intensities. When grounded, the shields provide protection against electrostatic interference.

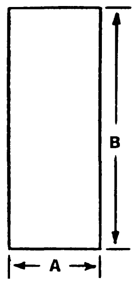
CO-NETIC shields are highly resistant to shock and vibration. The shields have minimal retentivity and do not require periodic re-annealing.

Request catalog PM-4, which lists recommended shields for over 650 photomultiplier tubes.

MAGNETIC SHIELD DIMENSIONS

Part No.	Drawing	A	B	C	D	E	F	G	Notes
06P25	1	5/8	2 1/2						
07P13V1	2	3/4	1 3/8		13/16	1/2	1/4		a
10P25	1	1	2 1/2						
10P40	1	1	4						
11P42X18	5	1 1/8	4 1/4	1 7/8	2 15/16	1 5/16	1/4		d
12P31V1	2	1 1/4	3 1/8		1 11/16	1 1/8	5/8		a
12P35	1	1 1/4	3 1/2						
12P45	1	1 1/4	4 1/2						
13P23V1	2	1 3/8	2 3/8		1 1/4	1 1/8	5/8		a
13P28V1	2	1 3/8	2 13/16		1 9/16	1 1/8	5/8		a
13P32V1	2	1 3/8	3 1/4		1 15/16	1 1/8	5/8		a
13P52V1	2	1 3/8	5 1/4		3 15/16	1 1/8	5/8		a
15P27	1	1 1/2	2 3/4						
15P40	1	1 1/2	4						
15P50	1	1 1/2	5						
17P30	1	1 3/4	3						
17P33V1	2	1 3/4	3 3/8		2 11/16	7/8	3/4		a
17P45	1	1 3/4	4 1/2						
17P53V1	4	1 3/4	5 3/8		2 3/4	2 5/8	1/4	2 1/16	b
20P50	1	2	5						
21P45V1	3	2 3/16	4 1/2		1/2	1/2	1/4		c
21P55V1	3	2 3/16	5 1/2		1/2	1/2	1/4		c
22P40	1	2 1/4	4						
22P50	1	2 1/4	5						
22P60	1	2 1/4	6						
22P70	1	2 1/4	7						
23P55X32	6	2 3/8	5 9/16		3 3/8	11/16		1 1/2	
23P61X37	6	2 3/8	6 1/8	3 3/4	1/4	3 3/4		2 1/8	
23P68X57	6	2 3/8	6 7/8	5 3/4	3	1 7/8		2	
23P101X57	6	2 3/8	10 1/8	5 3/4	1/2	2 3/4		6 7/8	
25P40	1	2 1/2	4						
25P50	1	2 1/2	5						
25P60	1	2 1/2	6						
25P70	1	2 1/2	7						
27P73V1	2	2 3/4	7 3/8		3 5/8	4 3/8	3		a
30P67X57	6	3	6 3/4	5 3/4	3 1/4	1 1/2		2	
32P80	1	3 1/4	8						
32P100X55	6	3 1/4	10	5 1/2	3 1/2	1		5 1/2	
35P70	1	3 1/2	7						

1



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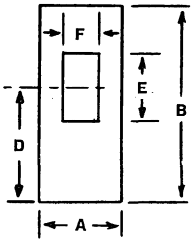

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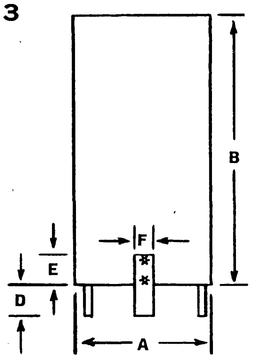

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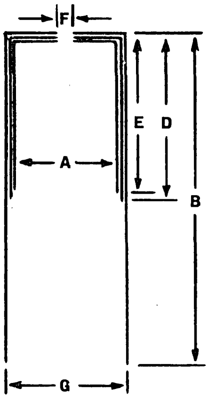
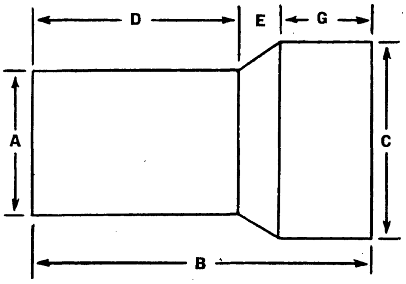


NOTES:
Unless otherwise noted:
Dimensions — All ID
Material — .040″ Thick Co-Netic AA
Finish — Black baked enamel; texture outside, flat inside.
a — Upper end closed.
b — Dimensions D & E are measured from the outside of the outer shell. Dimension G is the maximum OD. Material — Three layers, separable; outer .049 Netic S3-6, two inner .031 Co-Netic AA Finish — Netic S3-6, black oxide; Co-Netic AA, none.
c — Has three tabs, spaced 120° apart, to grip the metal collar of the PM tube.
d — Material — .031″ Co-Netic AA.

6



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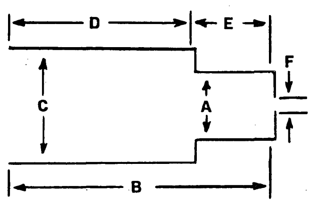
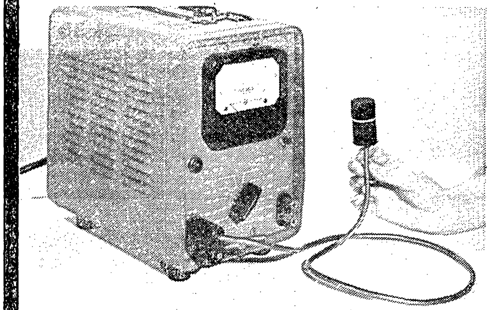


complete magnetic shielding accessories & mica

MAGNETIC SHIELD DIVISION

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
(312) 766-7800 TWX (910) 256-4815

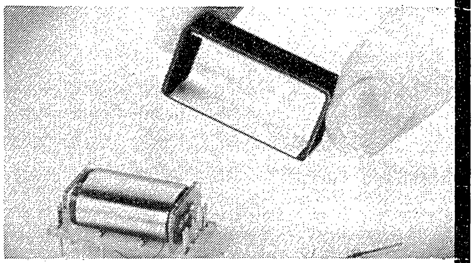


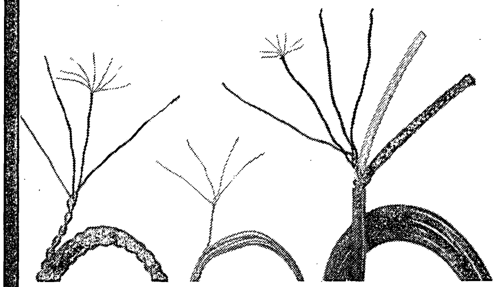
LAB KITS & PROBES

Lab Kit contains assorted CO-NETIC and NETIC shielding materials, double-faced pressure sensitive tape for shield construction and 20 millivolts/gauss A.C. magnetic pickup probe .... all for $99.50
Probe only, 20 mV/gauss, axial $49.50
Probe only, 60 mV/gauss, axial (shown) or transverse $79.50
Request Lab Kit catalog LK-2, Probe catalog EP-3.

COMPONENT SHIELDS

Full time engineering staff available for consultation on shielding problems. Magnetic Shield Division is also the preferred source for custom shields to your specifications. Extensive standard and special tooling provide fast shipment. Call for design assistance or send print for prompt quotation.



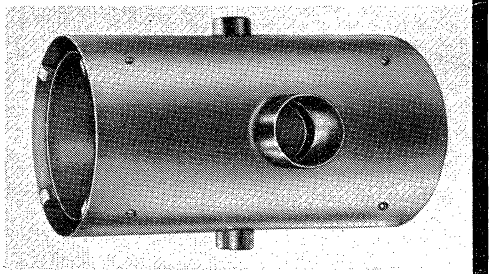


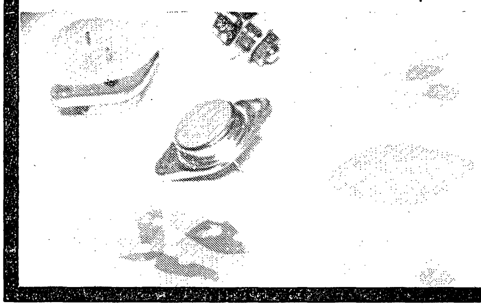
INTER-8 WEAVE CABLE

Our patented, woven configuration of four signal leads provides superior attenuation over a twisted pair. Attenuation improvement of unshielded INTER-8 WEAVE cable is −20 db for radiation and −12 db for pickup. An additional −20 db is obtained with our braided CO-NETIC jacket. Available in #24 AWG, unshielded or shielded. Request catalog WC-1

ZERO GAUSS CHAMBERS

Zero gauss chambers provide the ultimate in magnetic shielding. Magnetic Shield Division's general-purpose zero gauss chamber offers a significant reduction in both static and time varying fields found in laboratory and research environments. Degaussing coils can be furnished, and a Helmholtz coil system can be incorporated to generate known fields. Three concentrically spaced CO-NETIC chambers with closed ends and removable covers are provided. Placement of openings is optional. Attenuation in excess of −60 db is typical.
Request catalog ZG-2





MICA INSULATORS

Available in sheet, wafer, flakes and ground form. Clear, natural and built-up sheet stock thicknesses from .002″ to .062″. Save tooling expense on a wide variety of fabricated parts, including semi-conductor insulators in .002″ to .003″ thickness with .002″ hole tolerances. Excellent heat resistance and high dielectric strength provide improved breakdown protection and increased efficiency of electronic components. Request catalog K-14.

WIRE MESH SHIELDING MATERIAL

TECHNICAL DATA

TECKNIT is a reliable source for a wide variety of EMI shielding materials. One of the most popular is supplied in the form of wire mesh. Almost any metal which can be drawn into a wire can be used by TECKNIT to provide the most effective EMI shielding to fit a specific application.

STANDARD WIRE MATERIALS

"X" CODE	MATERIAL
1	Monel 0.0045″ dia.
2	Aluminum Alloy 0.005″ dia.
3	Brass, Silver-plated 0.0045″ dia.
4	Tin-coated, Copper-clad steel 0.0045″ dia.
6	Tin-plated Phosphor/Bronze 0.0045″ dia.

TECKNIT wire shielding materials are produced in a variety of styles and configurations to meet any application. Some are wire mesh alone and others have elastomer cores and some are preformed gaskets. The variety is nearly infinite.

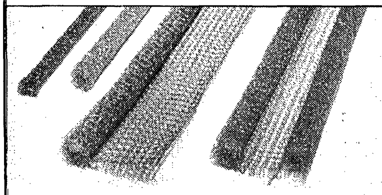
Many factors beyond price affect the design of EMI shielding. These include physical, environmental and electrical factors. If for example, an enclosure cover will be opened seldomly and the equipment is operating in air at room temperature, a simpler shield may suffice. But, if a physical seal is needed, another style of shield will be needed.

For sheet metal enclosures, round or finned strips are preferable to allow for minor misalignments. Rectangular strips are generally used for cast or machined enclosure covers. A double knitted shape compressed to 75% of original height provides the optimum shielding in most cases and is superior to a single shape. The single shape decreases shielding 5 to 10 dB.

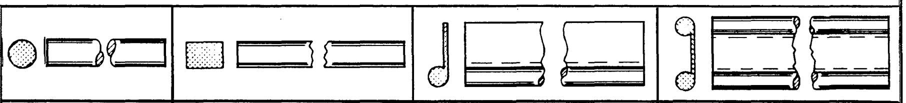
A most effective EMI shield can be applied to any wiring harness by using TECKNIT wire mesh strip which is helically wrapped over the harness to shield against static discharge and grounding.

Brief descriptions of a broad range of TECKNIT products appear on the following pages. For complete catalog data or technical assistance call TECKNIT. TECKNIT can custom design an effective EMI shielding product for any application.

WIRE MESH GASKET MATERIAL

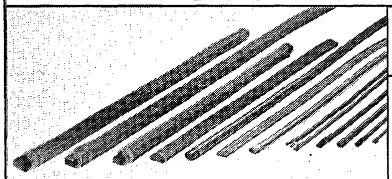


TECKNIT STRIPS provide Total Shielding Effectiveness up to 120 dB from 1.0 kHz to 10.0 GHz. Compression for round forms should be from 5 to 25 psi and 10 to 60 psi for rectangular shapes. A sampling of standard parts appears to the right. The "X" refers to metal used. See list in heading. Data sheet A-200.

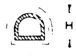


ROUND		RECTANGULAR			ROUND WITH FIN			DOUBLE CORE		
DIA.″	PT#20-X	H″	W″	PT#20-X	DIA.″	W″	PT#20-X	DIA.″	W″	PT#20-X
0.063	1110	0.063	0.063	0105	0.063	0.375	2111	0.063	0.500	5103
0.094	1111	0.094	0.094	0107	0.094	0.375	2115	0.063	0.875	5107
0.125	1101	0.125	0.063	0104	0.125	0.375	2101	0.125	0.500	5108
0.156	1112	0.125	0.156	0102	0.125	0.750	2121	0.125	0.750	5109
0.188	1102	0.188	0.063	0111	0.156	0.500	2122	0.125	0.875	5110
0.250	1103	0.188	0.188	0114	0.156	0.750	2124	0.125	1.000	5111
0.313	1113	0.250	0.063	0115	0.188	0.438	2125	0.188	0.625	5112
0.375	1114	0.250	0.094	0116	0.188	0.875	2128	0.188	0.750	5113
0.438	1115	0.250	0.250	0119	0.250	1.000	2131	0.188	0.875	5114
0.500	1116	0.313	0.063	0120	0.313	0.625	2132	0.188	1.000	5115
		0.313	0.125	0122	0.313	0.875	2134	0.250	0.750	5116
		0.313	0.313	0125	0.375	0.625	2135	0.250	0.875	5117
		0.375	0.063	0126	0.375	1.000	2138	0.250	1.000	5118
		0.375	0.188	0129	0.438	1.000	2141	0.375	1.000	5119
		0.375	0.375	0131	0.500	1.000	2144	0.375	1.250	5120

WIRE MESH OVER ELASTOMER BASE



Regular wire mesh double-knitted over elastomer. Used for openings where compression set and low closing forces are primary considerations. Five standard shapes. A sampling is shown to the right. Data sheet A-210.

				NEOPRENE SPONGE CORE		SILICONE SPONGE CORE	
SHAPE	D″	W″	H″	SN/CU/FE	MONEL	SN/CU/FE	MONEL
RECT-ANGULAR		0.156	0.219	21-43915	21-13915	21-43948	21-13948
		0.156	0.281	21-43916	21-13916	21-43949	21-13949
		0.156	0.406	21-43917	21-13917	21-43950	21-13950
		0.219	0.219	21-43918	21-13918	21-43951	21-13951
		0.219	0.406	21-43920	21-13920	21-43953	21-13953
ROUND	0.094			NA	NA	21-00076	NA
	0.156			21-43900	21-13900	21-43933	21-13933
	0.219			21-43901	21-13901	21-43934	21-13934
	0.281			21-43902	21-13902	21-43935	21-13935
ROUND WITH FIN	0.156	0.531		21-43907	21-13907	21-43940	21-13940
	0.156	0.656		21-43908	21-13908	21-43941	21-13941
	0.156	0.781		21-43909	21-13909	21-43942	21-13942
	0.219	0.531		21-43910	21-13910	21-43943	21-13943
	0.219	0.656		21-43911	21-13911	21-43944	21-13944
	0.219	0.781		21-43912	21-13912	21-43945	21-13945
	0.281	0.781		21-43913	21-13913	21-43946	21-13946
	0.281	1.031		21-43914	21-13914	21-43947	21-13947
				HOLLOW CORE		HOLLOW CORE	
ROUND	0.531			NA	NA	21-00070	21-00072
	0.406			NA	NA	21-00071	21-00073
"D" 		0.531	0.531	NA	NA	21-00074	21-00075

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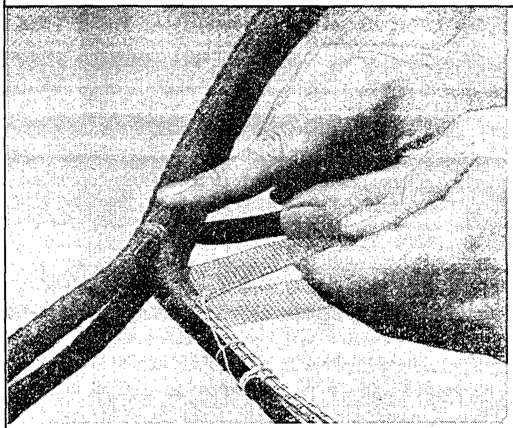
WIRE MESH SHIELDING MATERIAL

WIRE MESH SHIELDING TAPE



Applies to any harness by helically wrapping. Prevents static charge buildup with minimum bulk and excellent physical protection.

DESCRIPTION

Double layer strip of knitted tin-coated copper-clad steel wire. Provides more EMI shielding than any comparable material or tape.

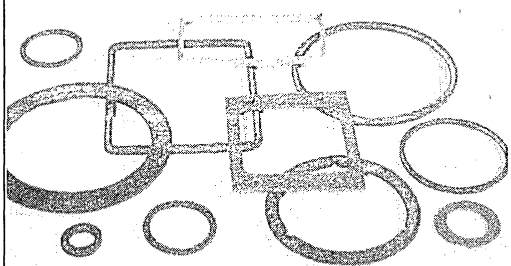
APPLICATIONS

Particularly effective as primary or secondary shielding for electrical or electronic cables and harnesses. Closely conforms to irregular shapes adding very little to overall diameter and weight.

SPECIFICATIONS

Supplied in 25 & 50 ft. or continuous spools from 1000 to 2500 ft. Standard width: 1.00″. Thickness: 0.02″. Weight: 8.0 oz/100 ft. Pull strength: 50 lbs. Elongation: 100%. Necking: 47% at 25 lbs. (75% at 50 lbs.). Corrosion resistance and Solderability: Excellent. Data sheet A-230.

DIE-COMPRESSED MESH GASKETS



Made from compressed knitted wire with no joints or splices for the ultimate in EMI shielding. Smallest practical size is 3/16″ OD with 1/16″ ID.

DESCRIPTION

Manufactured to custom specifications. Most types are rings, but other shapes are available and can be supplied with mounting holes or recesses. The material is die-compressed from knitted wire to form desired shape.

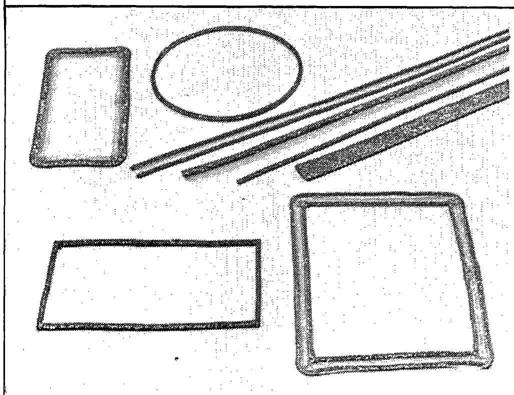
APPLICATIONS

For CATV, microwave ovens, waveguide flanges, shaft seals and the like. Gaskets can be manufactured as small as 1.59 mm (.063 in.) I.D. and 4.78 mm (.188 in.) O.D. Maximum gasket size is 305 mm (12 in.) circumference.

SPECIFICATIONS

Available in four metals: Tin-plated Phosphor/Bronze (best performance), Monel, Silver-plated Brass & Tinned Copper-clad Steel. EMI effectiveness from 200 kHz to 10 GHz with a peak of 130+ dB at 1 MHz (3″ ring). Data sheet A-300.

CUSTOM MESH GASKETS



Custom made from any standard wire mesh shape and assembled to fit specific applications. May be mesh alone or in combination with other sealants.

DESCRIPTION

Made from any TECKNIT strip material with or without elastomer core (See previous page.) Available with fiberglass cores for special applications.

APPLICATIONS

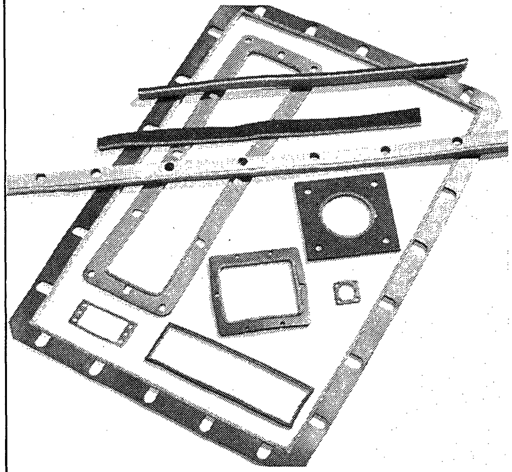
Ultra-conformal nature of these gaskets allows them to be used wherever EMI shielding is a must. May be held in place by rivets, clips, spotwelds or adhesives.

SPECIFICATIONS

Shielding ability the same as the materials these gaskets are made from as detailed in previous products. For custom applications contact TECKNIT. Data sheet A-310.

WIRE MESH SHIELDING MATERIAL

WIRE MESH WITH ELASTOMER SEAL

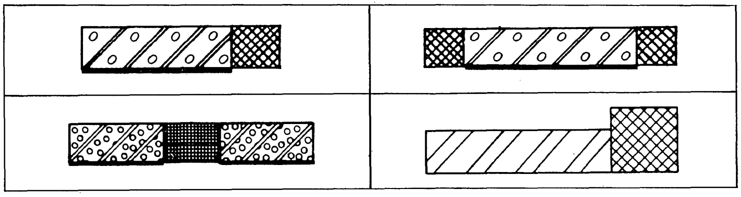


DESCRIPTION

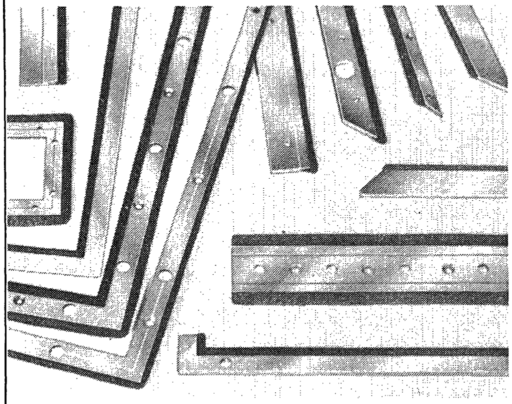
Regular wire mesh EMI gaskets in combination with elastomer gaskets for sealing against air or moisture leaks. The illustrations below are but four normal combinations. Others are available. Can be supplied with solid stops to prevent over compression of the EMI seal.

SPECIFICATIONS

Mesh specifications follow those of the other TECKNIT EMI materials. Elastomer specs depend on type used. Solid silicone may be used over a range of −62° to +260°C. Ask TECKNIT for complete details and recommendations. Data sheet A-431, DUOSTRIPS and DUOGASKETS.



WIRE MESH WITH ALUMINUM STRIP

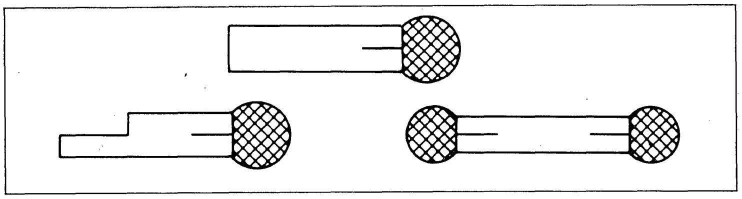


DESCRIPTION

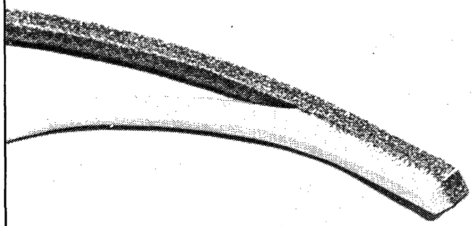
Available in lengths up to 15 feet or custom assembled. Regular TECKNIT wire mesh EMI gasket material applied to solid aluminum extrusions in virtually any imaginable shape. The drawings below show three typical shapes.

SPECIFICATIONS

Normally supplied with Monel or Tinned Copper-clad Steel wire mesh attached to 6063-T1 aluminum alloy extrusions. Neoprene and silicone sponge cores available. Temp. range with silicone sponge is −75° to +205°C. Data sheet A-510, TECKSTRIP®.



COMPOSITE WIRE MESH AND SILICONE RUBBER STRIP

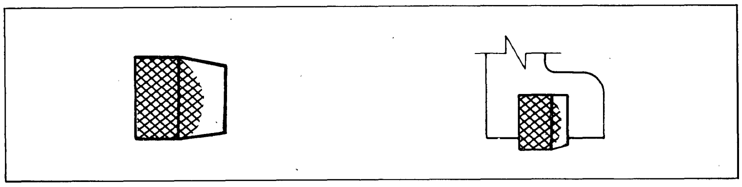


DESCRIPTION

Monel wire mesh partially imbedded in cured silicone rubber for both military and hi-rel commercial applications. Ideal for installation in cast or machined grooves in enclosures and/or doors. The small cross section saves space and weight. Drawing shows standard cross section.

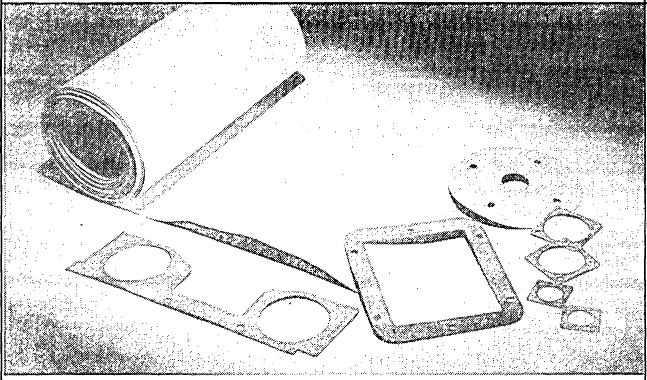
SPECIFICATIONS

Wire mesh is Monel per QQ-N-281, Class A or AMS-4730. Sealant is Silicone rubber ZZ-R-765, Class 2A, Grade 50. Color: Gray. Brittle point: −73°C. Composite peel strength: 5.25 N/cm (31 lbf/in.) min. Temp.: −62° to +260°C. Data sheet A-800, DUOSIL®.



METAL FIBERS AND SCREENS

WIRE SCREEN IMPREGNATED WITH ELASTOMER



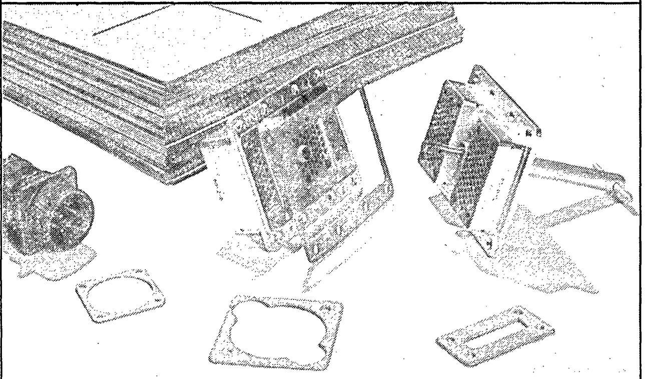
DESCRIPTION

TECKNIT DUOLASTIC solves the dual problem of sealing against liquids and providing an EMI shield. Made of woven aluminum wire screen impregnated with neoprene or silicone fluid sealing material. Both mating surfaces contact the screen as the sealant makes the joint pressure tight.

SPECIFICATIONS

Provides 75-100 dB shielding to 1 GHz. Oper.: −40° to +100°C (Neoprene), −62° to +260°C (Silicone). Thickness: 0.016″ & 0.020″. Max. Size: 8″ wide x 50′ long. Data sheet B-420.

THIN GASKETS OF SINTERED METAL FIBER



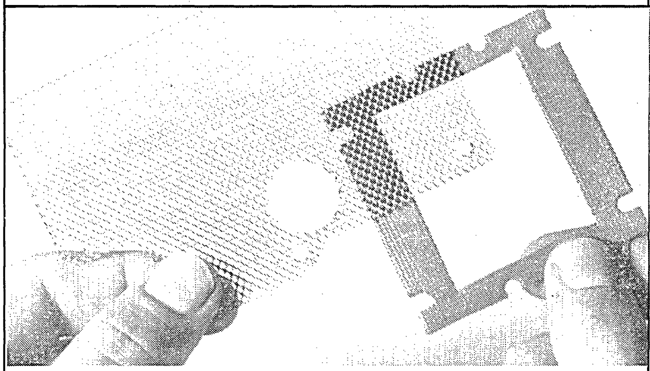
DESCRIPTION

TECKFELT® is made of felt/metal fiber in sheet form. Unfilled for normal use. Filled with silicone elastomer to seal against fluids. Supplied in sheets 12″ x 15″ x 0.031″ or 0.063″ thick.

SPECIFICATIONS

Operate: −40° to +200°C. Shielding at 20 psi: (E field) 105 dB (10 kHz) to 65 dB (1.0 GHz), Max. 110 dB (1.0 MHz). Metal Fibers: Steel alloy 347 (Fed Std. 66). Data sheet B-450.

EXPANDED METAL GASKETS



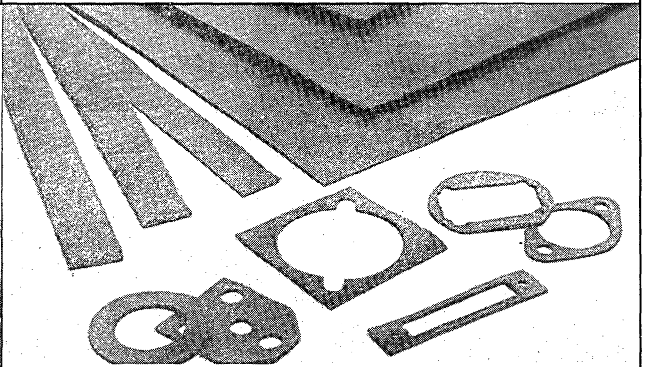
DESCRIPTION

TECKSPAN is made in sheets up to 7.5″ wide x 10′ long of Monel or Aluminum. Plain metal for simple EMI shielding or impregnated with silicone for fluid sealing.

SPECIFICATIONS

Oper.: −62° to +260°C with silicone. Closing force 50 psi. Shield: 75 to 100 dB to 1.0 GHz. Two thicknesses: 0.020″ & 0.032″ filled or unfilled. Data sheet B-480.

NICKEL FIBER-FILLED SILICONE ELASTOMER



DESCRIPTION

CONMAX® is a composite of randomly oriented nickel fibers uniformly dispersed in a silicone elastomer. May be die cut for EMI gaskets that shield to 135 dB (1 MHz) and withstand 150 psi closure force. Data sheet B-830.

SPECIFICATIONS

Oper.: −54° to +232°C.

Standard sheets

Size (in.)	Pt. No.
0.020 x 12 x 12	83-10106
0.030 x 12 x 18	83-10117
0.040 x 12 x 18	83-10118
0.060 x 12 x 18	83-10119
0.093 x 12 x 18	83-10120
0.125 x 12 x 18	83-10121

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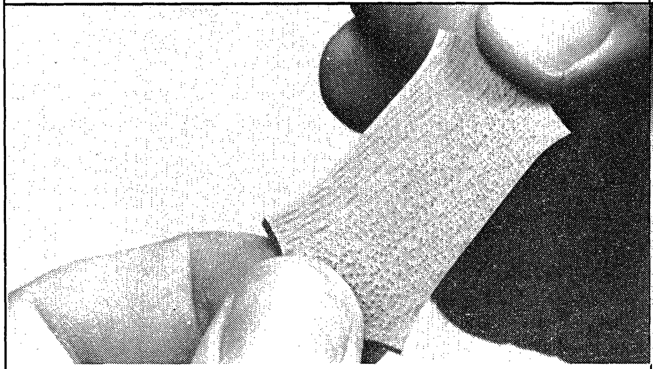
ORIENTED WIRE SHIELDING MATERIAL

IN SILICONE RUBBER (ELASTOMET®)



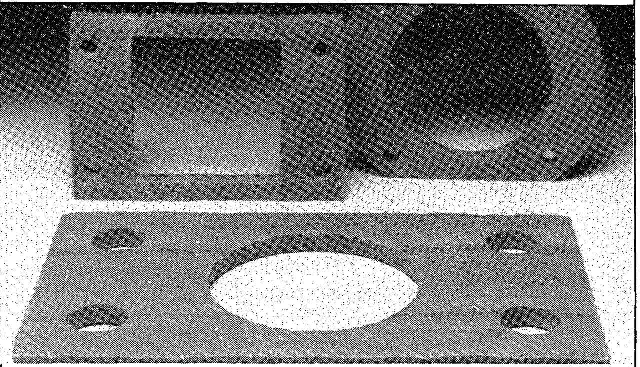
DESCRIPTION

Monel, Tin-plated Phosphor Bronze, or Aluminum wires oriented, embedded and bonded in a solid silicone elastomer to provide excellent EMI shielding and sealing in strips or sheets.

SPECIFICATIONS

Sheets available up to 9″ x 36″. Strips available up to 1″ x 11′. Wires are convoluted to provide springing action and distributed 960/sq. in. Oper.: −55° to +200°C. Data sheet C-820.

IN SOFT SILICONE SPONGE (ELASTOFOAM®)



DESCRIPTION

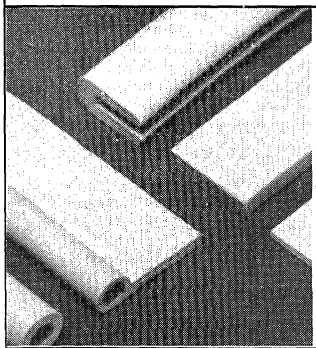
Monel, Tin-plated Phosphor Bronze, or Aluminum wires oriented, embedded and bonded in a soft closed cell silicone sponge elastomer. For closures with irregular surfaces and/or frequent access. In strips or die cut gaskets.

SPECIFICATIONS

Oper.: −55° to +170°C. Thickness: .062″ to .500″. Width: .125″ to 1.000″. Convoluted wire to provide spring action 960/sq. in. Max. compression: 20% (Mechanical stops recommended to prevent over-compression). Data sheet C-880. Standard strip length is 11′.

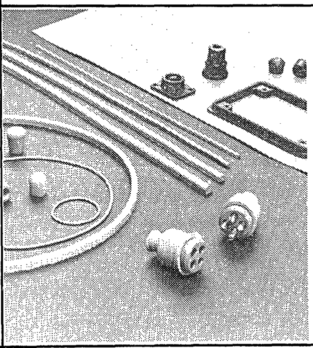
CONDUCTIVE ELASTOMERS

EXTRUDED SILVER-FILLED SILICONE



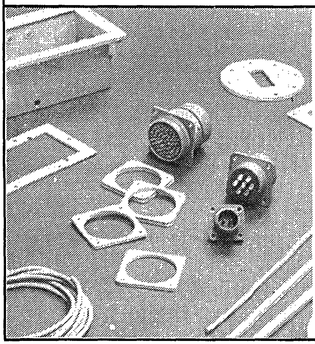
CONSIL®-E is a solid continuously extruded silver plated particle filled silicone elastomer material that provides excellent EMI shielding in six standard forms: solid round, tubular, solid "D", finned tubular, solid "U" and solid rectangular in strips to specification. Operate from −51° to +177°C. Data sheet D-810.

MOLDED SILVER-FILLED SILICONE



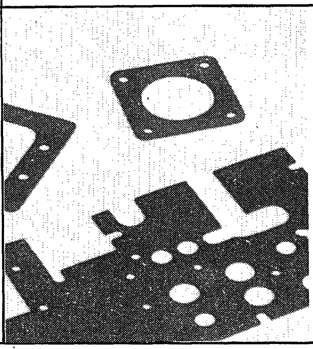
CONSIL®-II is a solid silicone elastomer filled with silver coated particles providing high conductivity and broadband shielding (>75 dB). Available in strips, sheets, molded shapes and die cut flat gaskets. Operate from −51° to +177°C. Maximum length for strips is 24″. Data sheet D-840.

PURE SILVER-FILLED SILICONE



CONSIL®-R is similar to CONSIL®-E & -II except the particles are pure silver for minimum resistance (0.006 ohm-cm). Available in extrusions or as strips, sheets, molded shapes and die cut gaskets. Operate from −51° to +177°C. Data sheet D-850.

CARBON-FILLED SILICONE



SC-CONSIL provides good electrical conductivity at lower cost. It is available in strips, sheets up to 12″ x 18″, extrusions and as molded parts. Particularly suitable as door gaskets in extruded form. Operate from −54° to +227°C Data sheet D-860.

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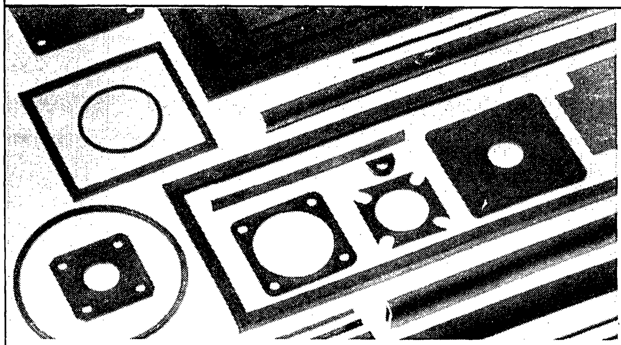
SILVER-COPPER FILLED SILICONE ELASTOMER

CONSIL-C



DESCRIPTION

A silicone elastomer filled with silver plated copper particles to provide broadband shielding effectiveness with excellent moisture sealing for enclosure joints and seams. CONSIL-C is available in sheets up to 12″ x 18″ and die cut flat gaskets. Standard rectangular, round and solid "D" shapes are available in a wide range of sizes. Hollow strip forms are available on special order.

APPLICATION

CONSIL-C is used for seals for military/aerospace systems, waveguides and connectors. Recommended compression is 5% at 50 to 200 psi closure force depending on cross section. Typical performance at 10 GHz is 90 dB with a 100 pound closure force. The material is gray with a smooth texture. Data sheet D-870.

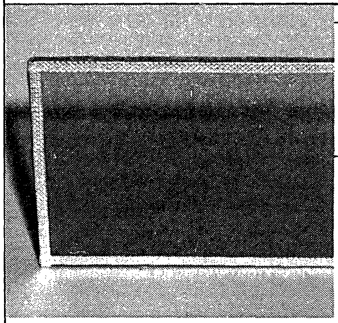
SPECIFICATIONS

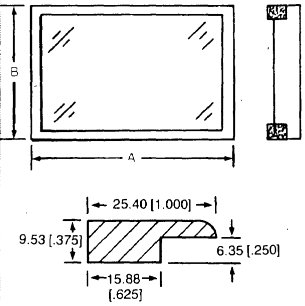
PERFORMANCE CHARACTERISTICS

	CONSIL-C COMPOUND		
	871	873	874
Hardness, Shore A Durometer ASTM D-2240	63 ±5	80 ±5	70 ±5
Volume Resitivity (maximum) QA-1039	.004 Ohm-cm	.009 Ohm-cm	.004 Ohm-cm
Specific Gravity ASTM D-297	3.65 ±.15	3.35 ±.15	3.65 ±.15
Tensile Strength (minimum) ASTM D-412	1.35 MPa [200 PSI]	2.70 MPa [400 PSI]	1.55 MPa [225 PSI]
Tear Strength (minimum) ASTM D-624	6.3 kN/m [36 PPI]	6.3 kN/m [36 PSI]	6.3 kN/m [36 PPI]
Elongation to Break (minimum) ASTM D-412	200%	60%	120%
Temperature Range	−55° to +125°C	−55° to +125°C	−55° to +125°C
Thermal Conductivity Btu•in/hr•ft²•°F COLORA Test Method	16	12	16
Total Shielding Effectiveness			
H-Field (10 kHz to 10 MHz)	65 dB	65 dB	70 dB
E-Field (1 MHz to 100 MHz)	125 dB	125 dB	130 dB
Plane Wave (1 GHz to 10 GHz)	100 dB	100 dB	100 dB
Form Available	Molded Sheets and Strips	Molded Sheets and Strips	Extruded Strips

HIGH PERFORMANCE EMC WINDOWS

TECKSHIELD-F





DESCRIPTION

These windows provide optimum optical transmission and excellent EMI shielding in severe interference environments. They are used in "TEMPEST" Visual Display Units (VDU) as well as in printers and enclosures requiring large viewing apertures. A special blackened mesh is laminated between two sheets of flat glass or acrylic. The edge termination is complete around the perimeter connecting the mesh to the outer TECKNIT DUOGASKET®. Full lamination prevents moisture intrusion and improves optical performance. Options include an outer aluminum frame, polarizers, glare reducers and color filters. Maximum size is 14″ x 18″ with a standard thickness of 0.205″. Data sheet E-712.

SPECIFICATIONS

MATERIAL DESCRIPTION

Standard Optical Medium	
Glass	Federal Specification DD-G-451, Type I, Class I, mirror quality
Acrylic	MIL-P-5425, finish A, clear and colorless
Optical Medium Options	
Color: Glass	Contact factory
Acrylic	See Table 2. (Data Sheet E-712)
Anti-Reflection	P-50, matte finish, viewing distance less than 12.5mm [0.5 in.] from object P-85, matte finish, viewing distance less than 25.4mm [1.0 in.] from object HEOC-101, high efficiency optical coating on glass (less than 1% reflection)
Standard Mesh Screen	Screen mesh per TECKNIT® specification 92-00580, blackened
Open Area	60%
Surface Resistivity (Maximum)	20 milliohms per square
Optional Mesh Screen	Screen mesh per TECKNIT® specification 92-00583, blackened
Open Area	45%
Surface Resistivity (Maximum)	10 milliohms per square
Standard Interface Gasket	Duogasket. **TECKNIT** P/N 43-63982
Optional Frame	Aluminum alloy 6063-T6 per QQ-A-200/9, chromate conversion coated per MIL-C-5541, class 1A. Painted when specified.

PERFORMANCE CHARACTERISTICS

Shielding Effectiveness Minimum)	Magnetic	10 kHz	60 dB
	Electric	100 MHz	120 dB
	Plane Wave	1 GHz	60 dB
Temperature			
Glass	−55°C to 80°C [−67°F to 176°F]		
Acrylic	−55°C to 60°C [−67°F to 140°F]		

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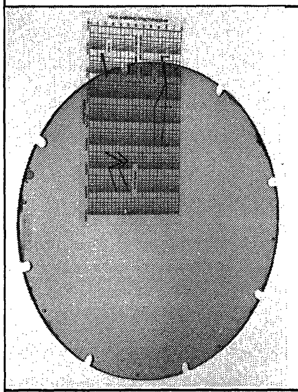
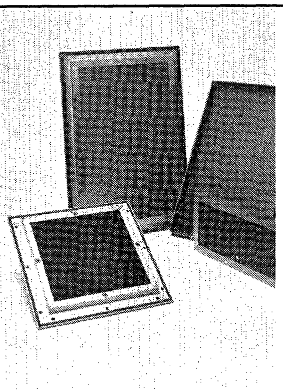
SHIELDING WINDOWS AND VENTS

ELECTRICALLY CONDUCTIVE & TRANSPARENT



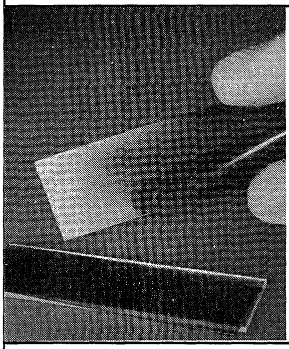
For use in applications requiring EMI shielding in flat or curved surfaces up to 18″ x 18″. For CRT, instrument and viewing use. Substrate may be any transparent material such as glass or plastic. The ECTC coating prevents EMI energy from entering or leaving the device. Standard mounting is by means of an aluminum frame for continuity. Data sheet E-700.

ALUMINUM HONEYCOMB AIR VENT PANELS



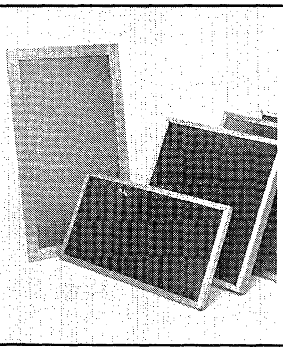
TECKCELL panels provide the maximum EMI shielding with minimum air flow restriction and at lowest possible cost because of standardized construction. Available in a wide variety of standard sizes to fit openings from 2″ x 2″ to 18″ x 18″. A chromate finish is standard on the aluminum frames. Many custom sizes can be supplied. Available with rainshield and foam filter. Data sheet F-600.

TRANSPARENT CONDUCTIVE COATING ON POLYESTER FILM



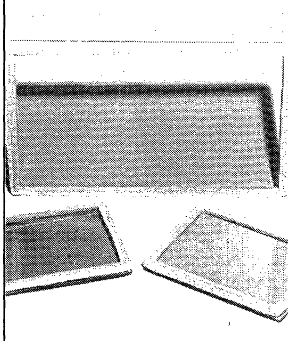
TECKFILM. For application to any transparent panel in sizes up to 24″ x 24″. Only .005″ thick and transparent. Vacuum deposited gold with a protective ceramic overcoat. Haze is 5% or less. Electric field shielding is 140 dB at 1 kHz decreasing to 25 dB at 10 GHz. Easy to apply to any clean flat surface. Data sheet E-701.

STEEL HONEYCOMB AIR VENT PANELS



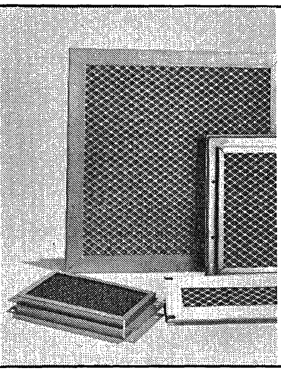
TECKCELL Steel Panels provide increased magnetic shielding performance at low frequencies and are mechanically more rigid than aluminum TECKCELL. Standard sizes fit openings from 2″ x 2″ to 18″ x 18″. Custom sizes, rainshields and foam filters are available. Data sheet F-620.

LAMINATED SHIELDING SCREEN



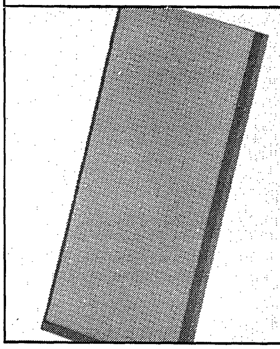
Laminate consists of ultrafine Monel wire knitted mesh between transparent acrylic sheets of any desired color and up to any practical size. An EMI gasket contacts the inner mesh at the outer edges of the panel perimeter to provide complete current path. Available with polarizers and nonglare surfaces. Effective from 1 kHz to 100 MHz. Data sheet E-710.

DUST ARRESTING ALUMINUM AIR VENT PANELS



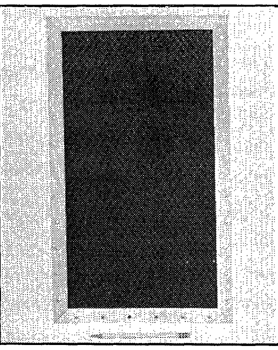
TECKSCREEN panels have a permanent all-metal filter medium, frame and interface EMI gasket. Both faces of the panel have a protective expanded metal grille. Basic construction is aluminum with a chromate finish. Sizes same as standard TECKCELL vents. May be used with most standard cooling fans. Data sheet F-630.

CAST EMC WINDOWS



Custom designed cast acrylic windows in any color with fine wire knitted mesh EMI shielding cast in place. Thicknesses: .060″ & .125″. Sizes up to 18″ x 22″. Mesh is Tinned copper-clad steel or Monel. An outer EMI seal must be used to provide current path. Effective from 1 kHz to 10 GHz. Data sheet E-711.

THIN DUST/EMI FILTER PANELS



TECKAIRE® panels are ultra thin and feature a viscous (water soluble hydrocarbon oil) coating for trapping dust. Frame is only .188″ thick including EMI gasket. May be EMI self-gasketed for minimum surface projection (.180″) with decreased opening size. All made to custom requirements with excellent EMI shielding. Data sheet F-640.

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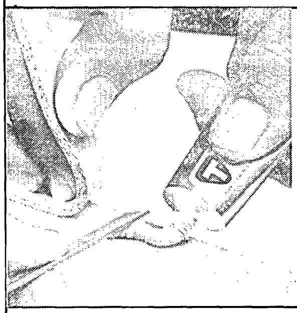
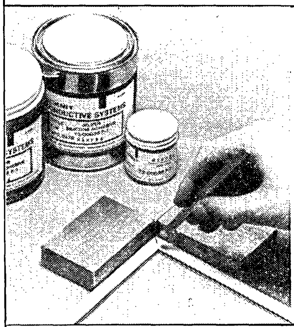
CONDUCTIVE SYSTEMS

SILVER-FILLED SILICONE RTV



The CON/RTV-I system is a pure silver loaded, one component RTV silicone adhesive/sealant. Ready for use without mixing. Cures quickly (Tack free 2 min.) (Handle in 2 hrs.) at room temperature to form seal or bond gaskets to surface. Supplied in 2 oz. tube. Shelf life sealed, 4 mos. Oper.: −60° to +175°C. Resistivity: 0.01 ohm-cm. Data sheet G-721.

SILVER, NICKEL OR CARBON FILLED

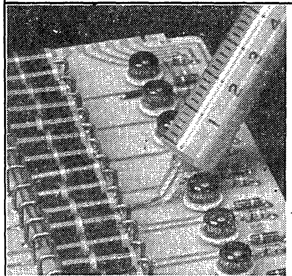


Two part RTV adhesive/sealants in choice of silver plated, nickel or carbon particles dispersed in a silicone rubber medium which cures to 80% full strength at room temperature in 24 hrs. In 1, 8 or 16 oz. packages with a shelf life as sealed of 6 mos. and a pot life (covered) of 4 hrs. Store at +5° to +30°C. Resistivity (ohm-cm): Silver (0.01), Nickel (0.10), Carbon (100). Data sheet G-722.

SILVER-FILLED FLEXIBLE RESIN

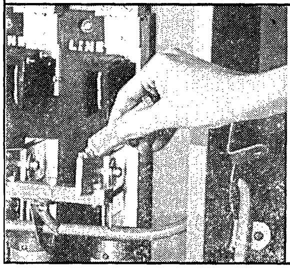
One part silver/acetate or silver/silicone caulking material with silver coated particles for best conductivity. Better than any carbon or copper system at lower cost. Apply silver/acetate with brush, silver silicone with spatula or caulking gun. Supplied in 1 lb. packages. Set up: 4 hrs. Tack free: 15 min. Data Sheet G-723.

SILVER-FILLED EPOXY



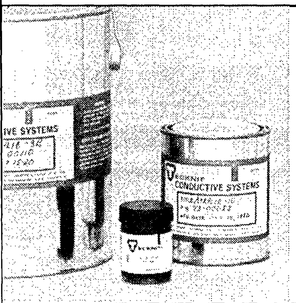
Two part system of epoxy resin and hardener. Choice of flexible cure with silver plated particles or rigid cure with pure silver particles. Low resistivity: 0.02 ohm-cm (Flex.), .001 ohm-cm (Rigid). Cure time: Room 24 hrs.; +99°C 30 min. Light creamy paste. Apply with caulking gun. Ideal for waveguides. Data sheet G-724.

SILVER-FILLED SILICONE GREASE



One part system for use on high current sliding electrical contacts. Supplied in handy tubes or jar with indefinite shelf life. Operate: −54° to +232°C with a drop point of +220°C (min.). Prevents contact corrosion. Use on ball & socket joints of insulators to prevent EMI. Data sheet G-725.

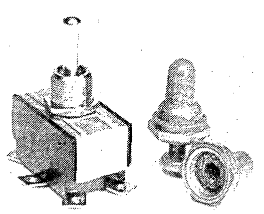
CONDUCTIVE ACRYLIC & LATEX



Provides excellent EMI shielding with attractive finish. Acrylics are sprayable in variety of colors: Silver-gray, beige, gray & black. Latex (beige) can be applied with spray, dip or brush. Available as beige emulsion. All 4H pencil hard. Translucent insulating dielectric sprayable overcoat also available. Data sheet G-730.

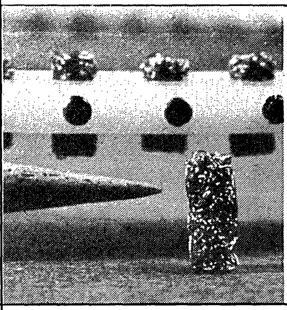
SHIELDING COMPONENTS

EMC SWITCH SEALS



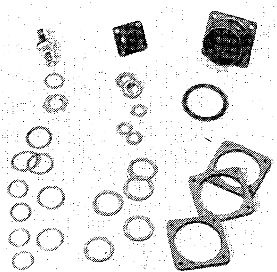
Provides positive physical and EMI seal for standard toggle switches. Replaces standard mounting hardware. Monel wire mesh shield with silicone rubber boot in 3 standard sizes. Also available as shaft seal for ⅛" & ¼" shafts. Data sheet H-902.

FUZZ BUTTON



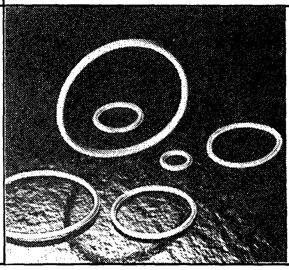
Resilient, low-impedance, multipath contact elements for use as connectors in switches, earphones and the like. Available in diameters from .062" to .500" and heights from .062" to .500" in a wide choice of materials such as gold plated copper/silver, Monel, silver plated brass, etc. Resistivity 5-7 milliohms when loaded. Data sheet H-901.

EMI CONNECTOR GASKETS



Standard EMI shielding gaskets to fit most round (flanged) MIL and commercial connectors. Available in all regular TECKNIT EMI gasket materials such as DUOLASTIC, TECKFELT, etc. Complete list of all standard sizes and types is in data sheet H-903.

CONDUCTIVE "O-SEALS"



Resilient rings of CONSIL®-II silicone elastomer in round or rectangular cross section. Combine high electrical conductivity with pressure seal. For use only on static seals (No relative motion). Used on MIL and commercial connector shells and as replacement for MIL MS-29513 items. Data sheet H-904.

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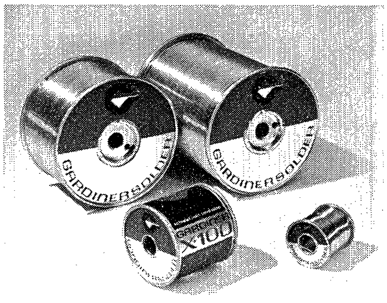
GARDINER SOLDERING PRODUCTS

GARDINER SOLID & FLUX CORED WIRE SOLDERS



Solid Wire Solder: Uniform in diameter and alloy and are equal to flux cored solders in purity and quality. All standard diameters.
WW-300 Rosin Cored Wire Solder: Available in any solder alloy, many wire sizes and flux core percentages. Conforms to Fed. Spec.: QQ-S-571, Type R.
XM-200 Mildly Activated Rosin Cored Wire Solder: For use with easily solderable metals whose surface tarnish is not easily removed. Meets Fed. Spec.: QQ-S-571, Type RMA.
X-45 Highly Active Rosin Cored Wire Solder: Meets Fed. Spec.: QQ-S-571, Type RA.
X-55 Activated Rosin Cored Wire Solder: For super-critical electronic circuits. Activator leaves only pure rosin residue. Conforms to Fed. Spec.: QQ-S-571, Type RA.

X-90 Super Activated Rosin Cored Wire Solder: For use when activated Rosins fail to remove heavily oxided films on metals.

OR-300 Organic Flux Cored Wire Solder: Developed to overcome problems inherent with difficult-to-solder metals.

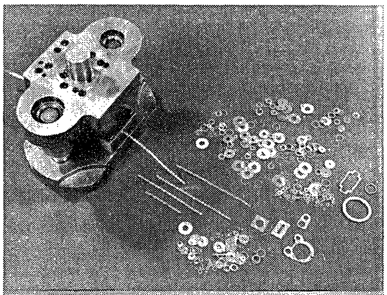
OR-350 Organic Flux Cored Wire Solder (Water Soluble Residues)- A halide-free solid flux core developed for soldering electronic devices compatible with water.

OR-400 Organic Flux Cored Wire Solder: For difficult-to-solder metals which cannot be soldered with activated Rosin fluxes.

OR-500 Organic Flux Cored Wire Solder: For difficult-to-solder parts due to mass or a heavily oxidized coating.

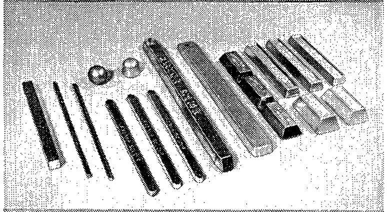
X-100 Activated Rosin Cored Wire Solder: Conforms to Fed. Spec.: QQ-S-571, Type RA.
Mildly Activated and Activated Solder Pastes: Available in any solder alloy and in particle sizes from 200 to 325 mesh, Mildly Activated and Activated Rosin Flux Pastes adhere to Fed. Spec.: QQ-S-571, Type RMA or Type RA.
GSP-5800 Organic and GSP-6800 Inorganic Chloride Solder Pastes: Available in all solder alloys and in any particle sizes from 200 to 325 mesh. Flux residues are water-soluble.

GARDINER SOLDER PREFORMS



Solid or Flux Cored Solder Preforms: Rings, washers, discs, sleeves, pellets or segments in any alloy, flux type and percentage, for reliable, automated electronic soldering.

GARDINER PURE-A-LOY BAR SOLDERS & ANODES



PURE-A-LOY Cast and Extruded Bar Solders: Purest, electronic solder commercially available. Exceeds QQ-S-571 and ASTM specifications.
PURE-A-LOY Extruded Anodes: Advantages: 1. Uniform oxidation and maximum life anodes. 2. Faster plating. 3. Less sludging and necking. 4. Bright, dense and uniform plated coating.

GARDINER FLUXES & RELATED PRODUCTS

Series GF-1000 Water-white Rosin Flux: Removable residue. Meets Mil-F-14256, Type R.
Series GF-1100 Water-white Rosin Flux: Same as GF-1000 but much faster drying action.
Series GF-1200 Mildly Activated Rosin Flux: Conforms to Mil-F-14256, Type RMA.
Series GF-1400 Super Mildly Activated Rosin Flux: Conforms to MIL-F-14256, Type RMA while nearly matching power of Mil-approved RA flux.
Series GF-2000 Activated Rosin Flux: Highly stable flux having an excellent wetting action.
Series GF-2100 Activated Rosin Flux: For foaming application in automated soldering.
Series GF-2200 Activated Rosin Flux: Designed for the very-hard-to-handle soldering jobs.
Series GF-2300 Activated Rosin Flux: For automatic soldering.
Series GF-2400 Mildly Activated Non-Halogen Rosin Flux: Designed for foaming application.
Series GF-2500 Activated Rosin Flux: Rosin Flux used in Gardiner X-45 cored wire solder.
Series GF-2600 Activated Rosin Foam Flux: Meets Federal Specification Mil-F-14256.
Series GF-2700 Activated Rosin Liquid Flux: Meets the Mil-F-14256 amendment of 1975.
Series GF-2800 Activated Rosin Flux: Conforms to QQ-S-571, amendment of June 1975.
Series GF-5100 Aquasolv Organic Flux: Water soluble, easily removable.
Series GF-5300 Aquasolv Organic Flux: For automated soldering of printed circuit assemblies and printed circuit cards using the Hydro-squeegee Process. Residues are completely removed.
Series GF-5400 Aquasolv Organic Flux: For electronic components compatible with water.
Series GF-5500 Aquasolv Organic Flux: For reflow soldering of plated circuit boards.
Series GF-8000 Surf-Klean Copper Cleaner: For removal of thick tarnish films.
Series GF-8500 Surf-Seal: For printed circuit boards during extended storage.
GFT-3000 Rosin Flux Thinner: For GF-2000 Activated Rosin Flux.
GFT-3100 Rosin Flux Thinner: For GF-1000 WW Rosin Flux.
GFT-3200 Rosin Flux Thinner: For organic fluxes GF-5132 and GF-5425.
GFT-3300 Rosin Flux Thinner: For GF-2100F.
GFT-3400 Rosin Flux Thinner: For GF-2300 and GF-2400 Activated Rosin Fluxes.
GFT-3500 Rosin Flux Thinner: For GF-2400F and GF-2600F Activated Rosin Fluxes.
GFT-3600 Rosin Flux Thinner: For GF-1100 and GF-2200.
GFT-3700 Rosin Flux Thinner: For GF-2700F.
GFT-3800 Rosin Flux Thinner: For GF-2200.
GFT-3900 Rosin Flux Thinner: For GF-2800F.
GFR-4000 Rosin Flux Remover: May be used in a vapor degreaser.
GFR-4060 Rosin Flux Remover: Similar to 4000 but a little more active.
GFR-4100 Rosin Flux Remover: Dissolves rosin residues, ionic soils, greases and oils.
GFR-4300 Rosin Flux Remover: For cleaning polycarbonate resins.
GFR-4420 Rosin Flux Remover: Dissolves rosin residues, ionic soils, greases and oils.

Gardiner Solder Analysis Program

Analysis of solders-in-use is necessary for avoiding problems of tin depletion and foreign metal contamination.

Gardiner Test Laboratory now offers a selection of three groups of solder analyses. Each group is designed specifically to control the level of soluble metals introduced during the soldering process. Issued to the customer with each analysis is a typed laboratory report with a brief assessment of contamination.

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50 YEARS

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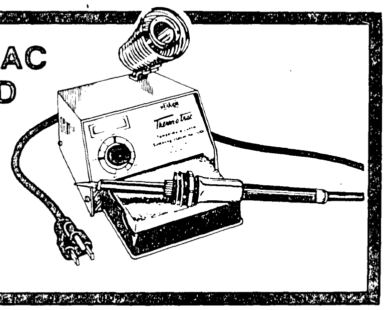
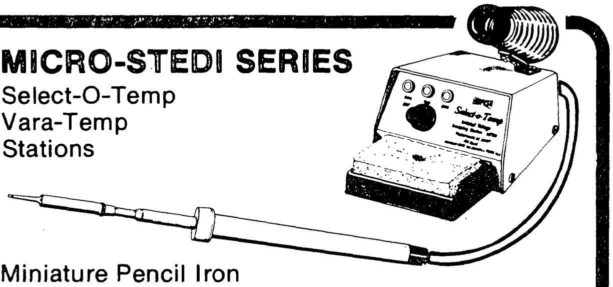
THERM-O-TRAC CONTROLLED HEAT SOLDERING STATIONS
Original Electronic Switching

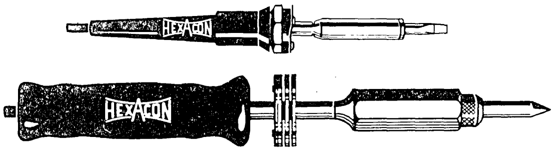


MICRO-STEDI SERIES
Select-O-Temp
Vara-Temp
Stations

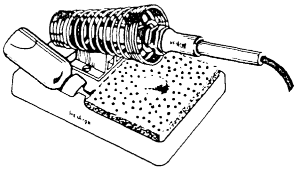


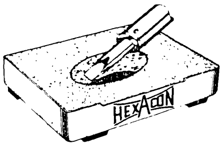
Miniature Pencil Iron

HEXACON IRONS
Most Dependable and Cost Effective



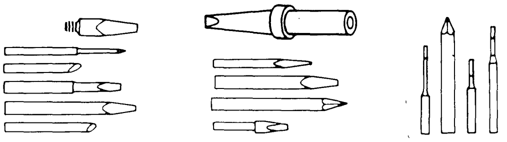
HEAT GUARD
Iron Holders



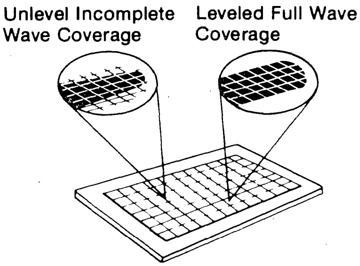


Tip Cleaning Accessories

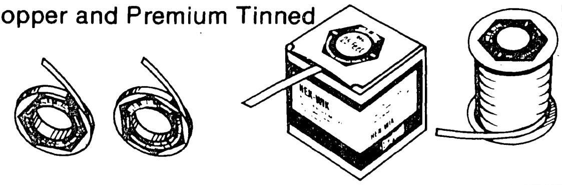
XTRADUR AND DUROTHERM
Long-Life Stainless Steel Non-Freezing Tips



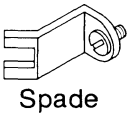
LEV CHECK SOLDER WAVE GAUGE
Diagnostic Tool Designed to Monitor Quality of Wave Soldering

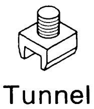


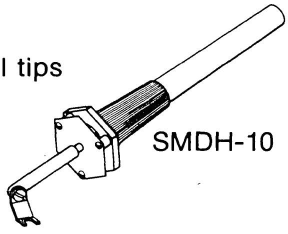
HEX-WIK SOLDER REMOVER
Copper and Premium Tinned



SMD IRONS
With Slotted and Tunnel tips







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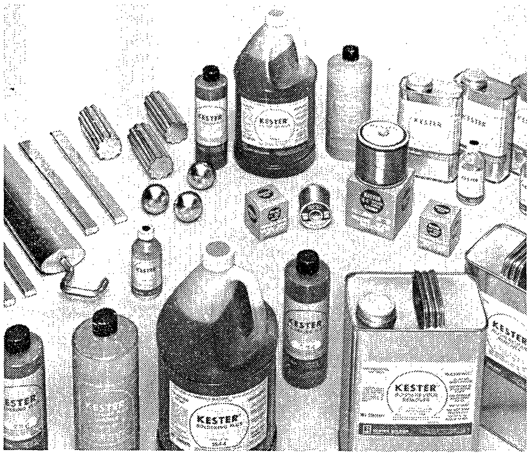

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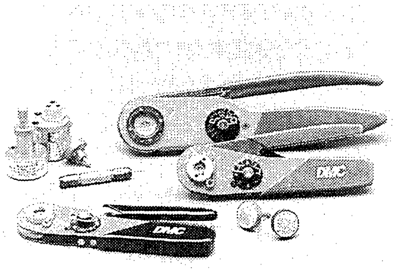
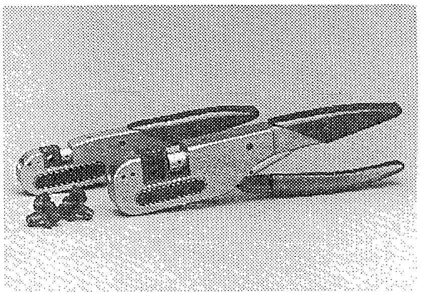
CONNECTOR ASSEMBLY AND SERVICE TOOLS

DMC DANIELS MANUFACTURING CORPORATION



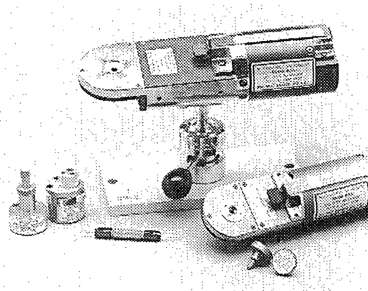
INDENT CRIMPING TOOLS

AF8(M22520/1-01)
AFM8(M22520/2-01)
MH860(M22520/7-01)



OPEN FRAME CRIMPING TOOLS

HX3(M22520/10-01)
HX4(M22520/5-01)



PNEUMATIC CRIMPING TOOLS

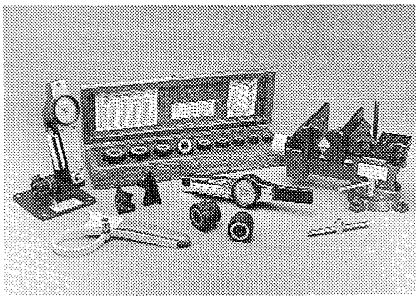
WA27F(M22520/29-01)
WA22(M22520/28-01)

INSTALLING/REMOVAL TOOLS (MIL-I-81969)

DMC offers a full line of military and commercial installing and removal tools. Below is a partial listing.

MS3159	MS17805	MS27534
MS3160	MS17806	M83723
MS3447	MS24256	MS90455
MS3448-001	MS27495	MS90456

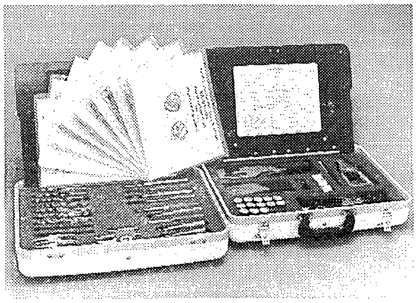
Plus many commerical tools.



NEW BETA™ TOOLS

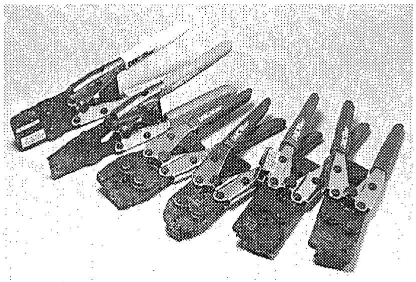
DMC offers a full line of assembly/maintenance tools for circular connector assemblies. The following elements are contained in the BETA™ kit.

- Connector adaptor holding tools
- Strap wrenches
- Circular vises for connectors
- Connector/safety wire pliers
- General purpose custom tool kits - Mil-Spec type kits or custom designed to your requirements.
- Jam nut socket tools
- Connector index/assembly tools
- Torque meters/torque wrenches



CONNECTOR SYSTEMS SERVICE KITS

A complete "Tools and Information Package." Includes tooling, cross reference part #'s and application diagrams in a durable case. Kits are designed by DMC for the assembly and service of connector systems. Typical applications include aircraft, missile systems and military vehicles.



COMPOUND LEVERAGE TOOLS (GMT)

For stamped and formed contacts, hex dies, terminals and other applications.

For further details consult your nearest DMC sales representative or contact the factory directly. Catalog available upon request.

DISTRIBUTORS

SWITZERLAND
Contact- Systeme AG
Gewerbestrasse 16
CH-8132
Egg/Zurich
SWITZERLAND
TELEX: (845) 59682 Cosy CH

NETHERLANDS
Technitron b.v.
Zwarteweg 110
1431 VM Aalsmeer
THE NETHERLANDS
Telephone: 02977-22456
TELEX: (844) 13301 TECH NL

SPAIN
Sociedad Anonima Poulain
Av. Diagonal 381,
Barcelona 8,
SPAIN
Telephone: 217 81 00
Telex: (831) 54168

SWEDEN
Litton Precision Products, Int.
Warfvinges Vag 32
S-104 25 Stockholm
SWEDEN
Telephone: (08) 132030
TELEX: (854) 17922 LITTON S

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Oceta
10 rue Louis Philippe
92200 Neuilly-Sur-Seine
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Telephone: (01) 745-2180
TELEX: (842) 611786 OCETA F

GERMANY (WEST)
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8000 Munchen 82
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ENGLAND
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TELEX: (851) 377224 PRIORY G

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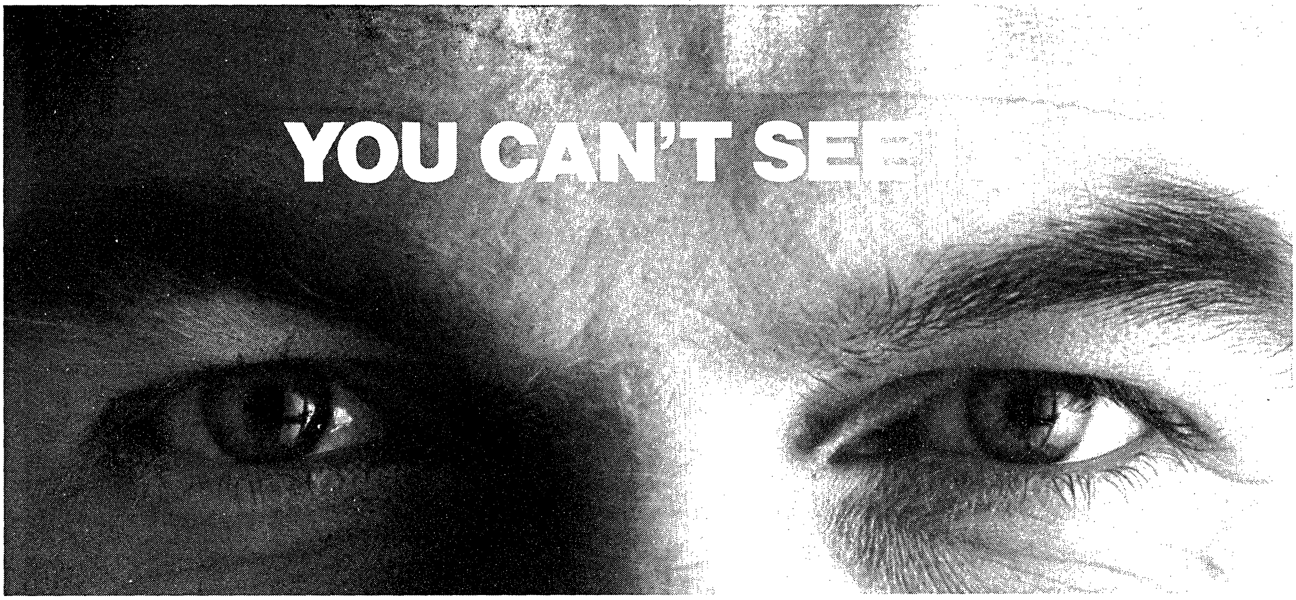
Cefra s. r. l.
Bis H. Pascoli 60
20133 Milano
ITALY
Telephone:
(02) 23.51.64/23.60.154
TELEX: (843) 314543

NORWAY
T. C. G. Harnessing
3524 Nes I Adal
NORWAY
TELEX: (855) 76233

Daniels Manufacturing Corporation, 6103 Anno Ave., Orlando, FL 32809, (305)855-6161, Telex 56-4321.



BUT IT CAN DESTROY YOUR BEST DESIGN

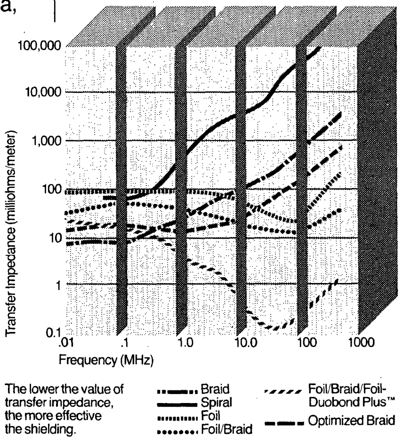
The next time your performance is measured by the success of your system's design, take a closer look at the critical link: will the shielded cable you select maintain signal integrity? At Belden, we're working to protect this critical link.

Shield Effectiveness
With the convergence of data, audio and video transmissions, one of the greatest challenges is to preserve the integrity of each signal. This evolution of technology, coupled with the need to comply with FCC regulations has created a growing demand for sophisticated cable shielding.

Belden responds to these demands with innovative shielding designed to meet the highest performance standards in the industry—including military TEMPEST requirements.

Belden helps you control interference and protect signal integrity with innovative shielded cable

Transfer Impedance Test Results



Test Methods Protect Your System
To help you define interference problems, Belden's Technical Research Center evaluates the development, implementation and refinement of shields and shield effectiveness testing. Our Transfer Impedance Test is but one of many rigorous tests employed by Belden engineers. The procedures we use help you select the proper shielded cable that results in cost-effective system performance.

Effective Assistance
Belden has recently published a *Cable Shield Performance and Selection Guide.* It's free, and it helps you define your interference problem, acquaints you with current FCC regulations, and familiarizes you with the trade-offs associated with different shield designs and Belden's various test procedures for measuring shielding effectiveness. Shield performance results are detailed from each test to properly guide your cable selection.

Contact Belden today for your free personal copy. Belden Electronic Wire and Cable, P.O. Box 1980, Richmond, IN 47375. Phone: 317-983-5200.

There is no equal.

See Belden's listing on page **C•**1750—**C•**1789 in EEM

COOPER INDUSTRIES

BELDEN

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ABBREVIATIONS FOR WIRE & CABLE PRODUCT SELECTION GUIDE

CODE/EQUALS		CODE/EQUALS		CODE/EQUALS		CODE/EQUALS	
AP	Aluminized Polyester	FPE	Foamed Polyethylene	NYL	Nylon	RUB	Rubber
BC	Bare Copper	FRSR	Fire Resistant Silicone Rubber	PCA	Polychloroalkene	SBR	Synthetic Rubber
BCB	Bare Copper Braid	GLS	Glass	PE	Polyethylene	SHLD	Shielded
BCCS	Bare Copper Coated Steel	IRPVC	Irradiated PVC	POE	Polyethylene	SPC	Silver Plated Copper
BTC	Braided Tinned Copper	KYN	Kynar	POP	Polypropylene	TC	Tinned Copper
DRN	Drain Wire	MYL	Mylar (DuPont™)	PVC	Polyvinylchloride	TEF	Teflon
EPR	Synthetic Rubber	NEO	Neoprene	REEL	Cord on Reel	TFG	Teflon/Fiberglass
FLR	Filler	NPC	Nickel Plated Copper	RTCL	Retractile Cord	XLP	Cross Linked Polyethylene
						**	Specs Not Shown on page
						—	Not Applicable

HOOK UP WIRE

Manufacturer	EEM Page B•	Specifications				Conductor			Insulation*			Conformance			Comment
		Op. Temp. °C		Volts Max.			AWG/Strand								
		Min.	Max.	Vdc	V (rms)	Type*	Min.	Max.	Prim.	Sec.	Jkt.	UL #	CSA #	MIL-W-#	
American Insul. Wire	1747	−80	200	**	**	BC/TC	26/X	2/X	**	**	**	Yes	Yes	Yes	
Belden	1750	**	**	**	**	**	**	**	**	**	**	**	**	**	
Brim	1793	−90	250	50k	15k	SPC	26-7/34	10-37/26	Spec.	TEF	**	—	—	16878D	
	1793	**	1093		600	NPC	22-19/34	18-19/30	**	—	—	—	—	Yes	Shld. avail.
	1794	−90	260	300	**	SPC	38-7/46	30-7/38	TEF	—	—	—	—	No	
	1794	−40	80	600	**	BC	38-7/46	20-259/44	PVC	—	—	—	—	No	Ultra flex.
Daburn	1832	**	**	**	**	**	**	**	**	**	**	**	**	**	
Dearborn	1839	−65	200	1000	**	SPC	32-7/40	8-133/29	TEF					16878	
Judd	1842	−55	105	3000	**	TC	32	2	PCA			Yes	Yes	16878	Series
	1843	−55	125	3000	**	TC	32	12	XLP			Yes	Yes	16878	Series
Molecu	1862	See specs. on page													
National Wire	1869	−40	80	300	**	TC	28-7/36	16-19/29	PVC			1061	S-R	16878	
	1869	−40	105	600	**	TC	24-7/32	10-49/27	PVC			1015	Yes	16878	
	1869	−40	90	600	**	TC	24-7/32	10-49/27	PVC			1015	TR-32	16878	Series
	1870	−54	105	600	**	TC	32-7/40	6-133/27	PVC			Yes	Yes	16878	Series
Omega	1887	**	**	**	**	**	**	**	**	**	**	**	**	**	Thermocouple
Rowe	1895	−90	200	300	**	**	**	**	FRSR	—	FRSR	Yes	Yes	**	High temp.

CABLE, MULTICONDUCTOR

Manufac-turer	EEM Page B•	Type		Specifications			Conductors					Shielding*		Insulation			Conformance
				Op. Temp. °C		Vdc	Number			AWG/Strand		Y/N	Drn.				
		Rnd.	Flt.	Min.	Max.	Max.	Min.	Max.	Type*	Min.	Max.	Type	Wire	Prim.	Sec.	Jkt.	UL/CSA/MIL, etc.
American Insul. Wire	1747	X	X	−40	105	1000	**	**	Var.	26**	10**	**	**	Var.	Var.	Var.	**
AMP	1748	—	X	−20	105	300	9	60	TC	28-7/36	—	No	No	PVC	—	—	UL2651
Belden	1753	X	—	−20	60	300	2	50	BC, TC	22S	14-19/27	No	No	PVC	—	PVC	UL (Various)
	1758	TP	—	−40	80	300	1Pr	27Pr	TC	22S	22-7/30	No	No	PVC	—	PVC	UL (Various)
	1760	X	—	−50	105	600	2	50	BC, TC	22S	12-19/25	AP	Yes	PVC	—	PVC	UL/CSA
	1766	TP	—	−50	105	300	1Pr	50Pr	BC, TC	28S	22S	AP	Yes	PVC	—	PVC	UL/CSA
	1769	ISTP	—	−40	80	300	1Pr	37Pr	TC	22S	20-7/28	AP	Yes	PVC	AP	PVC	UL/CSA
Brim	1796	X	—	−55	105	600	2	30	TC	28-7/36	—	BTC	No	PVC	MYL	PVC	MIL-W-16878D
	1796	X	—	−40	90	200	2	5	BC	38-16/50	30-40/46	BC	No	PVC	—	PVC	Ultra flex
	1797	X	—	−55	105	100	1	4	TC	26-7/34	14-19/27	BTC	No	PVC	NYL	PVC	MIL-W-16878D
	1797	TP	—	−40	80	300	5Pr	60Pr	TC	24-7/32	—	BTC	No	PVC	MYL	PVC	UL1061
	1797	X	—	−55	105	1000	5	30	TC	18-19/30	—	BTC	No	PVC	MYL	PVC	MIL-W-16878D
	1798	ISTP	—	−55	105	300	3Pr	27Pr	TC	22S	22-7/30	AP	Yes	POE	AP	PVC	**
Carol	1801	X	—	−20	60	300	2	4	TC	22S	12-65/30	BTC	No	PVC	—	PVC	UL2096
	1802	X	—	−20	60	300	2	6	TC	22S	12-65/30	SPTC	No	PVC	—	PVC	UL2095
	1802	X	—	−20	60	300	2	4	TC	24-7/32	12-65/30	AP	Yes	POE	AP	PVC	UL**
	1805	TP	—	−20	60	300	1Pr	51Pr	TC	22S	18-16/30	No	No	PVC	—	PVC	UL**
Cooner	1821	X	—	−40	90	200	2	5	BC	38-16/50	30-40/46	BC	No	PVC	—	PVC	Ultra flex.
Daburn	1830	—	X	−40	105	300	9	64	TC	28-7/36	—	No	No	PVC	—	—	UL2651
	1833	X	—	−20	80	300	2	60	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL1061/CSA
	1833	TP	—	−20	80	300	1Pr	51Pr	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL2464/CSA SR-PVC
Dearborn	1839	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Judd	1843	X	—	−55	125	3000	**	**	TC	30**	10**	**	**	PCA	**	PCA	UL/CSA/MIL-W-16878E
	1843	X	—	−55	125	3000	**	**	TC	28**	10**	**	**	POE	**	POE	UL/CSA/MIL-W-16878E
National Wire	1871	X	—	−40	105	600	5	60	TC	24-7/32	20-7/28	No	No	PVC	—	PVC	UL/CSA/MIL
	1871	X	—	−40	105	600	5	60	TC	24-7/32	20-7/28	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	1872	TP	—	−40	105	600	5Pr	60Pr	TC	24-7/32	20-7/28	No	No	PVC	—	PVC	UL/CSA/MIL
	1872	TP	—	−40	105	600	5Pr	60Pr	TC	24-7/32	20-7/28	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	1873	X	—	−40	105	600	7	102	TC	22-7/28	12-19/25	No	No	PVC	—	PVC	UL/CSA/MIL
	1873	X	—	−40	105	600	7	102	TC	22-7/28	12-19/25	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	1875	X	—	−40	105	300	2	60	TC	28-7/36	18-19/30	No	No	PVC	—	PVC	UL/MIL
	1875	X	—	−40	105	300	2	60	TC	28-7/36	18-19/30	BTC	Opt	PVC	MYL	PVC	AP shield optional
	1877	TP	—	−40	80	300	2Pr	27Pr	TC	28-7/36	18-19/30	No	No	PVC	—	PVC	UL/MIL
	1877	TP	—	−40	80	300	2Pr	27Pr	TC	28-7/36	18-19/30	BTC	Opt	PVC	MYL	PVC	AP shield optional
	1881	—	X	−20	105	300	10	64	TC	28-7/36	—	No	No	PVC	—	—	0.050″ centers
Saxton	1899	X	—	−40	80	300	2	30	TC	22-7/30	12-19/25	No	No	PVC	—	PVC	UL AWM-E-26174
	1899	TP	—	−40	80	300	2Pr	27Pr	TC	22S	22-7/30	No	No	PVC	—	PVC	UL AWM-E-26174
	1899	X	—	−40	80	300	3	50	TC	24-7/32	22-7/30	AP	Yes	PVC	AP	PVC	UL/CSA
	1899	ISTP	—	−40	80	300	2Pr	27Pr	TC	22S	18-16/30	AP	Yes	POP	AP	PVC	UL AWM-E-26174

COAXIAL, SINGLE CONDUCTOR, RG TYPES & SIMILAR

Manufacturer	EEM Page B•	Specifications				Nom. Imped. Ohms	Conductor/Shielding				Insulation*		Conformance
		Op. Temp. °C		Volts Max.				AWG/Strand					
		Min.	Max.	Vdc	V (rms)		Type*	Min.	Max.	Shield Matl.	Prim.	Jkt.	UL/CSA/MIL
American Insul. Wire	1747	**	80	—	Var.	**	Var.	30	11	Var.	Var.	Var.	**
Belden	1750	**	80	—	—	50	Var.	26-7/34	11-7/19	Var.	PE/CPE	PVC	UL1354/MIL-C-17
	1751	**	60	—	—	75	Var.	23S	18-7/26	Var.	PE/CPE	PVC	UL1354/MIL-C-17
	1752	**	80	—	—	75	BCCS	23S	—	BCB	PE	PVC	UL20020 (Dual Coax)
	1752	**	60	—	—	93	Var.	30S	22S	Var.	SSPE/CPE	PVC	UL1354, 1478/MIL-C-17
Carol	1815	**	**	—	—	50	BC	26-7/34	11-19/24	Var.	PE/FPE	Var.	**
	1815	**	**	—	—	75	Var.	22S	14**	Var.	PE/FPE	Var.	**
	1815	**	**	—	—	93	BC	22**	—	BCB	SSPE	PVC	UL/MIL**
JSC	1841	**	**	—	—	Var.	Var.	22S	13-7/21	Var.	PE/FPE	PVC	**
M/A-Com Cable	1850	**	**	—	—	50	BC	.0855S	20	TC	—	FEP	UL
	1850	**	**	—	—	75	CCS	18	23	Var.	—	FEP	UL
	1851	**	**	—	—	75	CCS	14	18	Var.	—	FEP	UL
	1851	**	**	—	—	75	CCAL	.109″	—	ALS	—	—	UL
	1851	**	**	—	—	75	BC	20	—	2-TC	—	FEP	UL
	1851	**	**	—	—	93	CCS	22	23	BC	—	FEP	UL
	1851	**	**	—	—	100	BC/TC	2-20	—	TC	—	FEP	UL
	1852	**	**	—	—	50	BC/ TC/SC	13	20	Var.	—	PVC	UL/MIL-C-17
	1853	**	**	—	—	50	Var.	11	26	Var.	—	PVC	UL/MIL-C-17
	1854	**	**	—	—	75	Var.	14	21	Var.	—	PE/ PVC	UL/MIL-C-17
	1855	**	**	—	—	75	BC/ CCS	20	23	Var.	—	PE/ PVC	UL/JAN-C-17
	1856	**	**	—	—	93	CCS	22	—	BC	—	PE/ PVC	UL/MIL-C-17
	1857	**	**	—	—	75	CCAL	.111″	.169″	ALS	—	PE	**
Malco	1859	**	**	—	—	**	**	**	**	**	—	TEF	UL•NEC 725-2(b)
Rowe	1895	−40	200	—	100k	**	SPC	20-19/32	10**	TC	Comb.	**	HV Cable (See specs.)
Saxton	1897	**	80	30	—	50	Var.	26-7/34	13-7/21	Var.	PE/FPE	PVC	UL1354/MIL-C-17
	1897	**	80	30	—	75	Var.	23S	14-7/22	Var.	PE/FPE	PVC	UL1354/MIL-C-17
	1897	**	60	30	—	93	BC	22S	—	BCB	FPE	PVC	UL1478/IBM5252750
	1898	**	**	**	**	Var.	Var.	23C	13-7/21	Var.	PE/FPE	Var.	UL & MIL-C-17

DATA CABLES FOR COMPUTERS & COMMUNICATION

Manufacturer	EEM Page B•	Type *	Specifications			Conductors					Shielding*		Insulation*			Conformance
			Op. Temp. °C		Vdc Max.	Number		Type *	AWG/Strand		Y/N Type	Drn. Wire				
			Min.	Max.		Min.	Max.		Min.	Max.			Prim.	Sec.	Jkt.	UL/CSA/MIL
American Insul. Wire	1747	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Belden	1766	TP	−40	80	300	1Pr	50Pr	TC	24-7/32	22S	AP	Yes	PVC	AP	PVC	UL/CSA
	1775	COAX	−20	60	30	1	—	TC	.0855″S	—	AP+BTC	No	POE	AP	PVC	UL (Ethernet)
	1775	ISTP	−40	80	30	4Pr	5Pr	TC	20-7/30	—	AP+BTC	Yes	POE	AP	PVC	UL (Ethernet)
	1776	TP	−20	60	30	1Pr	27Pr	TC	24-7/32	22S	AP+AP	Yes	POE	AP	PVC	UL
	1778	RMC	−40	80	30	3	37	TC	28-7/36	24-7/32	AP	Yes	POE	AP	PVC	UL
	1780	TP	−40	80	30	2Pr	25Pr	TC	28-7/36	24-7/32	AP	Yes	POE	AP	PVC	UL2919
	1782	ISTP	−20	60	**	2Pr	25Pr	TC	24-7/32	—	AP+BTC	Yes	POE	AP	PVC	UL2493
	1783	RMC	−40	80	300	3	50	TC	28-7/36	22-7/30	AP+BTC	No	SR-PVC	AP	PVC	UL2464
	1786	TP	−40	80	300	2Pr	25Pr	TC	28-7/36	22-7/30	AP+BTC	No	SR-PVC	AP	PVC	UL2464
Brim	1797	TP	−40	80	300	5Pr	60Pr	TC	24-7/32	—	BTC	No	PVC	MYL	PVC	UL1061
Carol	1801	TC	−20	80	300	2	6	TC	12	22	BTC	Yes	PVC	—	PVC	UL
	1802	TC	−20	60	600	2	4	TC	12	24	AP	Yes	PE	—	PVC	UL
	1803	TC	−20	60	400	4	54	TC	18	22	AP	Yes	POP	—	PVC	UL
	1808	TP	−40	80	300	5Pr	60Pr	TC	24-7/32	20-19/32	BTC	No	PVC	MYL	PVC	UL2343/CSA SR-PVC
Cooner Wire	1821	See specs.														
Daburn	1833	TP	−20	80	300	1Pr	51Pr	TC	24-7/32	—	AP	Yes	PVC	—	PVC	UL2464/CSA SR-PVC
Dearborn	1839	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
L-Com	2106	Assembled data cables														
Natl. Elec. Cable	1866	Assembled data cables														
Natl. Wire	1879	ISTP	−20	80	30	4Pr	50Pr	TC	24-7/32	—	AP+BTC	Yes	PVC	AP	PVC	UL AWM 2835
Saxton	1899	ISTP	−20	80	300	4Pr	27Pr	TC	24-7/32	18-16/30	AP	Yes	POP	AP	PVC	UL AWM-E-26174

CABLES & CORDS, POWER

Manufacturer	EEM Pg. B•	Specifications Op. Temp. °C Min.	Specifications Op. Temp. °C Max.	Specifications Max. Volts Vdc	Specifications Max. Volts V(rms)	Type *	Conductors AWG/#-Stranding Min.	Conductors AWG/#-Stranding Max.	Style *	Max. Length Feet	Insulation* Prim.	Insulation* Sec.	Insulation* Jkt.	Conformance UL/CSA/MIL/OTH.
American Insul. Wire	1747	See specs.												
Belden	1750	See specs.												
Brim Electronics	1795	−20	60	600	300	BC	18/2-41x34	10/4-104x30	RTCL	25	**	**	**	UL/CSA
Cooner Wire	1826	See specs.												
Daburn	1831	−20	60	300	**	BC	18/2-41x34	12/7-65x30	RTCL	20	SBR	**	NEO	UL/CSA
Natl. Elec. Cable	1866	Custom power cords												
Panel Components	1892	International power cord sets												

TELEPHONE & KEYBOARD/ COMPUTER CORD SETS

Manufacturer	EEM Pg. B•
Brim Electronics	1796
Cord Electronics	1827
Daburn	1830
GSI Corp.	1840
L-Com	1846
Natl. Elec. Cable	1866
Shogyo Intl.	1905
Virginia Plastics	1909

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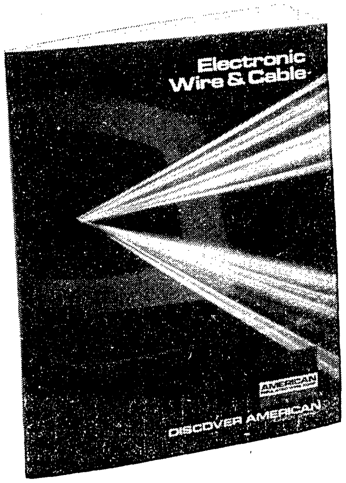

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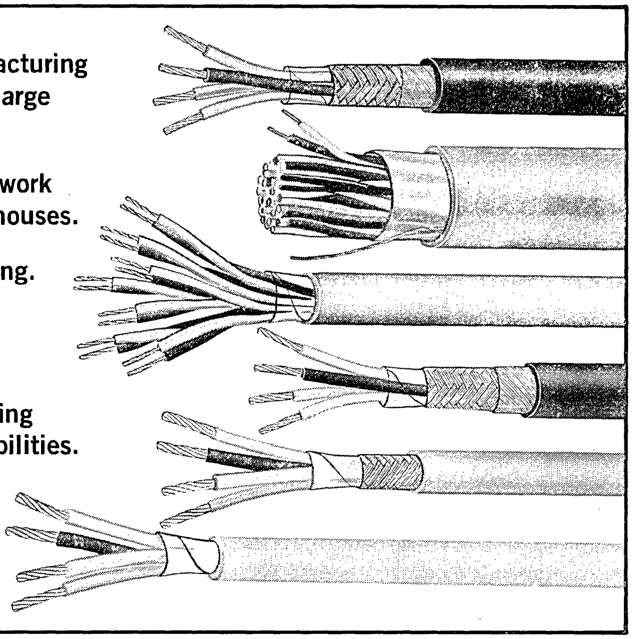

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Product Description	Maximum Voltage Rating	Maximum Operating Temp. °C	Size Range AWG	Conductor Material	Insulation Materials	Jacket Materials	Shielding*
Audio & Sound Cable	90-600	60-105	14-22	BC, TC	PE, PVC	PVC	Optional
Coaxial Cable	—	60-80	11-30	BC, TC, SC, CW	PE, FPE, SSP	PVC, NVC	Yes
Control Cable	600-1000	60-90	10-18	BC, TC	PVC, PE, RUB XLP, EPR	PVC, NEO Hypalon	Optional
Communication Cable	200-600	60-105	12-26	TC	PE, PVC, PP	PVC	Optional
Computer & P.O.S. Cable	200-300	80-105	22-26	TC	PP, PVC, PE	PVC	Yes
Fire Alarm Cable	300	105	12-22	BC, TC	PVC	PVC	Optional
Hook-up Wire (UL, CSA, MIL)	300-2500	80-200	2-26	BC, TC	PE, PVC, XLP Silicone	Nylon Laq. Glass Braid	—
Instrumentation Cable	300-600	60-105	12-26	BC, TC	PE, PP, PVC RUB, XLP, EPR	PVC, NEO Hypalon	Optional
Plenum Cable	300-600	200	12-24	BC	FEP	FEP	Optional
Portable & Flex. Cord	300-600	60-105	10-18	BC, TC	PVC, RUB, NEO HYP, EPR, XLP	PVC, RUB NEO, HYP	Optional

LEGEND:
BC = Bare Copper
CW = Bare Copper Covered Steel
EPR = Ethylene Propylene Rubber
FEP = Florinated Ethylene Propylene
FPE = Cellular (foam) polyethylene
HYP = Hypalon (DuPont™)
NVC = Non-Contaminating PVC
NEO = Neoprene
RUB = Rubber
PE = Polyethylene
PP = Polypropylene
PVC = Polyvinyl Chloride
SC = Silver Coated Copper
SSP = Semi-solid polyethylene
TC = Tinned Copper
XLP = Cross-linked Polyethylene

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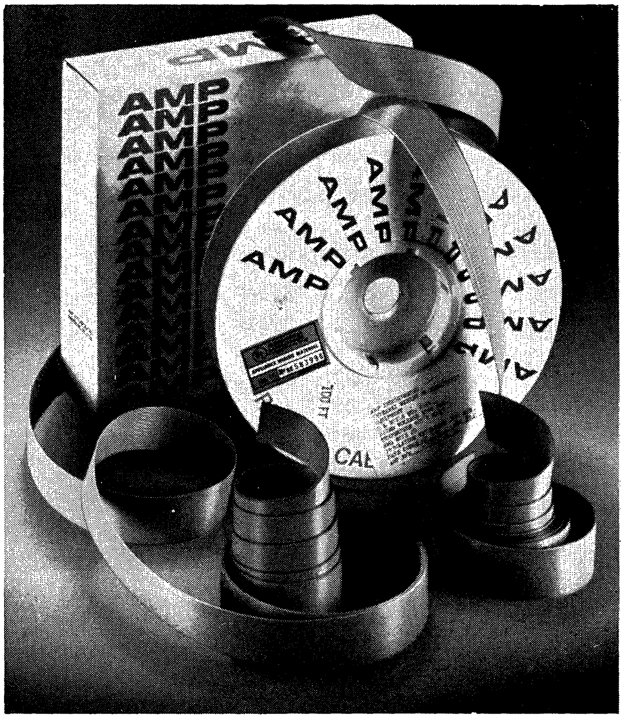
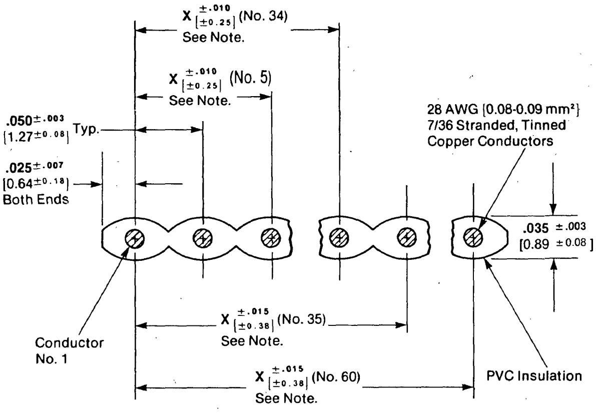
AMP Ribbon Cable



Features: ■ Recognized under the component program of Underwriters Laboratories Inc. File No. E53793, UL Style ® 2651 ■ 100 feet [30.48 m] and 300 feet [91.44 m] lengths without splices ■ Available with evey fifth conductor marked in 100 foot lengths ■ Can be readily "ripped" or slit to obtain less no. of conductors ■ Symmetrical geometry for ease of registration while terminating on either side of cable ■ Manufacturing methods provide cable stability for consistently reliable terminations ■ Dark blue color stripe on number one conductor for easy cable orientation ■ Compatible with all slotted beam connector technologies on .050 [1.27] centers


X ±.010 [±0.25] (No. 34) See Note.
X ±.010 [±0.25] (No. 5) See Note.
.050±.003 [1.27±0.08] Typ.
.025±.007 [0.64±0.18] Both Ends
28 AWG [0.08-0.09 mm²] 7/36 Stranded, Tinned Copper Conductors
.035 ±.003 [0.89 ±0.08]
Conductor No. 1
X ±.015 [±0.38] (No. 35) See Note.
X ±.015 [±0.38] (No. 60) See Note.
PVC Insulation

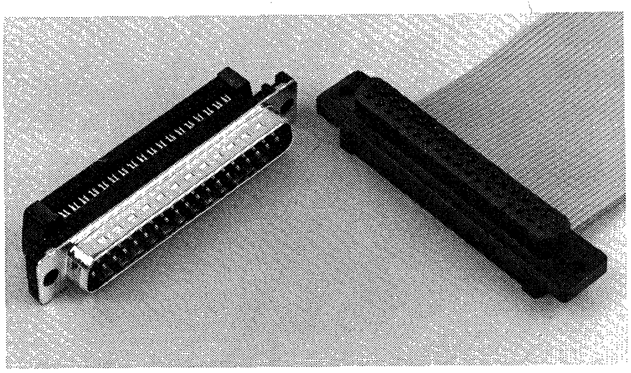
Note: Tolerance of dimensions between conductors 1 and 5 thru 34 is ±.010 [±0.25]; tolerance between conductors 1 and 35 thru 60 is ±.015 [±0.38].

Temperature Rating: −20°C to +105°C
Voltage Rating: 300 volts per UL Style 2651
Insulation Resistance: 10,000 megohms per 10 ft. [3.05 m] (minimum)
Insulation Color: Gray, with dark blue stripe on conductor no. 1 only

No. of Conductors	100′ [30.48 m] Reel Part No.	100′ [30.48 m] Reel Marked every fifth conductor Part No.	300′ [91.44m] Reel Part No.
9	2-499116-1	499998-1	1-499660-7
10	499116-7	499998-2	499660-2
14	499116-1	499998-3	499660-8
15	2-499116-0	499998-4	1-499660-8
16	499116-2	499998-5	499660-4
18	1-499116-7	499998-6	1-499660-4
20	499116-3	499998-7	499660-3
24	1-499116-1	499998-8	1-499660-1
25	1-499116-8	499998-9	1-499660-5
26	499116-4	1-499998-0	499660-5
30	1-499116-2	1-499998-1	1-499660-2
34	499116-8	1-499998-2	499660-1
36	1-499116-6	1-499998-3	1-499660-3
37	1-499116-9	1-499998-4	1-499660-6
40	499116-5	1-499998-5	499660-6
44	1-499116-0	1-499998-6	1-499660-0
50	499116-6	1-499998-7	499660-7
60	499116-9	1-499998-8	499660-9

HDF-20 Low Profile Connectors

(for Round Conductor Flat Ribbon Cable)



Features: ■ Low profile design; .335 [8.51] max. from top of connector flange to back of cover ■ One-step termination of housing assembly and cover ■ Terminates .050 [1.27] centerline flat ribbon cable with 30 AWG [0.05 mm²] solid, 28 AWG [0.08-0.09 mm²] solid or stranded and 26 AWG [0.12-0.15 mm²] solid conductors ■ Mates with any standard AMPLIMITE subminiature HD-20 or military (D type) connector ■ Plug and receptacle assemblies, all plastic or with front metal shell, in 9, 15, 25 and 37 positions ■ Strain relief available ■ Available with 4-40 threaded inserts ■ Two-piece construction; UL recognized black thermoplastic, 94V-0 rated ■ Right-angle (90°) cable terminations ■ Contact centerline transition from .109 [2.77] at connector interface to .100 [2.54] (.050 [1.27] staggered) at cable termination ■ Duplex plated AMP-LATCH insulation displacement crimp contacts ■ No cable preparation required, except for cutting the cable end square ■ End-termination and daisy chain applications ■ Convenient circuit probe testing after cable termination

Request Catalog No. 73-177

Need more details? Call AMP Customer Service at (717) 780-4400,
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Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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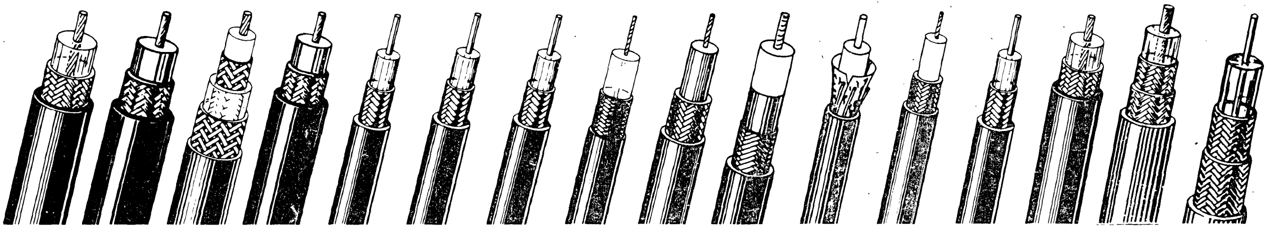

Belden Part No.		Center Conductor			Dielectric		Shields			Jacket				Nom. Att.			
UL Style No.	RG Type	AWG	Mat-erial	DCR per M' (ohms)	Mat-erial	Core O.D.	Type	Coverage	DCR per M' (ohms)	Mat-erial	O.D.	N.V.P.	Nom. Cap.	MHz	db/ 100 ft.	Imped-ance	Temp. Rating
9251† UL1354 MIL-C-17D	8A/U	13 (7x21)	BC	1.87Ω	PE	.285	1 BC Braid	97%	1.2Ω	Black NC- PVC	.405	66%	29.5	100 400 900	2.2 4.7 8.0	52	60°C
8214† UL1354	8/U	11 (7x19)	BC	1.15Ω	CPE	.285	1 BC Braid	97%	1.1Ω	Black PVC	.405	78%	26.0	100 400 900	1.8 4.2 6.7	50	60°C
9888☐	8/U	11 (7x19)	BC	1.17Ω	CPE	.285	2 BC Braid	96%	2.1Ω	Black PE	.480	78%	26.0	100 400 900	1.8 4.2 6.7	50	80°C
9258 UL1354	8/X	16 (19x29)	BC	4.3Ω	CPE	.155	1 BC Braid	95%	3.3Ω	Black or White PVC	.242	78%	26.0	100 400 900	3.7 8.0 12.8	50	60°C
9201	58/U	20 (solid)	BC	10.1Ω	PE	.116	1 BC Braid	78%		Black PVC	.195	66%	28.5	100 400 900	4.5 10.0 16.0	53.5	75°C
8259 JAN-C-17A	58A/U	20 (19x.0071)	TC	10.8Ω	PE	.114	1 TC Braid	96%	4.1Ω	Black PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	60°C
8262☐ MIL-C-17F	58C/U	20 (19x.0071)	TC	10.8Ω	PE	.116	1 TC Braid	95%	4.1Ω	Black NC- PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	80°C
9203☐ MIL-C-17F	58/U	20 (19x.0071)	TC	10.8Ω	PE	.116	1 TC Braid	95%	4.1Ω	Black NC- PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	80°C
8219 UL1354	58A/U	20 (19x32)	TC	8.8Ω	CPE	.114	1 TC Braid	96%	4.1Ω	Black or White PVC	.195	78%	26.0	100 400 900	4.5 9.0 13.8	50	60°C
9311 UL1354	58A/U	20 (19x32)	TC	8.8Ω	CPE	.114	1 TC Braid Duobond II®	+56% 100%	17.0Ω	Black PVC	.195	78%	26.0	100 400 900	4.5 9.0 13.8	50	60°C
9889 UL1354	58/U	18 (solid)	BC	6.5Ω	CPE	.116	1 Duofoil	100%	25.0Ω	Black PVC	5.49	78%	26.0	100 400 900		50	60°C
9252 UL1354 MIL-C-17F	122/U	22 (27x36)	TC	17.1Ω	PE	.096	1 TC Braid	97%	5.2Ω	Black NC- PVC	.160	66%	30.8	100 400 900	7.0 15.2 25.0	50	60°C
8216 UL1354 MIL-C-17D	174/U	26 (7x34)	BCCS	97.0Ω	PE	.060	1 TC Braid	88%	10.3Ω	Black PVC	.101	66%	30.8	100 400 900	8.9 17.5 28.2	50	60°C
8267†☐ UL1354 MIL-C-17D	213/U	13 (7x21)	BC	1.87Ω	PE	.285	1 BC Braid	97%	1.2Ω	Black NC- PVC	.405	66%	30.8	100 400 900	2.2 4.7 8.0	50	60°C
8268†☐ UL1354 MIL-C-17F	214/U	13 (7 × .0296)	SCC	1.73Ω	PE	.285	2 SCC Braid	98%	.7Ω	Black NC- PVC	.425	66%	30.8	100 400 900	2.2 4.7 8.0	50	60°C
9273 UL1354 MIL-C-17F	223/U	19 (solid)	SCC	8.05Ω	PE	.116	2 SCC Braid	97%	2.5Ω	Black NC- PVC	.212	66%	30.8	100 400 900	4.5 9.2 14.3	50	60°C

Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m), 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend

AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

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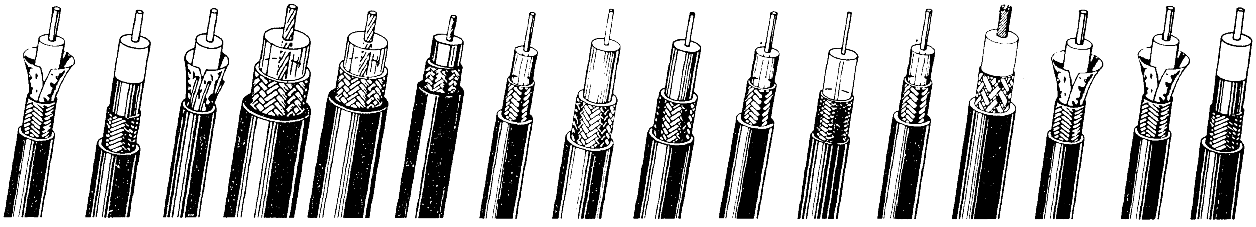

Belden Part No.		Center Conductor			Dielectric		Shields			Jacket				Nom. Att.			
UL Style No.	RG Type	AWG	Material	DCR per M′ (ohms)	Material	Core O.D.	Type	Coverage	DCR per M′ (ohms)	Material	O.D.	N.V.P.	Nom. Cap. pF/ft.	MHz	db/ 100 ft.	Impedance	Temp. Rating
9248† UL1354	6/U	18 (solid)	BC	7.5Ω	CPE	.180	1-TC 1-Duofoil	61% 100%	5.2Ω	Black PVC	.270	78%	17.3	100 500 900	2.1 5.0 6.9	75	60°C
9114	6/U	18 (solid)	BCCS	45.5Ω	CPE	.180	1-AL Braid 1-Duobond II®	40% 100%	45.5Ω	Blk./ Lt. Bg. PVC	.275	78%	17.3	100 500 900	2.1 5.0 6.9	75	60°C
8228	6/U	18 (solid)	BC	7.5Ω	CPE	.180	1-Duofoil	100%	19.5Ω	Black PVC	.242	78%	17.3	100 500 900	2.1 5.0 6.9	75	60°C
8238 JAN-C-17A	11/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.8	75	80°C
8261†☐ MIL-C-17D	11A/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black NC-PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.8	75	80°C
9212† MIL-C-17F	11/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black NC-PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.9	75	80°C
8241 UL1354 JAN-C-17A	59/U	22 (solid)	BCCS	55.0Ω	PE	.146	1 BC Braid	95%	2.7Ω	Black PVC	.242	66%	21.0	100 400 900	3.4 7.1 10.9	73	60°C
9244☐ UL1354	59/U	22 (solid)	BCCS	55.0Ω	PE	.146	1 BC Braid	86%	4.5Ω	Black PVC	.242	66%	21.0	100 400 900	3.4 7.1 10.9	73	80°C
8221	59/U	22 (solid)	BCCS	55.0Ω	CPE	.146	1 BC Braid	95%	2.6Ω	Grey, White Black PVC	.242	78%	16.3	100 400 900	2.9 5.9 8.8	80	80°C
9240☐	59/U	20 (solid)	BCCS	61.5Ω	CPE	.146	1 BC Braid	80%	5.6Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
8263†☐ MIL-C-17D	59B/U	23 (solid)	BCCS	47.0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	66%	20.5	100 400 900	3.4 7.0 11.1	75	80°C
9204†☐ MIL-C-17F	59/U	23 (solid)	BCCS	47.0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	66%	20.5	100 400 900	3.4 7.0 11.1	75	80°C
9259 UL1354	59/U	22 (7x30)	BC	15.0Ω	CPE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.242	78%	17.3	100 400 900	3.0 6.6 10.1	75	80°C
9243☐	59/U	20 (solid)	BCCS	61.5Ω	CPE	.146	1 AL Braid 1-Duofoil	67% 100%	14.0Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
9266☐	59/U	20 (solid)	BCCS	61.5Ω	CPE	.146	1 TC Braid 1-Duofoil	61% 100%	6.8Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
9100☐☐	59/U	20 (solid)	CCS	61.5Ω	CPE	.146	1 AL Braid 1-Duo-Bond II®	40% 100%	17.0Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C

Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m) and 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only
☐☐ 500 ft. (152.4m), 1000 ft. (304.8), 2000 ft. (609.6m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend

AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

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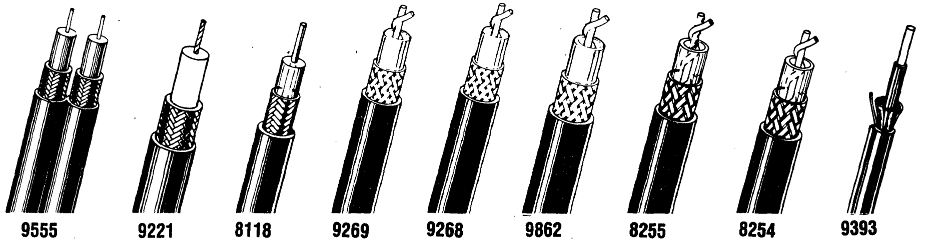
BELDEN
COOPER INDUSTRIES

COAXIAL CABLES
75 and 93 ohm

75 Ohm Coaxial Cables



Belden Part No. UL Style No.	RG Type	Center Conductor AWG	Center Conductor Material	Center Conductor DCR per M' (ohms)	Dielectric Material	Dielectric Core O.D.	Shields Type	Shields Coverage	Shields DCR per M' (ohms)	Jacket Material	Jacket O.D.	N.V.P.	Nom. Cap.	Nom. Att. MHz	Nom. Att. db/100 ft.	Impedance	Temp. Rating
9555 Dual coax UL20063	59/U	23 (solid)	BCCS	47.0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.238 ×.478	66%	20.5	100 400 900	3.4 7.5 12.0	75	80°C
9221 UL1375 miniature coax		30 (7x38)	TC	100.0Ω	CPE	.058	1 TC Braid	89%	11.7Ω	Black PVC	.097	78%	17.3	100 400 900	9.2 24.5 44.0	75	60°C
8218 miniature coax		27 (7x35)	BCCS	112.0Ω	PE	.100	1 TC Braid	93%	6.5Ω	Black PVC	.150	66%	20.5	100 400 900	5.7 12.1 19.0	75	60°C

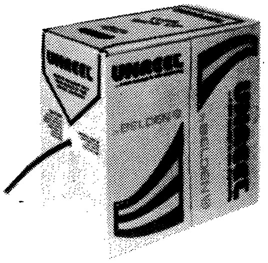
93 Ohm Coaxial Cables

9269† UL1478	62 A/U	22 (solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC (Indoor)	.242	84%	13.5	100 400 900	2.7 5.4 8.3	93	60°C
9268† UL1478	62 A/U	22 (solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC (Outdoor)	.260	84%	13.5	100 400 900	2.7 5.4 8.3	93	60°C
9862† MIL-C-17F UL1478	62 A/U	22 (Solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	84%	13.5	100 400 900	2.7 5.4 8.8	93	60°C
8255†☐ MIL-C-17D UL1354	62 B/U	24 (7x32)	BCCS	53.4Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	84%	13.5	100 400 900	2.9 6.1 10.1	93	60°C
8254 JAN-C-17A	62/U	22 (Solid)	BCCS	55.0Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.238	84%	13.5	100 400 900	2.7 5.4 8.3	93	80°C
9393† UL1354 Miniature coax	—	30 (Solid)	CC	114.0Ω	CPE	.064	— 1 Beldfoil® + Drain-wire	100%	48Ω	Red PVC	.100 x.115	78%	14.0	100 400	8.8 17.5	93	80°C

Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m), 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend
AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

Belden "UNREEL®" Dispensers



- **Easy to use.**
- **Light in weight.**
- **Faster than standard reels.**
- **Easy to store and transport.**
- **No snagging, twisting and kinking.**
- **Not liable to backlash.**
- **Continuous feed-out system.**
- **Efficient throw away Packaging.**

Belden cables are available in unique "UNREEL" dispenser packs. "UNREEL" overcomes the problems associated with spools and reels. "UNREEL" is economical: so easy to use, it saves up to 30% of your time on every job, compared to conventional spool and non spool fed systems. To order, add the letter "U" before desired length. Example Belden Part No. 8451 Length U-1000.

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MULTI-CONDUCTOR CABLES
Unshielded Cables

COOPER INDUSTRIES **BELDEN**

Applications:
- Control systems
- Processing equipment
- Audio (not paired)

Multi-conductor Unshielded Cables

PVC CONTROL & AUDIO CABLES

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
22 GAGE **SOLID CONDUCTORS .64 mm diam.** **PRODUCT DESCRIPTION:** *Bare copper, polyethylene insulated, conductors cabled, rose gray PVC jacket.*											
	8795 **2092** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	8.2 15.5 16.1	2 *Color code Red, Green*	.016	.41	.022	.56	.160	4.06
	8794 **2093** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	9.6 18.2 18.9	3 *Color code Green, Red, Yellow*	.016	.41	.022	.56	.168	4.27
	9794 **2094** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	10.7 20.4 21.2	4 *Color code. Green, Red, Yellow, Black*	.016	.41	.025	.64	.190	4.83
22 GAGE **STRANDED CONDUCTORS (7x30) .76 mm diam.** **PRODUCT DESCRIPTION:** *tinned copper, PVC insulated twisted pair, PVC jacket.*											
	8442 **UL LISTED** **Wires, Misc.** **90V Max.** **80C**	100 Chrome	30.5	1.8	2 *Color code: Black, Red.*	.015	.38	.025	.64	.170	4.32
		U-500 Chrome Lt. Beige	U-152.4	7.9							
		500 Chrome Lt. Beige	152.4	7.4							
		U-1000 Chrome Lt. Beige	U-304.8	14.7							
		1000 Chrome Lt. Beige	304.8	15.3							

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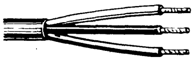
BELDEN COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Unshielded Cables

PVC CONTROL & AUDIO CABLES (cont'd.)

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.*



Description	Trade & U.L. Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness		Jacket Thickness		Nominal O.D.	
		ft.	m			Inch	mm	Inch	mm	Inch	mm
	8443† **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	2.1 9.0 8.9 17.5 18.1	3	.010	.25	.032	.81	.164	4.17
						Color code: Black, Red, Green.					
	8444† **2576** **150V** **80C**	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	2.4 5.8 11.2 10.9 21.5 22.2	4	.010	.25	.032	.81	.182	4.62
						Color code chart No. 1, Technical Information Section.					
	8445† **2576** **150V** **80C**	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	2.8 6.7 12.6 13.7 25.1 25.9	5	.010	.25	.032	.81	.194	4.93
						Color code chart No. 1, Technical Information Section.					
	9430† **2576** **150V** **80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	16.6 17.3 32.2 33.1	7	.010	.25	.032	.81	.214	5.44
						Color code chart No. 1, Technical Information Section.					
	9421† **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.1 18.5 19.1 36.1 37.0	8	.010	.25	.032	.81	.229	5.82
						Color code chart No. 1, Technical Information Section.					
	9423† **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.5 21.0 21.7 41.0 42.0	9	.010	.25	.032	.81	.244	6.20
						Color code chart No. 1, Technical Information Section.					
	8456† **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.1 24.1 24.9 47.2 50.2	10	.010	.25	.032	.81	.264	6.71
						Color code chart No. 1, Technical Information Section.					
	8457† **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.6 25.6 26.3 50.1 53.1	12	.010	.25	.032	.81	.264	6.71
						Color code chart No. 1, Technical Information Section.					
	8458† **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	7.8 36.0 76.8	15	.010	.25	.040	1.02	.330	8.38
						Color code chart No. 2R, Technical Information Section.					
	9431† **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	9.0 43.7 90.9	20	.010	.25	.040	1.02	.345	8.76
						Color code chart No. 2R, Technical Information Section.					

†Passes the VW-1 vertical wire flame test. 2R Same as ICEA except ring band striping.

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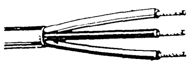
MULTI-CONDUCTOR CABLES
Unshielded Cables

COOPER INDUSTRIES BELDEN

PVC CONTROL & AUDIO CABLES (cont'd.)

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam. (cont'd.)

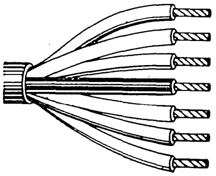
PRODUCT DESCRIPTION: *Tinned copper. PVC insulated. conductors cabled. Chrome PVC jacket. Color code chart No. 2 or No. 2R, Technical Information Section.*



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	8459† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	10.9 53.1 106.2	25	.010	.25	.040	1.02	.370	9.40
	9432† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	12.3 62.9 119.7	30	.010	.25	.040	1.02	.400	10.16
	9433† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	16.7 82.8 162.8	40	.010	.25	.040	1.02	.455	11.56
	9434† ЯU **2576** 150V 80C	500 1000	152.4 304.8	101.2 201.5	50	.010	.25	.045	1.14	.500	12.70

20 GAGE
STRANDED CONDUCTORS (10 x 30) .94 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. PVC insulated. conductors cabled. Chrome PVC jacket. Color code chart No. 1, Technical Information Section.*



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	9444† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.3 15.5 16.2 30.1 31.0	4	.013	.33	.032	.81	.217	5.51
	9445† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.1 18.5 19.2 36.2 36.8	5	.013	.33	.032	.81	.239	6.07
	9439† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.2 23.7 24.5 46.4 49.4	7	.013	.33	.032	.81	.260	6.60
	9455† ЯU **2464** 300V 80C	100 500 1000	30.5 152.4 304.8	6.8 32.6 68.5	9	.013	.33	.035	.89	.317	8.05
	9457† ЯU **2464** 300V 80C	100 500 1000	30.5 152.4 304.8	8.2 39.4 82.8	12	.013	.33	.035	.89	.338	8.58
	9458† ЯU **2464** 300V 80C	100 500 1000	30.5 152.4 304.8	11.3 53.2 104.5	15	.013	.33	.040	1.02	.389	9.88

Color code chart No. 2, Technical Information Section.

†Passes the VW-1 vertical wire flame test

2R Same as ICEA except ring band striping.

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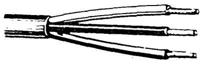
COOPER INDUSTRIES BELDEN

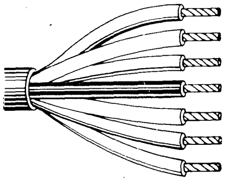
MULTI-CONDUCTOR CABLES
Unshielded Cables

PVC CONTROL & AUDIO CABLES (cont'd.)

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
19 GAGE **SOLID CONDUCTORS .91 mm diam.**											
	**8487**† 80C	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	13.0 12.8 25.0 25.8	3	.015	.38	.025	.64	192	4 88
					PRODUCT DESCRIPTION: *Bare copper, PVC insulated, conductors cabled. Chrome PVC jacket.* *Color coding: Brown, Gray, Tan.* ***Suggested working voltage: 300***						

18 GAGE
STRANDED CONDUCTORS (16 x 30) 1.19 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8489**† ЯU **2598** 300V 60C	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	5.1 11.8 23.1 23.9 45.2 48.3	4 *Color code chart No. 1, Technical Information Section.*	.018	.46	.032	.81	264	6 71
	8465† ЯU **2598** 300V 60C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	6.1 28.7 29.2 56.3 60.3	5 *Color code chart No. 1, Technical Information Section.*	.018	.46	.037	.94	.286	7.26
	8467† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	8.0 20.0 38.6 81.0	7 *Color code chart No. 1, Technical Information Section.*	.018	.46	.037	.94	.324	8.23
	8469† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	10.1 25.7 51.8 103.7	9 *Color code chart No. 1, Technical Information Section.*	.018	.46	.037	.94	.379	9.63
	8466† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	12.6 31.3 64.1 126.1	12 *Color code chart No. 2 or No. 2R, Technical Information Section.*	.018	.46	.040	1.02	.412	10.46
	8468† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	17.6 87.9 172.8	15 *Color code chart No. 2R, Technical Information Section.*	.018	.46	.045	1.14	.505	12.83
	8619† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	20.0 99.3 195.0	19 *Color code chart No. 2R, Technical Information Section.*	.018	.46	.045	1.14	.505	12.83
	9626† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	27.1 134.9 270.8	25 *Color code chart No. 2R, Technical Information Section.*	.018	.46	.060	1.52	.620	15.75

†*Passes the VW-1 vertical wire flame test*

2R Same as ICEA except ring band striping.

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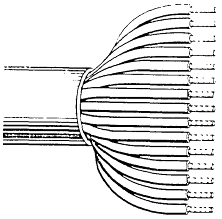
MULTI-CONDUCTOR CABLES
Unshielded Cables

COOPER INDUSTRIES **BELDEN**

PVC CONTROL & AUDIO CABLES (cont'd.)

16 GAGE
STRANDED CONDUCTORS (19 x 29) 1.42 mm diam.

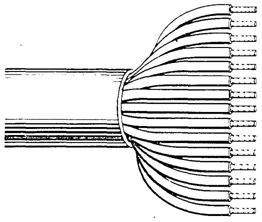
PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.* ***Suggested working voltage: 600***



Description	Trade & U.L. Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness		Jacket Thickness		Nominal O.D.	
		ft.	m			Inch	mm	Inch	mm	Inch	mm
Color code chart No. 2, Technical Information Section.	**8620†** **80C**	100 500 1000	30.5 152.4 304.8	8.7 42.2 87.9	4	.031	.79	.045	1.14	.375	9.53
Color code chart No. 2, Technical Information Section.	**9620†** **80C**	100 500 1000	30.5 152.4 304.8	10.5 53.9 103.0	5	.031	.79	.045	1.14	.405	10.29
Color code chart No. 2R, Technical Information Section.	**8621†** **80C**	100 500 1000	30.5 152.4 304.8	14.1 69.9 136.8	7	.031	.79	.045	1.14	.455	11.56
Color code chart No. 2R, Technical Information Section.	**9721†** **80C**	100 500 1000	30.5 152.4 304.8	15.9 78.8 154.8	8	.031	.79	.045	1.14	.495	12.57
Color code chart No. 2R, Technical Information Section.	**9621†** **80C**	100 500 1000	30.5 152.4 304.8	17.7 87.7 171.3	9	.031	.79	.045	1.14	520	13 21
Color code chart No. 2R, Technical Information Section.	**8622†** **80C**	100 500 1000	30.5 152.4 304.8	23.7 117.6 236.2	12	.031	.79	.060	1.52	.610	15.49
Color code chart No. 2R, Technical Information Section.	**8623†** **80C**	100 500 1000	30.5 152.4 304.8	28.9 146.9 286.8	15	.031	.79	.060	1.52	.670	17.02
Color code chart No. 2R, Technical Information Section.	**8624†** **80C**	100 500 1000	30.5 152.4 304.8	36.3 172.5 349.1	19	.031	.79	.065	1.65	.700	17.78
Color code chart No. 2R, Technical Information Section.	**9622†** **80C**	100 500 1000	30.5 152.4 304.8	46.9 226.4 460.7	25	.031	.79	.065	1.65	.850	21.59

14 GAGE
STRANDED CONDUCTORS (19 x 27) 1.80 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.* ***Suggested working voltage: 600***



Description	Trade & U.L. Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness		Jacket Thickness		Nominal O.D.	
		ft.	m			Inch	mm	Inch	mm	Inch	mm
Color code chart No. 2, Technical Information Section.	**8627†** **80C**	100 500 1000	30.5 152.4 304.8	14.2 71.6 140.3	4	.047	1.19	.045	1.14	.495	12.57
Color code chart No. 2, Technical Information Section.	**9623†** **80C**	100 500 1000	30.5 152.4 304.8	19.1 94.1 189.2	5	.047	1.19	.060	1.52	.545	13.84
Color code chart No. 2, Technical Information Section.	**8628†** **80C**	100 500 1000	30.5 152.4 304.8	23.9 118.7 238.3	7	.047	1.19	.060	1.52	.615	15.62
Color code chart No. 2, Technical Information Section.	**8629†** **80C**	100 500 1000	30.5 152.4 304.8	40.9 201.8 397.2	12	.047	1.19	.065	1.65	.800	20.32

†Passes the VW-1 vertical wire flame test

2R Same as ICEA except ring band striping.

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Paired, Unshielded Cables

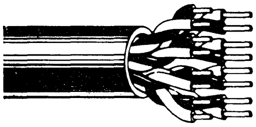
Applications:
- Sound systems
- Control systems

Paired, Unshielded Cables

SOUND AND CONTROL CABLES

22 GAGE
SOLID CONDUCTORS .64 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8740** UL LISTED **Wires, Misc. 90V Max. 80C**	U-500 U-1000	U-152.4 U-304.8	7.7 14.3	1	.015	.38	.025	.64	.166	4.22
	8741† ЯU **2464** **300V 80C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	13.1 25.0 25.0	2	.015	.38	.032	.81	.209	5.31
	8742† ЯU **2464** **300V 80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.9 17.6 18.3 34.2 35.2	3	.015	.38	.032	.81	.244	6.20
	8757† ЯU **2464** **300V 80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	22.3 23.1 43.6 47.6	4	.015	.38	.032	.81	.259	6.58
	9158† ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.9 27.9 57.0	5	.013	.33	.040	1.02	.307	7.80
	8743† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.5 26.1 27.0 51.3 55.6	6	.010	.25	.035	.89	.305	7.75
	9160† ЯU **2464** **300V 80C**	500 1000	152.4 304.8	38.9 81.2	8	.013	.33	.040	1.02	.346	8.79
	8744† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	8.0 38.0 74.3	9	.010	.25	.037	.94	.354	8.99

†Passes the VW-1 vertical wire flame test

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

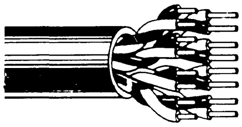
MULTI-CONDUCTOR CABLES
Paired, Unshielded Cables

COOPER INDUSTRIES BELDEN

SOUND AND CONTROL CABLES (cont'd.)

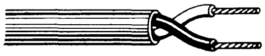
22 GAGE
SOLID CONDUCTORS .64 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8753**† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	9.3 47.8 93.5	11	.010	.25	.037	.94	.369	9.37
	8754† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	10.5 54.3 106.6	13	.010	.25	.037	.94	.394	10.01
	8745† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	12.0 61.2 120.4	15	.010	.25	.040	1.02	.405	10.29
	8755† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	15.7 76.7 151.2	19	.010	.25	.040	1.02	.460	11.68
	8756† ЯU **2576** **150V** **80C**	500 1000	152.4 304.8	89.8 176.5	23	.010	.25	.040	1.02	.495	12.57
	8746† ЯU **2576** **150V** **80C**	500♦ 1000♦	152.4 304.8	105.5 212.0	27	.010	.25	.045	1.14	.535	13.59

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pair, PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8442** (UL) LISTED **Wires, Misc.** **90V Max.** **80C**	100 Chrome	30.5	1.8	1 *Color Code Black, Red*	.015	.38	.025	.64	.170	4.32
		U-500 Chrome Lt. Beige	U-152.4	7.9							
		500 Chrome Lt. Beige	152.4	7.4							
		U-1000 Chrome Lt. Beige	U-304.8	14.7							
		1000 Chrome Lt. Beige	304.8	15.3							

†Passes the VW-1 vertical wire flame test

♦ Spools are one piece, but length may vary + 20% –0 from length shown.

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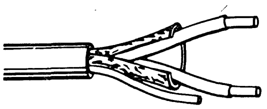
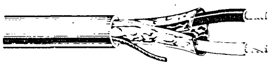
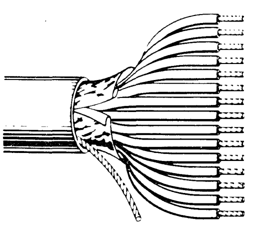
COOPER
INDUSTRIES
BELDEN

MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

Applications:
- Sound
- Broadcast
- Audio
- Instrumentation

Multi-conductor Overall Beldfoil Shielded Cables

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
28 GAGE SOLID CONDUCTORS .32 mm diam.																	
 BELDFOIL 100% Shield Coverage	**8640**† **105C**	250 U-500 500	76.2 U-152.4 152.4	1.5 3.1 2.6	2	Solid [.32]	.0025	.064	.020	.51	.090	2.29	Blk. Red	55	180	105	344
					PRODUCT DESCRIPTION: *solid copper, GEOSOL™ insulated (solderable—no stripping required), twisted pair, BELDFOIL aluminum-polyester shield, 30 AWG solid tinned copper covered steel drain wire, White PVC jacket. Maximum operating temperature 105°C. 100% shield coverage.* *Ideal for Instrumentation and Audio Console Work where Subminiaturization is Required. The BELDFOIL shield combines high cable reliability with ease of termination.* ***Suggested working voltage: 100***												
24 GAGE STRANDED CONDUCTORS (7 x 32) .61 mm diam.																	
 BELDFOIL 100% Shield Coverage	**8641** UL **2092** **300V** **60C**	100 U-500 500 U-1000 1000 2000	30.5 U-152.4 152.4 U-304.8 304.8 609.6	1.8 7.7 7.4 14.4 15.1 28.6	2	(7x32) [.61]	.016	.41	.025	.64	.168	4.27	Blk. Clear	22	72	42	138
					PRODUCT DESCRIPTION: *tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination.*												
 BELDFOIL 100% Shield Coverage	**9533**† UL **2464** **300V 80C** SR **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.1 9.5 9.1 17.8 18.5	3	(7x32) [.61]	.010	.25	.035	.89	.168	4.27	Chart 1, Technical Information Section	33	108	65	213
					PRODUCT DESCRIPTION: *tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with #24 AWG drain wire, chrome PVC jacket*												
	9534† UL **2464** **300V 80C** SR **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.4 10.9 11.8 21.3 22.1	4	(7x32) [.61]	.010	.25	.035	.89	.190	4.83	Chart 1, Technical Information Section	33	108	65	213
					PRODUCT DESCRIPTION: *tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with #24 AWG drain wire, chrome PVC jacket*												
	9535† UL **2464** **300V 80C** SR **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.7 12.6 13.0 24.1 24.9	5	(7x32) [.61]	.010	.25	.035	.89	.195	4.95	Chart 1, Technical Information Section	33	108	65	213
					PRODUCT DESCRIPTION: *tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with #24 AWG drain wire, chrome PVC jacket*												

**Capacitance between conductors.*
***Capacitance between 1 conductor and other conductor connected to shield.*
†Passes the VW-1 vertical wire flame test

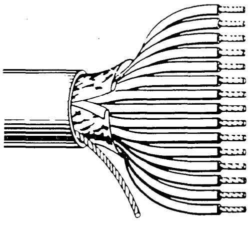
MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

SOUND, BROADCAST AUDIO & INSTRUMENTATION CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS
(7 x 32) .61 mm (cont'd.)

PRODUCT DESCRIPTION: *tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with #24 AWG drain wire, chrome PVC jacket*



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
	9536† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.0 14.4 15.0 27.8 28.7	6	(7x32) [.61]	.010	.25	.035	.89	.215	5.46	Chart 1, Technical Information Section	33	108	65	213
	9537† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.2 15.3 15.7 30.0 30.5	7	(7x32) [.61]	.010	.25	.035	.89	.215	5.46	Chart 1, Technical Information Section	33	108	65	213
	9538† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.8 17.3 17.9 33.5 34.4	8	(7x32) [.61]	.010	.25	.035	.89	.230	5.84	Chart 1, Technical Information Section	33	108	65	213
	9539† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	4.2 19.2 19.7 37.5 38.6	9	(7x32) [.61]	.010	.25	.035	.89	.250	6.35	Chart 1, Technical Information Section	30	98	55	180
	9540† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	4.5 20.2 20.9 39.3 40.3	10	(7x32) [.61]	.010	.25	.035	.89	.250	6.35	Chart 1, Technical Information Section	30	98	55	180
	9541† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	5.9 29.3 27.9 57.7 61.0	15	(7x32) [.61]	.010	.25	.035	.89	.290	7.37	Chart 2R, Technical Information Section	30	98	55	180
	9542† ЯU **2464** **300V 80C** **S-R PVC**	100 U-500 500 1000	30.5 152.4 152.4 304.8	7.2 33.9 34.8 70.8	20	(7x32) [.61]	.010	.25	.035	.89	.320	8.13	Chart 2R, Technical Information Section	30	98	55	180
	9543† ЯU **2464** **300V 80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	8.9 45.5 90.5	25	(7x32) [.61]	.010	.25	.042	1.07	.360	9.14	Chart 2R, Technical Information Section	30	98	55	180

**Capacitance between conductors.*
***Capacitance between 1 conductor and other conductor connected to shield.*
†Passes the VW-1 vertical wire flame test

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BELDEN

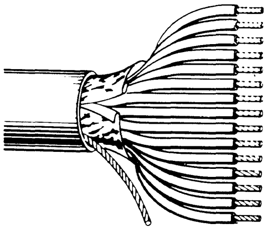
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Overall Beldfoil^R Shielded Cables

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS (cont'd)
(7 x 32) .61 mm (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper. PVC insulated, conductors cabled. BELDFOIL aluminum-polyester shield with 24 AWG drain wire, chrome PVC jacket.*



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Strand-ing) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
	9544† UL **2464** **300V 80C** SP **S-R PVC**	100 500 1000	30.5 152.4 304.8	10.2 51.0 101.6	30	24 (7x32) [.61]	.010	.25	.040	1.02	.380	9.65	Chart 2R, Technical Information Section	30	98	55	180
	9545† UL **2464** **300V 80C** SP **S-R PVC**	100 500 1000	30.5 152.4 304.8	13.6 64.8 132.7	40	24 (7x32) [.61]	.010	.25	.040	1.02	.430	10.92	Chart 2R, Technical Information Section	30	98	55	180
	9546† UL **2464** **300V 80C** SP **S-R PVC**	100 500 1000	30.5 152.4 304.8	16.5 81.5 165.0	50	24 (7x32) [.61]	.010	.25	.045	1.14	.490	12.45	Chart 2R, Technical Information Section	30	98	55	180

24 GAGE
STRANDED CONDUCTORS (19 x 36) .64 mm diam.

BELDFOIL®
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Strand-ing) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
	9452 **75C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	1.4 6.3 5.9 11.5 11.3	2	(19 x 36) [.64]	.008	.20	.020	.51	.135	3.43	Blk. Red	30	98	58	190

PRODUCT DESCRIPTION: *tinned copper. polypropylene insulated. twisted pair. noise reducing tape. 24 AWG stranded tinned copper drain wire. BELDFOIL aluminum-polyester shield. BLACK PVC jacket. 100% shield coverage.*

Balanced pair instrumentation cable featuring short lay cabling to minimize pick-up of electromagnetic interference and special conductive textile tape to minimize microphonic noise

Suggested working voltage: 200.

22 GAGE
SOLID CONDUCTORS .64 mm diam.

BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Strand-ing) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
	8450† **105C**	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	1.5 3.3 6.5 6.2 12.1 11.9	2	Solid [.64]	.006	.15	.018	.46	.118	3.00	Blk. Red	40	131	76	249

PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, twisted pair, 22 AWG solid tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap. Black or gray PVC jacket 100% shield coverage.*

Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables The BELDFOIL shield combines high cable reliability with ease of termination

Suggested working voltage: 200.

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductor connected to shield.* *†Passes the VW-1 vertical wire flame test.*

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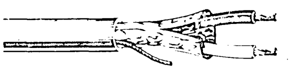
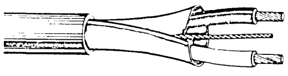
MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

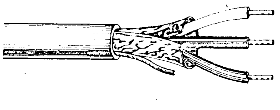
BELDEN
COOPER INDUSTRIES

SOUND, BROADCAST AUDIO & INSTRUMENTATION CABLES (cont'd.)

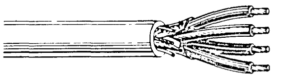
22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam. (cont'd.)

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) (Diam. in mm)	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *Tinned copper, polypropylene insulated, twisted pair, 22 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap. Black or gray PVC jacket. 100% shield coverage.* *Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables. The BELDFOIL shield combines high cable reliability with ease of termination. PVC jacket.* ***Suggested working voltage: 200***	**8451†** **105C**	100 250 U-500 500 U-1000	30.5 76.2 U-152.4 152.4 U-304.8	1.7 3.5 7.4 7.0 13.8	2	(7x30) (.76)	.008	.20	.020	.51	.135	3.43	Blk. Red	34	111	67	220
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination*	**8761** **2092** **300V** **60C**	U-500 500 U-1000 1000 2000 5000	U-152.4 152.4 U-304.8 304.8 609.6 1524.0	9.0 8.7 16.9 17.7 34.1 88.1	2	(7x30) (.76)	.016	.41	.025	.64	.175	4.45	Blk. Clear	24	79	47	154
 **PRODUCT DESCRIPTION:** *The jacket and shield are bonded so both can be removed on automatic stripping equipment* ***Suggested working voltage: 200*** *Tinned copper, polypropylene insulated, twisted pair, 22 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap, Gray PVC jacket. 100% shield coverage.* *Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables. The BELDFOIL shield combines high cable reliability with ease of termination*	**9451†** **105C**	U-500 500 T-1000 U-1000	U-152.4 152.4 T-304.8 U-304.8	7.0 7.0 13.6 12.9	2	(7x30) (.76)	.008	.20	.017	.43	.135	3.43	Blk. Red	34	111	67	220

STRANDED CONDUCTORS (7 x 30). 76 mm diam.

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) (Diam. in mm)	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *Tinned copper, polypropylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, brown PVC jacket. 100% shield coverage.* ***Suggested working voltage: 200.***	**9770†** **80C**	250 U-500 500 U-1000 1000	76.2 U-152.4 152.4 U-304.8 304.8	4.5 8.7 8.9 16.5 17.3	3	(7x30) (.76)	.008	.20	.020	.51	.145	3.68	Blk. Red Wht.	32	105	60	197
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage. Chrome PVC jacket.*	**8771** **2093** **300V** **60C**	250 U-500 500 U-1000 1000	76.2 U-152.4 152.4 U-304.8 304.8	5.5 10.8 10.5 20.6 21.2	3	(7x30) (.76)	.016	.41	.025	.64	.183	4.65	Blk. Red Clear	23	75	41	134

STRANDED CONDUCTORS (19 x 34) .79 mm diam.

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) (Diam. in mm)	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 3—23 AWG solid tinned copper coated steel and 1—25 AWG stranded tinned copper coated steel drain wires, white PVC jacket. Belden U.S. Patent 3,673,315 and Belden Canadian Patent 875,187. 100% shield coverage.*	**8729** **2094** **300V** **60C**	U-500 500 U-1000 1000	U-152.8 152.8 U-304.8 304.8	20.8 21.5 40.6 41.6	4	(19x34) (.79)	.016	.41	.051	1.30	.262	6.66	Red Blk. Grn. Clear	22	72	42	138

† *Passes the VW-1 vertical wire flame test.*

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductors connected to shield*

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

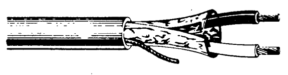
COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

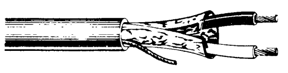
SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

Description	Trade & UL Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness		Jacket Thickness		Nominal O.D.		Color Coding	Nominal Capacitance			
		ft.	m				Inch	mm	Inch	mm	Inch	mm		* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m

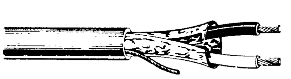
20 GAGE
STRANDED CONDUCTORS (7 x 28) .97 mm diam.

 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8762** **UR** **2092** **300V** **60C**	100 250 U-500 500 U-1000 1000 2000	30.5 76.2 U-152.4 152.4 U-304.8 304.8 609.6	2.6 6.3 12.4 13.0 23.4 24.6 49.8	2	(7x28) [.97]	.016	.41	.028	.71	.204	5.18	Blk. Clear	27	89	49	161
PRODUCT DESCRIPTION: *Tinned copper PVC insulated, twisted pair, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, beige PVC jacket. 100% shield coverage.*	**9154** **UR** **2464** **300V** **80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	11.9 12.5 22.8 23.6	2	(7x28) [.97]	.013	.33	.031	.79	.198	5.03	Blk. Red	60	197	100	328
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, PVC jacket. 100% shield coverage*	**8772** **UR** **2093** **300V** **60C**	U-500 Chrome 500 Chrome Lt. Beige U-1000 Chrome 1000 Chrome Lt. Beige	U-152.4 152.4 U-304.8 304.8	14.6 15.3 28.5 29.4	3	(7x28) [.97]	.016	.41	.028	.71	.208	5.28	Blk. Red Clear	27	89	51	167

18 GAGE
STRANDED CONDUCTORS (16 x 30) 1.19 mm diam.

 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination.*	**8760** **UR** **2092** **300V** **60C**	250 U-500 500 U-1000 1000 2000 5000	76.2 U-152.4 152.4 U-304.8 304.8 609.6 1524.0	7.5 13.7 15.1 27.4 28.7 58.7 148.2	2	(16x30) [1.19]	.018	.46	.028	.71	.222	5.64	Blk. Clear	24	79	44	144
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8770** **UR** **2093** **300V** **60C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	18.8 19.5 36.6 37.4	3	(16x30) [1.19]	.018	.46	.028	.71	.236	5.99	Blk. Red Clear	24	79	48	157
PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield overall, 20 AWG stranded tinned copper drain wire, chrome PVC jackets. 100% shield coverage.*	**9418†** **UR** **2464** **300V 80C** **SA** **S-R PVC**	100 U-500 500 U-1000 1000	30.4 U-152.4 152.4 U-304.8 304.8	5.2 23.8 24.2 46.5 47.4	4	(19x30) [1.19]	.010	.25	.035	.89	.245	6.22	Blk. Red Wht. Grn.	60	200	110	360

16 GAGE
STRANDED CONDUCTORS (19 x 29) 1.42 mm diam.

 **BELDFOIL** **100% Shield Coverage** **PRODUCT DESCRIPTION:** *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 18 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination.*	**8719** **UR** **2106** **600V** **60C**	U-500 500 U-1000 1000 2000 5000	U-152.4 152.4 U-304.8 304.8 609.6 1524.0	24.1 25.0 47.2 51.2 104.3 247.8	2	(19x29) [1.42]	.032	.81	.032	.81	.304	7.72	Blk. Clear	23	75	44	144
PRODUCT DESCRIPTION: *Polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 18 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8618** **UR** **2107** **600V** **60C**	U-500 500 1000	U-152.4 152.4 304.8	30.0 30.9 65.6	3	(19x29) [1.42]	.031	.79	.031	.79	.318	8.08	Blk. Red Clear	26	85	50	164

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductor connected to shield.*

†Passes the VW-1 vertical wire flame test.

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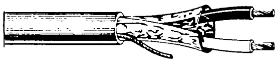
MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

BELDEN
COOPER INDUSTRIES

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

14 GAGE
STRANDED CONDUCTORS (19 x 27) 1.80 mm diam.



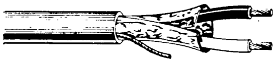
BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
BELDFOIL 100% Shield Coverage	**8720** ЯU **2106** **600V** **60C**	U-500 500 1000 2000	U-152.4 152.4 304.8 609.6	32.5 33.4 70.5 137.9	2	(19x27) [1.80]	.032	.81	.035	.89	.340	8.64	Blk. Clear	24	79	47	154

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield. 16 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*

The BELDFOIL shield combines high cable reliability with ease of termination.

12 GAGE
STRANDED CONDUCTORS (19 x 25) 2.29 mm diam.



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
BELDFOIL 100% Shield Coverage	**8718** ЯU **2106** **600V** **60C**	U-500 500 1000 2000	U-152.4 152.4 304.8 609.6	48.4 52.4 102.8 206.8	2	(19x25) [2.29]	.037	.94	.040	1.02	.400	10.16	Blk., Clear	25	82	49	161

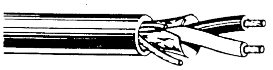
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield. 14 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*

The BELDFOIL shield combines high cable reliability with ease of termination.

THERMOCOUPLE EXTENSION WIRE

PVC INSULATED AND JACKETED
(TWISTED SHIELDED)

PRODUCT DESCRIPTION: *Solid conductor (see type designation chart for conductor type), PVC insulated conductors cabled, BELDFOIL* aluminum polyester shield. Nylon ripcord to facilitate stripping. PVC jacket.*



Description	Type	Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Weight	No. of Cond.	AWG (Stranding) [Dia. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O. D. Inch	Nominal O. D. mm	Cond. Color Coding
	JX	**9661**	500 1000	152.4 304.8	21.8 42.2	2 (JPX)	16 (Solid) [1.29]	.017	.43	.037	.94	.250	6.35	See Type Chart Below
	KX	**9662**	500 1000	152.4 304.8	22.2 42.8	2 (KPX)	16 (Solid) [1.29]	.017	.43	.037	.94	.250	6.35	See Type Chart Below
	EX	**9663**	500 1000	152.4 304.8	22.2 40.9	2 (EPX)	16 (Solid) [1.29]	.017	.43	.037	.94	.250	6.35	See Type Chart Below
	TX	**9664**	500 1000	152.4 304.8	22.3 43.0	2 (TPX)	16 (Solid) [1.29]	.017	.43	.037	.94	.250	6.35	See Type Chart Below

THERMOCOUPLE EXTENSION WIRE TYPE DESIGNATIONS

ASA TYPE	Alloys Positive	Alloys Negative	Insulation Colors Positive	Insulation Colors Negative	Jacket Color
EX	Chromel	Constantan	Purple	Red	Purple
JX	Iron	Constantan	White	Red	Black
KX	Chromel	Alumel	Yellow	Red	Yellow
TX	Copper	Constantan	Blue	Red	Blue

*Capacitance between conductors
**Capacitance between 1 conductor and other conductor connected to shield.

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COOPER INDUSTRIES **BELDEN**

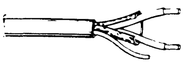
MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

Applications:
- Instrumentation
- Computer
- Point of sale

Paired, Overall Beldfoil Shielded Cables

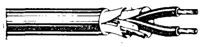
Description	Trade & U.L.Style Number	Standard Length		Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O.D.		Nominal Capacitance			
		ft.	m			Inch	mm	Inch	mm	Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m

28 GAGE
SOLID CONDUCTORS .32 mm diam.

 **BELDFOIL** 100% Shield Coverage	**8640**† 105C	250 U-500 500	76.2 U-152.4 152.4	1.5 3.1 2.6	1	.0025	.064	.020	.51	.090	2.29	55	180	105	344

PRODUCT DESCRIPTION:
Solid copper, GEOSOL™ insulated (solderable–no stripping required), twisted pair, BELDFOIL aluminum-polyester shield, 30 AWG solid tinned copper covered steel drain wire, white PVC jacket. Maximum operating temperature 105°C.
Ideal for Instrumentation and Audio Console Work where Subminiaturization is Required. The BELDFOIL shield combines high cable reliability with ease of termination.
Color code: Black, Red. ***Suggested working voltage: 100***

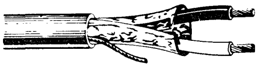
24 GAGE
STRANDED CONDUCTORS (19 x 36) .64 mm diam.

 **BELDFOIL** 100% Shield Coverage	**9452** 75C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	1.4 6.3 5.9 11.5 11.3	1	.008	.20	.020	.51	.135	3.43	30	98	58	190

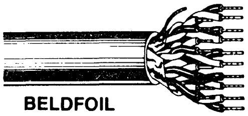
PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, twisted pair, noise reducing tape, 24 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, black PVC jacket. Balanced pair instrumentation cable featuring short lay cabling to minimize pick-up of electromagnetic interference and special conductive textile tape to minimize microphonic noise.
Color code: Black, Red ***Suggested working voltage: 200***

INSTRUMENTATION, COMPUTER & P.O.S. CABLES

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

 **BELDFOIL** 100% Shield Coverage	**8641** UL **2092** 300V 60C	100 U-500 500 U-1000 1000 2000	30.5 U-152.4 152.4 U-304.8 304.8 609.6	1.8 7.7 7.4 14.4 15.1 28.6	1	.016	.41	.025	.64	.168	4.27	22	72	42	138

PRODUCT DESCRIPTION:
Tinned copper, polyethylene insulated, twisted pair. BELDFOIL aluminum-polyester shield 24 AWG stranded tinned copper drain wire, chrome PVC jacket.
The BELDFOIL shield combines high cable reliability with ease of termination.
Color code: Black, Clear.

 **BELDFOIL** 100% Shield Coverage	**9501**† UL **2464** 300V 80C CSA S-R PVC	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	1.7 7.7 7.4 14.3 15.0	1	.010	.25	.032	.81	.156	3.96	40	131	74	243

PRODUCT DESCRIPTION:
Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket.
For color coding, please refer to chart 3, Technical Information Section.

	9502† UL **2464** 300V 80C CSA S-R PVC	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.3 15.1 15.8 29.4 30.3	2	.010	.25	.032	.81	.222	5.64	30	98	50	164

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Capacitance between conductors.
Capacitance between 1 conductor and other conductor connected to shield.

†*Passes the VW-1 vertical flame test.*

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

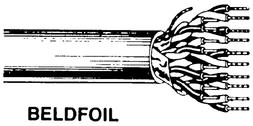
MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

INSTRUMENTATION, COMPUTER & P.O.S. CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam. (cont'd.)

PRODUCT DESCRIPTION:
Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.

Description	Trade & U.L. Style Number	Standard Length		Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O.D.		Nominal Capacitance			
		ft.	m			Inch	mm	Inch	mm	Inch	mm	* pF/ft.	* pF/m	** pF/ft.	** pF/m
 **BELDFOIL** **100% Shield Coverage**	**9503**† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	3.3	3	.010	.25	.032	.81	.232	5.89	30	98	50	164
		U-500	U-152.4	14.7											
		500	152.4	15.3											
		U-1000	U-304.8	28.7											
		1000	304.8	29.6											
	9504† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	4.1	4	.010	.25	.032	.81	.265	6.73	30	98	50	164
		U-500	U-152.4	18.2											
		500	152.4	18.9											
		U-1000	U-304.8	35.5											
		1000	304.8	36.5											
	9505† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	4.9	5	.010	.25	.035	.89	.295	7.49	30	98	50	164
		U-500	U-152.4	22.6											
		500	152.4	23.4											
		U-1000	U-304.8	44.1											
		1000	304.8	48.5											
	9506† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	5.2	6	.010	.25	.035	.89	.295	7.49	30	98	50	164
		U-500	U-152.4	24.3											
		500	152.4	25.2											
		U-1000	U-304.8	47.6											
		1000	304.8	52.0											
	9507† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	5.8	7	.010	.25	.035	.89	.300	7.62	30	98	50	164
		U-500	U-152.4	26.6											
		500	152.4	27.5											
		U-1000	U-304.8	52.3											
		1000	304.8	57.0											
	9508† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	6.6	8	.010	.25	.035	.89	.330	8.38	30	98	50	164
		500	152.4	31.6											
		1000	304.8	67.4											
	9509† RU **2464** **300V 80C** SP **S-R PVC**	100	30.5	7.3	9	.010	.25	.035	.89	.340	8.64	30	98	50	164
		500	152.4	34.7											
		1000	304.8	73.8											

*Capacitance between conductors.

**Capacitance between 1 conductor and other conductor connected to shield.

†Passes the VW-1 vertical wire flame test

BELDEN

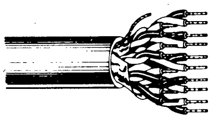
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

INSTRUMENTATION, COMPUTER & P.O.S. CABLES (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam. (cont'd.)



BELDFOIL
100% Shield Coverage

Description	Trade & U.L.Style Number	Standard Length		Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O.D.		Nominal Capacitance			
		ft.	m			Inch	mm	Inch	mm	Inch	mm	* pF/ft.	* pF/m	** pF/ft.	** pF/m
	9510† **2464** **300V** **80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	8.1 41.2 82.0	10	.010	.25	.040	1.02	.380	9.65	30	98	50	164
	9515† **2464** **300V** **80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	11.7 55.6 109.1	15	.010	.25	.040	1.02	.425	10.80	30	98	50	164
	9519† **2464** **300V** **80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	13.6 67.4 131.7	19	.010	.25	.040	1.02	.460	11.68	30	98	50	164
	9525† **2464** **300V** **80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	17.2 85.4 168.2	25	.010	.25	.045	1.14	.515	13.08	30	98		
	9550† **2464** **300V** **80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	30.5 155.1 314.2	50	.010	25	.050	1.27	.700	17.78	30	98		

For color coding information write for Technical Bulletin T/8-4

22 GAGE
SOLID CONDUCTORS .64 mm diam.

BELDFOIL
100% Shield Coverage

Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Inch	Insulation mm	Jacket Inch	Jacket mm	Nominal O.D. Inch	Nominal O.D. mm	* pF/ft.	* pF/m	** pF/ft.	** pF/m
8450† **105C**	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	1.5 3.3 6.5 6.2 12.1 11.9	1	.006	.15	.018	.46	.118	3.00	40	131	76	249

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, twisted pair, 22 AWG tinned solid copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap, gray or black PVC jacket. 100% shield coverage. Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables. The BELDFOIL shield combines high cable reliability with ease of termination.
Color code: Black, Red

Suggested working voltage: 200

**Capacitance between conductors.*
***Capacitance between 1 conductor and other conductor connected to shield.*
†Passes the VW-1 vertical wire flame test

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

MULTI-CONDUCTOR CABLES
Individually Shielded Pair Cables

COOPER INDUSTRIES **BELDEN**

Applications:
- Audio systems
- Process control systems

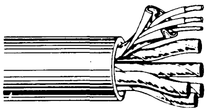
Individually Shielded Pair Cables

Send for Technical Bulletin T/8-7

SHIELDED AUDIO, CONTROL AND DATA CABLES

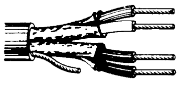
22 GAGE
SOLID CONDUCTORS .64 mm diam.

PRODUCT DESCRIPTION: *22 AWG tinned copper, PVC insulated, twisted pairs, each pair and its drain wire under BELDFOIL aluminum-polyester shield, overall chrome PVC jacket. Color code chart 3 in Technical Information Section. Insulation resistance between shields: 100 megohms/M nom. Capacitance between adjacent shields. 150pF ft. nom. Voltage breakdown between adjacent shields 1500 volts nom. Working voltage between adjacent shields 50 volts max. PVC insulation is used for ease of stripping and soldering. Recommended for audio frequency applications requiring excellent circuit isolation.*



Description	Trade & U.L.Style Number	Standard Length		Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O.D.		Nominal Capacitance			
		ft.	m			Inch	mm	Inch	mm	Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
BELDFOIL®-ISO-SHIELD™ 100% Individually Shielded Pairs	**8767** † **2464** **300V 80C**	100 U-500 500 1000	30.5 U-152.4 152.4 304.8	5.1 23.4 24.1 48.8	3	.013	.33	.037	.94	.279	7.09	40	131	77	252
	8768 † **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	9.0 44.5 89.1	6	.013	.33	.037	.94	.379	9.63	40	131	77	252
	8764† **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	13.3 65.5 128.7	9	.013	.33	.040	1.02	.425	10.80	40	131	77	252
	8765† **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	15.2 74.4 145.7	11	.013	.33	.040	1.02	.470	11.94	40	131	77	252
	8766† **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	19.7 97.2 190.4	15	.013	.33	.045	1.14	.525	13.34	40	131	77	252

SHIELDED AUDIO AND DATA CABLES
22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.



Description	Trade & U.L.Style Number	ft.	m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Inch	Insulation mm	Jacket Inch	Jacket mm	O.D. Inch	O.D. mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
BELDFOIL 100% Individually Shielded Pairs	**8723** **80C**	100 U-500 500 U-1000 1000 5000	30.5 U-152.4 152.4 U-304.8 304.8 1524.0	2.4 10.0 10.8 21.6 21.7 107.8	2	.008	.20	.019	.48	.165	4.19	35	115	62	203

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, black and red under a BELDFOIL aluminum-polyester shield, green and white under a BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper common drain wire, chrome PVC jacket, pairs cabled on common axis to reduce diameter. ⊖
Color code: Red, Black, Green, White. ***Suggested working voltage: 400.***

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*Capacitance between conductors.

**Capacitance between 1 conductor and other conductors connected to shield.

⊖Technical Bulletin T/8-21 & T/8-9.

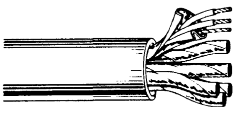
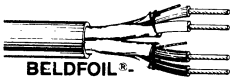
†Passes the VW-1 vertical wire flame test.

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Individually Shielded Pair Cables

SHIELDED AUDIO CONTROL AND DATA CABLES (cont'd.)

Description	Trade & U.L.Style Number	Standard Length		Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O.D.		Nominal Capacitance			
		ft.	m			Inch	mm	Inch	mm	Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
22 GAGE **STRANDED CONDUCTORS** **(7 x 30) .76 mm diam. (cont'd)** **PRODUCT DESCRIPTION:** *Tinned copper, polypropylene insulated, twisted pairs, each pair and its stranded tinned copper drain wire (22 AWG on 22 AWG and 20 AWG series, 20 AWG on 18 AWG series) under BELDFOIL aluminum-polyester shield, overall chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*															
	**8777** † ЯU **2919** **80C**	100 U-250 250 U-500 500 1000 5000	30.5 U-76.2 76.2 U-152.4 152.4 304.8 1524.0	5.4 12.9 13.5 25.0 25.9 53.1 268.5	3	.010	.25	.048	1.22	.273	6.93	30	98	55	180
BELDFOIL®- ISO-SHIELD™ **100% Individually Shielded Pairs**	**8778** † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	10.3 23.6 48.0 93.9	6	.010	.25	.048	1.22	.368	9.35	30	98	55	180
	8774 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	13.4 30.6 65.1 128.2	9	.010	.25	.048	1.22	.413	10.50	30	98	55	180
	8775 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	14.9 35.4 74.2 144.3	11	.010	.25	.048	1.22	.458	11.63	30	98	55	180
	9768 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	15.7 33.2 77.8 152.7	12	.010	.25	.048	1.22	.458	11.63	30	98	55	180
	8776 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	20.9 52.2 102.4 205.8	15	.010	.25	065	1.65	.554	14.07	30	98	55	180
	9769 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	25.0 58.0 118.0 228.8	17	.010	.25	.065	1.65	.589	14.86	30	98	55	180
	8769 † ЯU **2919** **80C**	100 250 500 1000	30.5 76.2 152.4 304.8	26.7 61.9 127.2 247.4	19	.010	.25	.065	1.65	.599	15.21	30	98	55	180
	8773 † ЯU **2919** **80C**	100 250 ◆ 500 ◆ 1000 ◆	30.5 76.2 152.4 304.8	35.8 87.2 175.5 344.9	27 *250, 500 & 1000 ft. lengths + 20% 0 length tolerance.*	.010	.25	.070	1.78	.709	18.01	30	98	55	180
	9767 † ЯU **2919** **80C**	100 250 ◆ 500 ◆ 1000 ◆	30.5 76.2 152.4 304.8	48.2 112.4 228.8 496.0	37	.010	.25	.075	1.91	.840	21.33	30	98	55	180
20 GAGE **STRANDED CONDUCTORS (7 x 28) .94 mm diam.** **PRODUCT DESCRIPTION:** *Tinned copper, PVC insulated, twisted pairs, each pair BELDFOIL aluminum-polyester shielded, #22 AWG stranded tinned copper drain wire, chrome PVC jacket. Color code: 1 pair Red, Black, 1 pair Green, White.*															
 **BELDFOIL®- ISO-SHIELD™** **100% Shield Coverage**	**9402** † ЯU SP **2464** **300V 80C**	U-500 1000	U-152.4 304.8	24.4 52.7	2	.010	.25	.041	1.04	.300	7.62	55	180	95	312

*Capacitance between conductors.
**Capacitance between 1 conductor and other conductor connected to shield.

†Passes the VW-1 vertical wire flame test.
◆ Spools are one piece, but length may vary + 20% −0 from length shown.

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

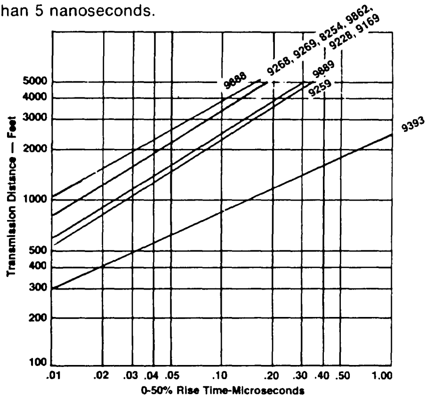
COMPUTER CABLES
Coaxial Cables

COOPER INDUSTRIES BELDEN

Coaxial Computer Cables

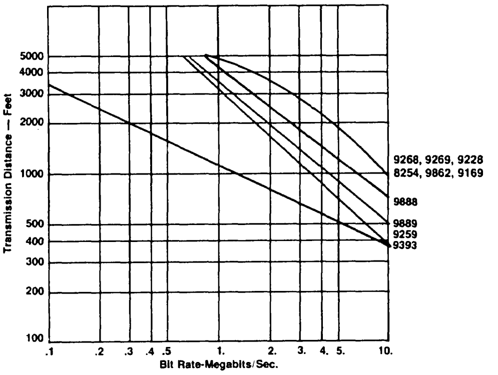
RISE TIME

Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

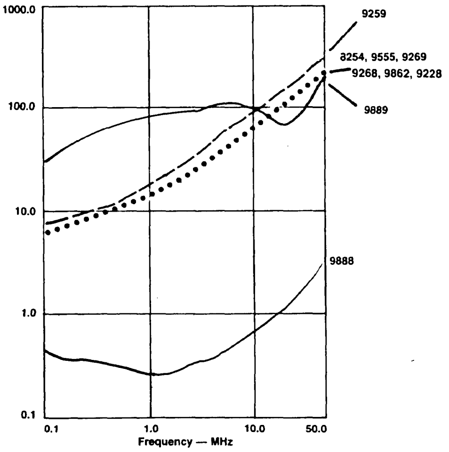


BIT RATE

Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.

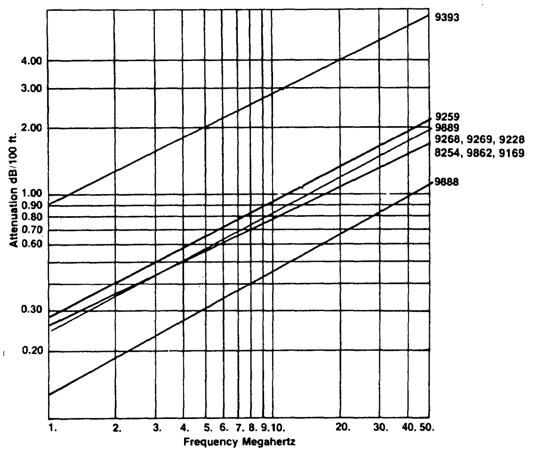


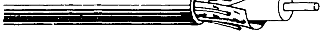
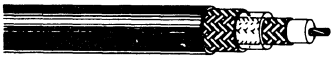
TRANSFER IMPEDANCE (Milliohms/Meter)



SINUSOIDAL FREQUENCY ATTENUATION CHART

Locate the line on the chart which represents the desired cable.
Locate the frequency on the bottom horizontal scale.
Read up to the desired line and then across to the vertical scale on the left to find attenuation figure for that frequency.



Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance	
	ft.	m		Center Cond.	Shield		Inch	mm			pF/ ft.	pF/ m
						**50 ohm**						
9889• **1354** **58/U TYPE**	500 1000 2000	152.4 304.8 609.6	15.6 29.6 60.5	18 (Solid) [1.02] bare copper 6.5Ω/M' 21.3Ω/km	1 DUOFOIL® with 4/24 AWG tinned copper drain wires 25Ω/M' 82Ω/km	Black PVC	.216 *100% shield coverage*	5.49	50	78%	26	85.3
						**50 ohm**						
9888† **80C** **8/U TYPE**	500 1000	152.4 304.8	72.8 142.4	11 (7x19) [2.74] bare copper 1.17Ω/M' 3.8Ω/km	2 bare copper Inner 1.2Ω/M' 3.9Ω/km Outer 2.1Ω/M' 6.9Ω/km 96% shield coverage	Black polyethylene	.480	12.19	50	78%	26.0	85.3

† *Passes the VW-1 vertical wire flame test.*

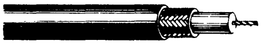
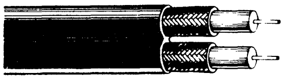
• *Belden U.S. Patent 3,927,247* *Canadian Patent 825,188*

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

COOPER INDUSTRIES
BELDEN

COMPUTER CABLES
Coaxial Cables

COAXIAL COMPUTER CABLES (cont'd.)

Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance	
	ft.	m		Center Cond.	Shield		Inch	mm			pF/ ft.	pF/ m
					**75 ohm**							
9259 UL **1354 80C** **59/U TYPE**	50 100 U-500 500 U-1000 1000	15.2 30.5 U-152.4 152.4 U-304.8 304.8	2.0 4.0 18.4 19.1 35.7 36.7	22 (7x30) bare copper 15.0Ω/M' 49.2Ω/km	1 bare copper 2.6Ω/M 8.5Ω/km 95% shield coverage	Black PVC For CC TV	.242	6.15	75	78%	17.3	56.8
					**75 ohm**							
9555 UL **20063** **80C** **DUAL** **RG 59/U** **TYPE**	100 500 1000	30.5 152.4 304.8	8.1 39.0 74.7	23 (Solid) bare copper covered steel 47Ω/M' 154.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.238 x .478	6.04 x 12.14	75	66%	20.5	67.3
					93 ohm							
9269† UL **1478 60C** **62 A/U** **TYPE**	100 250 U-500 500 U-1000 1000 2000 5000	30.5 76.2 U-152.4 152.4 U-304.8 304.8 609.6 1524.0	4.0 9.0 17.9 18.5 34.7 35.6 74.9 182.3	22 (Solid) bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.242	6.15	93	84%	13.5	44.3
9268† UL **1478 60C** **62 A/U** **TYPE**	U-500 500 U-1000 1000 2000	U-152.4 152.4 U-304.8 304.8 609.6	20.2 20.9 39.1 41.5 82.4	22 (Solid) bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.260	6.60	93	84%	13.5	44.3
9862† UL **1354 60C** **M17/30-RG 62** **MIL-C-17F**	U-500 500 U-1000 1000 2000	U-152.4 152.4 U-304.8 304.8 609.6	17.4 17.0 33.5 34.5 72.5	22 (Solid) bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black Non-contaminating PVC	.242	6.15	93	84%	13.5	44.3
9228 **80C** **RG 62 A/U** **TYPE**	500 1000 2000 5000	152.4 304.8 609.6 1524.0	18.5 35.5 74.3 184.0	22 (Solid) bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black polyethylene Flooded Direct Burial	.242	6.15	93	84%	13.5	44.3
9169 **80C** **M17/90-RG71** **MIL-C-17F**	500 1000	152.4 304.8	25.0 46.0	22 (Solid) bare copper covered steel 41.2Ω/M' 135.2Ω/km	2 - 1 bare copper 1 tinned copper each shield 95% coverage	Black polyethylene	.245	6.22	93	84%	13.5	44.3
8254 **80C** **62/U** **JAN C 17A**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.9 17.3 18.0 33.6 34.4	22 (Solid) bare copper covered steel . 55Ω/M' 180.5Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.238	6.04	93	84%	13.5	44.3
					93 ohm							
9393† UL **1354 80C**	100 500 1000	30.5 152.4 304.8	.5 2.9 5.1	30 (Solid) coated copper 114Ω/M' max. 374.0Ω /km max.	BELDFOIL® & drain wire 48Ω/M' max. 157.5Ω/km max. 100% shield coverage	Red PVC	.100 x .115	2.54 x 2.92	93	78%	14.0	45.9

† *Passes the VW-1 vertical wire flame test.*

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

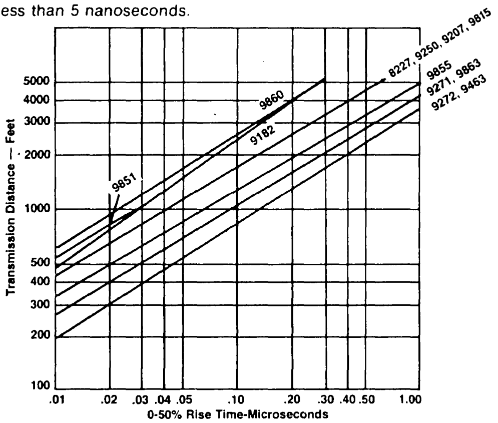
COMPUTER CABLES
Twinaxial Cables

COOPER INDUSTRIES **BELDEN**

Twinaxial 2 & 3 Pair Data Cables

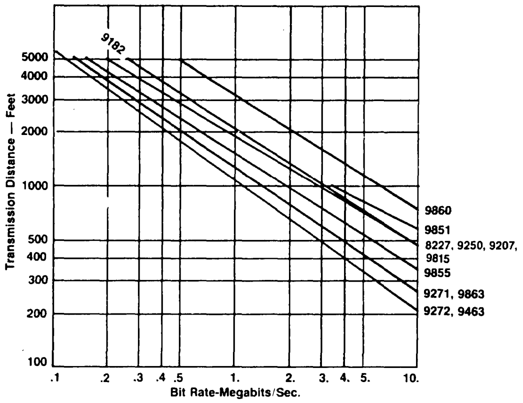
RISE TIME

Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

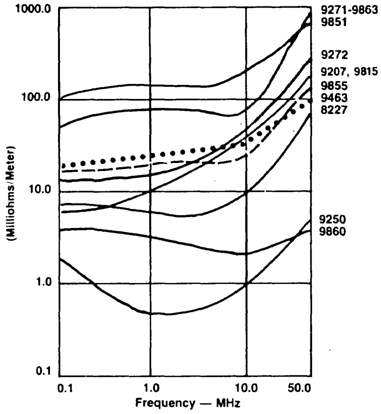


BIT RATE

Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.



TRANSFER IMPEDANCE



ATTENUATION CHART

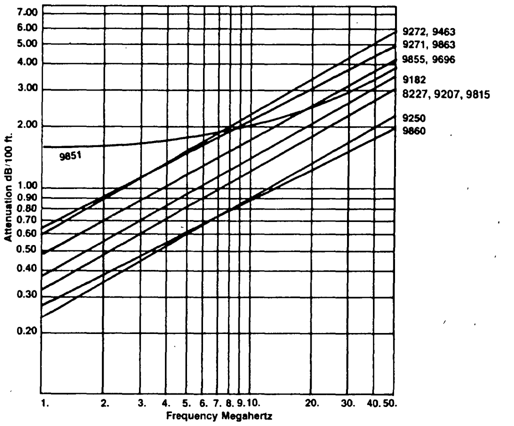
Locate the line on the chart which represents the desired cable.

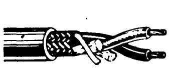
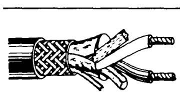
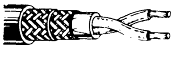
Locate the frequency on the bottom horizontal scale.

Read up to the desired line and then across to the vertical scale on the left to find attenuation figure for that frequency.

6 dbv LENGTH LIMIT — DC LINE LOSSES

6 dbv limit is the cable length for which 50% of the DC input volume appears across the load if the cable is terminated in its characteristic impedance.



Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Vel. of Prop.	Nominal Capacitance		6 dbv Length Limit in Thousands of ft.
		ft.	m		Cond.	Shield		Inch	mm		pF/ ft.	pF/ m	
78 ohm													
	**9272†** **2092** **60C 300V**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.3 19.3 20.0 37.6 38.6	2 Cond. 20 (7x28) tinned copper 9.5Ω/M′ 31.2Ω/km	1 tinned copper braid 3.4Ω/M′ 11.15Ω/km 93% shield coverage	Blue PVC	.242	6.15	66%	19.7	64.6	4.1
	**9463†** **2582** **60C 150V**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.9 17.8 18.6 34.8 35.8	2 Cond. 20 (7x28) tinned copper 9.5Ω/M′ 31.2Ω/km	BELDFOIL® with 57% tinned copper braid 4.05Ω/M′ 13.29Ω/km 100% shield coverage	Blue PVC	.243	6.17	66%	19.7	64.6	4.1
95 ohm													
 **22 B/U TYPE**	**9250†** **80C**	100 500 1000	30.5 152.4 304.8	14.0 66.7 131.3	2 Cond. 18 (7x.0152) bare copper, one conductor has tinned center strand 6.55Ω/M′ 21.5Ω/km	2 tinned .88Ω/M′ 2.9Ω/km 96% shield coverage	Black Non-contaminating PVC	.420	10.67	66%	16.0	52.5	7.2

† Passes the VW-1 vertical wire flame test.

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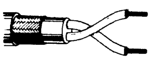
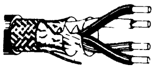
COOPER INDUSTRIES **BELDEN**

COMPUTER CABLES
Twinaxial Cables

TWINAXIAL 2 & 3 PAIR DATA CABLES (cont'd.)

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Vel. of Prop.	Nominal Capacitance		6 dbv Length Limit in Thousands of ft.
		ft.	m		Center Cond.	Shield		Inch	mm		pF/ ft.	pF/ m	
					100 ohm								
	**8227†** ЯU **2498** **80C 300V**	500 1000 2000	152.4 304.8 609.6	31.2 66.1 129.2	2 Cond. 20 (7x28) 1 tinned copper 1 bare copper 9.46Ω/M' 31.04Ω/km	1 tinned copper 2.7Ω/M' 8.86Ω/km 85% braid coverage	Black PVC	.328	8.33	66%	15.5	50.9	5.3
	9207† ЯU **2498** **80C 300V**	100 U-500 500 1000 2000	30.5 U-152.4 152.4 304.8 609.6	7.1 33.4 34.2 72.2 141.5	2 Cond. 20 (7x28) 1 tinned copper 1 bare copper 9.46Ω/M' 31.04Ω/km	1 tinned copper braid 2.0Ω/M' 6.56Ω/km 95% braid coverage	Black PVC	.330	8.38	66%	15.5	50.9	5.3
	NEW **9815** **Direct Burial**	100 U-500 500 1000 2000	30.5 U-152.4 152.4 304.8 609.6	7.1 32.9 33.8 71.0 138.9	2 Cond. 20 (7x28) 1 tinned copper 1 bare copper 9.46Ω/M' 31.04Ω/km	1 tinned copper braid 2.0Ω/M' 6.56Ω/km 95% braid coverage	Black Poly-ethylene Direct Burial	.330	8.38	66%	15.5	50.9	5.3
	**9855†** ЯU **2582** **60C 150V**	100 250 U-500 500 1000	30.5 76.2 U-152.4 152.4 304.8	5.0 12.4 21.6 23.3 47.8	2 Pair 22 (Solid) tinned copper 16.5Ω/M' 54.1Ω/km	BELDFOIL® with solid tinned copper drain wire & 58% tinned copper braid 4.2Ω/M' 13.8Ω/km 100% shield coverage	Black PVC *COLOR CODE: One pair, Red/Blue and one pair, Black/Yellow.*	.315	8.00	66%	15.5	50.9	3.0
	9696 ЯU **2919** **80C** **30V**	100 500 U-500 1000	30.5 76.2 U-76.2 304.8	4.6 21.6 20.6 44.3	2 Pair 22 (Solid) bare copper 16.5Ω/M' 54.1Ω/km	BELDFOIL with solid tinned copper drain wire & 58% tinned copper braid 5.0Ω/M' 16.4Ω/km 100% shield coverage	Black PVC *COLOR CODE: One pair, Blue/White with Blue Stripe and one pair, Orange/White with Orange Stripe.*	.296	7.52	66%	.16	52.9	2.9
					124 ohm								
	9860† ЯU **2448** **60C 30V**	500 1000 2000	152.4 304.8 609.6	54.2 106.3 213.6	2 Cond. 16 (Solid) bare copper 4.2Ω/M' 13.8Ω/km	1 DUOFOIL® tape 92% tinned copper braid 1.3Ω/M' 4.3Ω/km 100% shield coverage	Black PVC	.440	11.18	78%	Be-tween Cond. 10.9 Shield ungrn'd	35.8	14.8
	9271 ЯU **2092** **60C 300V**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.0 13.6 14.2 26.1 27.0	2 Cond. 25 (7x33) tinned copper 31.8Ω/M' 104.3Ω/km	BELDFOIL® with stranded tinned copper drain wire 12Ω/M' 39.4Ω/km 100% shield coverage	Blue PVC	..240	6.10	66%	12.2	40.0	1.9
	9863 ЯU **2094** **60C 300V**	100 500 1000	30.5 152.4 304.8	8.5 39.4 80.8	6 Cond. 25 (7x33) tinned copper (3 pair) 31.8Ω/M' 104.3Ω/km	BELDFOIL® with stranded tinned copper drain wire over each pair 12Ω/M' 39.4Ω/km 100% shield coverage	Blue PVC	.430	10.92	66%	12.2	40.0	1.9
					150 ohm								
	9182† ЯU **2668** **60C 30V**	U-500 500 1000	U-152.4 152.4 304.8	25.8 27.5 57.5	2 Cond. 22 (19x34) tinned copper 15Ω/M' 49.2Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M' 20.7Ω/km 100% shield coverage	Black PVC	.350	8.89	78%	8.8	28.9	5.4
					200 ohm								
	9851† ЯU **2777** **60C 300V**	100 500 1000	30.5 152.4 304.8	2.3 10.2 19.0	29 (Solid) (1 pair) Silver-plated Copper-coated steel 202Ω/M' 622Ω/km	BELDFOIL® with stranded tinned copper drain wire 25Ω/M' 82Ω/km 100% shield coverage	Chrome PVC	.245	6.22	76%	6.7	22.0	.5

† *Passes the VW-1 vertical wire flame test.*

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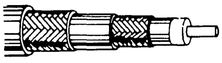
COMPUTER CABLES
Local Area Network Cables and Assemblies

COOPER INDUSTRIES **BELDEN**

TRUNK/COAXIAL CABLES

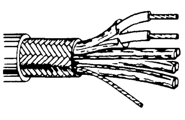
Description	Trade & Number	Standard Lengths ft.	Standard Lengths m	Wt.	AWG (Stranding) [Dia. in mm] D.C.R	No. of Shields and Material D.C.R.	Insulation & Nominal Core O.D. Inch	Insulation & Nominal Core O.D. mm	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp.	Nom. Vel. of Prop.	Nominal Capacitance pF ft.	Nominal Capacitance pF m
 **ETHERNET™**	**9880†** **1478** **30V** **60C**	500 1000 1640	152.4 304.8 500.0	61.2 120.5 201.5	.0855 (Solid) tinned copper 1.42Ω M' 4.66Ω km	Aluminum Polyester shield bonded to dielectric + 92% tinned copper braid **+ Duofoil® + 92% tinned copper braid 1.52Ω M' 5.0Ω km**	Cellular Polyethylene .247	6.27	.405	10.28	50	78%	26	85
6/U Type 100% Sweep Tested	**9248†** **1354** **30V** **80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	15.6 16.4 30.3 33.3	18 (Solid) 1037 bare copper 7.5Ω M' 24.6Ω km	Duofoil + 61% tinned copper braid 5.2Ω M' 17.1Ω km 100% shield coverage	Cellular Polyethylene .180	4.57	.270	6.86	75	78%	17.3	56.8

PRODUCT DESCRIPTION: *Tinned copper conductor. Cellular Polyethylene dielectric. aluminum polyester foil shield. 92% overall tinned copper braid. Duofoil shield. 92% overall tinned copper braid. yellow PVC jacket.*

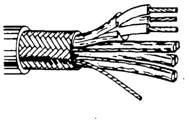
Black PVC jacket.

TRANSCEIVER/DROP CABLES

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pairs, each pair is individually shielded with a BELDFOIL* aluminum-polyester shield (aluminum foil out). 20 AWG tinned copper drain wire, 94% coverage tinned copper braid overall, blue PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance pF/ ft.	Nominal Capacitance pF/ m	Nominal Capacitance pF/ ft.	Nominal Capacitance pF/ m	6 dbv Length Limit in Thousands of ft.
 **ETHERNET™**	**9891†** **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	10.1 47.2 92.4	3 Pair 22 (7x30) 14.7Ω/M' 48.2Ω/km 1 pair 20 (7x28) 9.3Ω/M' 30.4Ω/km	4 BELDFOIL® shielded pairs +94% braid overall 3.0Ω/M' 10.0Ω/km	4	.395 *Blue PVC jacket.*	10.03	78 (3 Pairs) *(20 AWG pair PVC insulated)*	66	19.7	64.6	34.7	113.8	2.6
	9892† **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	11.0 56.3 110.6	20 (7x28) 9.3Ω/M' 30.4Ω/km	4 BELDFOIL shielded pairs +94% braid overall 3.0Ω/M' 10.0Ω/km	4	.420 *Blue PVC jacket.*	10.67	78 (3 Pairs) *(One pair PVC insulated)*	66	19.7	64.6	34.7	113.8	4.2
	9893† **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	15.9 78.5 153.9	20 (7x28) 9.3Ω/M' 30.4Ω/km	5 BELDFOIL shielded pairs + 94% braid overall 3.0Ω/M' 10.0Ω/km	5	.510 *Blue PVC jacket.*	12.95	78 (4 Pairs) *(One pair PVC insulated)*	66	19.7	64.6	34.7	113.8	4.2

PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, three twisted pairs and one triplet, each individually shielded with BELDFOIL aluminum polyester shield, foil out. Overall Duofoil shield with 24 AWG stranded tinned copper drain wire. 90% coverage tinned copper braid overall, fawn gray PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance pF/ ft.	Nominal Capacitance pF/ m	Nominal Capacitance pF/ ft.	Nominal Capacitance pF/ m	6 dbv Length Limit in Thousands of ft.
	**NEW 9898** **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	4.9 23.5 47.5	1 Triplet 24 (7x32) 24Ω/M' 78.7Ω/km	BELDFOIL	1 Triplet	.260 Fawn Gray PVC Jacket Overall Duofoil	6.60	— *(Triplet is PVC insulated)*	—	—	—	—	—	—
					3 Pair 28 (7x36) 64.9Ω/M' 213.0Ω/km	BELDFOIL on pairs + DUOFOIL + 90% braid overall	3			78	66	19.7	64.6	34.7	113.8	.6

ETHERNET™ is a Trademark of Xerox
†Passes VW-1 Vertical Flame Test

**Capacitance between conductors*
***Capacitance between 1 conductor and other conductor connected to shield.*

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BELDEN

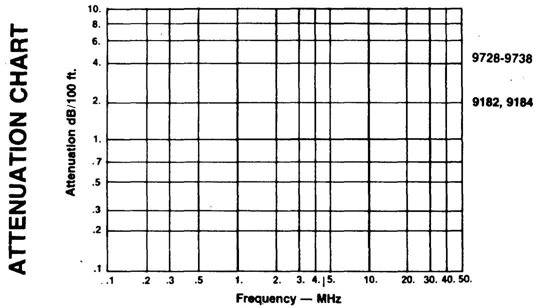
COMPUTER CABLES
Datalene Insulated Cables

Datalene™ Insulated Cables MEETS EIA RS-422 TYPE REQUIREMENTS

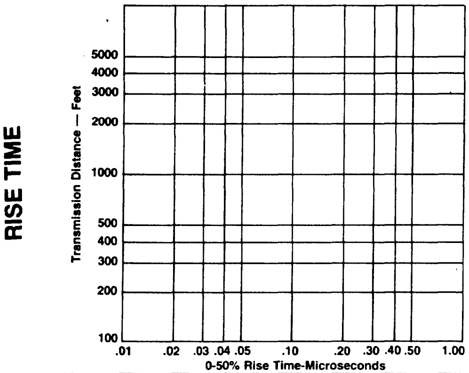
INDIVIDUALLY SHIELDED PAIRS

DATALENE — insulated line of shielded pair electronic cables are designed for precision computer and data communications applications. DATALENE insulation features are low dielectric constant, and a dissipation factor for high-speed, low-distortion data handling. Physical properties include good crush resistance and light weight.

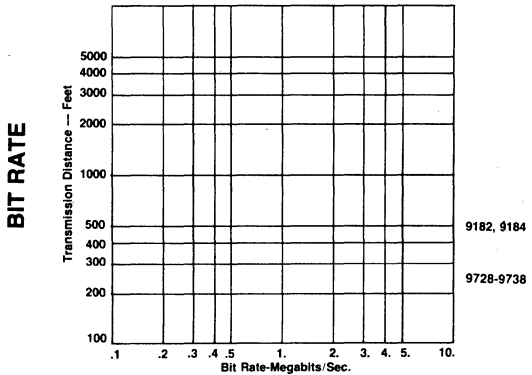
6 dbv LENGTH LIMIT — DC LINE LOSSES
6 dbv limit is the cable length for which 50% of the DC input volume appears across the load if the cable is terminated in its characteristic impedance.

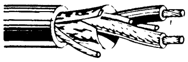
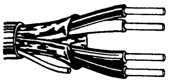
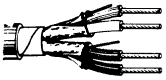


Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.



Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.



Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft.
		ft.	m		Cond.	Shield		Inch	mm			* pF/ft.	* pF/m	** pF/ft.	** pF/m	
22 GAGE STRANDED CONDUCTORS (19 x 34) .79 mm diam. Duofoil® Shield																
 **100% Shield Coverage**	**9182**† **2668** **30V** **60C**	U-500 500 1000	U-152.4 152.4 304.8	25.8 27.5 57.5	22 (19x34) tinned copper 15Ω/M′ 49.2Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M′ 20.7Ω/km	1	.350	8.89	150	78%	8.8	28.9	15.0	49.2	5.3
							Black PVC jacket.									
22 GAGE SOLID CONDUCTORS — .64 mm diam. Overall Duofoil Shield																
 **100% Shield Coverage**	**9184**† **2668** **30V** **60C**	500 1000	152.4 304.8	31.0 61.9	22 (Solid) tinned copper 16.1Ω/M′ 52.8Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M′ 20.7Ω/km	2	.385	9.78	150	78%	8.8	28.9	15.0	49.2	4.6
							Black PVC jacket. Conductor color code: Black/yellow, Red/blue.									
24 GAGE STRANDED CONDUCTORS (7 x 32) .61 mm diam.																
	**9729**† **2493** **60C**	100 500 1000	30.5 152.4 304.8	4.6 21.6 46.9	24 (7x32) tinned copper 24Ω/M′ 78.7Ω/km	BELDFOIL with 24 AWG stranded tinned copper drain wire 18Ω/M′ 59.1Ω/km	2	.335	8.51	100	78%	12.5	41.0	23.2	76.1	2.1
							Chrome PVC jacket. *For color coding, please refer to chart 3, Technical Information Section.*									

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated, twisted pairs, individually shielded, drain wire 24 AWG stranded, tinned copper BELDFOIL® aluminum-polyester shield, overall chrome PVC jacket. 300V.*

†*Passes the VW-1 vertical flame test.* **Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

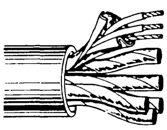
COMPUTER CABLES
Datalene Insulated Cables

COOPER INDUSTRIES **BELDEN**

DATALENE™ INSULATED INDIVIDUALLY SHIELDED PAIRS

24 GAGE (cont'd.)
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated, twisted pairs, individually shielded, drain wire 24 AWG stranded, tinned copper BELDFOIL® aluminum-polyester shield, overall chrome PVC jacket. 300V. For color coding, see chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m	6 dbv Length Limit in Thousands of ft.
 **100% Individually Shielded Pairs**	**9730†** ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	5.2 25.1 54.3	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	3 *Chrome PVC jacket.*	.345	8.76	100	78%	12.5	41.0	23.2	76.1	2.1
	9728† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	8.50 33.6 67.3	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	4 *Chrome PVC jacket.*	.404	10.26	100	78%	12.5	41.0	23.2	76.1	2.1
	9731† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	10.0 48.9 96.5	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	6 *Chrome PVC jacket.*	.476	12.09	100	78%	12.5	41.0	23.2	76.1	2.1
	9732† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	14.0 70.7 142.4	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	9 *Chrome PVC jacket.*	.570	14.48	100	78%	12.5	41.0	23.2	76.1	2.1
	9733† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	17.9 81.5 156.0	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	11 *Chrome PVC jacket.*	.610	15.49	100	78%	12.5	41.0	23.2	76.1	2.1
	9734† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	18.5 86.9 166.7	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	12 *Chrome PVC jacket.*	.630	16.00	100	78%	12.5	41.0	23.2	76.1	2.1
	9735† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	22.1 102.6 209.2	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	15 *Chrome PVC jacket.*	.700	17.78	100	78%	12.5	41.0	23.2	76.1	2.1
	9736† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	23.8 111.7 226.4	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	17 *Chrome PVC jacket.*	.730	18.54	100	78%	12.5	41.0	23.2	76.1	2.1
	9737† ЯU **2493** **60C**	100 500 1000	30.5 152.4 304.8	25.1 118.0 240.0	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	19 *Chrome PVC jacket.*	.750	19.05	100	78%	12.5	41.0	23.2	76.1	2.1
	9738† ЯU **2490** **60C**	100 500 1000	30.5 152.4 304.8	36.5 173.2 354.5	24 (7x32) tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	27 *Chrome PVC jacket.*	.875	22.23	100	78%	12.5	41.0	23.2	76.1	2.1

†*Passes the VW-1 vertical flame test.* **Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

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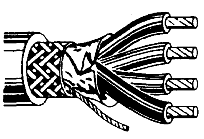
COOPER INDUSTRIES BELDEN

COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-CONDUCTOR OVERALL SHIELD

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-conductor cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 2R, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Cond.	Nominal O.D. Inch	Nominal O.D. mm	Nom. Vel. of Prop.	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
	**NEW 9788 RU 2919 30V 80C**	100 500 1000	30.5 152.4 304.8	2.3 10.8 20.0	28 (7x36) 64.9Ω/M' 212.9Ω/km	7.76Ω/M' 25.4Ω/km	3	.195	4.95	78%	12	39.4	22	72.2
	NEW 9789 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	2.6 12.3 23.1	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.92Ω/M' 19.4Ω/km	4	.210	4.95	78%	12	39.4	22	72.2
	NEW 9790 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.0 13.8 26.1	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.91Ω/M' 19.4Ω/km	5	.225	5.72	78%	12	39.4	22	72.2
	NEW 9791 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.2 14.7 27.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	6.15Ω/M' 20.2Ω/km	6	.235	5.97	78%	12	39.4	22	72.2
	NEW 9792 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.3 14.9 28.4	28 (7x36) 64.9Ω/M' 212.9Ω/km	6.15Ω/M' 20.2Ω/km	7	.235	5.97	78%	12	39.4	22	72.2
	NEW 9793 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.6 16.5 31.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.81Ω/M' 15.8Ω/km	8	.250	6.35	78%	12	39.4	22	72.2
	NEW 9795 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.8 17.7 35.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.87Ω/M' 16Ω/km	9	.260	6.60	78%	12	39.4	22	72.2
	NEW 9796 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.1 19.0 38.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.23Ω/M' 17.2Ω/km	10	.280	7.11	78%	12	39.4	22	72.2
	NEW 9797 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.9 23.0 47.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.23Ω/M' 13.9Ω/km	15	.310	7.87	78%	12	39.4	22	72.2
	NEW 9798 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.9 34.5 68.6	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.95Ω/M' 12.9Ω/km	25	.385	9.78	78%	12	39.4	22	72.2
	NEW 9799 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	8.3 42.7 83.4	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.51Ω/M' 11.5Ω/km	37	.420	10.67	78%	12	39.4	22	72.2

**Capacitance between conductors. **Capacitance between 1 conductor and other conductors connected to shield.*

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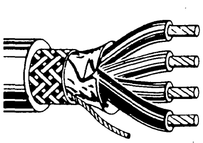
COMPUTER CABLES
Datalene Insulated Cables

COOPER INDUSTRIES BELDEN

DATALENE™ INSULATED MULTI-CONDUCTOR OVERALL SHIELD (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 36) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-conductor cable with overall BELDFOIL* aluminum/polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 2, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt.	Nom. D.C.R.		No. of Cond.	Nominal O.D.		Nom. Vel. of Prop.	Nominal Capacitance			
		ft.	m	Lb. ea.	Cond.	Shield		Inch	mm		* pF/ft.	* pF/m	** pF/ft.	** pF/m
	NEW 9925 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	2.92 14.1 26.8	24 (7x32) 24.0Ω/M' 78.7Ω/km	5.18Ω/M' 17.0Ω/km	3	.215	5.46	78%	12	39.4	22	72.2
	NEW 9927 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.47 15.9 30.4	24 (7x32) 24.0Ω/M' 78.7Ω/km	5.31Ω/M' 17.4Ω/km	4	.230	5.84	78%	12	39.4	22	72.2
	NEW 9929 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.72 17.2 32.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.23Ω/M' 13.9Ω/km	5	.246	6.25	78%	12	39.4	22	72.2
	NEW 9931 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.32 20.1 40.7	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.4Ω/M' 14.4Ω/km	6	.265	6.73	78%	12	39.4	22	72.2
	NEW 9932 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.45 20.8 42.0	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.41Ω/M' 14.5Ω/km	7	.265	6.73	78%	12	39.4	22	72.2
	NEW 9933 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.90 22.9 46.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.40Ω/M' 14.4Ω/km	8	.280	7.11	78%	12	39.4	22	72.2
	NEW 9934 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.39 25.6 52.4	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.85Ω/M' 12.6Ω/km	9	.300	7.62	78%	12	39.4	22	72.2
	NEW 9935 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.84 27.57 56.4	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.18Ω/M' 10.4Ω/km	10	.320	8.13	78%	12	39.4	22	72.2
	NEW 9936 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.26 34.8 73.1	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.56Ω/M' 11.7Ω/km	15	.360	9.14	78%	12	39.4	22	72.2
	NEW 9937 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	11.2 53.0 104.0	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.77Ω/M' 9.1Ω/km	25	.445	11.30	78%	12	39.4	22	72.2
	NEW 9938 ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	14.5 71.4 139.8	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.37Ω/M' 7.8Ω/km	37	.500	12.10	78%	12	39.4	22	72.2

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

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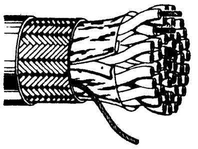
COOPER INDUSTRIES BELDEN

COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-PAIR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-paired cable with overall BELDFOIL* aluminum/polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 5, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft.
		ft.	m		Cond.	Shield		Inch	mm			* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m	
	NEW 8132† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.4 15.8 30.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.07Ω/M' 16.6Ω/km	2	.260	6.60	120	78%	11.0	36	20	66	.9
	NEW 8133† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.8 17.2 35.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.20Ω/M' 17.1Ω/km	3	.270	6.86	120	78%	11.0	36	20	66	.9
	NEW 8134† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.4 41.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.37Ω/M' 14.3Ω/km	4	.290	7.37	120	78%	11.0	36	20	66	.9
	NEW 8135† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.5 20.9 43.0	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.21Ω/M' 13.8Ω/km	5	.300	7.62	120	78%	11.0	36	20	66	.9
	NEW 8136† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.1 24.0 49.3	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.35Ω/M' 14.3Ω/km	6	.330	8.38	120	78%	11.0	36	20	66	.9
	NEW 8137† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.2 24.3 49.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.23Ω/M' 13.9Ω/km	7	.330	8.38	120	78%	11.0	36	20	66	.9
	NEW 8138† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.7 27.1 57.7	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.74Ω/M' 12.3Ω/km	8	.350	8.89	120	78%	11.0	36	20	66	.9
	NEW 8140† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.7 33.9 67.8	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.42Ω/M' 11.2Ω/km	10	.405	10.29	120	78%	11.0	36	20	66	.9
	NEW 8142† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.3 37.7 73.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.07Ω/M' 10.1Ω/km	12½ 12 pair + 1 single	.415	10.54	120	78%	11.0	36	20	66	.9
	NEW 8145† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	9.7 45.4 92.7	28 (7x36) 64.9Ω/M' 212.9Ω/km	2.52Ω/M' 8.3Ω/km	15	.465	11.81	120	78%	11.0	36	20	66	.9
	NEW 8148† 2919 30V 80C	100 500 1000	30.5 152.4 304.8	10.4 51.3 99.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	2.56Ω/M' 8.4Ω/km	18	.490	12.45	120	78%	11.0	36	20	66	.9
	NEW 8155† 2919 30V 80C	100 500 1000	30.5 152.9 304.8	12.6 62.3 125.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	2.32Ω/M' 7.6Ω/km	25	.565	14.35	120	78%	11.0	36	20	66	.9

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

†Passes the VW-1 Verttical Wire Flame Test

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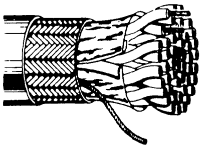
COMPUTER CABLES
Datalene Insulated Cables

COOPER INDUSTRIES BELDEN

DATALENE™ INSULATED MULTI-PAIR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-paired cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 5, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft.
		ft.	m	Lb. ea.	Cond.	Shield		Inch	mm			* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m	
	**NEW 8102†** ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.7 41.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.60Ω/M' 15.1Ω/km	2	.290	7.37	100	78%	12.5	41	22	72.2	2.1
	NEW 8103† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.0 23.5 48.2	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.80Ω/M' 12.5Ω/km	3	.305	7.75	100	78%	12.5	41	22	72.2	2.1
	NEW 8104† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.7 27.2 57.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.06Ω/M' 13.3Ω/km	4	.330	8.38	100	78%	12.5	41	22	72.2	2.1
	NEW 8105† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.1 28.9 61.4	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.22Ω/M' 13.8Ω/km	5	.340	8.67	100	78%	12.5	41	22	72.2	2.1
	NEW 8106† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.0 35.2 70.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.54Ω/M' 11.6Ω/km	6	.370	9.40	100	78%	12.5	41	22	72.2	2.1
	NEW 8107† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.2 36.3 72.6	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.54Ω/M' 11.6Ω/km	7	.370	9.40	100	78%	12.5	41	22	72.2	2.1
	NEW 8108† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	9.1 43.3 84.6	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.70Ω/M' 8.8Ω/km	8	.410	10.41	100	78%	12.5	41	22	72.2	2.1
	NEW 8110† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	10.8 53.5 103.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.40Ω/M' 7.9Ω/km	10	.460	11.68	100	78%	12.5	41	22	72.2	2.1
	NEW 8112† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	11.9 58.9 114.7	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.40Ω/M' 7.9Ω/km	12½ 12 pr. + 1 single	.480	12.19	100	78%	12.5	41	22	72.2	2.1
	NEW 8115† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	14.1 69.8 140.5	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.55Ω/M' 8.4Ω/km	15	.540	13.72	100	78%	12.5	41	22	72.2	2.1
	NEW 8118† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	16.1 79.6 160.2	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.11Ω/M' 6.9Ω/km	18	.570	14.48	100	78%	12.5	41	22	72.2	2.1
	NEW 8125† ЯU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	22.4 104 200.9	28 (7x32) 24.0Ω/M' 78.7Ω/km	2.02Ω/M' 6.6Ω/km	25	.650	16.51	100	78%	12.5	41	22	72.2	2.1

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*
†Passes the VW-1 Vertical Wire Flame Test

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

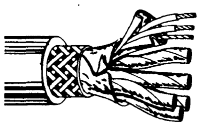
COOPER INDUSTRIES BELDEN

COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-PAIR INDIVIDUAL AND OVERALL SHIELDED

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated twisted pairs. Each pair has 24 AWG stranded tinned copper drain wire. Overall BELDFOIL* aluminum polyester plus 65% tinned copper shield. Chrome PVC jacket. For color coding, please see chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m	6 dbv Length Limit in Thousands of ft.
	**NEW** **8162 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	6.5 33.0 65.5	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 4.3Ω/M' 14.1Ω/km	2	.376	9.55	100	78%	12.5	41	22	72.2	2.1
	NEW **8163 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	7.3 37.9 73.9	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 4.4Ω/M' 14.4Ω/km	3	.396	10.06	100	78%	12.5	41	22	72.2	2.1
	NEW **8164 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	9.5 44.3 90.6	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 3.2Ω/M' 10.5Ω/km	4	.430	10.92	100	78%	12.5	41	22	72.2	2.1
	NEW **8165 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	10.4 51.3 99.6	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 3.4Ω/M' 11.2Ω/km	5	.460	11.68	100	78%	12.5	41	22	72.2	2.1
	NEW **8166 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	11.5 57 110.4	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.8Ω/M' 9.2Ω/km	6	.496	12.60	100	78%	12.5	41	22	72.2	2.1
	NEW **8167 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	11.9 58.8 114.6	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.8Ω/M' 9.2Ω/km	7	.496	12.60	100	78%	12.5	41	22	72.2	2.1
	NEW **8168 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	15.0 74.3 149.6	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 3.0Ω/M' 9.8Ω/km	8	.575	14.61	100	78%	12.5	41	22	72.2	2.1
	NEW **8170 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	20.3 93.2 179.5	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.7Ω/M' 8.9Ω/km	10	.650	16.51	100	78%	12.5	41	22	72.2	2.1
	NEW **8175 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	24.6 115.2 234.4	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.5Ω/M' 8.2Ω/km	15	.720	18.29	100	78%	12.5	41	22	72.2	2.1
	NEW **8178 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	27.5 134.3 262.7	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.6Ω/M' 8.5Ω/km	18	.770	19.56	100	78%	12.5	41	22	72.2	2.1
	NEW **8185 †** **UL** **2493** **60C**	100 500 1000	30.5 152.4 304.8	39.1 187.5 427	24 (7x32) 24Ω/M' 78.7Ω/km	Individual 18Ω/M' 59.1Ω/km Overall 2.4Ω/M' 7.9Ω/km	25	.935	23.75	100	78%	12.5	41	22	72.2	2.1

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

†Passes the VW-1 Vertical Wire Flame Test

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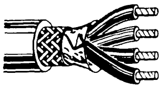
S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 1 and 2R, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Cond.	Nominal O.D.		Nominal Capacitance			
		ft.	m		Cond.	Shield		Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
	**NEW 9628** 2464 300V 80C	100 500 1000	30.5 152.4 304.8	1.8 7.9 16.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	14.2Ω/M 46.6Ω/km	3	.165	4.19	28.0	91.9	51.0	167.4
	NEW 9629 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.2 9.7 19.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	9.4Ω/M 30.9Ω/km	4	.178	4.52	28.0	91.9	51.0	167.4
	NEW 9630 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.4 10.8 21.8	28 (7x36) 64.9Ω/M' 212.9Ω/km	9.4Ω/M' 30.9Ω/km	5	.188	4.78	28.0	91.9	51.0	167.4
	NEW 9631 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.7 11.9 24.1	28 (7x36) 64.9Ω/M' 212.9Ω/km	10.2Ω/M 33.5Ω/km	6	.198	5.03	26.0	85.4	47.0	154.3
	NEW 9632 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.7 12.2 24.7	28 (7x36) 64.9Ω/M' 212.9Ω/km	10.2Ω/M 33.5Ω/km	7	.198	5.03	26.0	85.4	47.0	154.3
	NEW 9633 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.1 14.2 26.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	10.4Ω/M' 33.1Ω/km	8	.210	5.33	26.0	85.4	47.0	154.3
	NEW 9634 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.4 15.9 29.6	28 (7x36) 64.9Ω/M' 212.9Ω/km	6.3Ω/M' 20.7Ω/km	9	.220	5.59	26.0	85.4	47.0	154.3
	NEW 9635 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.6 16.8 32.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	7.0Ω/M 23.0Ω/km	10	.235	5.97	26.0	85.4	47.0	154.3
	NEW 9636 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.5 21.2 42.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	6.5Ω/M' 21.3Ω/km	15	.260	6.60	26.0	85.4	47.0	154.3
	NEW 9637 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.1 29.0 59.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.5Ω/M' 14.8Ω/km	25	.305	7.75	26.0	85.4	47.0	154.3
	NEW 9638 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.8 39.4 78.4	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.1Ω/M' 13.4Ω/km	37	.345	8.76	26.0	85.4	47.0	154.3
	NEW 9639 2464 300V 80C	100 500 1000	30.5 152.4 304.8	11.0 51.7 101.3	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.2Ω/M' 10.5Ω/km	50	.400	10.16	26.0	85.4	47.0	154.3

**Capacitance between conductors.*

***Capacitance between 1 conductor and other conductors connected to shield.*

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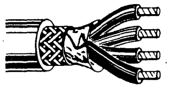
COOPER INDUSTRIES **BELDEN**

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL* aluminum/polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 2R, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Cond.	Nominal O.D.		Nominal Capacitance			
		ft.	m		Cond.	Shield		Inch	mm	* pF/ft.	* pF/m	** pF/ft.	** pF/m
	NEW 9608† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.5 12.2 22.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	8.6Ω/M' 28.2Ω/km	3	.190	4.83	35	115	65	180
	NEW 9609† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.9 13.7 25.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	9.8Ω/M' 32.2Ω/km	4	.200	5.08	35	115	65	180
	NEW 9610† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.3 16.1 30.2	24 (7x32) 24.0Ω/M' 78.7Ω/km	6.5Ω/M' 21.3Ω/km	5	.215	5.46	35	115	65	180
	NEW 9611† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.8 16.1 30.2	24 (7x32) 24.0Ω/M' 78.7Ω/km	7.0Ω/M' 23.0Ω/km	6	.225	5.72	30	98.4	55	180
	NEW 9612† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.0 18.6 35.8	24 (7x32) 24.0Ω/M' 78.7Ω/km	6.9Ω/M' 22.6Ω/km	7	.225	5.72	30	98.4	55	180
	NEW 9613† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.7 40.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	7.3Ω/M' 23.9Ω/km	8	.250	6.35	30	98.4	55	180
	NEW 9614† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.8 22.7 43.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	7.5Ω/M' 24.6Ω/km	9	.253	6.42	30	98.4	55	180
	NEW 9615† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.1 24.0 48.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	6.9Ω/M' 22.6Ω/km	10	.270	6.86	30	98.4	55	180
	NEW 9616† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.7 32.1 65.5	24 (7x32) 24.0Ω/M' 78.7Ω/km	6.0Ω/M' 19.7Ω/km	15	.300	7.62	30	98.4	55	180
	NEW 9617† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	9.9 49.7 99.0	24 (7x32) 24.0Ω/M' 78.7Ω/km	5.1Ω/M' 16.7Ω/km	25	.370	9.40	30	98.4	55	180
	NEW 9618† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	13.1 65.6 131.1	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.4Ω/M' 14.4Ω/km	37	.411	10.43	30	98.4	55	180
	NEW 9619† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	17.7 87.5 171.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.3Ω/M' 14.1Ω/km	50	.485	12.32	30	98.4	55	180

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

†Passes the VW-1 Vertical Wire Flame Test

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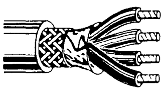
COMPUTER CABLES
S-R PVC Cables

BELDEN COOPER INDUSTRIES

S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 2R, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Cond.	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ ft.	Nominal Capacitance * pF/ m	Nominal Capacitance ** pF/ ft.	Nominal Capacitance ** pF/ m
	NEW 9939† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.03 14.6 27.8	22 (7x30) 15Ω/M' 49.2Ω/km	6.2Ω/M' 20.4Ω/km	3	.202	5.13	37	122	67	220
	NEW 9940† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.44 16.7 32.0	22 (7x30) 15Ω/M' 49.2Ω/km	5.0Ω/M' 16.4Ω/km	4	.215	5.46	37	122	67	220
	NEW 9941† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.13 19.2 37.0	22 (7x30) 15Ω/M' 49.2Ω/km	7.1Ω/M' 23.3Ω/km	5	.230	5.84	37	122	67	220
	NEW 9942† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.61 21.7 41.9	22 (7x30) 15Ω/M' 49.2Ω/km	7.9Ω/M' 25.9Ω/km	6	.245	6.22	35	115	63	207
	NEW 9943† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.87 22.9 44.3	22 (7x30) 15Ω/M' 49.2Ω/km	7.9Ω/M' 25.9Ω/km	7	.245	6.22	35	115	63	207
	NEW 9944† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.41 25.5 49.6	22 (7x30) 15Ω/M' 49.2Ω/km	5.1Ω/M' 16.7Ω/km	8	.260	6.60	35	115	63	207
	NEW 9945† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.93 28.2 56.8	22 (7x30) 15Ω/M' 49.2Ω/km	5.1Ω/M' 16.7Ω/km	9	.280	7.11	35	115	63	207
	NEW 9946† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.49 30.8 62.9	22 (7x30) 15Ω/M' 49.2Ω/km	4.6Ω/M' 15.1Ω/km	10	.300	7.62	35	115	63	207
	NEW 9947† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	8.65 41.7 86.6	22 (7x30) 15Ω/M' 49.2Ω/km	4.1Ω/M' 13.5Ω/km	15	.340	8.63	35	115	63	207
	NEW 9948† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	12.6 64.3 126.5	22 (7x30) 15Ω/M' 49.2Ω/km	3.1Ω/M' 10.2Ω/km	25	.410	10.41	35	115	63	207
	NEW 9949† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	17.8 88.5 175.9	22 (7x30) 15Ω/M' 49.2Ω/km	2.7Ω/M' 8.8Ω/km	37	.460	11.68	35	115	63	207
	NEW 9950† ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	23.4 116.4 233.4	22 (7x30) 15Ω/M' 49.2Ω/km	2.3Ω/M' 7.5Ω/km	50	.555	14.10	35	115	63	207

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

†Passes the VW-1 Vertical Wire Flame Test

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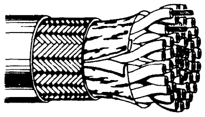
BELDEN
COOPER INDUSTRIES

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-PAIR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated, multi-paired cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, please see chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nominal Capacitance			
		ft.	m		Cond.	Shield		Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
	**NEW** **8362†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	2.7 13.1 24.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	7.0Ω/M' 23.0Ω/km	2	.210	5.33	21	69	35	115
	NEW **8363†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	3.5 16.0 30.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	7.0Ω/M' 23.0Ω/km	3	.240	6.10	21	69	35	115
	NEW **8364†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	3.9 18.2 36.9	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.3Ω/M' 17.4Ω/km	4	.250	6.35	21	69	35	115
	NEW **8365†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	4.0 18.7 37.8	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.6Ω/M' 18.4Ω/km	5	.260	6.60	21	69	35	115
	NEW **8366†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	4.4 20.7 42.7	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.3Ω/M' 17.4Ω/km	6	.270	6.86	21	69	35	115
	NEW **8367†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	4.5 21.3 43.8	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.3Ω/M' 17.4Ω/km	7	.270	6.86	21	69	35	115
	NEW **8368†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.0 23.5 48.3	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.7Ω/M' 18.7Ω/km	8	.290	7.37	21	69	35	115
	NEW **8370†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.0 28.3 60.2	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.9Ω/M' 16.1Ω/km	10	.330	8.38	21	69	35	115
	NEW **8372†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.5 30.4 64.3	28 (7x36) 64.9Ω/M' 212.9Ω/km	5.0Ω/M' 16.4Ω/km	12½ 12 pr. + 1 single	.340	8.64	21	69	35	115
	NEW **8375†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	7.6 37.7 75.5	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.2Ω/M' 13.8Ω/km	15	.370	9.40	21	69	35	115
	NEW **8378†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	8.3 42.7 83.4	28 (7x36) 64.9Ω/M' 212.9Ω/km	4.3Ω/M' 14.1Ω/km	18	.385	9.78	21	69	35	115
	NEW **8385†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	11.8 58.0 113.1	28 (7x36) 64.9Ω/M' 212.9Ω/km	3.5Ω/M' 11.5Ω/km	25	.455	11.56	21	69	35	115

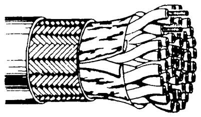
**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*
†Passes the VW-1 Vertical Wire Flame Test

Regional Sales Offices—Call 1-800 BELDEN-1 to contact any of the regional sales offices at the following locations: **Western,** 2955 E. Main Street, Suite 300, Irvine, CA 92714; **North Central,** 2625 West Butterfield Road, Suite 108E, Oakbrook, IL 60521; **South Central,** 14651 N. Dallas Parkway, Suite 144, Dallas, TX 75204; **Eastern,** 100 Pennsylvania Avenue, Suite 450, Framingham, MA 01701; **Southeastern,** 2175 Parklake Drive, Suite 120, Atlanta, GA 30345.

S-R PVC MULTI-PAIR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated multi-paired cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nominal Capacitance			
		ft.	m		Cond.	Shield		Inch	mm	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
	**NEW** **8332†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	3.9 17.9 34.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	5.4Ω/M' 17.7Ω/km	2	.250	6.35	30	98	50	164
	NEW **8333†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	4.4 20.6 41.7	24 (7x32) 24.0Ω/M' 78.7Ω/km	7.0Ω/M' 23.0Ω/km	3	.275	6.98	30	98	50	164
	NEW **8334†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.0 23.4 47.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.5Ω/M' 14.8Ω/km	4	.288	7.32	30	98	50	164
	NEW **8335†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.6 26.5 54.3	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.6Ω/M' 15.1Ω/km	5	.295	7.49	30	98	50	164
	NEW **8336†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.4 30.1 61.5	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.7Ω/M' 15.4Ω/km	6	.311	7.90	30	98	50	164
	NEW **8337†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.8 32.3 65.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.7Ω/M' 15.4Ω/km	7	.311	7.90	30	98	50	164
	NEW **8338†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	7.5 35.7 75.0	24 (7x32) 24.0Ω/M' 78.7Ω/km	4.1Ω/M' 13.4Ω/km	8	.335	8.51	30	98	50	164
	NEW **8340†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	8.8 44.3 88.6	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.5Ω/M' 11.5Ω/km	10	.385	9.78	30	98	50	164
	NEW **8342†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	10.6 54.3 106.9	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.6Ω/M' 11.8Ω/km	12½ 12 pair + 1 single	.405	10.29	30	98	50	164
	NEW **8345†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	13.3 63.3 128.7	24 (7x32) 24.0Ω/M' 78.7Ω/km	3.2Ω/M' 10.5Ω/km	15	.445	11.30	30	98	50	164
	NEW **8348†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	14.9 75.4 147.7	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.7Ω/M' 8.9Ω/km	18	.480	12.19	30	98	50	164
	NEW **8355†** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	19.2 95.2 191.4	24 (7x32) 24.0Ω/M' 78.7Ω/km	2.5Ω/M' 8.2Ω/km	25	.550	13.97	30	98	50	164

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*
†Passes the VW-1 Vertical Wire Flame Test

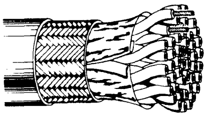
BELDEN
COOPER INDUSTRIES

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-PAIR INDIVIDUAL OVERALL SHIELDED

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated multi-paired cable with overall BELDFOIL* *aluminum polyester. 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF ft.	Nominal Capacitance * pF m	Nominal Capacitance ** pF ft.	Nominal Capacitance ** pF m
	**NEW 8302†** RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.3 41.2	22 (7x30) 15Ω M' 49.2Ω km	5.7Ω/M' 18.7Ω/km	2	.260	6.60	40	131	72	236
	NEW 8303† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.4 25.7 52.7	22 (7x30) 15Ω M' 49.2Ω km	6.2Ω/M' 20.3Ω/km	3	.296	7.52	35	115	63	207
	NEW 8304† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.5 30.4 65.2	22 (7x30) 15Ω M' 49.2Ω km	4.9Ω/M' 16.1Ω/km	4	.320	8.13	35	115	63	207
	NEW 8305† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.0 33.5 70.7	22 (7x30) 15Ω M' 49.2Ω km	4.8Ω/M' 15.7Ω/km	5	.322	8.18	35	115	63	207
	NEW 8306† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.9 38.0 76.6	22 (7x30) 15Ω M' 49.2Ω km	5.0Ω/M' 16.4Ω/km	6	.348	8.84	35	115	63	207
	NEW 8307† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	8.4 40.6 84.7	22 (7x30) 15Ω M' 49.2Ω km	5.0Ω/M' 16.4Ω/km	7	.348	8.84	35	115	63	207
	NEW 8308† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	9.9 50.0 100.0	22 (7x30) 15Ω M' 49.2Ω km	4.4Ω/M' 14.4Ω/km	8	.384	9.75	35	115	63	207
	NEW 8310† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	12.1 61.2 124.4	22 (7x30) 15Ω M' 49.2Ω km	4.1Ω/M' 13.4Ω/km	10	.440	11.18	35	115	63	207
	NEW 8312† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	13.6 71.2 139.5	22 (7x30) 15Ω M' 49.2Ω km	4.2Ω/M' 13.8Ω/km	12½ 12 pr. + 1 single	.455	11.56	35	115	63	207
	NEW 8315† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	16.2 79.9 156.8	22 (7x30) 15Ω M' 49.2Ω km	3.8Ω/M' 12.5Ω/km	15	.502	12.75	35	115	63	207
	NEW 8318† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	19.2 95.3 191.6	22 (7x30) 15Ω M' 49.2Ω km	3.0Ω/M' 9.8Ω/km	18	.535	13.59	35	115	63	207
	NEW 8325† RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	23.5 120.8 234.6	22 (7x30) 15Ω M' 49.2Ω km	2.9Ω/M' 9.5Ω/km	25	.620	15.75	35	115	63	207

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

†Passes the VW-1 Vertical Wire Flame Test

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TECHNICAL INFORMATION

BELDEN

BELDEN COLOR CODE CHARTS

COLOR CODE CHART NO. 1

Conductor	Color
1st	Black
2nd	White
3rd	Red
4th	Green
5th	Brown
6th	Blue
7th	Orange
8th	Yellow
9th	Purple
10th	Gray
11th	Pink
12th	Tan

18 Gage conductors in cables 8446 through 8449 are Black and White.

ICEA COLOR CODE CHART No. 2 & 2R (Insulated Cable Engineers Association)

2R—These Cables feature a ring band striping. 2—These Cables feature a spiral stripe.

Conductor	Color	Conductor	Color	Conductor	Color	Conductor	Color
1st	Black	14th	Green/White	27th	Blue/Blk/Wht	40th	Red/Wht/Grn
2nd	White	15th	Blue/White	28th	Blk/Red/Grn	41st	Grn/Wht/Blue
3rd	Red	16th	Black/Red	29th	Wht/Red/Grn	42nd	Org/Red/Grn
4th	Green	17th	White/Red	30th	Red/Blk/Grn	43rd	Blue/Red/Grn
5th	Orange	18th	Orange/Red	31st	Grn/Blk/Org	44th	Blk/Wht/Blue
6th	Blue	19th	Blue/Red	32nd	Org/Blk/Grn	45th	Wht/Blk/Blue
7th	White/Black	20th	Red/Green	33rd	Blue/Wht/Org	46th	Red/Wht/Blue
8th	Red/Black	21st	Orange/Green	34th	Blk/Wht/Org	47th	Grn/Org/Red
9th	Green/Black	22nd	Blk/Wht/Red	35th	Wht/Red/Org	48th	Org/Red/Blue
10th	Orange/Black	23rd	Wht/Blk/Red	36th	Org/Wht/Blue	49th	Blue/Red/Org
11th	Blue/Black	24th	Red/Blk/Wht	37th	Wht/Red/Blue	50th	Blk/Org/Red
12th	Black/White	25th	Grn/Blk/Wht	38th	Blk/Wht/Grn		
13th	Red/White	26th	Org/Blk/Wht	39th	Wht/Blk/Grn		

COLOR CODE CHART NO. 3 FOR PAIRED CABLES

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Black paired with Red	11	Red paired with Yellow	21	White paired with Brown	31	Purple paired with White
2	Black paired with White	12	Red paired with Brown	22	White paired with Orange	32	Purple paired with Dark Green
3	Black paired with Green	13	Red paired with Orange	23	Blue paired with Yellow	33	Purple paired with Light Blue
4	Black paired with Blue	14	Green paired with White	24	Blue paired with Brown	34	Purple paired with Yellow
5	Black paired with Yellow	15	Green paired with Blue	25	Blue paired with Orange	35	Purple paired with Brown
6	Black paired with Brown	16	Green paired with Yellow	26	Brown paired with Yellow	36	Purple paired with Black
7	Black paired with Orange	17	Green paired with Brown	27	Brown paired with Orange	37	Gray paired with White
8	Red paired with White	18	Green paired with Orange	28	Orange paired with Yellow		
9	Red paired with Green	19	White paired with Blue	29	Purple paired with Orange		
10	Red paired with Blue	20	White paired with Yellow	30	Purple paired with Red		

COLOR CODE CHART NO. 4 FOR PAIRED CABLES

Pair No.	Color	Pair No.	Color	Pair No.	Color	Pair No.	Color
1st	White/Blue	8th	Red/Green	14th	Black/Brown	20th	Yellow/Slate
2nd	White/Orange	9th	Red/Brown	15th	Black/Slate	21st	Violet/Blue
3rd	White/Green	10th	Red/Slate	16th	Yellow/Blue	22nd	Violet/Orange
4th	White/Brown	11th	Black/Blue	17th	Yellow/Orange	23rd	Violet/Green
5th	White/Slate	12th	Black/Orange	18th	Yellow/Green	24th	Violet/Brown
6th	Red/Blue	13th	Black/Green	19th	Yellow/Brown	25th	Violet/Slate
7th	Red/Orange						

COLOR CODE CHART NO. 5

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	White - Blue Stripe Blue - White Stripe	8	Red - Green Stripe Green - Red Stripe	14	Black - Brown Stripe Brown - Black Stripe	20	Yellow - Gray Stripe Gray - Yellow Stripe
2	White - Orange Stripe Orange - White Stripe	9	Red - Brown Stripe Brown - Red Stripe	15	Black - Gray Stripe Gray - Black Stripe	21	Purple - Blue Stripe Blue - Purple Stripe
3	White - Green Stripe Green - White Stripe	10	Red - Gray Stripe Gray - Red Stripe	16	Yellow - Blue Stripe Blue - Yellow Stripe	22	Purple - Orange Stripe Orange - Purple Stripe
4	White - Brown Stripe Brown - White Stripe	11	Black - Blue Stripe Blue - Black Stripe	17	Yellow - Orange Stripe Orange - Yellow Stripe	23	Purple - Green Stripe Green - Purple Stripe
5	White - Gray Stripe Gray - White Stripe	12	Black - Orange Stripe Orange - Black Stripe	18	Yellow - Green Stripe Green - Yellow Stripe	24	Purple - Brown Stripe Brown - Purple Stripe
6	Red - Blue Stripe Blue - Red Stripe	13	Black - Green Stripe Green - Black Stripe	19	Yellow - Brown Stripe Brown - Yellow Stripe	25	Purple - Gray Stripe Gray - Purple Stripe
7	Red - Orange Stripe Orange - Red Stripe						

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BREEZE ILLINOIS INC.

the wire protectors

BREEZE-ILLINOIS, INCORPORATED
Designs and Manufactures
Interconnector assemblies
that are Shielded Against
EMI, EMP, RFI, Nuclear
Radiation, Compromising
Emanations (TEMPEST),
Mechanical Stressing,
Chemical Environments,
Weather and Temperature

Breeze-Illinois, Inc. has over 50 years experience in the manufacture of quality interconnection systems including design, development, manufacturing and evaluation for wide-ranging applications in industry, NASA, and the military. The company specializes in protected cable assemblies. These systems include all types of electrical and optical systems, pneumatic links and hybrid combinations. They are produced under the Breeze-Illinois trade names of:

- **Bi-LINK**™ Complete interconnector systems custom designed to fulfill the requirements of specific customer applications.
- **BiSHIELD**™ Cable assemblies designed to customer specifications or Breeze-Illinois standards to fulfill specific protection requirements.
- **Bi-PRO**™ Metallic and non-metallic flexible convoluted conduit wire-ways that protects transfer media against all outside influences.
- **Bi-OPTIC**™ Fiber optic interconnectors and hybrid systems using combinations of fiber optics and conventional transfer media.
- **Bi-TEST**™ Precision test cables specifically constructed to fulfill the rigid requirements of test environments.
- **Bi-SHELL**™ Backshell terminations and other hardware that pertains to the termination of protective wire coverings.

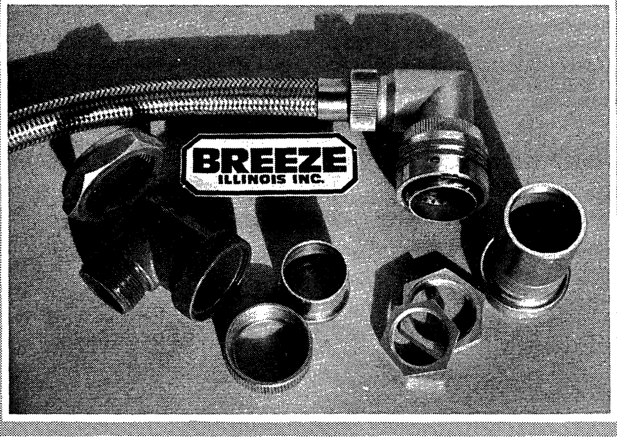
Interconnectors are our only product line. We offer quality components off-the-shelf or we can study your systems requirements and prepare trouble-free, reliable and efficient interconnections for you. We will prepare proposals, write reports, build prototypes and make complete test and evaluation studies.

So contact us for any interconnector need—large or small. Breeze-Illinois can save you money, space, weight and time and eliminate or avoid your interference and/or environmental protection problems too.

The name Breeze-Illinois is synonymous with wiring protection.

Our experience in manufacturing our own hardware such as coupling nuts, backshell assemblies, junction boxes, branches and connectors has established the name Breeze as the standard in the protected cable assembly field. We are highly competitive and best qualified to construct custom designed assemblies for our customers—from one assembly to thousands of copies. If you wish to assemble your own interconnectors, we manufacture individual components and can supply many off-the-shelf items for your interconnector needs. We also braid textiles such as Nylon and Dacron to wire bundles from your simplest design to your most complicated system.

We have a nationwide network of sales representatives anxious to serve you—Call or write us today.



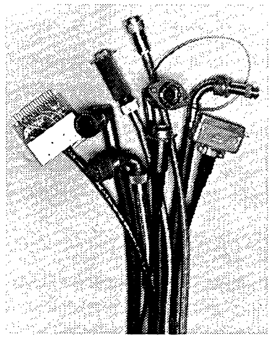
BREEZE ILLINOIS

Need more information? Call or write for our product and facilities brochures.

Breeze-Illinois, Inc., Main and Agard Streets, Wyoming, IL., 61491
Phone: (309) 695-2511 TWX: 510-390-3691

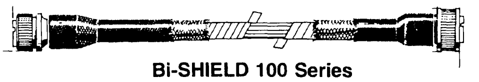
FOR PROTECTED *INTERCONNECTOR ASSEMBLIES*

Bi-SHIELD™ Cable Assemblies



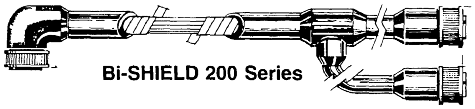
Custom Designed Interconnector Assemblies for Every Application

Breeze-Illinois' complete line of cable assemblies offer shielding, environmental and mechanical protection covering all applications. Custom designs and unique combinations are our specialty and are too numerous to list. Basic series configurations are shown below. Let us know your requirement. Our engineers will help design in the protection that is right for your system.



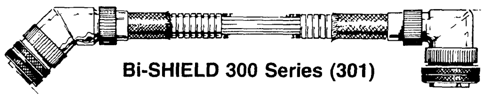
Bi-SHIELD 100 Series

For cost effective, light weight, service flexing applications.



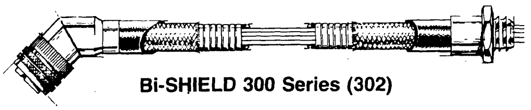
Bi-SHIELD 200 Series

Bi-SHIELD 200 series. Environmental protected cables through molded and blown on elastomer jackets or extruded jackets.



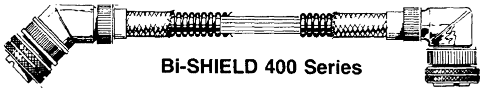
Bi-SHIELD 300 Series (301)

Repairable cables protected with Bi-PRO metallic convoluted conduit for high shielding levels



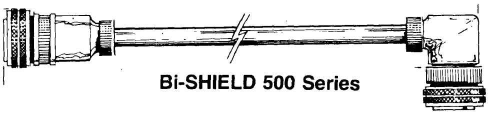
Bi-SHIELD 300 Series (302)

Cables protected with Bi-PRO metallic convoluted conduit for high shielding levels and environmental protection.



Bi-SHIELD 400 Series

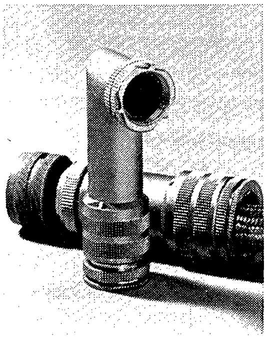
Repairable cables protected with Bi-PRO non-metallic conduit for good environmental protection.



Bi-SHIELD 500 Series

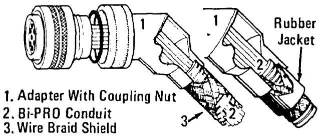
Cables constructed from commercial bulk cable and state of the art backshell adapters.

Bi-SHELL™ Cable Terminations

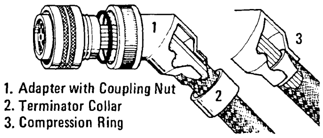


Superior Backshell Designs As Versatile as They are Varied

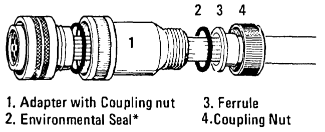
Pictured here is the unique field maintainable and repairable shielded backshell, the Bi-SHELL 60. It allows repeated assembly/disassembly with no degradation to its shielding capabilities or mechanical integrity. Breeze will design custom backshells for specific applications or problem situations. Call today for more information. We have service representatives close to you.


1
1
Rubber Jacket
2
2
3
1. Adapter With Coupling Nut
2. Bi-PRO Conduit
3. Wire Braid Shield

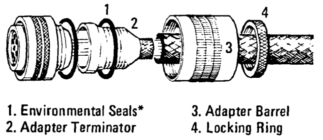
Bi-SHELL 10/11
Designed for flexible, hermetically sealed conduit innercores.


1
3
2
1. Adapter with Coupling Nut
2. Terminator Collar
3. Compression Ring

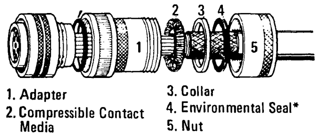
Bi-SHELL 20/21
A 360 degree braid terminating method for metallic braided wire bundles of single or multiple layers.


2 3 4
1
1. Adapter with Coupling nut
2. Environmental Seal*
3. Ferrule
4. Coupling Nut

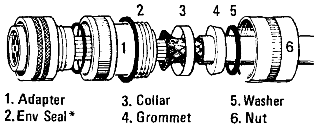
Bi-SHELL 355/540
A threaded backshell/adapter for modular conduit cable assemblies.


1
2
3
4
1. Environmental Seals*
2. Adapter Terminator
3. Adapter Barrel
4. Locking Ring

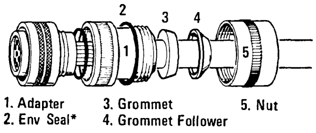
Bi-SHELL 50
Field installable and serviceable backshell designed for use in conjunction with shielded (braided) wire bundles.


2 3 4
1
5
1. Adapter
2. Compressible Contact Media
3. Collar
4. Environmental Seal*
5. Nut

Bi-SHELL 60
Field installable and serviceable backshell designed to be easily removed and reassembled.


2 3 4 5
1
6
1. Adapter
2. Env Seal*
3. Collar
4. Grommet
5. Washer
6. Nut

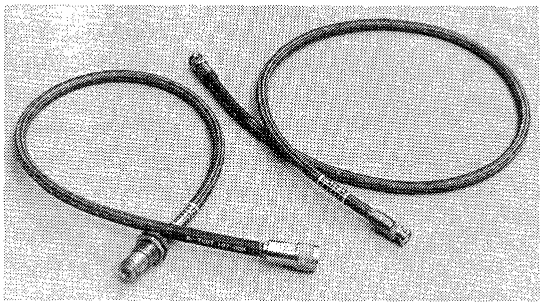
Bi-SHELL 70
This protected adapter interfaces commercial cable to connectors providing both EMI and environmental protection.


2 3 4
1
5
1. Adapter
2. Env Seal*
3. Grommet
4. Grommet Follower
5. Nut

Bi-SHELL 80
An environmental adapter that interfaces commercial jacketed cable to connectors with no compromise to the level of environmental protection.

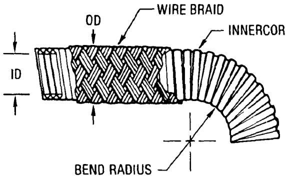
Tel. (309) 695-2511 **BREEZE** ILLINOIS INC Main & Agard Streets, Wyoming, IL 61491

Flexible wire-ways constructed of metallic or non metallic convoluted conduit with a wire or fabric overbraid.



Bi-PRO

The Bi-PRO conduit variations illustrated on these pages cover the spectrum of mechanical and environmental protection, electromagnetic shielding effectiveness, and security against compromising emanations (TEMPEST).



Bi-PRO 175

Bi-PRO 175 is a hermetically sealed, shielded, flexible wire-way consisting of a convoluted brass innercore covered by a bronze braid. The innercore is constructed of a brass strip, helically convoluted and soldered at every other convolute. It forms a flexible, hermetically sealed tube that is capable of withstanding pressures in excess of 1000 psi. Bi-PRO 175 complies with MIL-C-13909 and has withstood tests of over a half million flexing cycles without failure.

Bi-PRO 223

Bi-Pro 223 is a hermetically sealed, shielded flexible wire-way consisting of a nickle-iron alloy convoluted innercore covered with a 300 series stainless steel braid in accordance with AMS 5689. The innercore, provides optimum permeability, stability and saturation resistance, with construction and dimensions in accordance with MIL-C-13909.

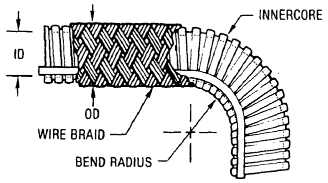
Bi-PRO 237

Bi-PRO 237 is a hermetically sealed, shielded flexible wire-way consisting of an 80% nickel, 20% iron alloy convoluted innercore covered with a 300 series stainless steel braid in accordance with MIL SPEC AMS5689. The innercore is annealed in a controlled atmosphere to provide permeability and shielding effectiveness exceeding performance specified under NAVSHIP specification 0967-283-5010.

Bi-PRO 242

Bi-PRO 242 is a hermetically sealed, shielded flexible wire-way consisting of a convoluted stainless steel innercore covered by a stainless steel braid in accordance with AMS5689. It combines high strength and flexibility with excellent corrosive resistance and high shielding capability. Construction is in accordance with MIL-C-13909.

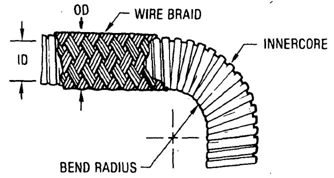
I.D.	O.D.¹	O.D.²	BEND RADIUS	WT./FT.
0.187	.31	.43	1.25	.09
0.250	.40	.52	1.50	.11
0.375	.52	.64	1.75	.16
0.500	.65	.77	2.00	.20
0.625	.77	.89	2.50	.24
0.750	.90	1.02	2.78	.34
1.000	1.21	1.35	3.00	.46
1.250	1.46	1.60	3.38	.56
1.500	1.71	1.85	3.75	.69
1.750	1.96	2.10	4.50	.82
2.000	2.21	2.35	5.00	.95
2.500	2.71	2.85	6.00	1.23



Bi-PRO 001/101

Bi-PRO 001 is an all aluminum, non corrosive, flexible, convoluted conduit covered with an aluminum alloy wire braid. It features light weight and flexibility with a high level of crush resistance plus electromagnetic shielding capability against electric fields. Bi-PRO 001 is manufactured in accordance with MIL specs. AN-WW-C561, Type 1 and MIL-C-6136, Type 1.

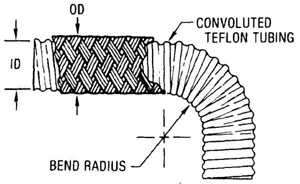
I.D.	O.D.¹	O.D.²	BEND RADIUS	WT./FT.
0.187	.33	.45	2.25	.037
0.250	.39	.51	2.75	.048
0.375	.52	.64	3.75	.065
0.500	.64	.76	3.75	.084
0.625	.77	.89	3.75	.098
0.750	.92	1.04	4.25	.139
1.000	1.21	1.35	5.75	.193
1.250	1.46	1.58	8.00	.233
1.500	1.72	1.86	8.25	.278
1.750	1.97	2.11	9.00	.354
2.000	2.22	2.36	9.75	.431



Bi-PRO 198

Bi-PRO 198 is a flexible wire-way consisting of a helically convoluted and interlocked stainless steel innercore tube covered with a stainless steel braid. This extremely strong and durable interconnector protects against shock and impact, temperature up to 2000° F and has high corrosion resistance. It is manufactured dimensionally in accordance with Mil-C-6136.

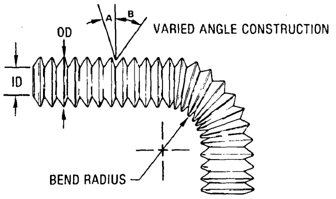
I.D.	O.D.¹	O.D.²	BEND RADIUS	WT./FT.
0.187	.32	.44	2.25	.11
0.250	.39	.51	2.75	.14
0.375	.51	.63	3.75	.19
0.500	.64	.76	3.75	.24
0.625	.76	.88	3.75	.28
0.750	.92	1.04	4.25	.40
1.000	1.21	1.35	5.75	.56
1.250	1.46	1.60	8.00	.67
1.500	1.71	1.85	8.25	.80
1.750	1.96	2.10	9.00	1.02
2.000	2.22	2.36	9.75	1.25



Bi-PRO 801 - Bi-PRO 811

Bi-PRO 801 is a high quality extruded flourcarbon TFE Teflon tube. It is completely seamless, hermetically sealed, and helically convoluted for extra strength and flexibility. The convolutes are slightly angled to provide a minimum bend radius.

Bi-PRO 811 is a high quality, helically convoluted and hermetically sealed flourocarbon tube of TFE Teflon covered with a stainless steel overbraid that provides protection and prevents elongation. Braid is stainless steel in accordance with mil spec AMS 5889.



Bi-PRO 807 - Bi-PRO 827

Bi-PRO 807 is an annularly corrugated and hermetically sealed flourocarbon tube of seamless FEP Teflon with no braid. It is extremely flexible and has excellent crush resistance due to its patented deep groove and varied angle corrugated configuration. The corrugations also give the tubing the ability to be compressed or extended to varying lengths thus providing well-fitting interconnections and easy installation in tight places.

Bi-PRO 827 encorporates the same annularly corrugated and seamless Teflon Tubing as 807 covered with a stainless steel overbraid for additional protection and strength. Braid is in accordance with MIL SPEC AMS5689.

I.D.	O.D.¹	O.D.²	BEND RADIUS	WT./FT.
0.187	.37	.49	.56	.03
0.250	.46	.58	.56	.05
0.375	.56	.68	.81	.06
0.500	.68	.80	1.13	.08
0.625	.81	.93	1.38	.10
0.750	.97	1.09	1.63	.14
1.000	1.29	1.43	2.63	.17
1.250	1.56	1.70	3.13	.19
1.500	1.89	2.03	4.13	.21

BREEZE ILLINOIS INC 401 South Main St., Wyoming, IL 61491 (309) 695-2511 TWX 510-390-3691 TransTechnology CORPORATION

BRIM **WIRE — CABLE — TUBING — HARDWARE**
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIM CHV CORONA RESISTANT HIGH VOLTAGE TEFLON* CABLE

BRIM CHV eliminates the need for bulky, thick insulation, as used with silicone rubber high voltage cables, and provides high temperature resistance not available with polyethylene insulated high voltage cables, plus the added benefit of retarding and detering corona discharges. Even under severe stress, including mechanical strain, moisture, corona or chemical, or high temperature conditions, there is no cracking of the insulation. Cable construction meets and exceeds MIL-W-16878D.

OPERATING VOLTAGE: Voltage capabilities are based on the thickness of the jacket.

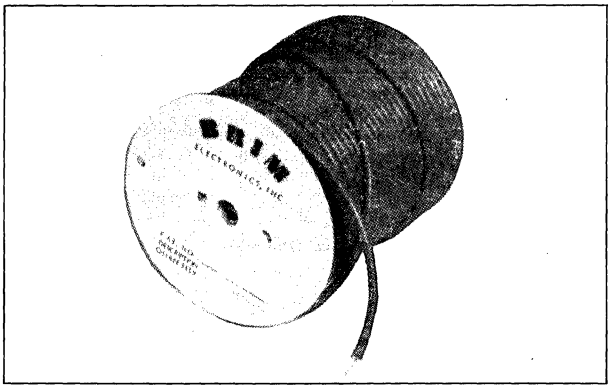
OPERATING TEMPERATURE: −90°C to +250°C

DESCRIPTION: Silver plated copper conductor, per QQ-W-343, special corona retarding insulation, TFE tape wrap insulation, & a color coded jacket overall.

STD. COLORS: Red, White, Black, Green, Blue, Yellow, Orange, Brown, Purple, Gray. Stripped colors are also available.

STD. P-U: 250′, 500′, 1000′.

* DuPont



Brim No.	AWG	Strand.	Volt Rating DC	Volt Rating AC	Nom. O.D.
CHV26-2	26	7/34	10000	2500	.068″
CHV26-2.5	26	7/34	12500	3800	.078″
CHV26-3	26	7/34	15000	4500	.088″
CHV26-3.5	26	7/34	17500	5400	.098″
CHV26-4	26	7/34	20000	6000	.108″
CHV26-5	26	7/34	25000	7500	.128″
CHV26-6.5	26	7/34	32500	10000	.158″
CHV26-8	26	7/34	40000	12000	.188″
CHV24-2	24	19/36	10000	2500	.074″
CHV24-2.5	24	19/36	12500	3800	.084″
CHV24-3	24	19/36	15000	4500	.094″
CHV24-3.5	24	19/36	17500	5400	.104″
CHV24-4	24	19/36	20000	6000	.114″
CHV24-5	24	19/36	25000	7500	.134″
CHV24-6.5	24	19/36	32500	10000	.164″
CHV24-8	24	19/36	40000	12000	.194″
CHV24-10	24	19/36	50000	15000	.234″
CHV22-2	22	19/34	10000	2500	.081″
CHV22-2.5	22	19/34	12500	3800	.091″
CHV22-3	22	19/34	15000	4500	.101″
CHV22-3.5	22	19/34	17500	5400	.111″
CHV22-4	22	19/34	20000	6000	.121″
CHV22-5	22	19/34	25000	7500	.141″
CHV22-6.5	22	19/34	32500	10000	.171″
CHV22-8	22	19/34	40000	12000	.201″
CHV22-10	22	19/34	50000	15000	.241″
CHV20-2	20	19/32	10000	2500	.089″
CHV20-2.5	20	19/32	12500	3800	.099″
CHV20-3	20	19/32	15000	4500	.109″
CHV20-3.5	20	19/32	17500	5400	.119″
CHV20-4	20	19/32	20000	6000	.129″
CHV20-5	20	19/32	25000	7500	.149″
CHV20-6.5	20	19/32	32500	10000	.179″
CHV20-8	20	19/32	40000	12000	.208″
CHV20-10	20	19/32	50000	15000	.248″
CHV18-2	18	19/30	10000	2500	.099″
CHV18-2.5	18	19/30	12500	3800	.109″
CHV18-3	18	19/30	15000	4500	.119″
CHV18-3.5	18	19/30	17500	5400	.129″
CHV18-4	18	19/30	20000	6000	.139″
CHV18-5	18	19/30	25000	7500	.159″
CHV18-6.5	18	19/30	32500	10000	.189″
CHV18-8	18	19/30	40000	12000	.219″
CHV18-10	18	19/30	50000	15000	.259″
CHV16-2	16	19/29	10000	2500	.106″
CHV16-2.5	16	19/29	12500	3800	.116″
CHV16-3	16	19/29	15000	4500	.126″
CHV16-3.5	16	19/29	17500	5400	.136″
CHV16-4	16	19/29	20000	6000	.146″
CHV16-5	16	19/29	25000	7500	.166″
CHV16-6.5	16	19/29	32500	10000	.196″
CHV16-8	16	19/29	40000	12000	.226″
CHV16-10	16	19/29	50000	15000	.266″
CHV14-2	14	19/27	10000	2500	.121″
CHV14-2.5	14	19/27	12500	3800	.131″
CHV14-3	14	19/27	15000	4500	.141″
CHV14-3.5	14	19/27	17500	5400	.151″
CHV14-4	14	19/27	20000	6000	.161″
CHV14-5	14	19/27	25000	7500	.181″
CHV14-6.5	14	19/27	32500	10000	.211″
CHV14-8	14	19/27	40000	12000	.241″
CHV14-10	14	19/27	50000	15000	.281″
CHV12-2	12	19/25	10000	2500	.139″
CHV12-2.5	12	19/25	12500	3800	.149″
CHV12-3	12	19/25	15000	4500	.159″
CHV12-3.5	12	19/25	17500	5400	.169″
CHV12-4	12	19/25	20000	6000	.179″
CHV12-5	12	19/25	25000	7500	.199″
CHV12-6.5	12	19/25	32500	10000	.229″
CHV12-8	12	19/25	40000	12000	.259″
CHV12-10	12	19/25	50000	15000	.299″
CHV10-2	10	37/26	10000	2500	.155″
CHV10-2.5	10	37/26	12500	3800	.165″

CONSTRUCTION VARIATIONS AVAILABLE TO ORDER.

BRIM HIGH TEMPERATURE LEAD WIRE

These small diameter high temperature lead wires allow unique constructions. The basic wire conforms to MIL-W-3861-stranded nickel plated copper; when shielded, nickel plated copper shielding is per MIL-N-46026A. Rated for 100 Volts RMS.*

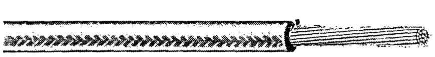
Type 1: 800°F High Temperature Rating — Suitable for aircraft, or missile lead wire for operations between 500°F to 800°F. Cond. insulation: Fiberglass braid, impregnated with a silicone varnish, over a stranded nickel plated conductor.

Type 2: 1500°F High Temperature Rating — Suitable as a radiation resistant aircraft, or missile lead wire for operations between 800°F to 1500°F. Cond. insulation: Inorganic braid over a stranded nickel plated copper conductor.

Type 3: 2000°F High Temperature Rating — Suitable as a radiation resistant aircraft or missile lead wire for operations between 1500°F to 2000°F. Cond. Insulation: special formulated ceramic braid over a stranded nickel plated copper conductor, and a nickel plated braided shield overall.

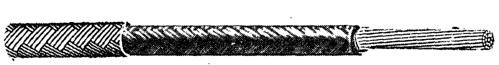
* For dry locations.

UNSHIELDED



Brim No. Type 1	Brim No. Type 2	AWG	Strand.	Nom. O.D.	Std. P-U
2101/22	2102/22	22	19/34	.070″	500′, 1000′
2101/20	2102/20	20	19/32	.075″	500′, 1000′
2101/18	2102/18	18	19/30	.085″	500′, 1000′

SHIELDED



Brim No. Type 3	AWG	Strand.	Nom. O.D.	Std. P-U
2103/22	22	19/34	.108″	500′, 1000′
2103/20	20	19/32	.112″	500′, 1000′
2103/18	18	19/30	.122″	500′, 1000′

600 VRMS is available to order. CONSTRUCTION VARIATIONS ARE AVAILABLE TO ORDER WRITE FOR FREE CATALOG

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

TFE & FEP TEFLON SHIELDED CABLES • BRIMCROM • BRIMFLYX • STAINLESS STEEL TUBULAR BRAID

TEFLON IMPREGNATED BRAID OVER SHIELD PER MIL-W-16878

DESCRIPTION: One to five twisted conductors of Type E extruded TFE* insulation (.010″ wall), over a stranded silver plated copper conductor. If shielded, braided silver plated shield with a min. coverage of 90% over the conductor(s). When jacketed, either a fused double reversed TFE tape wrap jacket, a Teflon* impregnated fiberglass braided jacket, or an extruded FEP jacket. Cables are fungus, solvent, flame, acid, alkali, and oil resistant. Rated for 600 Volts. Stranding: 26 AWG — 7 strands, 24 AWG to 16 AWG — 19 strands. Color code: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow. Jacket color: White. OPER. TEMP.: TFE −65°C to +250°C. FEP: −65°C to +200°C.

Brim No.	No. Cond.	AWG	Nom. O.D.	Brim No.	No. Cond.	AWG	Nom. O.D.
1751	1	26	.070″	1754/2	2	20	.154″
1751/2	2	26	.115″	1754/3	3	20	.163″
1752	1	24	.080″	1754/4	4	20	.179″
1752/2	2	24	.124″	1754/5	5	20	.195″
1752/3	3	24	.131″	1755	1	18	.105″
1752/4	4	24	.144″	1755/2	2	18	.172″
1752/5	5	24	.155″	1755/3	3	18	.183″
1753	1	22	.085″	1755/4	4	18	.200″
1753/2	2	22	.137″	1755/5	5	18	.222″
1753/3	3	22	.144″	1756	1	16	.114″
1753/4	4	22	.158″	1756/2	2	16	.187″
1753/5	5	22	.170″	1756/3	3	16	.200″
1754	1	20	.095″	1756/4	4	16	.220″

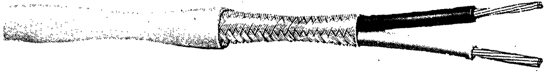
STD. P-U: 250′, 500″, 1000′

TEFLON TAPE WRAP JACKET OVER SHIELD

Brim No.	No. Cond.	AWG	Nom. O.D.	Brim No.	No. Cond.	AWG	Nom. O.D.
1761	1	26	.076″	1764/2	2	20	.158″
1761/2	2	26	.119″	1764/3	3	20	.170″
1762	1	24	.084″	1764/4	4	20	.190″
1762/2	2	24	.128″	1764/5	5	20	.204″
1762/3	3	24	.135″	1765	1	18	.109″
1762/4	4	24	.155″	1765/2	2	18	.178″
1762/5	5	24	.162″	1765/3	3	18	.198″
1763	1	22	.090″	1765/4	4	18	.215″
1763/2	2	22	.142″	1765/5	5	18	.230″
1763/3	3	22	.150″	1766	1	16	.116″
1763/4	4	22	.163″	1766/2	2	16	.201″
1763/5	5	22	.183″	1766/3	3	16	.213″
1764	1	20	.099″	1766/4	4	16	.230″

STD. P-U: 250′, 500″, 1000′

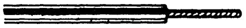
FEP TEFLON CABLES — SHIELDED — 600 VOLTS



Brim No.	No. Cond.	AWG	Strand.	Nom. O.D.	Std. P-U
1791	1	24	19/36	.087″	500′, 1000′
1791/2	2	24	19/36	.130″	500′, 1000′
1791/3	3	24	19/36	.136″	500′, 1000′
1791/4	4	24	19/36	.153″	500′, 1000′
1792	1	22	19/34	.092″	500′, 1000′
1792/2	2	22	19/34	.148″	500′, 1000′
1792/3	3	22	19/34	.155″	500′, 1000′
1792/4	4	22	19/34	.168″	500′, 1000′
1793	1	20	19/32	.100″	500′, 1000′
1793/2	2	20	19/32	.163″	500′, 1000′
1793/3	3	20	19/32	.172″	500′, 1000′
1793/4	4	20	19/32	.193″	500′, 1000′
1794	1	18	19/30	.110″	500′, 1000′
1794/2	2	18	19/30	.182″	500′, 1000′
1794/3	3	18	19/30	.200″	500′, 1000′
1794/4	4	18	19/30	.217″	500′, 1000′
1795	1	16	19/29	.118″	500′, 1000′
1795/2	2	16	19/29	.203″	500′, 1000′
1795/3	3	16	19/29	.215″	500′, 1000′
1795/4	4	16	19/29	.233″	500′, 1000′

OTHER COLOR CODES, JACKET COLORS OR CABLE CONSTRUCTIONS ARE AVAILABLE TO ORDER. * DuPont

BRIMCROM™



MICROMINIATURE TEFLON* HOOK-UP WIRE

Conductors are silver plated copper dip coated with TFE Teflon* insulation. Rated for 300 Volts, −90°C to +260°C. BRIMCROM is highly flexible, chemically inert, weather resistant, nonflammable. Suitable wherever high temperatures and lack of space are absolutely critical, such as aircraft, missiles, medical, and microminiaturized electronic components, and system designs. STD. P-U: 1000′

Brim No.	AWG	Strand.	Nom. Wall	Nom. O.D.
1729/30	30	7/38	.0035″	.0188″
1729/32	32	7/40	.0030″	.0153″
1729/34	34	7/42	.0027″	.0129″
1729/36	36	7/44	.0020″	.0101″
1729/38	38	7/46	.0019″	.0086″

STD. COLORS: WHITE, RED, BLACK, GREEN. * DuPont
OTHER COLORS AVAILABLE TO ORDER. OTHER CONSTRUCTION AVAILABLE TO ORDER.

TWO AND THREE CONDUCTOR LAMINATED RIBBON CABLES USING BRIMCROM CONDUCTORS ARE AVAILABLE TO ORDER.

STAINLESS STEEL TUBULAR BRAID

Shielded braid mfg. with type 304 soft drawn stainless steel. Used where higher temperatures and/or higher mechanical strength is needed.

Brim No.	Nom. I.D. When Rounded	Total No. of Wires	Construction	AWG of Indiv. Wires	AWG Equiv.	Nom. CMA
1150-1/32″	1/32″	48	16-3	#36	#19	1200
1150-1/16″	1/16″	48	24-2	#36	#19	1200
1150-5/64″	5/64″	72	24-3	#36	#17	1800
1150-7/64″	7/64″	96	24-4	#36	#16	2400
1150-1/8″	1/8″	120	24-5	#36	#15	3000
1150-3/16″	3/16″	192	24-8	#36	#13	4800
1150-7/32″	7/32″	240	24-10	#36	#12	6000
1150-1/4″	1/4″	312	24-13	#36	#11	7800
1150-3/8″	3/8″	336	48-7	#36	#11	8400
1150-7/16″	7/16″	384	48-8	#36	#10	9600
1150-1/2″	1/2″	432	48-9	#36	#10	10800
1150-5/8″	5/8″	528	48-11	#36	# 9	13200
1150-3/4″	3/4″	720	48-15	#36	# 8	18000
1150-1″	1″	336	48-7	#30	# 5	33600
1150-1 1/2″	1 1/2″	480	48-10	#30	# 3	48000

STD. P-U: 100 FT. OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

BRIMFLYX™ ULTRA-FLEXIBLE WIRE

DESCRIPTION: Soft bare copper conductor, insulated with a special flexible PVC formulation to minimize kinking & allow for ultra-low bending torque.

Designed for use where wires encounter continuous flexing, such as in data processing equipment, mercury thermostats, magnetic drums, and rotating servo platforms.

OPER. TEMP.: −40°C to +80°C

Brimflyx No.	AWG	Strand.	Nom. Wall	Max. Volt.	Nom. O.D.
1250/38	38	7/46	.005″	200	.015″
1250/36	36	7/44	.005″	200	.016″
1250/34	34	10/44	.005″	200	.017″
1250/32	32	18/44	.007″	300	.023″
1250/30	30	28/44	.010″	600	.031″
1250/29	29	51/46	.010″	600	.032″
1250/28	28	41/44	.010″	600	.035″
1250/27	27	48/44	.010″	600	.037″
1250/26	26	66/44	.010″	600	.042″
1250/24	24	105/44	.015″	600	.058″
1250/22	22	168/44	.015″	600	.064″
1250/20	20	259/44	.010″	600	.061″

STD. COLORS: WHITE, BLACK, RED, GREEN. STD. P-U: 1000 FT. OTHER COLORS ARE AVAILABLE TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM ELECTRONICS, INC. WIRE — CABLE — TUBING — HARDWARE FAIR LAWN, N.J. 201-796-2886

UL & CSA POWER RECTRACTILE CORDS

RETRACTED LENGTHS: 1 ft., 2 ft., 3 ft., 4 ft. EXTENDED LENGTHS: 6 ft., 11 ft., 16 ft., 22 ft. BRIM retractile cords are long lasting, and useful where cords must change their length or position. Our cords will extend to approximately six times their retracted length, and will return to their original shape and length, when they are released. Retractile cords eliminate tangles, twists, knots. OPER. TEMP.: −20°C to +60°C. COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow. VOLTAGE RATING: SVO SJO and SJO types — 300V; SO, and SO types — 600V.

BRIM CAT NO. Retracted Lengths				No. Cond.	Size	Strand.	UL/ CSA Type	Amps	Nom. Coil O.D.	Nom. Cord O.D.
4 Ft.	3 Ft.	2 Ft.	1 Ft.							
151-4	151-3	151-2	151-1	2	18	41/34	SVO	7	⅞″	.255″
151/3-4	151/3-3	151/3-2	151/3-1	3	18	41/34	SVO	7	1″	.275″
152-4	152-3	152-2	152-1	2	18	41/34	SJO	7	1³⁄₁₆″	.315″
152/3-4	152/3-3	152/3-2	152/3-1	3	18	41/34	SJO	7	1⅜″	.345″
152/4-4	152/4-3	152/4-2	152/4-1	4	18	41/34	SJO	5.6	1⁷⁄₁₆″	.380″
152/5-4	—	152/5-2	—	5	18	41/34	SJO	5.6	1⅝″	.440″
152/7-4	—	152/7-2	—	7	18	41/34	SJO	5	1⅞″	.500″
152/15-4	—	—	—	15	18	41/34	SJO	7	2⅛″	.575″
156/3-4	156/3-3	156/3-2	156/3-1	3	18	41/34	SO	7	1⁹⁄₁₆″	.405″
156/4-4	156/4-3	156/4-2	156/4-1	4	18	41/34	SO	5.6	1⅝″	.435″
156/10-4	156/10-3	156/10-2	156/10-1	10	18	41/34	SO	6	2⅜″	.650″
153-4	153-3	153-2	153-1	2	16	65/34	SJO	10	1⅜″	.355″
153/3-4	153/3-3	153/3-2	153/3-1	3	16	65/34	SJO	10	1⁷⁄₁₆″	.385″
153/4-4	153/4-3	153/4-2	153/4-1	4	16	65/34	SJO	8	1½″	.440″
157/3-4	157/3-3	157/3-2	157/3-1	3	16	65/34	SO	10	1¹³⁄₁₆″	.470″
157/4-4	157/4-3	157/4-2	157/4-1	4	16	65/34	SO	8	1⅞″	.500″
157/5-4	157/5-3	157/5-2	157/5-1	5	16	65/34	SO	5.6	2″	.545″
157/6-4	—	157/6-2	—	6	16	65/34	SO	8	2⅛″	.550″
157/7-4	—	157/7-2	—	7	6/16 1/14	65/34 41/30	SO	8 12	2¼″	.600″
154-4	154-3	154-2	154-1	2	14	41/30	SO	15	2¹⁄₁₆″	.535″
154/3-4	154/3-3	154/3-2	153/3-1	3	14	41/30	SO	15	2⅛″	.560″
154/4-4	154/4-3	154/4-2	154/4-1	4	14	41/30	SO	12	2¼″	.605″
155-4	155-3	155-2	155-1	2	12	65/30	SO	20	2¼″	.605″
155/3-4	155/3-3	155/3-2	155/3-1	3	12	65/30	SO	20	2⅜″	.635″
155/4-4	155/4-3	155/4-2	155/4-1	4	12	65/30	SO	16	2⁷⁄₁₆″	.675″
155/7-4	—	155/7-2	—	7	12	65/30	SO	16	2⅝″	.775″
158/4-4	—	—	—	4	10	104/30	SO	20	2¾″	.745″

STD. PKG.: 6 + To UL SPECS, but not UL listed.
Other constructions available to order. When UL Type show, cord is also CSA Approved.

RETRACTILE TEST LEAD WIRE: 1 FT. & 2 FT.

Stretch these coiled test lead wire/cords repeatedly without fear of kinks. 1 ft. extends to appx. 6 ft., 2 ft. to appx. 12 ft. One cond. 20 AWG flexible stranded soft T.C., rubber insulation, for 1000V, 4 AMPS working. STD. COLORS: Black. Red. OPER. TEMP.: −20°C to +60°C.

Brim No.	Cord Lgth.	AWG	Strand.	Nom. Coil O.D.	Nom. Cond. O.D.
114	12″	20	41/36	¾″	.165″
115	24″	20	41/36	¾″	.165″

STD. PKG.: 6 TPR test lead wire available to order.

RETRACTILE COMMUNICATION CORDS UL APPROVED

RETRACTED LENGTHS: 2, 3, 4 ft.
EXTENDED LENGTHS: 12, 18, and 25 ft. OPER. TEMP.: −20°C to +60°C

DESCRIPTION: Cords are composed of multicond. 23 AWG 21/36 tinned soft copper for a longer flex life. Cords are jacketed in either TPR, or special vinyl-"Byron"-formulation, for a long service life. These cords are suitable for communication equipment, such as ham operations, head sets, radio equipment, telephone car carriers, etc. 120V working. 1 AMP carrying capacity. Nom. cond. resistance .022 ohms per linear foot, .185 ohms per retracted foot.
† Stocked in Bryon only. STD. PKG.: 6

BRIM CAT. NO. Retracted Lengths			No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
4 Ft.	3 Ft.†	2 Ft.†			
132-4	132-3	132-2	2	⅝″	.210″
132/3-4	132/3-3	132/3-2	3	¾″	.220″
132/4-4	132/4-3	132/4-2	4	⅞″	.250″
132/5-4	132/5-3	132/5-2	5	1″	.275″
132/6-4	132/6-3	132/6-2	6	1⅛″	.300″
132/7-4	132/7-3	132/7-2	7	1³⁄₁₆″	.310″
132/8-4†	132/8-3	132/8-2	8	1¼″	.340″
132/10-4†	132/10-3	132/10-2	10	1⅜″	.380″
132/12-4†	132/12-3	132/12-2	12	1½″	.390″
132/15-4	132/15-3	132/15-2	15	1⅝″	.400″

COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow, 8-Brown, 9-Wh/Blk., 10-Red/Blk., 11-Green/Blk., 12-Orange/Blk., 13-Blue/Blk., 14-Yel./Blk., 15-Red/Wh.

UL APPROVED RETRACTILE POWER CORD SETS

RETRACTED: 18″. EXTENDS TO APPX.: 9 ft. 300V

SVO and SJO Neoprene jacketed cord sets with a molded plug on one end, other end, jacket stripped and cond. exposed for easy termination. For mobile office equipment and tools.
OPER. TEMP.: −20°C to +60°C. STD. PKG.: 6

Brim No.	No. Cond.	AWG	Strand.	UL Ty.	Coil O.D.	Cord O.D.
120	2	18	41/34	SVO	⅞″	.255″
120/3	3	18	41/34	SVO	1″	.275″
121	2	18	41/34	SJO	1³⁄₁₆″	.315″

Brim No.	No. Cond.	AWG	Strand.	UL Ty.	Coil O.D.	Cord O.D.
121/3	3	18	41/34	SJO	1⅜″	.345″
122	2	16	65/34	SJO	1⅜″	.355″
122/3	3	16	65/34	SJO	1⁷⁄₁₆″	.385″

COND. COLOR CODE: 1-Black, 2-White, 3-Green

BRIM MINIATURE COMMUNICATION CORDS - UL

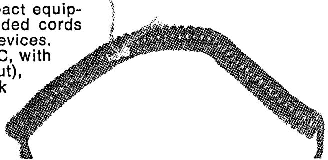
RETRACTED: 1, 2 & 4 ft. EXTENDED: 5, 10 & 20 ft. Miniature in size. Suitable for compact equipment. All cond. 28 AWG 19/40 T.C. ½ AMP rating. Black "Bryon" jacket overall.† OPER. TEMP.: −20°C to +60°C. STD. PKG.: 6

BRIM CAT. NO. Retracted Lengths			No. Cond.	AWG	Cond. Strand	Nom. Coil O.D.	Nom. Cord O.D.
4 ft. +	2 ft.	1 ft. +					
118-4	118-2†	118-1	2	28	19/40	½″	.135″
118/3-4	118/3-2†	118/3-1	3	28	19/40	½″	.145″
119-4	119-2†	119-1	4	28	19/40	½″	.150″
125-4	125-2†	125-1	5	28	19/40	⁹⁄₁₆″	.180″
125/6-4	125/6-2†	125/6-1	6	28	19/40	⁹⁄₁₆″	.190″
126-4	125/7-2†	125/7-1	7	28	19/40	⅝″	.195″
126-4	126-2†	126-1	8	28	19/40	¹¹⁄₁₆″	.200″
—	127-2*	—	9	28	19/40	¹¹⁄₁₆″	.205″
—	127/10-2	—	10	28	19/40	¾″	.205″
—	127/11-2*	—	11	28	19/40	¾″	.210″
—	127/12-2	—	12	28	19/40	¾″	.215″
—	127/13-2*	—	13	28	19/40	¾″	.220″
—	127/15-2*	—	15	28	19/40	⅞″	.240″
—	127/17-2*	—	17	28	19/40	⅞″	.260″

*STD PKG.: 12 † Also available in TPE insulation; cable O.D. slightly larger.
PVC Constructions are UL approved.

BRIM MINIATURE SHIELDED COMMUNICATION CORDS

1 FT. RETRACTED FOR 5 FT., EXTENDED



Miniature in size. Suitable for compact equipment, such as FCC* required shielded cords for computers or other interfaced devices. All conductors are 28 AWG 19/40 TC, with an aluminum mylar foil shield (foil out), a spiral TC shield, & then a Black Byron VW-1 vinyl jacket overall. 18″ & 2″ straight ends, cut blunt. Long lasting.
OPER. TEMP.: −20° to +60°C

BRIM No.	Cord Length	No. of Cond.	AWG	Cond. Strand.	Coil O.D.	Cord O.D.
170/2-1	1 Ft.	2	28	19/40	¹⁹⁄₃₂″	.175″
170/4-1	1 Ft.	4	28	19/40	²¹⁄₃₂″	.200″
170/5-1	1 Ft.	5	28	19/40	²³⁄₃₂″	.205″
170/6-1	1 Ft.	6	28	19/40	¾″	.215″
170/7-1	1 Ft.	7	28	19/40	²⁵⁄₃₂″	.230″
170/8-1	1 Ft.	8	28	19/40	¹³⁄₁₆″	.240″
170/9-1	1 Ft.	9	28	19/40	⅞″	.245″
170/10-1	1 Ft.	10	28	19/40	⅞″	.250″

MODULAR PLUGS ARE AVAILABLE FOR SOME OF THESE CABLES.
STD. PKG.: 25 * FCC DOCKET NO. 20780.

PREPARED RETRACTILE COMMUNICATION CORDS

DESCRIPTION: Cords are the same as our standard Neoprene insulated commercial retractile communication cords, except 12″ retracted — extending to approx. 6 ft., and each end is prepared, stripped and tinned as indicated. 100V. STD. PKG.: 6

Brim No.	Size	Strand.	Coil O.D.	Cord O.D.	Prepared
111	3#23ga.	21/36	¾″	.230″	1 END: Jck. removed 1½″, Cond. stripped and tinned. O.E.: jacket removed 1½″.
112	4#23ga.	21/36	⅞″	.255″	1 END: Jck. removed 1″, Cond. stripped and tinned. O.E.: jacket removed 1½″.
113	5#23ga.	21/36	1″	.275″	BOTH ENDS: jacket removed 4⅛″, Cond. stripped and tinned.

SHIELDED RETRACTILE COMMUNICATION CORDS

RETRACTED LENGTHS: 1, 2 and 4 ft.
EXTENDED LENGTHS: 6, 11 and 22 ft.

DESCRIPTION: Single and multi-cond. spiral shielded communication cables, jacketed in TPR or "Bryon" plastic. Shielded conductors are individually shielded. Shield can be pigtailed for soldering. Safe and reliable as a mike cord.
OPER. TEMP.: −20°C. to +60°C.

BRIM CAT. NO. Retracted Lengths			No. Cond.	Size	Strand.	Nom. Coil O.D.	Nom. Cord O.D.	Volt. Rating	Capacitance MMF/Ft.	
4 Ft.	2 Ft.†	1 Ft.†							Linear	Ret'rd
146-4	—	—	1	23	21/36	⅝″	.160″	100	56	440
143-4	143-2	143-1	3	2-23 23(S)	21/36	⅞″	.250″††	100	56	450
144-4	144-2	144-1	2	23(S)*	21/36	⅞″††	.250″††	100	56	450
145-4	145-2	145-1	4 4	2-23 2-23(S)*	21/36	1⅛″††	.290″††	100	56	450

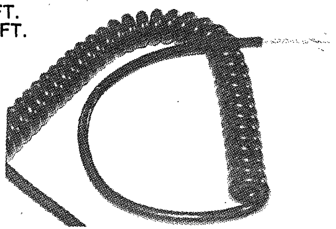
*Individual conductors are shielded and jacketed. † Stocked in Bryon only. STD. PKG.: 6
†† The nom. coil and cord. O.D.'s for TPR cables are slightly smaller.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIM MINIATURE CABLES • SHIELDED RETRACTILE CORDS

BRIM OVERALL SHIELDED RETRACTILE COMMUNICATION CORDS — UL APPROVED



RETRACTED LENGTHS: 1, 2, 4 FT.
EXTENDED LENGTHS: 5, 10, 20 FT.
DESCRIPTION: 1 to 6 color coded conductors of 23 AWG 21/36 TC, spiral wrapped TC shield over the conductors, Black "BRYON" jacket overall. UL approved for 1 AMP & 120V max.
OPER. TEMP.: −20°C to +60°C.
STD. PKG.: 6

BRIM CAT. No. Retracted Lengths 4 ft.	2 ft.	1 ft.	No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
135-4	135-2	135-1	1	5/8″	.175″
135/2-4	135/2-2	135/2-1	2	11/16″	.220″
135/3-4	135/3-2	135/3-1	3	3/4″	.230″
135/4-4	135/4-2	135/4-1	4	7/8″	.260″
135/5-4	135/5-2	135/5-1	5	1″	.285″
135/6-4	135/6-2	135/6-1	6	1 1/8″	.310″
135/7-4	135/7-2	135/7-1	7	1 1/4″	.340″

HI-FI STEREO CABLE

DESCRIPTION: Stranded tinned copper conductors, special soft PVC insulation, twisted, shielded or unshielded. Designed for low hum & noise pickup. Very flexible.
OPER. VOLTAGE: 200V OPER. TEMP.: −40°C to +80°C.

BRIM No.	Cond.	AWG	Strand.	Nom. Wall	Nom. O.D.
UNSHIELDED					
1542	2	32	7/40	.010″	.047″
1543	3	32	7/40	.010″	.053″
1544	4	32	7/40	.010″	.061″
SHIELDED					
1545	1	32	7/40	.010″	.040″
1546	2	32	7/40	.010″	.067″
1547	3	32	7/40	.010″	.073″
1548	4	32	7/40	.010″	.081″
1551*	2	32	7/40	.010″	.080″

STD. P-U: 500′, 1000′ * Individually shielded.
COLOR CODE: 1-White, 2-Red, 3-Black, 4-Green.

MINIATURE UNSHIELDED HI-FI & STEREO CABLE

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, no jacket.
OPERATING VOLTAGE: 600V.
OPERATING TEMPERATURE: −55°C to +105°C.

BRIM No.	AWG	Cond.	Strand.	Wall	Nom. O.D.
1605/2	30	2	7/38	.010″	.058″
1605/3	30	3	7/38	.010″	.064″
1605/4	30	4	7/38	.010″	.072″

STD. P-U: 500′, 1000′. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

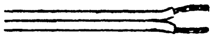
MINIATURE CABLES — SHIELDED, UNSHIELDED, JACKETED, UNJACKETED 105°C—600V.

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, shielded or unshielded, jacketed or unjacketed.

BRIM No.	AWG	No. Cond.	Strand	Nom. Wall	Nom. O.D.
UNSHIELDED, CLEAR PVC JACKET					
1610/2	28	2	7/36	.010″	.090″
1610/3	28	3	7/36	.010″	.096″
1610/4	28	4	7/36	.010″	.105″
SHIELDED, UNJACKETED					
1615/2	28	2	7/36	.010″	.093″
1615/3	28	3	7/36	.010″	.099″
1615/4	28	4	7/36	.010″	.108″
SHIELDED, CLEAR PVC JACKET					
1618/2	28	2	7/36	.010″	.113″
1618/3	28	3	7/36	.010″	.119″
1618/4	28	4	7/36	.010″	.128″

STD. P-U: 500′, 1000′
COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

MINIATURE ZIP CORD

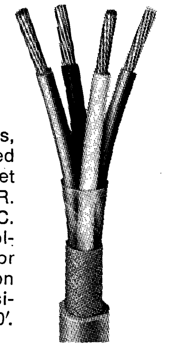


DESCRIPTION: 2 conductors of 28 AWG stranded tinned copper, insulated with 80°C PVC, extruded into a parallel or miniature zip cord. Polarity identification.

BRIM No.	AWG	Strand.	Cond.	Nom. O.D.	STD. P-U
1528	28	7/36	2	.040 x .082″	1000′
1529	29	16/40	2	.040 x .082″	1000′

STD. COLORS: White, Black.

MINIATURE SHIELDED CONTROL AND INSTRUMENTATION CABLES — 600V 105°C MIL-W-16878D TYPE B

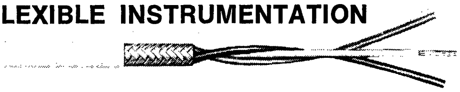


DESCRIPTION: Stranded tinned copper conductors, .010″ wall PVC, cabled, mylar binder, braided tinned copper shield, 90% min. coverage, gray PVC jacket overall. All material pass UL VW-1 test. OPER. VOLT.: 600 Volts. OPER. TEMP.: −55°C to +105°C. PVC is resistant to acid, fungus, oils, moisture, solvents, flame. Used as an interconnecting cable for electronic equipment, control and instrumentation cable telemetry and remote control cable for sensitive recording instruments. STD. P-U: 500′, 1000′.

Brim No.	Conductor No.	AWG	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1202/2	2	B-28	7/36	.010″	.010″	.120″
1202/3	3	B-28	7/36	.010″	.012″	.130″
1202/4	4	B-28	7/36	.010″	.012″	.140″
1202/6	6	B-28	7/36	.010″	.015″	.170″
1202/8	8	B-28	7/36	.010″	.015″	.175″
1202/10	10	B-28	7/36	.010″	.018″	.210″
1202/12	12	B-28	7/36	.010″	.018″	.215″
1202/15	15	B-28	7/36	.010″	.020″	.230″
1202/20	20	B-28	7/36	.010″	.022″	.260″
1202/25	25	B-28	7/36	.010″	.025″	.270″
1202/30	30	B-28	7/36	.010″	.028″	.301″

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Orange, 6-Lt. Blue, 7-Wh/Black, 8-Red/Black, 9-Green/Blk, 10-Orange/Blk, 11-Blue/Blk, 12-Black/Wh, 13-Red/Wh, 14-Green/Wh, 15-Blue/Wh, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Org./Green, 22-Blk/Wh/Red, 23-Wh/Blk/Red, 24-Red/Blk/Wh, 25-Grn/Blk/Wh, 26-Org/Blk/Wh, 27-Blu/Blk/Wh, 28-Blk/Red/Grn, 29-Wh/Red/Grn, 30-Red/Blk/Grn.

BRIM MINIFLYX™ SUBMINIATURE ULTRA-FLEXIBLE INSTRUMENTATION CABLES



DESCRIPTION: Ultra-flexible stranded bare copper conductors, .005″ wall of soft flexible PVC, braided shield, White .010″ soft flexible PVC jacket overall. Suitable as an instrumentation cable where Ultra-flexibility & subminiaturization are essential, in low voltage applications. For example: biomedical instruments, missiles, computer, miniature relays, disc drives, servo systems, recorders.
OPERATING TEMPERATURE: −40°C to +90°C.
OPERATING VOLTAGE: 200 Volts.

BRIM No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.	Std. P-U
1210/2	2	30	40/46	.005″	.010″	.073″	1000′
1210/3	3	30	40/46	.005″	.010″	.076″	1000′
1210/4	4	30	40/46	.005″	.010″	.082″	1000′
1210/5	5	30	40/46	.005″	.010″	.088″	1000′
1211/2	2	32	65/50	.005″	.010″	.069″	1000′
1211/3	3	32	65/50	.005″	.010″	.072″	1000′
1211/4	4	32	65/50	.005″	.010″	.077″	1000′
1211/5	5	32	65/50	.005″	.010″	.083″	1000′
1212/2	2	34	40/50	.005″	.010″	.065″	1000′
1212/3	3	34	40/50	.005″	.010″	.068″	1000′
1212/4	4	34	40/50	.005″	.010″	.072″	1000′
1212/5	5	34	40/50	.005″	.010″	.078″	1000′
1213/2	2	36	25/50	.005″	.010″	.061″	1000′
1213/3	3	36	25/50	.005″	.010″	.063″	1000′
1213/4	4	36	25/50	.005″	.010″	.067″	1000′
1213/5	5	36	25/50	.005″	.010″	.072″	1000′
1214/2	2	38	16/50	.005″	.010″	.057″	1000′
1214/3	3	38	16/50	.005″	.010″	.059″	1000′
1214/4	4	38	16/50	.005″	.010″	.063″	1000′
1214/5	5	38	16/50	.005″	.010″	.067″	1000′

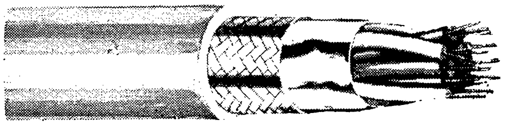
COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRAIDED TC SHIELDED CONTROL — INSTRUMENTATION — MICROPHONE CABLES

UL SHIELDED COMPUTER AND CONTROL CABLES

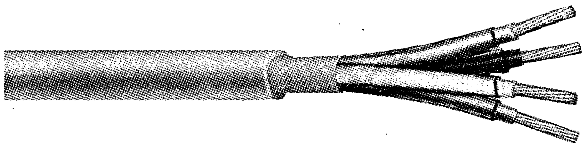


DESCRIPTION: Each conductor UL Type 1061, 24 AWG 7/32 T.C., UL VW-1. Conductors are paired, cabled, mylar wrap, braided tinned copper shield, chrome PVC jacket overall. Color coded. Shielding coverage a minimum of 85%. Cable meets UL Styles 2343 & 2344. Suitable as a control cable, computer cable, shielded audio cable. OPERATING VOLTAGE: 300V UL. OPERATING TEMPERATURE: −40°C to +80°C. STD. P-U: 500′, 1000′.

Brim No.	No. of Pairs	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
1886/5	5	24	7/32	.009″	.062″	.355″
1886/7	7	24	7/32	.009″	.062″	.375″
1886/12	12	24	7/32	.009″	.062″	.460″
1886/15	15	24	7/32	.009″	.062″	.510″
1886/19	19	24	7/32	.009″	.062″	.530″
1886/27	27	24	7/32	.009″	.062″	.620″
1886/37	37	24	7/32	.009″	.062″	.690″
1886/48	48	24	7/32	.009″	.062″	.775″
1886/60	60	24	7/32	.009″	.062″	.845″

See color code for paired cables.
OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

MIL-W-16878D TYPE BN SHIELDED CABLES



DESCRIPTION: One to four conductors, stranded tinned copper, Tyne BN insulation — .010″ wall PVC, clear nylon jacket — conductors are cabled, braided tinned copper shield, white PVC jacket overall. Cable components meet UL VW-1 vertical flame test requirements, and is resistant to oils, acids, solvents, alkalis, moisture, fungus. OPERATING VOLTAGE: 600V. OPERATING TEMPERATURE: −55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG-Strand.	PVC Wall	Nylon Jack.	Nom. Jack.	Nom. O.D.
1450	1	26-7/34	.010″	.003″	.010″	.087″
1450/2	2	26-7/34	.010″	.003″	.014″	.138″
1450/3	3	26-7/34	.010″	.003″	.014″	.142″
1450/4	4	26-7/34	.010″	.003″	.016″	.162″
1451	1	24-19/36	.010″	.003″	.010″	.092″
1451/2	2	24-19/36	.010″	.003″	.016″	.155″
1451/3	3	24-19/36	.010″	.003″	.016″	.162″
1451/4	4	24-19/36	.010″	.003″	.017″	.172″
1452	1	22-19/34	.010″	.003″	.010″	.100″
1452/2	2	22-19/34	.010″	.003″	.016″	.170″
1452/3	3	22-19/34	.010″	.003″	.016″	.180″
1452/4	4	22-19/34	.010″	.003″	.019″	.194″
1453	1	20-19/32	.010″	.003″	.010″	.108″
1453/2	2	20-19/32	.010″	.003″	.019″	.190″
1453/3	3	20-19/32	.010″	.003″	.019″	.200″
1453/4	4	20-19/32	.010″	.003″	.021″	.216″
1454	1	18-19/30	.010″	.003″	.012″	.122″
1454/2	2	18-19/30	.010″	.003″	.021″	.210″
1454/3	3	18-19/30	.010″	.003″	.021″	.225″
1454/4	4	18-19/30	.010″	.003″	.023″	.250″
1455	1	16-19/29	.010″	.003″	.016″	.137″
1455/2	2	16-19/29	.010″	.003″	.023″	.236″
1455/3	3	16-19/29	.010″	.003″	.023″	.242″
1455/4	4	16-19/29	.010″	.003″	.025″	.267″
1456	1	14-19/27	.010″	.004″	.020″	.150″
1456/2	2	14-19/27	.010″	.004″	.027″	.266″

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green.

SHIELDED MICROPHONE CABLE

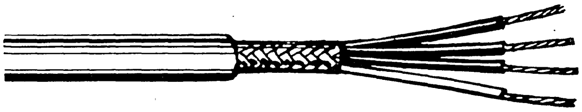
DESCRIPTION: 2 Cond. stranded tinned copper .016″ wall polyethylene, fillers, mylar wrap, tinned copper shield, .030″ Hi-gloss Black PVC jacket overall. OPER. VOLT.: 1000V.

COLOR CODE: 1-Black, 2-Red.

OPERATING TEMPERATURE: −20°C to +80°C. Nom. Cap./ft. between one cond. remaining cond. connected to shield: 1884/24—38MMF, 1884/22—31MMF.

BRIM No.	No. Cond.	AWG-Strand	Shield	Nom. Wall	Nom. O.D.
1884/24	2	24-10/34	Spiral	.016″	.190″
1884/22	2	22-16/34	Braid	.025″	.240″

MICROPHONE — REMOTE-CONTROL CABLE



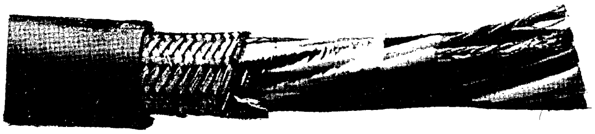
DESCRIPTION: Each conductor stranded TC .014″ wall polyethylene, cabled with fillers, mylar wrap, braided TC shield, chrome PVC jacket overall. OPER. VOLT.: 1000V.

OPERATING TEMPERATURE: −20°C to +80°C.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jack.	Nom. O.D.
1883/2	2	20	26/34	.014″	.030″	.245″
1883/3	3	20	26/34	.014″	.035″	.250″
1883/4	4	20	26/34	.014″	.035″	.260″
1883/5	5	20	26/34	.014″	.035″	.275″
1883/6	6	20	26/34	.014″	.035″	.295″
1883/8	8	20	26/34	.014″	.035″	.325″
1883/10	10	20	26/34	.014″	.035″	.370″
1883/12	12	20	26/34	.014″	.035″	.380″
1883/15	15	20	26/34	.014″	.035″	.405″
1883/20	20	20	26/34	.014″	.035″	.445″

STD. P-U: 500′, 1000′

HEAVY DUTY SHIELDED CONTROL CABLES MIL-W-16878D TYPE C-18 1000V



DESCRIPTION: MIL-W-16878D Ty C-18, 19/30 TC conductors, twisted, mylar wrap braided tinned copper shield — 90% minimum coverage — chrome PVC jacket overall. Color coded. Cable resistant to acids, oils, moisture, solvents, alkalis, fungus. Cable meets UL VW-1 vertical flame test requirements. OPERATING VOLTAGE: 1000V. OPERATING TEMPERATURE: −55°C to +105°C. Suitable as an interconnecting cable for electronic equipment, instrumentation, control, telemetry data, and remote control of sensitive recording instruments. STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
3019/5	5	C-18	19/30	.016″	.025″	.302″
3019/10	10	C-18	19/30	.016″	.035″	.407″
3019/15	15	C-18	19/30	.016″	.040″	.472″
3019/20	20	C-18	19/30	.016″	.045″	.531″
3019/30	30	C-18	19/30	.016″	.055″	.651″

OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

COLOR CODE FOR 3019 SERIES: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-White/Black, 8-Red/Black, 9-Green/Black, 10-Orange/Black, 11-Blue/Black, 12-Black/White, 13-Red/White, 14-Green/White, 15-Blue/White, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Orange/Green, 22-Black/White/Red, 23-White/Black/Red, 24-Red/Black/White, 25-Green/Black/White, 26-Orange/Black/White, 27-Blue/Black/White, 28-Black/Red/Green, 29-White/Red/Green, 30-Red/Black/Green.

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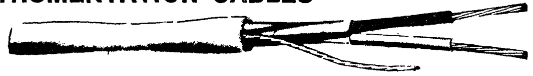
BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

ALUMINUM MYLAR FOIL SHIELDED CABLES

ALUMINUM MYLAR FOIL SHIELDED CABLE — INSTRUMENTATION CABLES

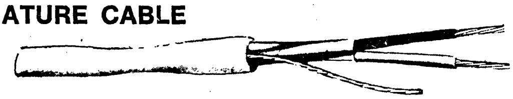


DESCRIPTION: Stranded TC conductors, polyethylene insulation, conductors twisted, an aluminum mylar foil shield, foil out, TC drain wire, gray PVC jacket overall. Color coded. Suitable as a light weight shielded instrumentation cable. Shield provides 100% coverage, and drain wire provides quick and easy grounding. OPERATING VOLTAGE: 400V.
OPERATING TEMPERATURE: −20°C to +60°C.
COLOR CODE 1-Black, 2-Red, 3-White, 4-Green.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1639	2	24	7/32	.015″	.020″	.155″
1639/3	3	24	7/32	.015″	.020″	.172″
1639/4	4	24	7/32	.015″	.020″	.195″
1640	2	22	7/30	.015″	.020″	.165″
1640/3	3	22	7/30	.015″	.020″	.182″
1640/4	4	22	7/30	.015″	.020″	.205″
1641	2	20	10/30	.015″	.020″	.184″
1641/3	3	20	10/30	.015″	.020″	.202″
1641/4	4	20	10/30	.015″	.020″	.221″
1642	2	18	16/30	.017″	.020″	.215″
1642/3	3	18	16/30	.017″	.020″	.233″
1642/4	4	18	16/30	.017″	.020″	.258″
1643	2	16	26/30	.017″	.020″	.250″
1643/3	3	16	26/30	.017″	.020″	.273″
1644	2	14	41/30	.017″	.025″	.295″
1644/3	3	14	41/30	.017″	.025″	.315″

STD. P-U: 500′, 1000′

ALUMINUM MYLAR FOIL SHIELDED CABLES — MINIATURE CABLE



DESCRIPTION: 2 conductors 22 AWG SOLID or STRANDED TC, .008″ wall of polypropylene, aluminum mylar foil shield, foil out, TC drain wire, chrome PVC jacket overall. Suitable for miniature instrumentation.
OPERATING VOLTAGE: 200V.
OPERATING TEMPERATURE: −40°C to +105°C.
COLOR CODE: 1-Red, 2-Black.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1636	2	22	1	.008″	.018″	.117″
1637	2	22	7/30	.008″	.020″	.134″

STD. P-U: 500′, 1000′

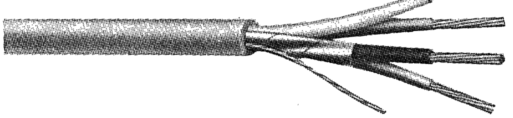
MULTIPLE PAIRED COMMUNICATION CABLES

DESCRIPTION: 22 AWG SOLID TC conductors, .008″ wall polypropylene, or .010″ wall PVC, color coded, conductors are twisted into pairs, the pairs are cabled, an aluminum mylar foil shield over all pairs, foil out, a stranded TC drain wire, chrome PVC jacket overall. Suitable for communication telephone and sound systems, control and instrumentation cable. OPERATING VOLTAGE: 200V. OPERATING TEMPERATURE: −40°C to +105°C.

Brim No.	No. Pairs	AWG	Insula.	Nom. Wall	Nom. Jck.	Nom. O.D.
1633/38	38	22-1	Polyprop.	.008″	.045″	.575″
1633/51	51	22-1	PVC	.010″	.050″	.696″

STD. P-U: 500′, 1000′ **SEE FIGURE 1**

SOUND CABLES



DESCRIPTION: Four conductors, stranded TC, .009″ wall polypropylene, two conductors inside an aluminum mylar foil shield, foil out, a stranded TC drain wire and two conductors outside of shield, chrome PVC jacket overall. Polypropylene insulation is used because of its mechanical toughness and excellent high frequency properties. OPERATING VOLTAGE: 300V. OPERATING TEMPERATURE: −40°C to +105°C. COLOR CODE: Shielded: 1-Black, 2-Red. Unshielded: 3-Green, 4-White.

Brim No.	No. Cond.	AWG/ Strand.	No. Shld.	Nom. Wall	Nom. Jck.	Nom. O.D.
1620/4	4	20-7/28	2	.009″	.020″	.185″
1622/4	4	22-7/30	2	.009″	.020″	.167″
1624/4	4	24-7/32	2	.009″	.020″	.150″

STD. P-U: 500′, 1000′.

ALUMINUM MYLAR FOIL SHIELDED CABLES

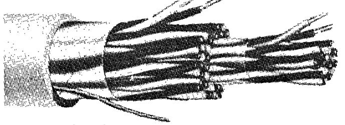


FIGURE 1

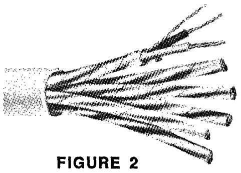


FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 and 18 AWG — POLYETHYLENE

DESCRIPTION: 22 AWG 7/30 TC or 18 AWG 16/30 TC, wall of polyethylene insulated conductors, conductors are twisted into pairs, an aluminum mylar foil shield with a stranded TC drain wire over each pair, the shielded pairs are cabled, chrome PVC jacket overall. Color coded. Nom. Cap. between conductors: 25PF/Ft. Nom. Cap. between one conductor and remaining conductor connected to shield: 45PF/Ft. Suitable for audio, R.F. data and pulse applications requiring superior circuit isolation.
OPERATING VOLTAGE: 300V.
OPERATING TEMPERATURE: −20°C to +60°C.

22 AWG 7/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1630/3	3	6	.010″	.025″	.255″
1630/6	6	12	.010″	.030″	.345″
1630/9	9	18	.010″	.035″	.410″
1630/11	11	22	.010″	.040″	.460″
1630/15	15	30	.010″	.045″	.535″
1630/19	19	38	.010″	.050″	.575″
1630/27	27	54	.010″	.055″	.690″

18 AWG 16/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1632/3	3	6	.016″	.035″	.375″
1632/6	6	12	.016″	.045″	.555″
1632/9	9	19	.016″	.055″	.620″
1632/11	11	22	.016″	.060″	.745″
1632/15	15	30	.016″	.065″	.820″
1632/19	19	38	.016″	.075″	.870″
1632/27	27	54	.016″	.085″	.995″

STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.
SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG STRANDED — POLYPROPYLENE

DESCRIPTION: 22 AWG 7/30 TC conductors, .010″ wall polypropylene, conductors are twisted into pairs, pairs are cabled, an aluminum mylar foil shield with a stranded TC drain wire over each twisted pair, chrome PVC jacket overall. Jacket passes UL VW-1 vertical flame test. For audio, pulse, data, and RF applications requiring superior circuit isolation. Polypropylene is used for its mechanical toughness and high frequency properties. OPER. VOLT.: 300V. OPER. TEMP.:− 55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Pairs	No. Cond.	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1638/3	3	6	7/30	.010″	.025″	.250″
1638/6	6	12	7/30	.010″	.030″	.340″
1638/9	9	18	7/30	.010″	.035″	.405″
1638/11	11	22	7/30	.010″	.040″	.455″
1638/15	15	30	7/30	.010″	.045″	.530″
1638/19	19	38	7/30	.010″	.050″	.570″
1638/27	27	54	7/30	.010″	.055″	.685″

SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG SOLID

DESCRIPTION: 22 AWG SOLID T.C. conductors, .013″ wall PVC, conductors are twisted into pairs, an aluminum mylar foil shield with a TC drain wire over each pair, the pairs are cabled, chrome PVC jacket overall. Color coded. Suitable for audio, pulse, R.F., data applications requiring superior circuit isolation. OPER. VOLT.: 300V. OPERATING TEMPERATURE: −20°C to +60°C. **SEE FIGURE 2**

Brim No.	No. Pairs	No. Cond.	AWG/ Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1635/3	3	6	22-1	.013″	.035″	.275″
1635/6	6	12	22-1	.013″	.037″	.395″
1635/9	9	18	22-1	.013″	.040″	.440″
1635/11	11	22	22-1	.013″	.040″	.485″
1635/15	15	30	22-1	.013″	.045″	.540″
1635/19	19	38	22-1	.013″	.055″	.660″
1635/27	27	54	22-1	.013″	.070″	.800″

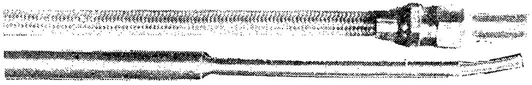
STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

HEAT SHRINKABLE TUBINGS: BRIFLON™ TEFLON • TEFZEL – SILICONE RUBBER TUBING

SH200, SH250, SH254 & SHTF tubings have excellent resistance to weathering, chemicals (oils, fuels, solvents, acids, alkalis, fluids), & fungus, are non-corrosive, low water absorption (.01%), will not burn nor support combustion, have hi dielectric strength (850V/MIL dry), low dielectric constant, & a very low coefficient of friction. Hi mechanical strength yet flexible. (Low temp. flexibility −67°C). Their excellent electrical characteristics remain stable throughout their electrical range. Longitudinal change with full shrinkage: FEP −15%: TFE −20%. Color: Natural (FEP-transparent; TFE-translucent).



SH200 (FEP) MIL-I-23053/11

SH200: an extruded modified FEP (Fluorinated-Ethylene-Propylene) Teflon* tubing, with a continuous Oper. Temp. of +205°C (400°F). SH200 completely shrinks at 350°F (partial shrinkage possible at 200°F). Shrinkage ratio — 1.3:1. It melts at 525-563°F so it can be used to encapsulate. Now many sensitive components, parts, devices, etc. can be protected with Teflon*. Fills void between the hi temp. of TFE, and low temp. of PVC and polyolefin tubings.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.**		±Wall Toler.
		I.D	Wall	
SH200-24	.031″	.027″	.008″	.002″
SH200-22	.036″	.032″	.008″	.002″
SH200-20	.045″	.039″	.008″	.002″
SH200-18	.060″	.049″	.008″	.002″
SH200-16	.075″	.061″	.009″	.002″
SH200-14	.092″	.072″	.009″	.002″
SH200-12	.115″	.089″	.009″	.002″
SH200-10	.141″	.114″	.010″	.003″
SH200-9	.158″	.124″	.010″	.003″
SH200-8	.180″	.143″	.010″	.003″
SH200-7	.197″	.158″	.011″	.004″
SH200-6	.225″	.180″	.011″	.004″
SH200-5	.248″	.198″	.011″	.004″
SH200-4	.290″	.226″	.011″	.004″
SH200-3	.310″	.249″	.011″	.004″
SH200-2	.365″	.280″	.012″	.004″
SH200-1	.400″	.311″	.012″	.004″
SH200-0	.440″	.349″	.012″	.004″
SH200-3/8″	.500″	.383″	.015″	.004″
SH200-7/16″	.580″	.448″	.020″	.004″
SH200-1/2″	.666″	.510″	.020″	.004″
SH200-5/8″	.830″	.637″	.025″	.004″
SH200-3/4″	1.000″	.764″	.030″	.004″
SH200-7/8″	1.170″	.891″	.035″	.004″
SH200-1″	1.330″	1.020″	.035″	.004″
SH200-1 1/4″	1.660″	1.270″	.035″	.004″
SH200-1 1/2″	2.000″	1.520″	.035″	.004″

STD. P-U: 100′, 4 foot minimum lengths. * DuPont.

** All dimensions are based on full recovery.

OTHER SIZES IN TFE AND FEP, AND COLORS ARE AVAILABLE TO ORDER. ETCHING FOR BONDING IS AVAILABLE TO ORDER.

SH254 4:1 SHRINKABLE TFE

SH254 tubing can recover to approximately 1/4 of its expanded size when heated to its "gel" point (621°F-625°F). Because of its exceptional shrinkage capability, its recommended that the outside diameter of the object to be shrunk down upon should not be more than 50% of the expanded I.D. of the size of the tubing used. Conforms to AMS 3584 and MIL-I-23053/12 — except for its 4:1 shrink ratio. SH254 is non-flamable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. * DuPont

Briflon No.	Max. Exp. I.D.	Max. Rec. Dimin.**		±Wall Toler.
		I.D.	Wall	
SH254-5/64″	.078″	.025″	.009″	.002″
SH254-1/8″	.125″	.037″	.010″	.002″
SH254-3/16″	.187″	.050″	.012″	.003″
SH254-1/4″	.250″	.063″	.012″	.003″
SH254-5/16″	.312″	.079″	.012″	.003″
SH254-3/8″	.375″	.096″	.012″	.003″
SH254-7/16″	.438″	.112″	.012″	.003″
SH254-1/2″	.500″	.144″	.015″	.004″
SH254-9/16″	.562″	.155″	.015″	.004″
SH254-5/8″	.625″	.178″	.015″	.004″
SH254-11/16″	.687″	.198″	.015″	.004″
SH254-3/4″	.750″	.224″	.015″	.004″
SH254-7/8″	.875″	.244″	.015″	.004″
SH254-1″	1.000″	.278″	.015″	.004″
SH254-1 1/4″	1.250″	.347″	.015″	.004″

STD. P-U: 100′, in 4 foot lengths. Std. Color: Natural (Clear)

SH250 (TFE) MIL-I-23053/12

SH250: an extruded modified TFE (PolyTetraFluoroEthylene) Teflon* tubing, with a continuous Operating Temperature of +250°C (550°F). SH250 will shrink when heated to 621°F. Shrinkage ratio — 2:1. Used wherever hi-temperature protection required. Applications: Protective covers in corrosive environments, protection for electronic components, cable jacketing, covers on immersion heaters, heat exchangers, light duty bearing surfaces, roll covers.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.**		±Wall Toler.
		I.D.	Wall	
SH250-30	.034″	.015″	.009″	.002″
SH250-28	.038″	.018″	.009″	.002″
SH250-26	.046″	.022″	.009″	.002″
SH250-24	.050″	.027″	.010″	.002″
SH250-22	.055″	.032″	.010″	.002″
SH250-20	.060″	.039″	.010″	.003″
SH250-19	.065″	.043″	.012″	.003″
SH250-18	.076″	.049″	.012″	.003″
SH250-17	.085″	.054″	.012″	.003″
SH250-16	.093″	.061″	.012″	.003″
SH250-15	.110″	.067″	.012″	.003″
SH250-14	.120″	.072″	.012″	.003″
SH250-13	.140″	.080″	.012″	.003″
SH250-12	.150″	.089″	.012″	.003″
SH250-11	.170″	.101″	.012″	.003″
SH250-10	.191″	.112″	.012″	.003″
SH250-9	.205″	.124″	.015″	.004″
SH250-8	.240″	.141″	.015″	.004″
SH250-7	.270″	.158″	.015″	.004″
SH250-6	.302″	.178″	.015″	.004″
SH250-5	.320″	.198″	.015″	.004″
SH250-4	.370″	.224″	.015″	.004″
SH250-3	.390″	.249″	.015″	.004″
SH250-2	.430″	.278″	.015″	.004″
SH250-1	.450″	.311″	.015″	.004″
SH250-0	.470″	.347″	.015″	.004″
SH250-3/8″	.560″	.399″	.025″	.006″
SH250-1/2″	.750″	.524″	.025″	.006″
SH250-5/8″	.930″	.655″	.025″	.008″
SH250-3/4″	1.125″	.786″	.030″	.008″
SH250-1″	1.500″	1.036″	.035″	.008″

STD. P-U: 100′, Sizes 26-14: 3 foot minimum lengths. 13-1″ 1 foot minimum length.

SHTF SHRINKABLE TFE/FEP

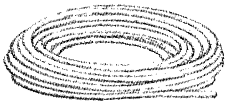
SHTF is made with a combination of TFE and FEP Teflons*. The inner wall is made of FEP and the outer wall of TFE. When the tubing is heated, the TFE begins to shrink down tightly over the FEP. The FEP inner wall melts and flows-squeezes-into and around the item covered, creating a solid or near solid encapsulation. The fit is so tight that it is safe against most environmental hazards, involving pull or vibrations. It can be used as a strain relief, or moisture-proof covering for wires, connectors, terminals, splices, electronic devices, etc. SHTF is non-flamable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. Color: Natural (Transparent). OPERATING TEMPERATURE: −85°F to +450°F.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.**		Std. P-U+
		I.D.	Wall	
SHTF-1	.065″	.000″**	.015″	100′
SHTF-2	.115″	.045″	.015″	100′
SHTF-3	.130″	.060″	.015″	100′
SHTF-4	.180″	.065″	.015″	100′
SHTF-5	.190″	.070″	.015″	100′
SHTF-6	.240″	.150″	.020″	100′
SHTF-7	.350″	.210″	.025″	100′
SHTF-8	.480″	.315″	.032″	100′
SHTF-9	.700″	.440″	.055″	100′
SHTF-10	1.000″	.700″	.045″	100′

** Fully closes off. +In random lengths of 1 foot to 3 feet. * DuPont

OTHER SIZES AND COLORS AVAILABLE TO ORDER.

BRIMFLEX BSR SILICONE RUBBER TUBING — MIL-R-5847 200°C



BRIMFLEX BSR Silicone Rubber tubing is an extremely elastic and stable high temperature and low temperature tubing. Besides being extremely flexible, it has excellent mechanical strength (tear resistance, tensile strength, elongation, and weather resistance), and outstanding dielectric strength, and corona resistance. BSR meets MIL-R-5847 and Fed. Spec. ZZ-R-765, Class 2b, STD. COLOR: WHITE. OPERATING VOLTAGE: 28 AWG-5/8″ — 300V, 3/4″-1″ — 600V.

Brimflex No.	Size	Nom. I.D.	Nom. Wall	Std. P.U.
BSR-28	28	.015″	.016″	1000′
BSR-26	26	.018″	.016″	1000′
BSR-24	24	.022″	.016″	1000′
BSR-22	22	.027″	.016″	1000′
BSR-20	20	.034″	.016″	1000′
BSR-19	19	.038″	.016″	1000′
BSR-18	18	.042″	.016″	1000′
BSR-17	17	.047″	.016″	1000′
BSR-16	16	.053″	.016″	1000′
BSR-15	15	.059″	.016″	500′
BSR-14	14	.066″	.016″	500′
BSR-13	13	.076″	.016″	500′
BSR-12	12	.085″	.016″	500′
BSR-11	11	.095″	.016″	500′
BSR-10	10	.106″	.016″	500′
BSR-9	9	.118″	.020″	500′
BSR-8	8	.133″	.020″	500′
BSR-7	7	.148″	.020″	250′
BSR-6	6	.166″	.020″	250′
BSR-5	5	.186″	.020″	250′
BSR-4	4	.208″	.020″	250′
BSR-3	3	.233″	.020″	250′
BSR-2	2	.262″	.020″	250′
BSR-1	1	.294″	.020″	250′
BSR-0	0	.329″	.025″	250′
BSR-3/8″	3/8″	.382″	.025″	250′
BSR-7/16″	7/16″	.446″	.025″	250′
BSR-1/2″	1/2″	.508″	.025″	100′
BSR-5/8″	5/8″	.636″	.030″	100′
BSR-3/4″	3/4″	.760″	.060″	100′
BSR-7/8″	7/8″	.895″	.070″	100′
BSR-1″	1″	1.010″	.080″	100′

SHRINKABLE E-TFE TEFZEL* TUBING — MIL-I-23053/14

Designed for ruggedness. Excellent chemical resistance and high dielectric qualities which exist over a wide temperature range. Superior to Teflon* in its mechanical strength. Shrink Ratio-1.5:1. Shrinks quickly on application of only 300°F (150°C). Because of its quick shrinking ability at a relatively low temperature, many heat sensitive components and materials (solder joints, plastics, wood, metal) can now be easily protected. It is also heat sealable, chemically inert, self-extinguishing (non-flamable in air). Dielectric Strength: 400V/MIL. Uses: cable jacketing, wire markers, terminal covers, temperature probes, immersion tubing, heat exchanger coils, sight glasses, roll covers, chafe guards, component insulation. STD. COLOR: Translucent.

Brimflex No.	Min. Expd. I.D.	Recovered Dimen.		±Wall† Toler.
		I.D. Max.	Wall	
SH150-1/8″	.125″	.083″	.010″	.002″
SH150-3/16″	.188″	.125″	.011″	.002″
SH150-1/4″	.250″	.166″	.013″	.003″
SH150-3/8″	.375″	.250″	.013″	.003″
SH150-1/2″	.500″	.345″	.013″	.003″
SH150-3/4″	.750″	.500″	.018″	.004″
SH150-1″	1.000″	.665″	.022″	.004″

Brimflex No.	AWG**	Rec. M.M.	STD. P-U
SH150-1/8″	12	2.11	100′, 1000′
SH150-3/16″	8	3.18	100′, 1000′
SH150-1/4″	6	4.62	100′, 1000′
SH150-3/8″	2	6.35	100′, 1000′
SH150-1/2″	00	8.76	100′, 1000′
SH150-3/4″	0000	12.70	100′, 500′
SH150-1″	350MCM	16.89	100′, 500′

STD. LENGTHS: 4 foot lengths with random lengths of 1 foot minimum. † If full recovery allowed.

E-TFE TEFZEL* SPAGHETTI TUBING IS AVAILABLE TO ORDER. ** O.D. of closest equivalent wire. * DuPont SHRINKABLE PVC TUBING per MIL-I-23053/2 IS AVAILABLE.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIMFLEX™ SHRINKABLE TUBINGS — SPIRAL WRAP TUBINGS
BRIFLEX™ SHRINKABLE PVC TUBINGS: MIL-I-23053/2B & HEAVY WALL PVC TUBING
SHRINKABLE IRRADIATED POLYOLEFIN: MIL-I-23053/5 — SPIRAL WRAP TUBING

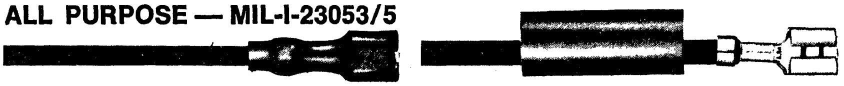
BRIMFLEX™ POLYVINYLCHLORIDE SHRINKABLE TUBING — MIL-I-23053/2B & UL VW-1

SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C
BRIMFLEX™ SH105 is a flexible all purpose shrinkable PVC tubing that shrinks 50% of its expanded size when exposed to temperatures below 200°F (within one minute). SH105 meets MIL-I-23053/2B, Class 2, and conforms to MIL-I-631D, Grade C. Longitudinal shrinkage: approximately 20%. SH105 is self-extinguishing, resistant to fungus, most oils, and chemicals, sunlight, moisture, and is non-corrosive. SH105 is suitable for insulating wires, cables, and electronic components, that vary in shapes, and dimensions. Produces a smooth snug flexible fit, in most applications — even around sharp bends. Dielectric Strength: 700V/MIL min., ASTM-D922. Tensile Strength: 2000PSI min. Suggested Storage Temperature: under 70°F for up to 10 months. UL Approved SH105 is available to order.
STD. COLORS: Black, Clear, Red, White. Other colors available to order.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH105-3/64"	.046"	.023"	.020"	.003"	24-22	0.59	1000′
SH105-1/16"	.063"	.031"	.020"	.003"	22-20	0.80	100′, 500′, 1000′
SH105-3/32"	.093"	.046"	.020"	.003"	18-16	1.19	100′, 500′, 1000′
SH105-1/8"	.125"	.063"	.020"	.003"	14	1.59	100′, 500′, 1000′
SH105-3/16"	.187"	.093"	.020"	.003"	12-10	2.39	100′, 500′, 1000′
SH105-1/4"	.250"	.125"	.025"	.005"	8	3.18	100′, 500′, 1000′
SH105-5/16"	.312"	.156"	.025"	.005"	7	3.97	100′, 250′, 500′
SH105-3/8"	.375"	.187"	.025"	.005"	5	4.77	100′, 250′, 500′
SH105-1/2"	.500"	.250"	.025"	.005"	2	6.35	100′, 250′, 500′
SH105-3/4"	.750"	.375"	.030"	.005"	00	9.52	100′, 250′, 500′
SH105-1"	1.000"	.500"	.035"	.005"	0000	12.70	100′, 250′, 500′
SH105-1½"	1.500"	.750"	.040"	.005"	450MCM	19.05	25′, 50′, 100′
SH105-2"	2.000"	1.000"	.045"	.006"	750MCM	25.40	25′, 50′, 100′
SH105-3"	3.000"	1.500"	.068"	.007"	1750MCM	38.10	— — 100′
SH105-4"	4.000"	2.000"	.073"	.008"	2750MCM	50.80	— — 100′

* If full recovery allowed. ** O.D. of closest equivalent wire.

SHRINKABLE IRRADIATED POLYOLEFIN TUBING — ALL PURPOSE — MIL-I-23053/5

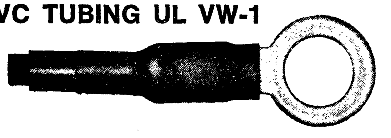


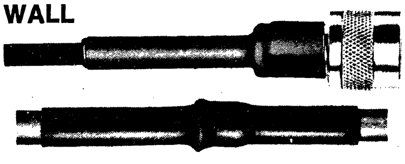
Flexible, yet greater electrical, chemical, and abrasion resistance, and greater mechanical strength than that of shrinkable PVC tubing. It not only insulates, it can also encapsulate, giving a watertight fit. Won't crack or peel. Its non-corrosive, has excellent resistance to soldering irons, oils, solvents, acids, alkalis, fuels, hydraulic fluids, fungus. Shrink Ratio-2:1 (50%). Shrinks when exposed to 250°F. Longitudinal shrinkage: 5%. Dielectric Strength: 1300V/MIL. Colored tubing is self-extinguishing; clear tubing is slow burning. Uses: Strain relief, jacketing material, component insulation. OPERATING TEMPERATURE: −55°C to +135°C. Meets MIL-I-23053/5, Class 1, 2. MIL-I-7444B, AMS 3636B, AMS 3637A, ASTM D876, ASTM D150, ASTM D257, ASTM D2671, ASTM D792.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH135-3/64"	.046"	.023"	.016"	.003"	24-22	0.59	100′, 500′, 1000′
SH135-1/16"	.063"	.031"	.016"	.003"	22-20	0.80	100′, 500′, 1000′
SH135-3/32"	.093"	.046"	.020"	.003"	18-16	1.19	100′, 500′, 1000′
SH135-1/8"	.125"	.063"	.020"	.003"	14	1.59	100′, 500′, 1000′
SH135-3/16"	.187"	.093"	.020"	.003"	12-10	2.39	100′, 500′, 1000′
SH135-1/4"	.250"	.125"	.025"	.003"	8	3.18	100′, 500′, 1000′
SH135-3/8"	.375"	.187"	.025"	.003"	5	4.77	50′, 100′, 200′
SH135-1/2"	.500"	.250"	.025"	.003"	2	6.35	50′, 100′, 200′
SH135-3/4"	.750"	.375"	.030"	.005"	00	9.52	25′, 50′, 100′
SH135-1"	1.000"	.500"	.035"	.006"	0000	12.70	25′, 50′, 100′
SH135-1½"	1.500"	.750"	.040"	.006"	450MCM	19.05	25′, 50′, 100′
SH135-2"	2.000"	1.000"	.045"	.007"	750MCM	25.40	25′, 50′, 100′
SH135-3"	3.000"	1.500"	.050"	.008"	1750MCM	38.10	10′, 25′, 50′
SH135-4"	4.000"	2.000"	.055"	.009"	2750MCM	50.80	10′, 25′, 50′

STD. COLORS: Black, Clear, Red, White. Other colors are available to order.
* If full recovery allowed. ** O.D. of closest equivalent wire.

BRIMFLEX™ SHRINKABLE HEAVY WALL PVC TUBING UL VW-1





Brmflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH110-1/8"	.125"	.063"	.032"	0.05"	14	1.59	1000′
SH110-3/16"	.187"	.093"	.032"	0.05"	12-10	2.39	1000′
SH110-1/4"	.250"	.125"	.032"	0.05"	8	3.18	1000′
SH110-5/16"	.312"	.156"	.032"	0.05"	6	3.97	500′
SH110-3/8"	.375"	.187"	.032"	0.05"	4	4.77	500′
SH110-1/2"	.500"	.250"	.032"	0.05"	2	6.35	250′

* If full recovery allowed. ** O.D. of closest equivalent wire.

SPIRAL WRAP TUBINGS FOR HARNESSING

Easily twists on and off. Can be repeatedly flexed without cracking or breaking. Expandable. Holds wire, and cable bundles securely, and allows leadoffs or additions at any point. Bends around sharp corners, and protection against sharp edges. Available in 4 types of insulations: Polyethylene, Rulan (a flame retardent type of polyethylene), Nylon, Teflon. All are resistant to organic solvents, alkalis, and acids (nylon satisfactory except for strong acids). OSHA and UL approved for harnessing cables.

Brimflex No.	Covers Max. Wire Group	Nom. O.D.	Nom. Wall
POLYETHYLENE (CLEAR)*		**−105°F to +215°F**	
PSW-1/8"	1/16" to 1/2"	1/8"	.032"
PSW-3/16"	1/8" to 1"	3/16"	.032"
PSW-1/4"	3/16" to 2"	1/4"	.045"
PSW-3/8"	5/16" to 3"	3/8"	.052"
PSW-1/2"	3/8" to 4"	1/2"	.062"
PSW-3/4"	5/8" to 5"	3/4"	.065"
PSW-1"	3/4" to 6"	1"	.095"
RULAN (WHITE)**		**−8°F to +200°F**	
RSW-1/8"	1/16" to 1/2"	1/8"	.032"
RSW-1/4"	3/16" to 2"	1/4"	.045"
RSW-3/8"	5/16" to 3"	3/8"	.052"
RSW-1/2"	3/8" to 4"	1/2"	.062"
RSW-3/4"	5/8" to 5"	3/4"	.065"
NYLON (NATURAL)***		**−121°F to +300°F**	
NSW-1/8"	1/16" to 1/2"	1/8"	.015"
NSW-1/4"	3/16" to 2"	1/4"	.025"
NSW-3/8"	5/16" to 3"	3/8"	.035"
NSW-1/2"	3/8" to 4"	1/2"	.035"
TEFLON (NATURAL)****		**−450°F to +500°F**	
TSW-1/8"	1/16" to 1/2"	1/8"	.030"
TSW-3/16"	1/8" to 1"	3/16"	.030"
TSW-1/4"	3/16" to 2"	1/4"	.030"
TSW-3/8"	5/16" to 2½"	3/8"	.030"
TSW-1/2"	3/8" to 3"	1/2"	.030"
TSW-3/4"	5/8" to 4"	3/4"	.032"
TSW-1"	3/4" to 5"	1"	.040"

STD. P-U 1/8" to 1/4" — 100′, 1000′; 3/8" to 1/2" — 100′, 500′; 3/4" and 1" — 100′

* MIL-E-16400, MIL-P-3803, MIL-I-631D, MIL-E-5400F, Fed. Spec. L-P-390, ASTM D1248-65T.
** UL-70, ASTM D635, MIL-E-5400F.
*** MIL-P-20693A, MIL-P-17091B, L-P-4100.
**** MIL-I-22129C, AMS3653C, AMS3655.

BLACK NYLON AND POLYETHYLENE SPIRAL WRAP FOR ULTRAVIOLET RAY PROTECTION IS AVAILABLE.

LOW & HI TEMP. PVC TUBING PER MIL-I-631 & MIL-I-7444 STOCKED.

SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C
SH110 meets or exceeds the performance requirements of MIL-I-23053/2B, Class 2 but for its dimensions — its heavier wall. SH110 is a Heavy Wall Shrinkable PVC tubing, yet its flexible, and will shrink at temperatures below 200°F (within one minute). Provides outstanding dielectric and mechanical protection without damage to enclosed or adjacent components, even around sharp bends. Longitudinal shrinkage: approximately 20%. SH110 is self-extinguishing, resistant to fungus, moisture, sunlight, and most oils, and chemicals. Dielectric Strength: 600V/MIL min,. ASTM-D922. Suitable as a heavy duty all-purpose shrinkable tubing that is less expensive, almost as flexible, and has a higher temperature ability than that of Shrinkable Neoprene tubing. Suggested Storage Temperature: Under 70°F for up to 10 months.

SEMI-RIGID POLYOLEFIN SHRINKABLE TUBING IS AVAILABLE TO ORDER.
CUT AND PRINTED WIRE MARKERS ARE AVAILABLE TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

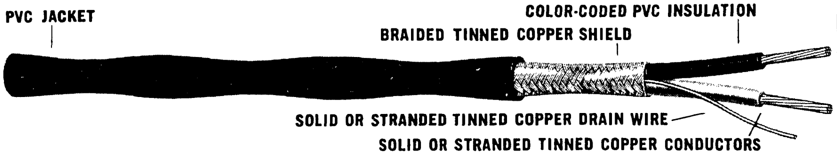
AUDIO & COMMUNICATIONS CABLE

AUDIO CABLE/BRAID SHIELDED DRAIN WIRE/PVC JACKET

Stock Color: Black jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, 88% tinned copper braid shield, tinned copper drain wire, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test, UL listed 2095, 300 volt rated. **Applications:** Special cable for audio and communications use. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

COND.	COLOR
1	Black
2	Red


PVC JACKET
COLOR-CODED PVC INSULATION
BRAIDED TINNED COPPER SHIELD
SOLID OR STRANDED TINNED COPPER DRAIN WIRE
SOLID OR STRANDED TINNED COPPER CONDUCTORS

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Size of Drain Wire	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
					Inches	mm	Inches	mm	Inches	mm	A	B
C2676	2	22	16/34	22-Solid	.015	.38	.025	.64	.195	4.95	37	65
C2677	2	22	Solid	24-7/32	.015	.38	.025	.64	.210	5.33	38	68

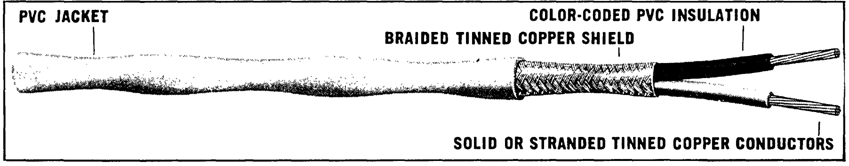
A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.

AUDIO CABLE/BRAID SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, 75% tinned copper braid shield, PVC jacket overall, −20°C to +80C°. Entire cable passes VW-1 Vertical Flame Test, UL listed 2095, 300 volt rated. **Applications:** Shielded cable for recording studios, radio transmitters, sound systems and electronic circuits where shielding is required. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

COND.	COLOR
1	Black
2	Red
3	White
4	Green


PVC JACKET
COLOR-CODED PVC INSULATION
BRAIDED TINNED COPPER SHIELD
SOLID OR STRANDED TINNED COPPER CONDUCTORS

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C2695	2	20	Solid	.015	.38	.025	.64	.205	5.21	40	72
C2696	2	18	Solid	.015	.38	.025	.64	.220	5.59	45	82
STRANDED CONDUCTORS											
C2679	2	22	7/30	.015	.38	.025	.64	.200	5.08	38	68
C2678	3	22	7/30	.015	.38	.025	.64	.210	5.27	37	66
C2680	4	22	7/30	.015	.38	.025	.64	.225	5.72	35	62
C2681	2	20	10/30	.015	.38	.025	.64	.215	5.46	42	76
C1332	3	20	10/30	.015	.38	.025	.64	.225	5.72	42	76
C2683	4	20	10/30	.015	.38	.025	.64	.245	6.22	39	70
C2686	2	18	16/30	.018	.46	.025	.64	.245	6.22	44	80
C2687	3	18	16/30	.018	.46	.025	.64	.260	6.60	42	76
C2688	4	18	16/30	.018	.46	.025	.64	.280	7.11	40	72
C2689	2	16	26/30	.018	.46	.025	.64	.270	6.86	50	90
C2690	3	16	25/30	.018	.46	.025	.64	.285	7.22	46	82
(NON-UL)											
C2691	2	14	41/30	.020	.51	.030	.76	.320	8.12	52	93
C2692	3	14	41/30	.020	.51	.030	.76	.335	8.51	50	90
C2693	2	12	65/30	.020	.51	.030	.76	.360	9.15	60	110
C2694	3	12	65/30	.020	.51	.030	.76	.380	9.65	55	100

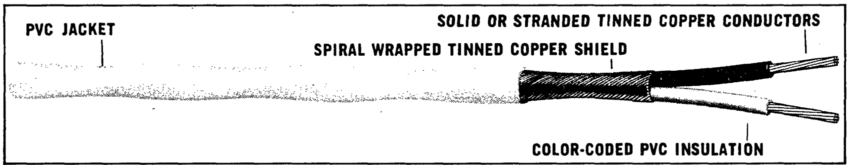
A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.

AUDIO CABLE/SPIRAL SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductor, color-coded PVC insulation, 85% tinned copper spiral wrapped shield, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test, UL listed 2095, 300 volt rated. **Applications:** Cable for recording studios, radio transmitters, sound systems and electronic circuits where shielding is required. Spiral shield allows ease of pigtail soldering. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

Cond.	Color
1	Black
2	Red
3	White
4	Green
5	Yellow
6	Blue
†	White/Red
‡	White/Black


PVC JACKET
SOLID OR STRANDED TINNED COPPER CONDUCTORS
SPIRAL WRAPPED TINNED COPPER SHIELD
COLOR-CODED PVC INSULATION

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
SOLID CONDUCTORS											
C2884	2	22	Solid	.015	.38	.025	.64	.175	4.45	37	66
C2885	3	22	Solid	.015	.38	.025	.64	.180	4.57	37	66
STRANDED CONDUCTORS											
C2882	2	22	7/30	.015	.38	.025	.64	.185	4.32	38	68
C1335	3	22	7/30	.015	.38	.025	.64	.190	4.78	37	66
C1337	4	22	7/30	.015	.38	.025	.64	.210	5.33	35	62
C1341	6	22	7/30	.015	.38	.025	.64	.245	6.22	34	60
C2888	2	20	10/30	.015	.38	.025	.64	.200	5.08	42	76
C2893	3	20	10/30	.015	.38	.025	.64	.210	5.33	42	76
C2769	4	20	10/30	.015	.38	.025	.64	.225	5.72	38	68
C2770	6	20	10/30	.015	.38	.025	.64	.265	6.73	37	66
C2892†	2	18	16/30	.020	.51	.025	.64	.240	6.10	43	78
C2768	3	18	16/30	.020	.51	.025	.64	.250	6.10	43	78
C2894	4	18	16/30	.020	.51	.025	.64	.275	6.98	39	70
C2895‡	2	16	26/30	.020	.51	.025	.64	.265	6.73	42	76
C2896	3	16	26/30	.020	.51	.025	.64	.280	7.11	40	72
(NON-UL)											
C2897	2	14	41/30	.020	.51	.025	.64	.290	7.37	52	93
C2898	3	14	41/30	.020	.51	.030	.76	.320	8.12	50	90
C2899	2	12	65/30	.020	.51	.030	.76	.345	8.77	60	110
C2900	3	12	65/30	.020	.51	.030	.76	.365	9.27	55	100

A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.

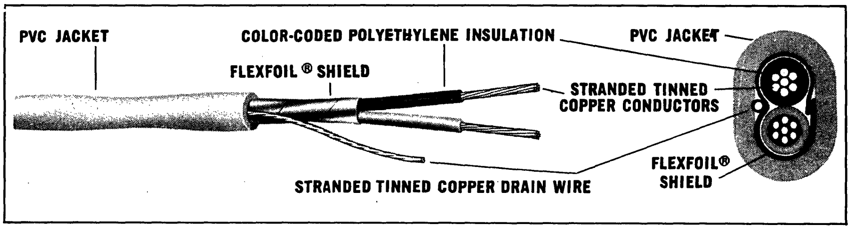
CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION AUDIO & COMMUNICATIONS CABLE

AUDIO CABLE MYLAR*/ ALUMINUM FOIL SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, wrapped with 100% Flexfoil® mylar supported aluminum foil shield with foil facing outside, stranded tinned copper drain wire, PVC jacket overall, −20°C to +60°C. Jacket only passes VW-1 Vertical Flame Test, UL listed. For description of Flexfoil® see technical data. **Applications:** 100% shielded cable for recording studios, broadcast sound systems and electronic circuits where RF shielding is required. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

Cond.	Color
1	Black
2	Clear
3	Red
4	Green


PVC JACKET
COLOR-CODED POLYETHYLENE INSULATION
PVC JACKET
FLEXFOIL® SHIELD
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL® SHIELD
STRANDED TINNED COPPER DRAIN WIRE

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Size of Drain Wire	Nom. Insulation Thickness		Nom. Jacket Thickness		Sug. Working Voltage	Nominal Cap. Nominal O.D.		PF/Ft	
					Inches	mm	Inches	mm		Inches	mm	A	B
C2513	2	24	7/32	24	.015[1]	.38	.025	.64	300V	.160	4.06	21	37
C2514	2	22	7/30	22	.015[1]	.38	.025	.64	300V	.175	4.45	23	41
C2526	3	22	7/30	22	.015[2]	.38	.025	.64	300V	.180	4.57	22	40
C2523	4	22	7/30	22	.015[3]	.38	.025	.64	300V	.195	4.96	21	37
C2540	2	20	10/30	22	.013	.33	.031	.79	300V	.190	4.78	50	90
UL LISTED (STYLE 2464) INSULATION — 1 conductor black, 1 conductor red.													
C2524	2	20	10/30	20	.015[1]	.38	.025	.64	300V	.185	4.70	27	49
C2525	3	20	10/30	20	.015[2]	.38	.028	.71	300V	.205	5.21	26	47
C2534	2	18	16/30	20	.018[1]	.46	.028	.71	300V	.225	5.71	26	47
C2535	3	18	16/30	20	.018[2]	.46	.028	.71	300V	.240	6.10	26	47
C2536	2	16	19/29	18	.030[4]	.76	.030	.76	600V	.310	7.88	22	40
C2537	3	16	19/29	18	.030[5]	.76	.030	.76	600V	.325	8.26	22	40
C2538	2	14	19/27	16	.032[4]	.81	.035	.89	600V	.350	8.89	26	47
C2539	2	12	19/25	14	.037[4]	.97	.040	1.02	600V	.410	10.41	27	49

(1) UL-2092 (2) UL-2093 (3) UL-2094 (4) UL-2106 (5) UL-2107

A — Capacitance between conductors.

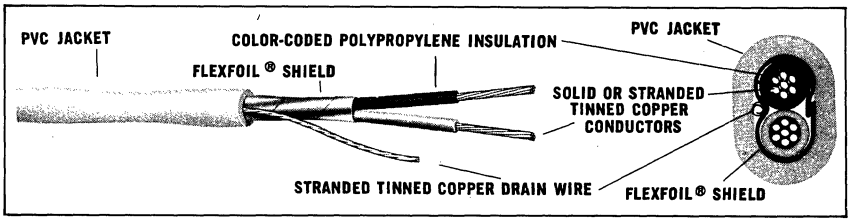
B — Capacitance between 1 conductor and other conductors connected to shield.

MINIATURE AUDIO CABLE MYLAR*/ALUMINUM FOIL SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polypropylene insulation, wrapped with 100% Flexfoil® mylar supported aluminum foil shield with foil facing outside, stranded tinned copper drain wire, PVC jacket overall, −20°C to +60°C. Jacket only passes VW-1 Vertical Flame Test. For description of Flexfoil® see technical data. **Applications:** 100% shielded cable for recording studios, broadcast sound systems. Requires ½″ to ⅔″ less space than standard broadcast cables. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

Cond.	Color
1	Black
2	Red


PVC JACKET
COLOR-CODED POLYPROPYLENE INSULATION
PVC JACKET
FLEXFOIL® SHIELD
SOLID OR STRANDED TINNED COPPER CONDUCTORS
STRANDED TINNED COPPER DRAIN WIRE
FLEXFOIL® SHIELD

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Size of Drain Wire	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
					Inches	mm	Inches	mm	Inches	mm	A	B
C2515	2	22	Solid	22	.010	.25	.018	.46	.135	3.43	27	49
C2516	2	22	7/30	22	.010	.25	.020	.51	.145	3.68	28	50
C2517	3	22	7/30	22	.010	.25	.020	.51	.155	3.93	28	50

A — Capacitance between conductors.

B — Capacitance between 1 conductor and other conductors connected to shield.

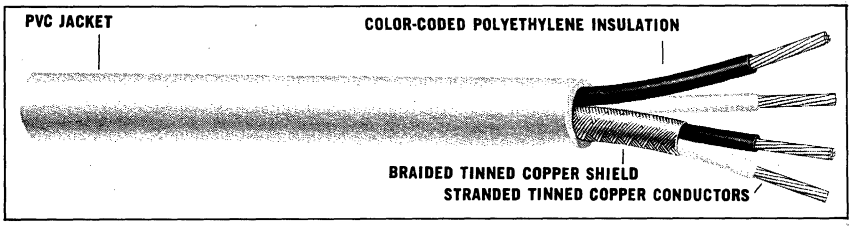
* T.M. DuPont.

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, 64% tinned copper braid shield over one pair, PC jacket overall, −20°C to +60°C, UL listed 2094, 300 volt rated. **Applications:** Special cable for audio, communications and instrumentation use. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

Each Pair Black, clear


PVC JACKET
COLOR-CODED POLYETHYLENE INSULATION
BRAIDED TINNED COPPER SHIELD
STRANDED TINNED COPPER CONDUCTORS

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C1338	4	2-22 shielded 2-22 unshielded	7/30	.015	.38	.030	.76	.188 x .295	4.47 x 7.49	24	43

A — Capacitance between conductors.

B — Capacitance between 1 conductor and other conductors connected to shield.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

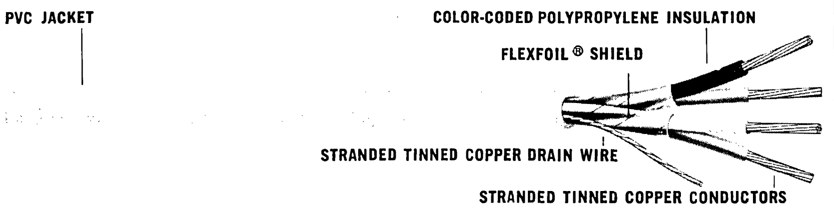
AUDIO & COMMUNICATIONS CABLE

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductor, color-coded polypropylene insulation, each pair shielded with 100% Flexfoil®, aluminum/polyester shield, foil facing to outside, #24 stranded tinned copper drain wire, cables paired on common axis to reduce O.D., PVC jacket overall, −20°C to +60°C, 400 volt rated. **Applications:** Special cable for audio, communications and instrumentation use. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

No. 1 pair	Black, red
No. 2 pair	Green, white


PVC JACKET
COLOR-CODED POLYPROPYLENE INSULATION
FLEXFOIL® SHIELD
STRANDED TINNED COPPER DRAIN WIRE
STRANDED TINNED COPPER CONDUCTORS

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C1352	4	22	7/30	.010	.25	.025	.64	.185	4.70	29	52

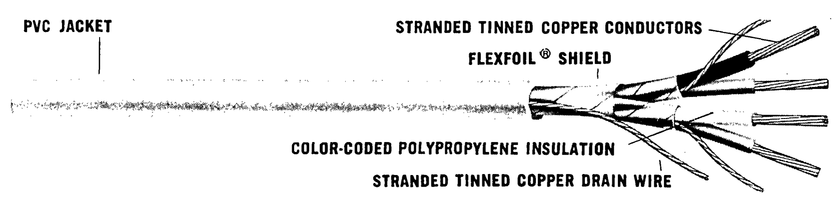
A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polypropylene insulation, cabled into pairs, 100% Flexfoil® aluminum foil/polyester shield over each pair with its own #24 stranded tinned copper drain wire, an additional 100% Flexfoil shield over entire construction with a common #24 stranded tinned copper drain wire, PVC jacket overall, −20°C to +60°C, 200 volt rated. **Applications:** Special cable for audio, communications and instrumentation use. **Packaging:** 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS

No. 1 pair	Black, red
No. 2 pair	Green, white


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL® SHIELD
COLOR-CODED POLYPROPYLENE INSULATION
STRANDED TINNED COPPER DRAIN WIRE

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C1353	4	22	7/30	.009	.23	.030	.76	.206	5.08	35	62

A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.

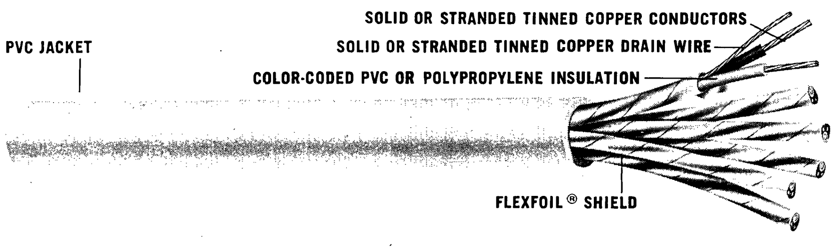
AUDIO/DATA INDIVIDUALLY SHIELDED MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polypropylene, 60°C insulation cabled in pairs, 100% Flexfoil® aluminum/foil polyester shield over each pair with a common stranded tinned copper drain wire under the shield, PVC jacket overall, −20°C to +60°C. Suggested working voltage, 22-18 gauges, 300 volts. 22 gauge and 20 gauge series — 22 gauge drain wire. 18 gauge series — 20 gauge drain wire. Jacket only passes VW-1 Vertical Flame Test, UL listed AWM style 2493. **Applications:** For audio RF and pulse applications requiring superior circuit isolation. The use of polypropylene insulation results in excellent high frequency properties and mechanical durability. Packaging: 100′, 500′ and 1000′ spools.

SEE COLOR CODE CHART ON PAGE 4

Stock Color: Chrome gray jacket. **Construction:** Solid tinned copper conductors, color-coded PVC insulation cables in pairs, 100% Flexfoil® aluminum/foil polyester shield over each pair with a common solid tinned drain wire under the shield, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2464, 300 volt rated. **Applications:** For audio RF and pulse applications requiring superior circuit isolation. **Packaging:** 100′, 500′ and 1000′ spools.

SEE COLOR CODE CHART ON PAGE 4.


PVC JACKET
SOLID OR STRANDED TINNED COPPER CONDUCTORS
SOLID OR STRANDED TINNED COPPER DRAIN WIRE
COLOR-CODED PVC OR POLYPROPYLENE INSULATION
FLEXFOIL® SHIELD

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
					Inches	mm	Inches	mm	Inches	mm	A	B
C6040	3	6	22	7/30	.010	.25	.045	1.14	.295	7.49	30	55
C6041	6	12	22	7/30	.010	.25	.045	1.14	.375	9.53	30	55
C6042	9	18	22	7/30	.010	.25	.045	1.14	.430	10.92	30	55
C6043	11	22	22	7/30	.010	.25	.045	1.14	.465	11.81	30	55
C6059	12	24	22	7/30	.010	.25	.045	1.14	.480	12.19	30	55
C6044	15	30	22	7/30	.010	.25	.060	1.52	.565	14.35	30	55
C6060	17	34	22	7/30	.010	.25	.060	1.52	.590	14.99	30	55
C6045	19	38	22	7/30	.010	.25	.060	1.52	.620	15.75	30	55
C6046†	27	54	22	7/30	.010	.25	.060	1.52	.700	17.78	30	55
C6052	3	6	20	10/30	.013	.33	.045	1.14	.340	8.64	30	55
C6053	6	12	20	10/30	.013	.33	.045	1.14	.435	11.05	30	55
C6054	9	18	20	10/30	.013	.33	.060	1.52	.500	12.70	30	55
C6055	11	22	20	10/30	.013	.33	.060	1.52	.580	14.73	30	55
C6056	12	24	20	10/30	.013	.33	.060	1.52	.590	15.11	30	55
C6057	13	26	20	10/30	.013	.33	.060	1.52	.625	15.86	30	55
C6058	15	30	20	10/30	.013	.33	.060	1.52	.655	16.64	30	55
C6047	3	6	18	16/30	.016	.41	.045	1.14	.400	10.16	30	55
C6048	6	12	18	16/30	.016	.41	.045	1.14	.495	12.57	30	55
C6049	9	18	18	16/30	.016	.41	.060	1.52	.590	14.99	30	55
C6050	12	24	18	16/30	.016	.41	.070	1.78	.705	17.91	30	55
C6051	15	30	18	16/30	.016	.41	.070	1.78	.785	19.94	30	55
C6035	3	6	22	Solid	.015	.38	.035	.89	.280	7.11	38	68
C6036	6	12	22	Solid	.015	.38	.035	.89	.370	9.40	38	68
C6037	9	18	22	Solid	.015	.38	.040	1.02	.435	11.03	38	68
C6039	11	22	22	Solid	.015	.38	.040	1.02	.475	12.07	38	68
C6038	15	30	22	Solid	.015	.38	.045	1.14	.555	14.10	38	68

A — Capacitance between conductors.
B — Capacitance between 1 conductor and other conductors connected to shield.
† — Cat. No. C6046 is available cut to specified length.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
AUDIO & COMMUNICATIONS CABLE

AUDIO/DATA INDIVIDUALLY SHIELDED MULTIPLE PAIR CABLE/PVC JACKET (continued)

No. of Pairs	Color Coding
1	Black paired with Red
2	Black paired with White
3	Black paired with Green
4	Black paired with Blue
5	Black paired with Yellow
6	Black paired with Brown
7	Black paired with Orange
8	Red paired with White
9	Red paired with Green
10	Red paired with Blue
11	Red paired with Yellow
12	Red paired with Brown
13	Red paired with Orange
14	Green paired with White
15	Green paired with Blue
16	Green paired with Yellow
17	Green paired with Brown
18	Green paired with Orange
19	White paired with Blue
20	White paired with Yellow
21	White paired with Brown
22	White paired with Orange
23	Blue paired with Yellow
24	Blue paired with Brown
25	Blue paired with Orange
26	Brown paired with Yellow
27	Brown paired with Orange

AUDIO CABLE/UNSHIELDED UNPAIRED MULTI-CONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors (Cat. Nos. C2754 and C2755 are bare copper), color-coded PVC insulation conductors cabled, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test UL listed AWM style 2464. 300 volt rated. **Applications:** PA systems, unbalanced intercom systems, interconnecting cables, remote control circuits, telephones, low-voltage relay control cables. **Put-up:** 100′, 500′ and 1000′ spools.

COLOR CODE CHART 1

Cond.	Color	Cond.	Color
1	Black	7	Orange
2	White	8	Yellow
3	Red	9	Purple
4	Green	10	Gray
5	Brown	11	Pink
6	Blue	12	Tan

COLOR CODE CHART 2
PER IPCEA

Cond.	Color
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/Black
8	Red/Black
9	Green/Black
10	Orange/Black
11	Blue/Black
12	Black/White
13	Red/White
14	Green/White
15	Blue/White
16	Black/Red
17	White/Red
18	Orange/Red
19	Blue/Red
20	Red/Green
21	Orange/Green
22	Black/White/Red
23	White/Black/Red
24	Red/Black/White
25	Green/Black/White
26	Orange/Black/White
27	Blue/Black/White
28	Black/Red/Green
29	White/Red/Green
30	Red/Black/Green
31	Green/Black/Orange
32	Orange/Black/Green
33	Blue/White/Orange
34	Black/White/Orange
35	White/Red/Orange
36	Orange/White/Blue
37	White/Red/Blue
38	Black/White/Green
39	White/Black/Green
40	Red/White/Green
41	Green/White/Blue
42	Orange/Red/Green
43	Blue/Red/Green
44	Black/White/Blue
45	White/Black/Blue
46	Red/White/Blue
47	Green/Orange/Red
48	Orange/Red/Blue
49	Blue/Red/Orange
50	Black/Orange/Red
51	White/Black/Orange
52	Red/Orange/Black
53	Green/Red/Blue
54	Orange/Black/Blue
55	Blue/Black/Orange
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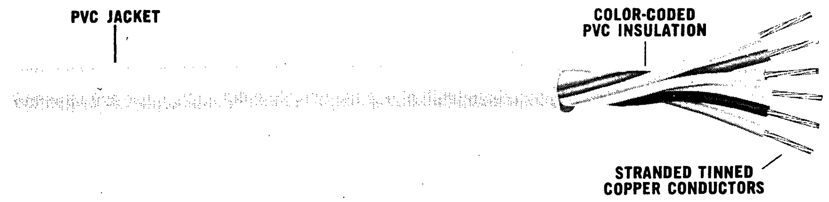
57	White/Orange/Green
58	Red/Orange/Green
59	Green/Black/Blue
60	Orange/Green/Blue



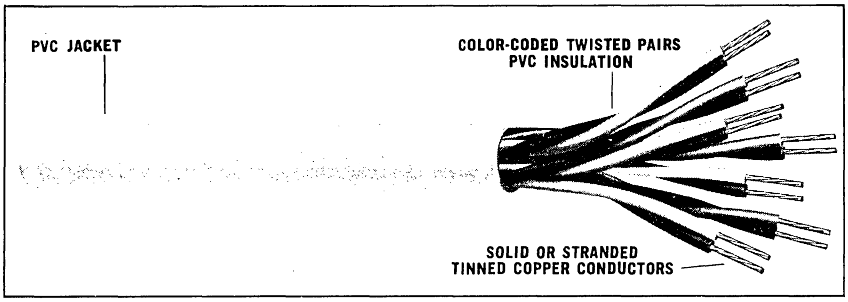
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Color Code
				Inches	mm	Inches	mm	Inches	mm	
SOLID CONDUCTORS										
C4008	2	22	Solid	.010	.25	.030	.76	.155	3.93	Black/Red
C4310	3	22	Solid	.010	.25	.030	.76	.161	4.09	Black/White/Red
C4311	2	20	Solid	.010	.25	.030	.76	.166	4.21	Black/Red
C2754	2	19	Solid	.010	.25	.030	.76	.174	4.42	Brown/Tan
C2755	3	19	Solid	.010	.25	.030	.76	.182	4.62	Brown/Grey/Tan
STRANDED CONDUCTORS										
C6348	2	22	7/30	.010	.25	.030	.76	.160	4.06	Black/Red
C4062	3	22	7/30	.010	.25	.030	.76	.170	4.32	Black/Red/Green
C4063	4	22	7/30	.010	.25	.030	.76	.180	4.57	1
C4064	5	22	7/30	.010	.25	.030	.76	.195	4.96	1
C4066	6	22	7/30	.010	.25	.030	.76	.210	5.38	1
C4088	7	22	7/30	.010	.25	.030	.76	.210	5.33	1
C4065	8	22	7/30	.010	.25	.030	.76	.230	5.84	1
C4070	9	22	7/30	.010	.25	.030	.76	.245	6.22	1
C4071	10	22	7/30	.010	.25	.030	.76	.265	6.73	1
C4067	12	22	7/30	.010	.25	.030	.76	.270	6.86	1
C4073	15	22	7/30	.010	.25	.030	.76	.290	7.51	2
C4069	18	22	7/30	.010	.25	.030	.76	.315	8.00	2
C4075	20	22	7/30	.010	.25	.030	.76	.330	8.38	2
C4076	25	22	7/30	.010	.25	.030	.76	.365	9.27	2
C4077	30	22	7/30	.010	.25	.040	1.02	.400	10.16	2
C4078	40	22	7/30	.010	.25	.040	1.02	.450	11.43	2
C4079	50	22	7/30	.010	.25	.040	1.02	.500	12.70	2
C4087	60	22	7/30	.010	.25	.040	1.02	.535	13.58	2
C6351	2	20	10/30	.015	.38	.030	.76	.200	5.08	Black/Red
C6352	3	20	10/30	.015	.38	.030	.76	.210	5.33	1
C6353	4	20	10/30	.015	.38	.030	.76	.230	5.84	1
C6355	5	20	10/30	.015	.38	.030	.76	.256	6.35	1
C6356	7	20	10/30	.015	.38	.030	.76	.270	6.86	1
C6357	9	20	10/30	.015	.38	.035	.89	.320	8.12	1
C6358	15	20	10/30	.015	.38	.040	1.02	.405	10.29	2
C2830	2	18	16/30	.018	.46	.030	.76	.230	5.84	Black/Red
C2831	3	18	16/30	.018	.46	.030	.76	.245	6.22	1
C2404	4	18	16/30	.018	.46	.030	.76	.265	6.73	1
C2405	2	16	26/30	.020	.51	.030	.76	.265	6.73	Black/White
C2406	3	16	26/30	.020	.51	.030	.76	.280	7.11	1
C2409	2	14	41/30	.030	.76	.030	.76	.335	8.51	Black/White
C2410	2	12	65/30	.030	.76	.030	.76	.375	9.53	Black/White

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
AUDIO & COMMUNICATIONS CABLE

AUDIO CABLE/UNSHIELDED PAIRED MULTICONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors solid and stranded, color-coded PVC insulation, conductors cabled and paired with a short lay twist for conductor balance providing a circuit free from cross talk, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2464. 300 volt rated. **Applications:** Heavy-duty intercom and audio cable for intercom systems, signal systems, annunciators, nurse's call systems, multiple speaker systems, control circuit cables. **Packaging:** 500′ and 1000′ spools.

No. of Pairs	Color Coding☐
1	Black paired with Red
2	Black paired with White
3	Black paired with Green
4	Black paired with Blue
5	Black paired with Yelow
6	Black paired with Brown
7	Black paired with Orange
8	Red paired with White
9	Red paired with Green
10	Red paired with Blue
11	Red paired with Yellow
12	Red paired with Brown
13	Red paired with Orange
14	Green paired with White
15	Green paired with Blue
16	Green paired with Yellow
17	Green paired with Brown
18	Green paired with Orange
19	White paired with Blue
20	White paired with Yellow
21	White paired with Brown
22	White paired with Orange
23	Blue paired with Yellow
24	Blue paired with Brown
25	Blue paired with Orange
26	Brown paired with Yellow
27	Brown paired with Orange
28	Purple paired with Red
29	Purple paired with White
30	Purple paired with Green
31	Purple paired with Blue
32	Purple paired with Brown
33	Purple paired with Yellow
34	Purple paired with Orange
35	Purple paired with Slate
36	Purple paired with Black
37	Slate paired with Red
38	Slate paired with White
39	Slate paired with Green
40	Slate paired with Blue
41	Slate paired with Brown
42	Slate paired with Yellow
43	Slate paired with Orange
44	Slate paired with Black
45	White/Black paired with Red
46	White/Black paired with Green
47	White/Black paired with Blue
48	White/Black paired with Brown
49	White/Black paired with Yellow
50	White/Black paired with Orange
51	White/Black paired with Purple



Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
					Inches	mm	Inches	mm	Inches	mm
C4008	1	2	22	Solid	.010	.25	.030	.76	.155	3.93
C4010	2	4	22	Solid	.015	.38	.030	.76	.245	6.22
C4014	3	6	22	Solid	.015	.38	.030	.76	.260	6.60
C4015	4	8	22	Solid	.015	.38	.030	.76	.283	7.19
C4016	5	10	22	Solid	.015	.38	.030	.76	.305	7.75
C4017	6	12	22	Solid	.012	.30	.030	.76	.293	7.46
C4018	7	14	22	Solid	.012	.30	.030	.76	.308	7.82
C4019	8	16	22	Solid	.012	.30	.030	.76	.325	8.25
C4020	9	18	22	Solid	.012	.30	.030	.76	.335	8.51
C4022	11	22	22	Solid	.012	.30	.030	.76	.370	9.40
C4024	13	26	22	Solid	.012	.30	.035	.89	.410	10.41
C4026	15	30	22	Solid	.012	.30	.035	.89	.430	10.92
C4028	16	32	22	Solid	.012	.30	.035	.89	.440	11.18
C4029	19	38	22	Solid	.012	.30	.035	.89	.460	11.68
C4031	23	46	22	Solid	.012	.30	.040	1.02	.525	13.33
C4030	27	54	22	Solid	.012	.30	.040	1.02	.565	14.35
C4032	41	82	22	Solid	.012	.30	.045	1.14	.685	17.40
C4038	51	102	22	Solid	.012	.30	.060	1.52	.765	19.43
C6010	2	4	22	7/30	.015	.38	.030	.76	.260	6.60
C6014	3	6	22	7/30	.015	.38	.030	.76	.275	6.99
C6015	4	8	22	7/30	.015	.38	.030	.76	.298	7.57
C6017	6	12	22	7/30	.010	.25	.030	.76	.288	7.32
C6019	9	18	22	7/30	.010	.25	.030	.76	.344	8.74
C6023	12	24	22	7/30	.010	.25	.030	.76	.387	9.83
C6026	15	30	22	7/30	.010	.25	.035	.89	.435	11.04
C6027	19	38	22	7/30	.010	.25	.035	.89	.470	11.93
C6028	23	46	22	7/30	.010	.25	.040	1.02	.530	13.46
C6030	27	54	22	7/30	.010	.25	.040	1.02	.570	14.48
C6032	31	62	22	7/30	.010	.25	.050	1.27	.635	16.13
C6033	41	82	22	7/30	.010	.25	.060	1.52	.730	18.54
C6025	51	102	22	7/30	.010	.25	.060	1.52	.780	19.81
C6113	3	6	20	10/30	.013	.33	.030	.76	.260	6.60
C6114	6	12	20	10/30	.013	.33	.030	.76	.335	8.50
C6115	9	18	20	10/30	.013	.33	.035	.89	.425	10.74
C6116	15	30	20	10/30	.013	.33	.040	1.02	.555	14.10
C6101	1	2	18	16/30	.018	.46	.030	.76	.230	5.84
C6118	2	4	18	16/30	.013	.33	.035	.89	.287	7.29
C6103	3	6	18	16/30	.018	.46	.035	.89	.330	8.38
C6119	4	8	18	16/30	.013	.33	.035	.89	.335	8.50
C6120	5	10	18	16/30	.013	.33	.035	.89	.360	9.14
C6106	6	12	18	16/30	.018	.46	.035	.89	.440	11.18
C6121	8	16	18	16/30	.013	.33	.040	1.02	.450	11.45
C6109	9	18	18	16/30	.018	.46	.040	1.02	.545	13.84
C6110	12	24	18	16/30	.018	.46	.050	1.27	.640	16.26
C6111	15	30	18	16/30	.018	.46	.060	1.52	.750	19.05
C6112	19	38	18	16/30	.018	.46	.060	1.52	.795	20.19

☐ First color in stripe combination is body color. Second or third colors are striped. Example: White/Black/Red. Other striped combinations available to order.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

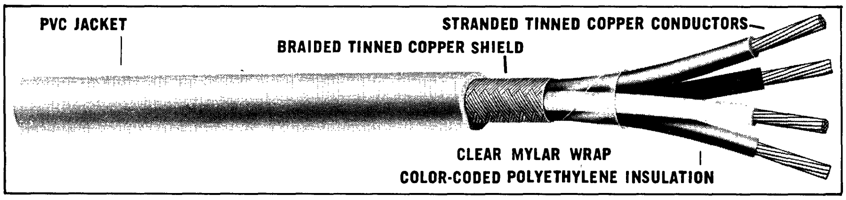
INSTRUMENTATION & CONTROL CABLE

CONTROL CABLE MULTI-CONDUCTOR/SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, fillers where required, clear mylar wrap, 80% tinned copper braid shield, PVC jacket overall, −20°C to +60°C, jacket only passes VW-1 Vertical Flame Test. UL listed AWM style 2094. 300 volt rated. **Applications:** Low capacity cable for control circuits, video and audio interconnecting cables, broadcast and studio use. Precision engineered to prevent cross-talk and eliminate hum pick-up. Low capacitance, light weight. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS☐

Cond.	Color
1	Black
2	White
3	Red
4	Green
5	Blue
6	Yellow
7	Brown
8	Orange
9	Gray (slate)
10	Purple
11	White/Black
12	White/Red
13	White/Green
14	White/Yellow
15	White/Blue
16	White/Brown
17	White/Purple
17	White/Gray (slate)
19	Black/Red
20	Black/Yellow


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
BRAIDED TINNED COPPER SHIELD
CLEAR MYLAR WRAP
COLOR-CODED POLYETHYLENE INSULATION

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C1642	2	20	26/34	.015	.38	.040	1.02	.250	6.35	26	47
C1643	3	20	26/34	.015	.38	.045	1.14	.270	6.86	25	45
C1644	4	20	26/34	.015	.38	.045	1.14	.290	7.37	24	43
C1645	5	20	26/34	.015	.38	.045	1.14	.310	7.87	21	38
C1646	6	20	26/34	.015	.38	.045	1.14	.325	8.26	16	28
C1648	8	20	26/34	.015	.38	.045	1.14	.350	8.89	16	28
C1650	10	20	26/34	.015	.38	.045	1.14	.390	9.90	16	28
C1652	12	20	26/34	.015	.38	.045	1.14	.405	10.29	16	28
C1655	15	20	26/34	.015	.38	.045	1.14	.440	11.18	16	28
C1660	20	20	26/34	.015	.38	.045	1.14	.480	12.19	16	28

☐ First color in stripe combination is body color. Second or third colors are striped.
Example: White/Black/Red. Other striped combinations available to order.

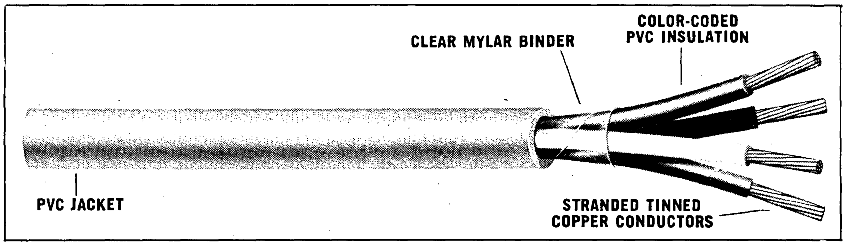
CONTROL CABLE MULTI-CONDUCTOR UNSHIELDED/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors cabled, clear mylar binder overall, PVC jacket overall, −20°C to +60°C, jacket only passes VW-1 Vertical Flame Test. UL listed AWM style 2464. 300 volt rated. **Applications:** Interconnecting cables for electronic equipment, control circuits, broadcast and studio use, temperature control systems. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE OF CONDUCTORS☐

Cond.	Color
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/Black
8	Red/Black
9	Green/Black
10	Orange/Black
11	Blue/Black
12	Black/White
13	Red/White
14	Green/White
15	Blue/White
16	Black/Red
17	White/Red
18	Orange/Red
19	Blue/Red
20	Red/Green
21	Orange/Green
22	Black/White/Red
23	White/Black/Red
24	Red/Black/White
25	Green/Black/White

Per IPCEA Color Code



Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C2404*	4	18	16/30	.018	.46	.030	.76	.265	6.73
C2420*	5	18	16/30	.018	.46	.037	.94	.300	7.62
C2421*	7	18	16/30	.018	.46	.037	.94	.324	8.23
C2422*	9	18	16/30	.018	.46	.037	.94	.379	9.63
C2412	12	18	16/30	.018	.46	.040	1.02	.430	10.92
C2423	15	18	16/30	.018	.46	.045	1.14	.485	12.32
C2424	19	18	16/30	.018	.46	.045	1.14	.510	12.95
C2433	25	18	16/30	.018	.46	.060	1.52	.625	15.88
C2425	4	16	19/29	.030	.76	.045	1.14	.375	9.53
C2434	5	16	19/29	.030	.76	.045	1.14	.410	10.41
C2426	7	16	19/29	.030	.76	.045	1.14	.445	11.30
C2435	9	16	19/29	.030	.76	.045	1.14	.510	12.95
C2427	12	16	19/29	.030	.76	.060	1.52	.610	15.49
C2428	15	16	19/29	.030	.76	.060	1.52	.675	17.15
C2429	19	16	19/29	.030	.76	.065	1.52	.725	18.42
C2436	25	16	19/29	.030	.76	.065	1.52	.830	21.08
C2430	4	14	19/27	.045	1.14	.045	1.14	.480	12.19
C2437	5	14	19/27	.045	1.14	.060	1.52	.555	14.10
C2431	7	14	19/27	.045	1.14	.060	1.52	.605	15.37
C2438	9	14	19/27	.045	1.14	.065	1.52	.715	18.16
C2432	12	14	19/27	.045	1.14	.065	1.52	.800	20.32
C2439	15	14	19/27	.045	1.14	.080	2.03	.920	23.37
C2440	4	12	65/30	.045	1.14	.045	1.14	.540	13.71
C2442	7	12	65/30	.045	1.14	.060	1.52	.675	17.15
C2444	10	12	65/30	.045	1.14	.080	2.03	.900	22.86

☐ First color in stripe combination is body color. Second or third colors are stripes.
Example: White/Black/Red. Other striped combinations available to order.
* Color Code Chart 1, P. 17.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

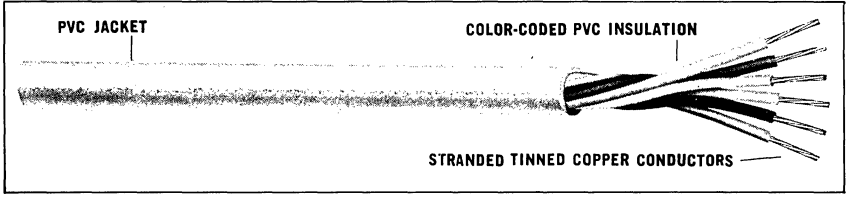
UNSHIELDED UNPAIRED MULTI-CONDUCTOR/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, clear mylar wrap, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2343. 300 volt rated.* **Applications:** For use in data transmission, control circuits and signal application in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 1

UL — LISTED

CSA — CERTIFIED



Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm
C0200	5	24	7/32	.010	.25	.060	1.52	.243	6.17
C0201	7	24	7/32	.010	.25	.060	1.52	.258	6.55
C0202	12	24	7/32	.010	.25	.060	1.52	.308	7.82
C0203	15	24	7/32	.010	.25	.060	1.52	.333	8.46
C0204	19	24	7/32	.010	.25	.060	1.52	.346	8.79
C0205	27	24	7/32	.010	.25	.060	1.52	.396	10.06
C0206	37	24	7/32	.010	.25	.060	1.52	.434	11.02
C0207	48	24	7/32	.010	.25	.060	1.52	.486	12.34
C0208	60	24	7/32	.010	.25	.060	1.52	.524	13.31
C0210	5	22	7/30	.010	.25	.060	1.52	.261	6.63
C0211	7	22	7/30	.010	.25	.060	1.52	.273	6.93
C0212	12	22	7/30	.010	.25	.060	1.52	.333	8.46
C0213	15	22	7/30	.010	.25	.060	1.52	.361	9.17
C0214	19	22	7/30	.010	.25	.060	1.52	.376	9.55
C0215	27	22	7/30	.010	.25	.060	1.52	.433	11.00
C0216	37	22	7/30	.010	.25	.060	1.52	.476	12.09
C0217	48	22	7/30	.010	.25	.060	1.52	.535	13.59
C0218	60	22	7/30	.010	.25	.060	1.52	.578	14.68
C0220	5	20	19/32	.010	.25	.060	1.52	.288	7.31
C0221	7	20	19/32	.010	.25	.060	1.52	.306	7.77
C0222	12	20	19/32	.010	.25	.060	1.52	.375	9.53
C0223	15	20	19/32	.010	.25	.060	1.52	.409	10.39
C0224	19	20	19/32	.010	.25	.060	1.52	.427	10.85
C0225	27	20	19/32	.010	.25	.060	1.52	.496	12.60
C0226	37	20	19/32	.010	.25	.060	1.52	.548	13.92
C0227	48	20	19/32	.010	.25	.060	1.52	.618	15.69
C0228	60	20	19/32	.010	.25	.060	1.52	.669	16.99

* The inner conductors only are rated UL at 300 volts.

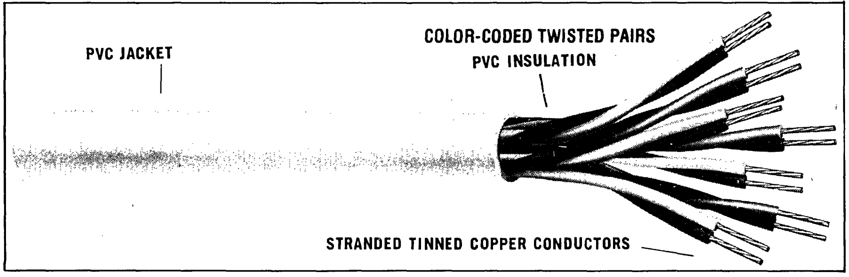
UNSHIELDED PAIRED MULTI-CONDUCTOR/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation UL style 1061, CSA type SR-PVC, clear mylar wrap, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2343. 300 volt rated.* **Applications:** For use in data transmission, control circuits and signal application in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 2

UL — LISTED

CSA — CERTIFIED



Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm
C0230	5	10	24	7/32	.010	.25	.060	1.52	.308	7.82
C0231	7	14	24	7/32	.010	.25	.060	1.52	.343	8.71
C0232	12	24	24	7/32	.010	.25	.060	1.52	.410	10.41
C0233	15	30	24	7/32	.010	.25	.060	1.52	.444	11.28
C0234	19	38	24	7/32	.010	.25	.060	1.52	.484	12.29
C0235	27	54	24	7/32	.010	.25	.060	1.52	.555	14.10
C0236	37	74	24	7/32	.010	.25	.060	1.52	.629	15.98
C0237	48	96	24	7/32	.010	.25	.060	1.52	.700	17.78
C0238	60	120	24	7/32	.010	.25	.060	1.52	.766	19.46
C0240	5	10	22	7/30	.010	.25	.060	1.52	.335	8.51
C0241	7	14	22	7/30	.010	.25	.060	1.52	.374	9.50
C0242	12	24	22	7/30	.010	.25	.060	1.52	.453	11.51
C0243	15	30	22	7/30	.010	.25	.060	1.52	.491	12.47
C0244	19	38	22	7/30	.010	.25	.060	1.52	.539	13.69
C0245	27	54	22	7/30	.010	.25	.060	1.52	.619	15.72
C0246	37	74	22	7/30	.010	.25	.060	1.52	.703	17.86
C0247	48	96	22	7/30	.010	.25	.060	1.52	.786	19.96
C0248	60	120	22	7/30	.010	.25	.080	2.03	.905	22.99
C0250	5	10	20	19/32	.010	.25	.060	1.52	.384	9.75
C0251	7	14	20	19/32	.010	.25	.060	1.52	.433	11.00
C0252	12	24	20	19/32	.010	.25	.060	1.52	.530	13.46
C0253	15	30	20	19/32	.010	.25	.060	1.52	.578	14.68
C0254	19	38	20	19/32	.010	.25	.060	1.52	.636	16.15
C0255	27	54	20	19/32	.010	.25	.060	1.52	.734	18.64
UL LISTED (2344)										
C0256	37	74	20	19/32	.010	.25	.080	2.03	.880	22.35
C0257	48	96	20	19/32	.010	.25	.080	2.03	.990	25.15
C0258	60	120	20	19/32	.010	.25	.080	2.03	1.080	27.43

* The inner conductors only are rated UL at 300 volts.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

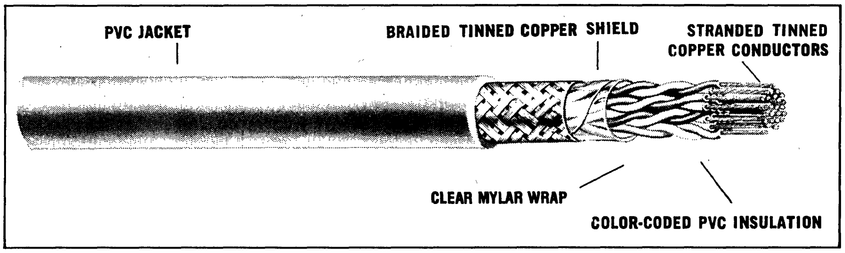
MULTI-CONDUCTOR/SHIELDED PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, clear mylar wrap, 85% tinned copper braid shield overall, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2343. 300 volt rated.* **Applications:** For use in data transmission, control circuits and signal application in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 1

UL — LISTED

SP — CERTIFIED


PVC JACKET
BRAIDED TINNED COPPER SHIELD
STRANDED TINNED COPPER CONDUCTORS
CLEAR MYLAR WRAP
COLOR-CODED PVC INSULATION

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm	Nominal Cap. PF/Ft. A	Nominal Cap. PF/Ft. B
C0300	5	24	7/32	.010	.25	.060	1.52	.266	6.76	26	47
C0301	7	24	7/32	.010	.25	.060	1.52	.281	7.14	26	47
C0302	12	24	7/32	.010	.25	.060	1.52	.331	8.41	26	47
C0303	15	24	7/32	.010	.25	.060	1.52	.356	9.04	26	47
C0304	19	24	7/32	.010	.25	.060	1.52	.375	9.53	26	47
C0305	27	24	7/32	.010	.25	.060	1.52	.426	10.82	26	47
C0306	37	24	7/32	.010	.25	.060	1.52	.464	11.79	26	47
C0307	48	24	7/32	.010	.25	.060	1.52	.516	13.11	26	47
C0308	60	24	7/32	.010	.25	.060	1.52	.533	13.54	26	47
C0310	5	22	7/30	.010	.25	.060	1.52	.284	7.31	28	50
C0311	7	22	7/30	.010	.25	.060	1.52	.296	7.52	28	50
C0312	12	22	7/30	.010	.25	.060	1.52	.356	9.04	28	50
C0313	15	22	7/30	.010	.25	.060	1.52	.390	9.04	28	50
C0314	19	22	7/30	.010	.25	.060	1.52	.406	10.31	28	50
C0315	27	22	7/30	.010	.25	.060	1.52	.457	11.61	28	50
C0316	37	22	7/30	.010	.25	.060	1.52	.501	12.73	28	50
C0317	48	22	7/30	.010	.25	.060	1.52	.564	14.33	28	50
C0318	60	22	7/30	.010	.25	.060	1.52	.608	15.44	28	50
C0320	5	20	19/32	.010	.25	.060	1.52	.311	7.90	30	54
C0321	7	20	19/32	.010	.25	.060	1.52	.330	8.38	30	54
C0322	12	20	19/32	.010	.25	.060	1.52	.405	10.29	30	54
C0323	15	20	19/32	.010	.25	.060	1.52	.432	10.97	30	54
C0324	19	20	19/32	.010	.25	.060	1.52	.450	11.43	30	54
C0325	27	20	19/32	.010	.25	.060	1.52	.526	13.36	30	54
C0326	37	20	19/32	.010	.25	.060	1.52	.577	14.66	30	54
C0327	48	20	19/32	.010	.25	.060	1.52	.647	16.43	30	54
C0328	60	20	19/32	.010	.25	.060	1.52	.698	17.73	30	54

* The inner conductors only are rated UL at 300 volts.

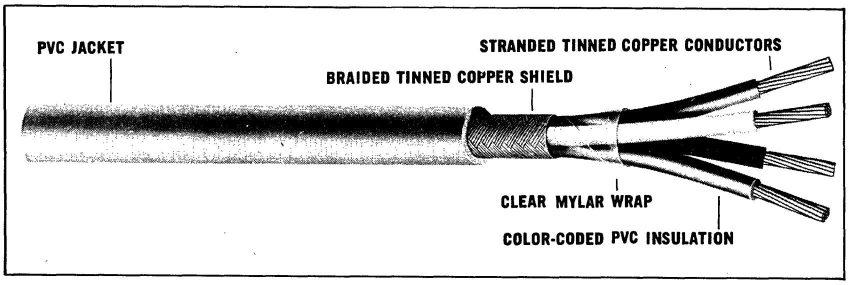
SHIELDED/MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation UL style 1061, CSA Type SR-PVC, conductors cabled in pairs, clear mylar wrap, 85% tinned copper braid shield overall, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2343. 300 volt rated.* **Applications:** For use in data transmission, control circuits and signal application in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 2

UL — LISTED

SP — CERTIFIED


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
BRAIDED TINNED COPPER SHIELD
CLEAR MYLAR WRAP
COLOR-CODED PVC INSULATION

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm	Nominal Cap. PF/Ft. A	Nominal Cap. PF/Ft. B
C0330	5	10	24	7/32	.010	.25	.060	1.52	.331	8.41	26	47
C0331	7	14	24	7/32	.010	.25	.060	1.52	.372	9.45	26	47
C0332	12	24	24	7/32	.010	.25	.060	1.52	.433	11.00	26	47
C0333	15	30	24	7/32	.010	.25	.060	1.52	.464	11.79	26	47
C0334	19	38	24	7/32	.010	.25	.060	1.52	.507	12.66	26	47
C0335	27	54	24	7/32	.010	.25	.060	1.52	.584	14.83	26	47
C0336	37	74	24	7/32	.010	.25	.060	1.52	.658	16.71	26	47
C0337	48	96	24	7/32	.010	.25	.060	1.52	.729	18.51	26	47
C0338	60	120	24	7/32	.010	.25	.060	1.52	.797	20.24	26	47
C0340	5	10	22	7/30	.010	.25	.060	1.52	.364	9.25	28	50
C0341	7	14	22	7/30	.010	.25	.060	1.52	.404	10.26	28	50
C0342	12	24	22	7/30	.010	.25	.060	1.52	.482	12.24	28	50
C0343	15	30	22	7/30	.010	.25	.060	1.52	.521	13.23	28	50
C0344	19	38	22	7/30	.010	.25	.060	1.52	.568	14.43	28	50
C0345	27	54	22	7/30	.010	.25	.060	1.52	.648	16.46	28	50
C0346	37	74	22	7/30	.010	.25	.060	1.52	.733	18.61	28	50
C0347	48	96	22	7/30	.010	.25	.060	1.52	.813	20.65	28	50
C0348	60	120	22	7/30	.010	.25	.060	1.52	.933	23.69	28	50
C0350	5	10	20	19/32	.010	.25	.060	1.52	.414	10.51	30	54
C0351	7	14	20	19/32	.010	.25	.060	1.52	.462	11.73	30	54
C0352	12	24	20	19/32	.010	.25	.060	1.52	.559	14.20	30	54
C0353	15	30	20	19/32	.010	.25	.060	1.52	.608	15.44	30	54
C0354	19	38	20	19/32	.010	.25	.060	1.52	.665	16.89	30	54
C0355	27	54	20	19/32	.010	.25	.060	1.52	.763	19.38	30	54
UL LISTED (2344)												
C0356	37	74	20	19/32	.010	.25	.080	2.03	.909	23.08	30	54
C0357	48	96	20	19/32	.010	.25	.080	2.03	1.015	25.78	30	54
C0358	60	120	20	19/32	.010	.25	.080	2.03	1.110	28.19	30	54

* The inner conductors only are rated UL at 300 volts.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

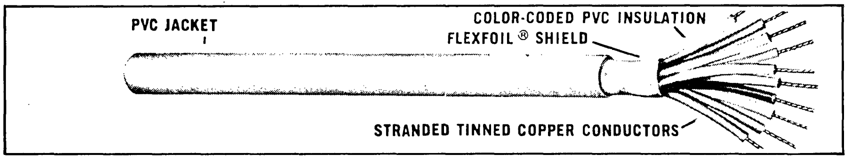
SHIELDED/MULTI-CONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, 24 gauge and 22 gauge semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, 20 gauge PVC insulation to UL 1007, CSA TR64, conductors cabled, 100% Flexfoil® aluminum foil/Polyester shield with stranded tinned copper drain wire, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2464. 300 volt rated. **Applications:** For use in data transmission, control circuits and signal applications in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

**COLOR CODE SEE PAGE 13—
CHART NUMBERS 3-4**

UL — LISTED

SP — CERTIFIED



Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
COLOR CODE CHART 1									
C0740	2	24	7/32	.010	.25	.032	.81	.165	4.19
C0741	3	24	7/32	.010	.25	.032	.81	.170	4.32
C0742	4	24	7/32	.010	.25	.032	.81	.185	4.70
C0753	5	24	7/32	.010	.25	.032	.81	.195	4.95
C0743	6	24	7/32	.010	.25	.032	.81	.210	5.33
C0754	7	24	7/32	.010	.25	.032	.81	.215	5.46
C0744	8	24	7/32	.010	.25	.032	.81	.225	5.72
C0755	9	24	7/32	.010	.25	.032	.81	.240	6.10
C0745	10	24	7/32	.010	.25	.032	.81	.250	6.35
COLOR CODE CHART 2									
C0746	15	24	7/32	.010	.25	.032	.81	.280	7.11
C0747	20	24	7/32	.010	.25	.032	.81	.305	7.75
C0748	25	24	7/32	.010	.25	.032	.81	.345	8.76
C0749	30	24	7/32	.010	.25	.032	.81	.365	9.27
C0750	40	24	7/32	.010	.25	.032	.81	.405	10.29
C0751	50	24	7/32	.010	.25	.032	.81	.445	11.30
C0752	60	24	7/32	.010	.25	.032	.81	.475	12.07
C0760	2	22	7/30	.010	.25	.032	.81	.175	4.45
C0761	3	22	7/30	.010	.25	.032	.81	.185	4.70
C0762	4	22	7/30	.010	.25	.032	.81	.200	5.08
C0763	6	22	7/30	.010	.25	.032	.81	.230	5.84
C0764	8	22	7/30	.010	.25	.032	.81	.245	6.22
C0765	10	22	7/30	.010	.25	.032	.81	.275	6.99
C0766	15	22	7/30	.010	.25	.032	.81	.305	7.75
C0767	20	22	7/30	.010	.25	.032	.81	.345	8.76
C0768	25	22	7/30	.010	.25	.032	.81	.380	9.65
C0769	30	22	7/30	.010	.25	.032	.81	.405	10.29
C0770	40	22	7/30	.010	.25	.032	.81	.450	11.43
C0771	50	22	7/30	.010	.25	.032	.81	.490	12.45
C0772	60	22	7/30	.010	.25	.032	.81	.530	13.46
C0780	2	20	10/30	.016	.41	.032	.81	.225	5.72
C0781	3	20	10/30	.016	.41	.032	.81	.230	5.84
C0782	4	20	10/30	.016	.41	.032	.81	.250	6.35
C0783	6	20	10/30	.016	.41	.032	.81	.290	7.37
C0784	8	20	10/30	.016	.41	.032	.81	.315	8.00
C0785	10	20	10/30	.016	.41	.032	.81	.365	9.27
C0786	15	20	10/30	.016	.41	.032	.81	.410	10.41
C0787	20	20	10/30	.016	.41	.032	.81	.455	11.56
C0788	25	20	10/30	.016	.41	.032	.81	.505	12.83
C0789	30	20	10/30	.016	.41	.032	.81	.535	13.59
C0790	40	20	10/30	.016	.41	.053	1.35	.640	16.26
C0791	50	20	10/30	.016	.41	.053	1.35	.715	18.16
C0792	60	20	10/30	.016	.41	.060	1.52	.755	19.18

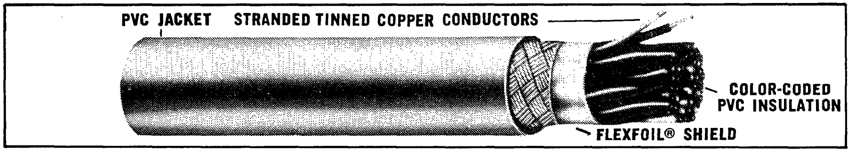
SHIELDED/MULTI-CONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Stranded tinned copper conductors, color coded semi-rigid PVC insulation UL style 1061, CSA Type semi-rigid PVC, conductors cabled under 100% Flexfoil®/Polyester shield, 65% tinned copper braid shield over entire assembly, PVC jacket overall. UL listed AWM style 2464 CSA Certified to 80°C. 300 volts. **Applications:** For use in data transmission, control circuits and signal applications in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

**COLOR CODE SEE PAGE 13 —
CHART NUMBER 5**

UL — LISTED

SP — CERTIFIED



Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
				Inches	mm	Inches	mm	Inches	mm	A	B
C0951	3	24	7/32	.010	.25	.032	.81	.183	4.65	40	72
C0952	4	24	7/32	.010	.25	.032	.81	.193	4.90	40	72
C0953	5	24	7/32	.010	.25	.032	.81	.218	5.54	40	72
C0954	6	24	7/32	.010	.25	.032	.81	.223	5.66	35	68
C0955	7	24	7/32	.010	.25	.032	.81	.223	5.66	35	68
C0956	8	24	7/32	.010	.25	.032	.81	.233	5.92	35	68
C0957	9	24	7/32	.010	.25	.032	.81	.263	6.68	35	68
C0958	10	24	7/32	.010	.25	.032	.81	.263	6.68	35	68
C0959	15	24	7/32	.010	.25	.032	.81	.304	7.72	35	68
C0960	20	24	7/32	.010	.25	.032	.81	.329	8.36	26	47
C0961	25	24	7/32	.010	.25	.032	.81	.359	9.12	26	47
C0962	30	24	7/32	.010	.25	.032	.81	.379	9.63	26	47
C0963	37	24	7/32	.010	.25	.032	.81	.410	10.41	26	47
C0964	40	24	7/32	.010	.25	.032	.81	.419	10.64	26	47
C0965	50	24	7/32	.010	.25	.032	.81	.474	12.04	26	47
C0971	3	22	7/30	.010	.25	.032	.81	.198	5.03	44	80
C0972	4	22	7/30	.010	.25	.032	.81	.208	5.28	44	80
C0973	5	22	7/30	.010	.25	.032	.81	.230	5.84	44	80
C0974	6	22	7/30	.010	.25	.032	.81	.238	6.05	40	72
C0975	7	22	7/30	.010	.25	.032	.81	.245	6.22	40	72
C0976	8	22	7/30	.010	.25	.032	.81	.253	6.43	40	72
C0977	9	22	7/30	.010	.25	.032	.81	.280	7.11	40	72
C0978	10	22	7/30	.010	.25	.032	.81	.288	7.32	40	72
C0979	15	22	7/30	.010	.25	.032	.81	.329	8.36	30	54
C0980	20	22	7/30	.010	.25	.032	.81	.359	9.12	30	54
C0981	25	22	7/30	.010	.25	.032	.81	.394	10.00	30	54
C0982	30	22	7/30	.010	.25	.032	.81	.419	10.64	30	54
C0983	37	22	7/30	.010	.25	.032	.81	.460	11.68	30	54
C0984	40	22	7/30	.010	.25	.032	.81	.469	11.91	30	54
C0985	50	22	7/30	.010	.25	.032	.81	.534	13.56	30	54

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

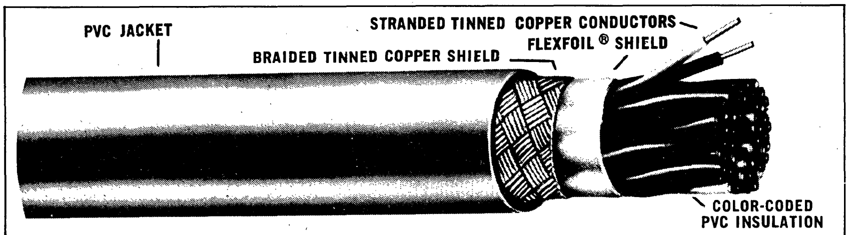
SHIELDED/MULTI-CONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded semi-rigid PVC insulation, UL style 1061, CSA Type semi-rigid PVC, conductors cabled, 100% Flexfoil® aluminum foil/Polyester shield, 90% tinned copper braid over entire assembly, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2464. 300 volt rated. **Applications:** For use in data transmission, control circuits and signal applications in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE PAGE 13 —
CHART NUMBER 4

UL — LISTED

SP — CERTIFIED


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL ® SHIELD
BRAIDED TINNED COPPER SHIELD
COLOR-CODED PVC INSULATION

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C0850	2	24	7/32	.010	.25	.032	.81	.175	4.45
C0851	3	24	7/32	.010	.25	.032	.81	.183	4.65
C0852	4	24	7/32	.010	.25	.032	.81	.193	4.90
C0853	5	24	7/32	.010	.25	.032	.81	.218	5.54
C0854	6	24	7/32	.010	.25	.032	.81	.223	5.66
C0855	7	24	7/32	.010	.25	.032	.81	.223	5.66
C0856	8	24	7/32	.010	.25	.032	.81	.233	5.92
C0857	9	24	7/32	.010	.25	.032	.81	.245	6.68
C0858	10	24	7/32	.010	.25	.032	.81	.263	6.68
C0859	15	24	7/32	.010	.25	.032	.81	.304	7.72
C0860	20	24	7/32	.010	.25	.032	.81	.329	8.36
C0861	25	24	7/32	.010	.25	.032	.81	.359	9.12
C0862	30	24	7/32	.010	.25	.032	.81	.379	9.63
C0863	40	24	7/32	.010	.25	.032	.81	.419	10.64
C0864	50	24	7/32	.010	.25	.032	.81	.474	12.04
C0865	60	24	7/32	.010	.25	.032	.81	.504	12.80
C0870	2	22	7/30	.010	.25	.032	.81	.188	4.78
C0871	3	22	7/30	.010	.25	.032	.81	.198	5.03
C0872	4	22	7/30	.010	.25	.032	.81	.208	5.28
C0873	6	22	7/30	.010	.25	.032	.81	.238	6.05
C0874	8	22	7/30	.010	.25	.032	.81	.253	6.43
C0875	10	22	7/30	.010	.25	.032	.81	.288	7.32
C0876	15	22	7/30	.010	.25	.032	.81	.329	8.36
C0877	20	22	7/30	.010	.25	.032	.81	.359	9.12
C0878	25	22	7/30	.010	.25	.032	.81	.394	10.00
C0879	30	22	7/30	.010	.25	.032	.81	.419	10.64
C0880	40	22	7/30	.010	.25	.032	.81	.469	11.91
C0881	50	22	7/30	.010	.25	.032	.81	.534	13.56
C0882	60	22	7/30	.010	.25	.032	.81	.564	14.33

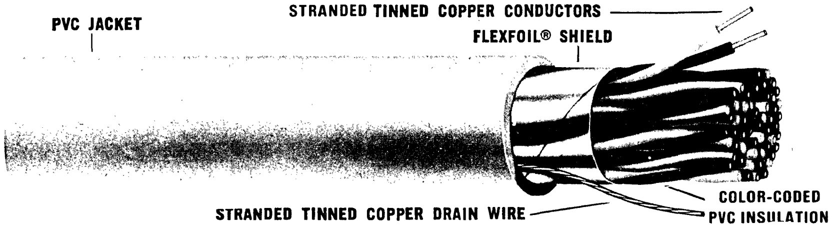
SHIELDED/MULTIPLE PAIR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, conductors cabled in pairs, overall 100% Flexfoil® aluminum foil/Polyester shield with stranded tinned copper drain wire, PVC jacket overall, −20°C to +80°C. Entire cable passes VW-1 Vertical Flame Test. UL listed AWM style 2464. CSA Certified. 300 volt rated. **Applications:** For use in data transmission, control circuits and signal application in computers and industrial equipment. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 —
CHART NUMBERS 6-7

UL — LISTED

SP — CERTIFIED


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL® SHIELD
COLOR-CODED PVC INSULATION
STRANDED TINNED COPPER DRAIN WIRE

Catalog Number	No. of Pairs	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C0600	1	24	7/32	.010	.25	.032	.81	.156	3.96
C0601	2	24	7/32	.010	.25	.032	.81	.215	5.46
C0602	3	24	7/32	.010	.25	.032	.81	.220	5.59
C0603	4	24	7/32	.010	.25	.032	.81	.245	6.22
C0604	5	24	7/32	.010	.25	.032	.81	.270	6.86
C0605	6	24	7/32	.010	.25	.032	.81	.285	7.24
C0606	7	24	7/32	.010	.25	.032	.81	.300	7.62
C0607	8	24	7/32	.010	.25	.032	.81	.310	7.87
C0608	9	24	7/32	.010	.25	.032	.81	.325	8.26
C0609	10	24	7/32	.010	.25	.032	.81	.350	8.89
C0610	15	24	7/32	.010	.25	.032	.81	.410	10.41
C0611	19	24	7/32	.010	.25	.032	.81	.450	11.43
C0612	25	24	7/32	.010	.25	.032	.81	.510	12.95
C0613	50	24	7/32	.010	.25	.032	.81	.690	17.53
C0720	1	22	7/30	.010	.25	.032	.81	.175	4.46
C0721	2	22	7/30	.010	.25	.032	.81	.230	5.84
C0722	3	22	7/30	.010	.25	.032	.81	.240	6.10
C0723	4	22	7/30	.010	.25	.032	.81	.265	6.73
C0724	5	22	7/30	.010	.25	.032	.81	.290	7.37
C0725	6	22	7/30	.010	.25	.032	.81	.310	7.87
C0726	9	22	7/30	.010	.25	.032	.81	.360	9.14
C0727	11	22	7/30	.010	.25	.032	.81	.390	9.90
C0728	15	22	7/30	.010	.25	.032	.81	.430	10.92
C0729	19	22	7/30	.010	.25	.032	.81	.505	12.82
C0730	27	22	7/30	.010	.25	.032	1.35	.605	15.36
C0731	51	22	7/30	.010	.25	.032	2.16	.850	21.59

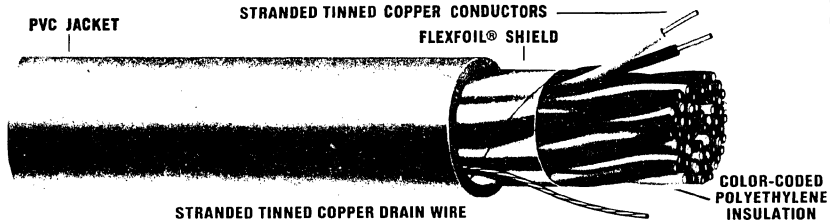
CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

COMPUTER CABLE

SHIELDED/MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, solid Polyethylene insulation, cabled in pairs with or without single conductor, 100% Flexfoil® aluminum foil/Polyester shield, #24 gauge stranded tinned copper drain wire, PVC jacket overall, −20°C to +60°C. UL listed AWM style 2448. **Applications:** For use in data transmission, computer and computer peripheral equipment interconnection where low capacitance 12 to 14 Pf/ft is required. **Packaging:** 100′, 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 8


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL® SHIELD
COLOR-CODED POLYETHYLENE INSULATION
STRANDED TINNED COPPER DRAIN WIRE

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
					Inches	mm	Inches	mm	Inches	mm	A	B
C0890	2 Pr	4	24	7/32	.015	.38	.035	.89	.240	6.10	12.5	26.0
C0891	2 Pr + 1 Single	5	24	7/32	.015	.38	.035	.89	.245	6.22	12.5	26.0
C0901	3 Pr	6	24	7/32	.015	.38	.035	.89	.250	6.35	12.5	26.0
C0892	3 Pr + 1 Single	7	24	7/32	.015	.38	.035	.89	.265	6.73	12.5	26.0
C0893	4 Pr	8	24	7/32	.015	.38	.035	.89	.280	7.11	12.5	26.0
C0902	4 Pr + 1 Single	9	24	7/32	.015	.38	.035	.89	.285	7.24	12.5	26.0
C0894	5 Pr	10	24	7/32	.015	.38	.035	.89	.305	7.75	12.5	26.0
C0899	6 Pr	12	24	7/32	.015	.38	.035	.89	.325	8.32	12.5	26.0
C0895	7 Pr + 1 Single	15	24	7/32	.015	.38	.035	.89	.355	9.02	12.5	26.0
C0896	9 Pr	18	24	7/32	.015	.38	.035	.89	.380	9.65	12.5	26.0
C0900	12 Pr	24	24	7/32	.015	.38	.035	.89	.425	10.88	12.5	26.0
C0897	12 Pr + 1 Single	25	24	7/32	.015	.38	.035	.89	.430	10.92	12.5	26.0
C0898	15 Pr	30	24	7/32	.015	.38	.035	.89	.470	11.94	12.5	26.0
C0903	18 Pr	36	24	7/32	.015	.38	.035	.89	.515	13.08	12.5	26.0

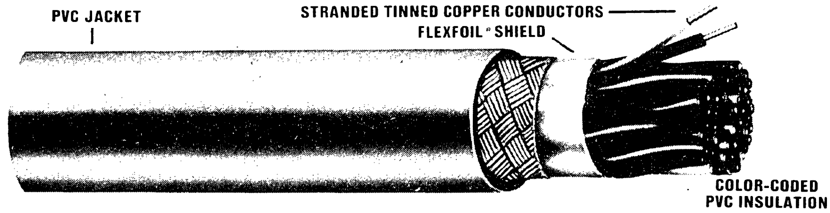
SHIELDED/MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Stranded tinned copper conductors, color-coded semi-rigid PVC insulation, UL style 1061, CSA type semi-rigid PVC cabled in pairs with or without single conductor. 100% Flexfoil®/Polyester shield, 65% tinned copper braid shield over entire assembly, PVC jacket overall. UL listed AWM style 2464 CSA Certified to 80°C. 300 volts. **Applications:** For use in data transmission, control circuits and signal applications in computers and indstrial equipment.

COLOR CODE SEE PAGE 13 — CHART NUMBER 6

UL — **LISTED**

SP — **CERTIFIED**



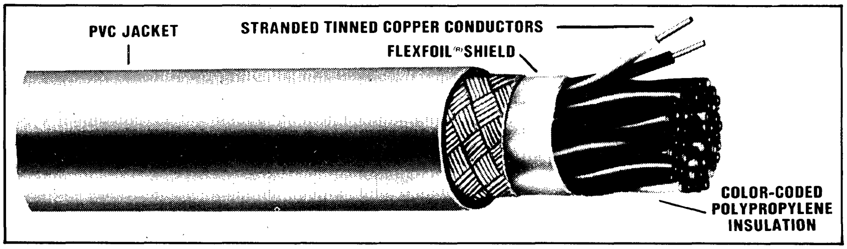
Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.		Nominal Cap. PF/Ft	
					Inches	mm	Inches	mm	Inches	mm	A	B
C0620	2	4	24	7/32	.010	.25	.032	.81	.250	6.35	30	50
C0621	3	6	24	7/32	.010	.25	.032	.81	.265	6.73	30	50
C0622	4	8	24	7/32	.010	.25	.032	.81	.288	7.32	30	50
C0623	5	10	24	7/32	.010	.25	.032	.81	.295	7.49	30	50
C0624	6	12	24	7/32	.010	.25	.032	.81	.311	7.90	30	50
C0625	7	14	24	7/32	.010	.25	.032	.81	.311	7.90	30	50
C0626	8	16	24	7/32	.010	.25	.032	.81	.335	8.51	30	50
C0627	9	18	24	7/32	.010	.25	.032	.81	.360	9.14	30	50
C0628	10	20	24	7/32	.010	.25	.032	.81	.385	9.78	30	50
C0629	12	24	24	7/32	.010	.25	.032	.81	.405	10.29	30	50
C0630	12½	25	24	7/32	.010	.25	.032	.81	.405	10.29	30	50
C0631	15	30	24	7/32	.010	.25	.032	.81	.445	11.30	30	50
C0632	18	36	24	7/32	.010	.25	.032	.81	.480	12.19	30	50
C0633	25	50	24	7/32	.010	.25	.032	.81	.550	13.97	30	50
C0650	2	4	22	7/30	.010	.25	.032	.81	.282	7.16	40	72
C0651	3	6	22	7/30	.010	.25	.032	.81	.296	7.52	35	63
C0652	4	8	22	7/30	.010	.25	.032	.81	.320	8.13	35	63
C0653	5	10	22	7/30	.010	.25	.032	.81	.322	8.18	35	63
C0654	6	12	22	7/30	.010	.25	.032	.81	.348	8.84	35	63
C0655	7	14	22	7/30	.010	.25	.032	.81	.348	8.84	35	63
C0656	8	16	22	7/30	.010	.25	.032	.81	.384	9.75	35	63
C0657	9	18	22	7/30	.010	.25	.032	.81	.400	10.16	35	63
C0658	10	20	22	7/30	.010	.25	.032	.81	.440	11.18	35	63
C0659	12	24	22	7/30	.010	.25	.032	.81	.455	11.56	35	63
C0660	12½	25	22	7/30	.010	.25	.032	.81	.455	11.56	35	63
C0661	15	30	22	7/30	.010	.25	.032	.81	.502	12.75	35	63
C0662	18	36	22	7/30	.010	.25	.032	.81	.535	13.59	35	63
C0663	25	50	22	7/30	.010	.25	.032	.81	.620	15.75	35	63

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

SHIELDED/MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded Polypropylene insulation, cabled in pairs, 100% Flexfoil® aluminum foil/Polyester shield, 90% tinned copper braid shield over entire assembly, PVC jacket overall, −20°C to +60°C. UL listed AWM style 2960. **Applications:** For audio RF and pulse applications requiring superior circuit isolation. Also suitabe for RS-422 type applications. The use of Polypropylene insulation results in excellent high frequency properties and mechanical durability. **Packaging:** 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 6


PVC JACKET
STRANDED TINNED COPPER CONDUCTORS
FLEXFOIL® SHIELD
COLOR-CODED POLYPROPYLENE INSULATION

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm	Nom. Cap. PF/Ft
C0804	2	4	28	7/36	.009	.23	.032	.81	.210	5.33	12.5
C0805	3	6	28	7/36	.009	.23	.032	.81	.220	5.59	12.5
C0806	4	8	28	7/36	.009	.23	.032	.81	.240	6.10	12.5
C0807	5	10	28	7/36	.009	.23	.032	.81	.250	6.35	12.5
C0808	7	14	28	7/36	.009	.23	.032	.81	.265	6.73	12.5
C0809	9	18	28	7/36	.009	.23	.032	.81	.300	7.62	12.5
C0810	10	20	28	7/36	.009	.23	.032	.81	.320	8.13	12.5
C0812	12	24	28	7/36	.009	.23	.032	.81	.330	8.38	12.5
C0819	18	36	28	7/36	.009	.23	.032	.81	.375	9.53	12.5
C0825	25	50	28	7/36	.009	.23	.032	.81	.430	10.92	12.5
UL LISTED 2919											
C0842	2	4	24	7/32	.018	.46	.060	.81	.355	9.02	12.8
C0843	3	6	24	7/32	.018	.46	.060	.81	.365	9.27	12.8
C0844	4	8	24	7/32	.018	.46	.060	.81	.395	10.03	12.8

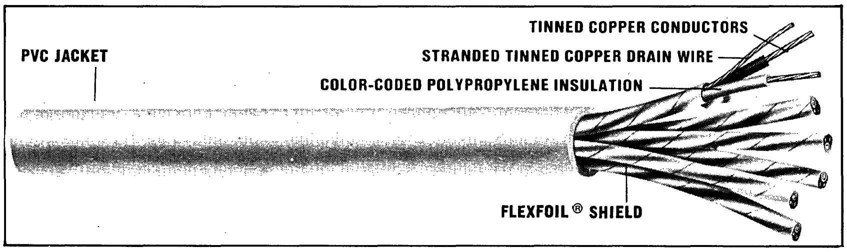
Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, solid Polyethylene insulation, cabled in pairs, 100% Flexfoil® aluminum foil/Polyester shield, 90% tinned copper braid shield over entire assembly, PVC jacket overall, −20°C to +60°C. UL listed AWM style 2448. **Applications:** For radio, pulse or RF signal transmission. Computer and computer peripheral equipment interconnection where high levels of noise are anticipated. Also suitable for RS-422 type applications. **Packaging:** 500′ and 1000′ spools.

C0829	2	4	24	7/32	.015	.38	.040	.81	.295	7.49	12.5
C0830	3	6	24	7/32	.015	.38	.040	.81	.309	7.85	12.5
C0831	4	8	24	7/32	.015	.38	.040	.81	.320	8.13	12.5
C0832	5	10	24	7/32	.015	.38	.040	.81	.350	8.89	12.5
C0833	7	14	24	7/32	.015	.38	.040	.81	.370	9.40	12.5
C0834	9	18	24	7/32	.015	.38	.040	.81	.420	10.67	12.5
C0835	10	20	24	7/32	.015	.38	.040	.81	.450	11.43	12.5
C0836	12	24	24	7/32	.015	.38	.040	.81	.470	11.94	12.5
C0837	18	36	24	7/32	.015	.38	.040	.81	.570	14.48	12.5
C0838	25	50	24	7/32	.015	.38	.040	.81	.660	16.76	12.5

LO-CAP® INDIVIDUALLY SHIELDED MULTIPLE PAIR CABLE/PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded foamed Polypropylene LoCap® insulation, each pair shielded with 100% Flexfoil® Aluminum/Polyester shield with a common 24 stranded tinned copper drain wire under the shield, PVC jacket overall, −20°C to +60°C, UL listed AWM style 2493, 300 volt rated. **Applications:** For computer and pulse applications requiring superior circuit isolation, as well as a low dielectric constant. The use of Polypropylene insulation results in excellent high frequency properties and mechanical durability. **Packaging:** 500′ and 1000′ spools.

COLOR CODE SEE PAGE 13 — CHART NUMBER 6


PVC JACKET
TINNED COPPER CONDUCTORS
STRANDED TINNED COPPER DRAIN WIRE
COLOR-CODED POLYPROPYLENE INSULATION
FLEXFOIL® SHIELD

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness Inches	Nom. Insulation Thickness mm	Nom. Jacket Thickness Inches	Nom. Jacket Thickness mm	Nominal O.D. Inches	Nominal O.D. mm	Nom. Cap. PF/Ft
C0910	2	4	24	7/32	.024	.61	.050	1.27	.335	8.51	12.5
C0911	3	6	24	7/32	.024	.61	.050	1.27	.345	8.76	12.5
C0912	4	8	24	7/32	.024	.61	.050	1.27	.404	10.26	12.5
C0913	6	12	24	7/32	.024	.61	.050	1.27	.476	12.09	12.5
C0914	9	18	24	7/32	.024	.61	.050	1.27	.570	14.48	12.5
C0915	11	22	24	7/32	.024	.61	.050	1.27	.610	15.49	12.5
C0916	12	24	24	7/32	.024	.61	.050	1.27	.630	16.00	12.5
C0917	15	30	24	7/32	.024	.61	.050	1.27	.700	17.78	12.5
C0918	17	34	24	7/32	.024	.61	.050	1.27	.730	18.54	12.5
C0919	19	38	24	7/32	.024	.61	.050	1.27	.750	19.05	12.5
C0920	27	54	24	7/32	.024	.61	.050	1.27	.875	22.23	12.5

CAROL

CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COMPUTER CABLE

COLOR CODES FOR COMPUTER CABLES PAGES 7-12

COLOR CODE OF CONDUCTORS 1

1 Black
2 Brown
3 Red
4 Orange
5 Yellow
6 Green
7 Blue
8 Violet
9 Gray
10 White
11 White/Black
12 White/Brown
13 White/Red
14 White/Orange
15 White/Yellow
16 White/Green
17 White/Blue
18 White/Violet
19 White/Gray
20 White/Black/Brown
21 White/Black/Red
22 White/Black/Orange
23 White/Black/Yellow
24 White/Black/Green
25 White/Black/Blue
26 White/Black/Violet
27 White/Black/Gray
28 White/Brown/Red
29 White/Brown/Orange
30 White/Brown/Yellow
31 White/Brown/Green
32 White/Brown/Blue
33 White/Brown/Violet
34 White/Brown/Gray
35 White/Red/Orange
36 White/Red/Yellow
37 White/Red/Green
38 White/Red/Blue
39 White/Red/Violet
40 White/Red/Gray
41 White/Orange/Yellow
42 White/Orange/Green
43 White/Orange/Blue
44 White/Orange/Violet
45 White/Orange/Gray
46 White/Yellow/Green
47 White/Yellow/Blue
48 White/Yellow/Violet
49 White/Yellow/Gray
50 White/Green/Blue
51 White/Green/Violet
52 White/Green/Gray
53 White/Blue/Violet
54 White/Blue/Gray
55 White/Violet/Gray
56 White/Black/Brown/Red
57 White/Black/Brown/Orange
58 White/Black/Brown/Yellow
59 White/Black/Brown/Green
60 White/Black/Brown/Blue

2

No. of Pairs	Color Coding☐
1	White with Black
2	White with Brown
3	White with Red
4	White with Orange
5	White with Yellow
6	White with Green
7	White with Blue
8	White with Violet
9	White with Gray
10	Black with Brown
11	Black with Red
12	Black with Orange
13	Black with Yellow
14	Black with Green
15	Black with Blue
16	Black with Violet
17	Black with Gray
18	Brown with Red
19	Brown with Orange
20	Brown with Yellow
21	Brown with Green
22	Brown with Blue
23	Brown with Violet
24	Brown with Gray
25	Red with Orange
26	Red with Yellow
27	Red with Green
28	Red with Blue
29	Red with Violet
30	Red with Gray
31	Orange with Yellow
32	Orange with Green
33	Orange with Blue
34	Orange with Violet
35	Orange with Gray
36	Yellow with Green
37	Yellow with Blue
38	Yellow with Violet
39	Yellow with Gray
40	Green with Blue
41	Green with Violet
42	Green with Gray
43	Blue with Violet
44	Blue with Gray
45	Violet with Gray
46	White/Black with Black
47	White/Black with Brown
48	White/Black with Red
49	White/Black with Orange
50	White/Black with Yellow
51	White/Black with Green
52	White/Black with Blue
53	White/Black with Violet
54	White/Black with Gray
55	White/Brown with Black
56	White/Brown with Brown
57	White/Brown with Red
58	White/Brown with Orange
59	White/Brown with Yellow
60	White/Brown with Green

COLOR CODE OF CONDUCTORS CHART 1 3

1 Black
2 White
3 Red
4 Green
5 Brown
6 Blue
7 Orange
8 Yellow
9 Purple
10 Gray
11 Pink
12 Tan

COLOR CODE CHART 2 PER IPCEA 4

1 Black
2 White
3 Red
4 Green
5 Orange
6 Blue
7 White/Black
8 Red/Black
9 Green/Black
10 Orange/Black
11 Blue/Black
12 Black/White
13 Red/White
14 Green/White
15 Blue/White
16 Black/Red
17 White/Red
18 Orange/Red
19 Blue/Red
20 Red/Green
21 Orange/Green
22 Black/White/Red
23 White/Black/Red
24 Red/Black/White
25 Green/Black/White
26 Orange/Black/White
27 Blue/Black/White
28 Black/Red/Green
29 White/Red/Green
30 Red/Black/Green
31 Green/Black/Orange
32 Orange/Black/Green
33 Blue/White/Orange
34 Black/White/Orange
35 White/Red/Orange
36 Orange/White/Blue
37 White/Red/Blue
38 Black/White/Blue
39 White/Black/Green
40 Red/White/Green
41 Green/White/Blue
42 Orange/Red/Green
43 Blue/Red/Green
44 Black/White/Blue
45 White/Black/Blue
46 Red/White/Blue
47 Green/Orange/Red
48 Orange/Red/Blue
49 Blue/Red/Orange
50 Black/Orange/Red
51 White/Black/Orange
52 Red/Orange/Black
53 Green/Red/Blue
54 Orange/Black/Blue
55 Blue/Black/Orange
56 Black/Orange/Green
57 White/Orange/Green
58 Red/Orange/Green
59 Green/Black/Blue
60 Orange/Green/Blue

COLOR CODE CHART 2 PER IPCEA 5

No. of Pairs	Color Coding
1	Black
2	White
3	Red
4	Green
5	Orange
6	Blue
7	White/Black
8	Red/Black
9	Green/Black
10	Orange/Black
11	Blue/Black
12	Black/White
13	Red/White
14	Green/White
15	Blue/White
16	Black/Red
17	White/Red
18	Orange/Red
19	Blue/Red
20	Red/Green
21	Orange/Green
22	Black/White/Red
23	White/Black/Red
24	Red/Black/White
25	Green/Black/White
26	Orange/Black/White
27	Blue/Black/White
28	Black/Red/Green
29	White/Red/Green
30	Red/Black/Green
31	Green/Black/Orange
32	Orange/Black/Green
33	Blue/White/Orange
34	Black/White/Orange
35	White/Red/Orange
36	Orange/White/Blue
37	White/Red/Blue
38	Black/White/Green
39	White/Black/Green
40	Red/White/Green
41	Green/White/Blue
42	Orange/Red/Green
43	Blue/Red/Green
44	Black/White/Blue
45	White/Black/Blue
46	Red/White/Blue
47	Green/Orange/Red
48	Orange/Red/Blue
49	Blue/Red/Orange
50	Black/Orange/Red

C0600-C0612 — C0720-0730 COLOR CODE OF CONDUCTORS 6

1 Black with Red
2 Black with White
3 Black with Green
4 Black with Blue
5 Black with Yellow
6 Black with Brown
7 Black with Orange
8 Red with White
9 Red with Green
10 Red with Blue
11 Red with Yellow
12 Red with Brown
13 Red with Orange
14 Green with White
15 Green with Blue
16 Green with Yellow
17 Green with Brown
18 Green with Orange
19 White with Blue
20 White with Yellow
21 White with Brown
22 White with Orange
23 Blue with Yellow
24 Blue with Brown
25 Blue with Orange
26 Brown with Yellow
27 Brown with Orange
28 Orange with Yellow
29 Purple with Orange
30 Purple with Red
31 Purple with White
32 Purple with Dark Green
33 Purple with Light Blue
34 Purple with Yellow
35 Purple with Brown
36 Purple with Black
37 Gray with White

C0613 + C0731 7

No. of Pairs	Color Coding☐
1	Blue paired with White
2	Orange paired with White
3	Green paired with White
4	Brown paired with White
5	Slate (Gray) paired with White
6	Blue/White striped paired with White
7	Blue/Orange striped paired with White
8	Blue/Green striped paired with White
9	Blue/Brown striped paired with White
10	Blue/Slate (Gray) striped paired with White
11	Orange/White striped paired with White
12	Orange/Green striped paired with White
13	Orange/Brown striped paired with White
14	Orange/Slate (Gray) striped paired with White
15	Green/White striped paired with White
16	Green/Brown striped paired with White
17	Green/Slate (Gray) striped paired with White
18	Brown/White striped paired with White
19	Brown/Slate (Gray) striped paired with White
20	Slate (Gray)/White striped paired with White
21	Blue paired with Red
22	Orange paired with Red
23	Green paired with Red
24	Brown paired with Red
25	Slate (Gray) paired with Red
26	Blue/White striped paired with Red
27	Blue/Orange striped paired with Red
28	Blue/Green striped paired with Red
29	Blue/Brown striped paired with Red
30	Blue/Brown striped paired with Red
31	Orange/White striped paired with Red
32	Orange/Green striped paired with Red
33	Orange/Brown striped paired with Red
34	Orange/Slate (Gray) striped paired with Red
35	Green/White striped paired with Red
36	Green/Brown striped paired with Red
37	Green/Slate (Gray) striped paired with Red
38	Brown/White striped paired with Red
39	Brown/Slate (Gray) striped paired with Red
40	Slate (Gray) White striped paired with Red
41	Blue paired with Black
42	Blue paired with Black
43	Green paired with Black
44	Brown paired with Black
45	Slate (Gray) paired with Black
46	Blue/White striped paired with Black
47	Blue/Orange striped paired with Black
48	Blue/Green striped paired with Black
49	Blue/Brown striped paired with Black
50	Blue/Slate (Gray) striped paired with Black
51	Orange/White striped paired with Black

COLOR CODE OF CONDUCTORS 8

1 Black/White
2 Red/Green
3 Brown/Blue
4 Orange/Yellow
5 Violet/Gray
6 Tan/Pink
7 White/Blue
8 White/Brown
9 White/Orange
10 White/Green
11 White/Red
12 White/Black
13 Yellow/Blue
14 Yellow/Brown
15 Yellow/Orange
16 Yellow/Red
17 Yellow/Black
18 Yellow/Violet
Blue/White
Brown/White
Orange/White
Green/White
Red/White
Black/White
Blue/Yellow
Brown/Yellow
Orange/Yellow
Red/Orange
Black/Yellow
Violet/Yellow
Single conductor Green/Yellow stripe

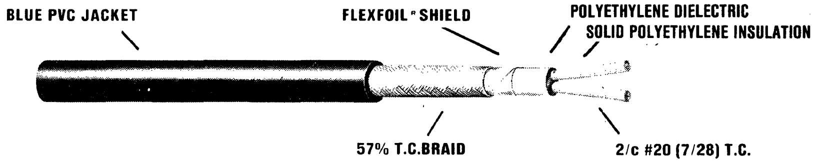
CAROL

CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

COMPUTER CABLE

TWINAXIAL DATA CABLE/ 78 OHM

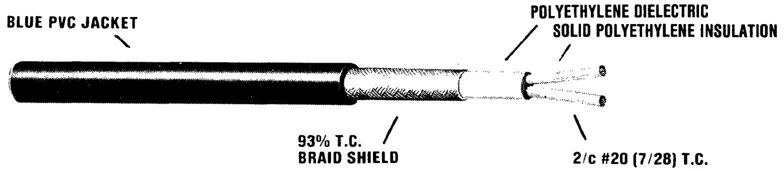
Application:
Audio, Pulse or RF Signal Transmission where
High Levels of noise are anticipated
Voltage Rating 150 Volt
ULAWM style 2582 60°C


BLUE PVC JACKET
FLEXFOIL® SHIELD
POLYETHYLENE DIELECTRIC
SOLID POLYETHYLENE INSULATION
57% T.C.BRAID
2/c #20 (7/28) T.C.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C8001	2	20	7/28	.022	.56	.033	.84	.242	6.17

TWINAXIAL DATA CABLE/ 78 OHM

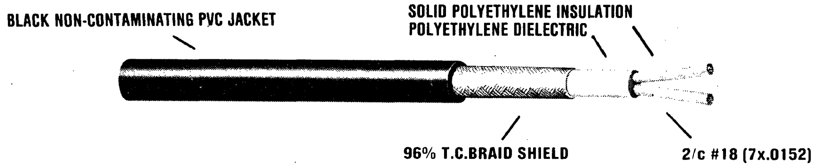
Application:
Audio, Pulse or RF Signal Transmission where
High Levels of noise are anticipated
Voltage Rating 300 Volt
ULAWM style 2092 60°C


BLUE PVC JACKET
POLYETHYLENE DIELECTRIC
SOLID POLYETHYLENE INSULATION
93% T.C.
BRAID SHIELD
2/c #20 (7/28) T.C.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C8002	2	20	7/28	.020	.50	.031	.79	.242	8.57

TWINAXIAL DATA CABLE/ 95 OHM

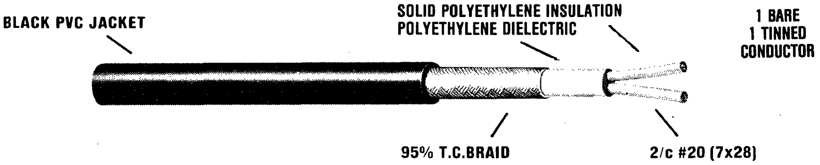
Application:
Audio, Pulse or RF Signal Transmission where
High Levels of noise are anticipated
Voltage Rating 300 Volt


BLACK NON-CONTAMINATING PVC JACKET
SOLID POLYETHYLENE INSULATION
POLYETHYLENE DIELECTRIC
96% T.C.BRAID SHIELD
2/c #18 (7x.0152)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C8003 22 B/U Type	2	20	7/.0152	.020	.50	.038	.97	.420	10.17

TWINAXIAL DATA CABLE/ 100 OHM

Application:
Audio, Pulse or RF Signal Transmission where
High Levels of noise are anticipated
Voltage Rating 300 Volt
ULAWM style 2498 80°C


BLACK PVC JACKET
SOLID POLYETHYLENE INSULATION
POLYETHYLENE DIELECTRIC
1 BARE
1 TINNED
CONDUCTOR
95% T.C.BRAID
2/c #20 (7x28)

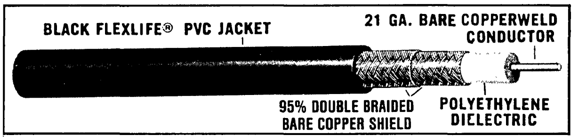
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insulation Thickness		Nom. Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm	Inches	mm
C8000	2	20	7/28	.022	.56	.033	.84	.330	8.38

CAROL

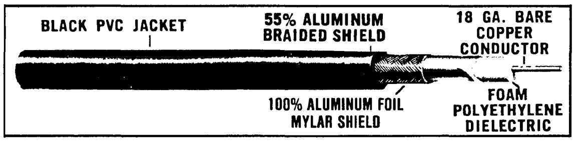
CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COAXIAL CABLE

RG TRANSMISSION LINE CABLE

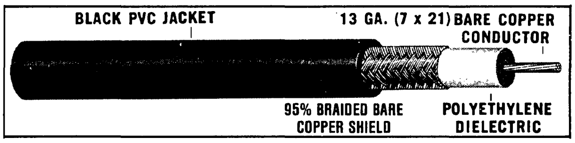
6A/U TYPE


BLACK FLEXLIFE® PVC JACKET
21 GA. BARE COPPERWELD CONDUCTOR
95% DOUBLE BRAIDED BARE COPPER SHIELD
POLYETHYLENE DIELECTRIC

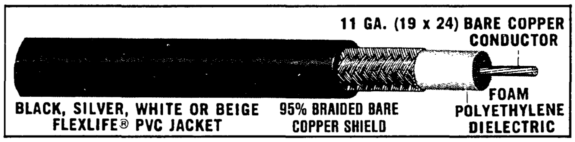
6/U TYPE


BLACK PVC JACKET
55% ALUMINUM BRAIDED SHIELD
18 GA. BARE COPPER CONDUCTOR
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

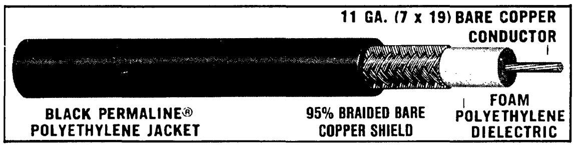
8/U JAN. C17A


BLACK PVC JACKET
13 GA. (7 x 21) BARE COPPER CONDUCTOR
95% BRAIDED BARE COPPER SHIELD
POLYETHYLENE DIELECTRIC

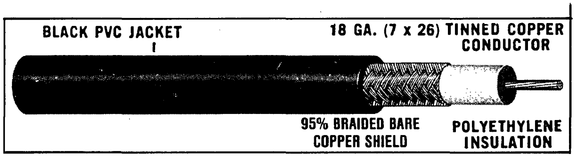
8/U TYPE


11 GA. (19 x 24) BARE COPPER CONDUCTOR
BLACK, SILVER, WHITE OR BEIGE FLEXLIFE® PVC JACKET
95% BRAIDED BARE COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC

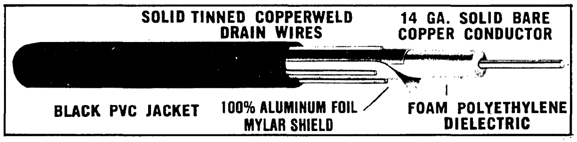
8/U TYPE


11 GA. (7 x 19) BARE COPPER CONDUCTOR
BLACK PERMALINE® POLYETHYLENE JACKET
95% BRAIDED BARE COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC

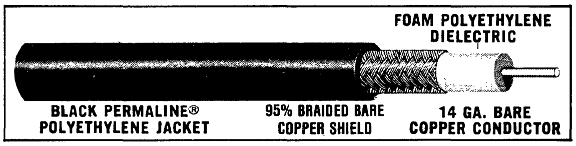
11/U JAN. C17A


BLACK PVC JACKET
18 GA. (7 x 26) TINNED COPPER CONDUCTOR
95% BRAIDED BARE COPPER SHIELD
POLYETHYLENE INSULATION

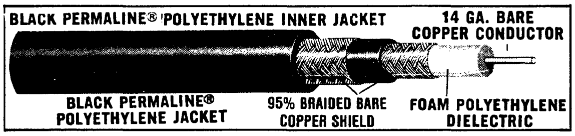
11/U TYPE


SOLID TINNED COPPERWELD DRAIN WIRES
14 GA. SOLID BARE COPPER CONDUCTOR
BLACK PVC JACKET
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

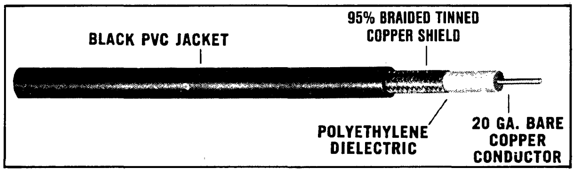
11/U TYPE


FOAM POLYETHYLENE DIELECTRIC
BLACK PERMALINE® POLYETHYLENE JACKET
95% BRAIDED BARE COPPER SHIELD
14 GA. BARE COPPER CONDUCTOR

11/U TYPE


BLACK PERMALINE® POLYETHYLENE INNER JACKET
14 GA. BARE COPPER CONDUCTOR
BLACK PERMALINE® POLYETHYLENE JACKET
95% BRAIDED BARE COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC

58/U JAN. C17A


95% BRAIDED TINNED COPPER SHIELD
BLACK PVC JACKET
POLYETHYLENE DIELECTRIC
20 GA. BARE COPPER CONDUCTOR

Catalog Number	Nominal O.D.		Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft	
	Inches	mm					MHz	dB
							50	2.0
C1168	.336	8.53	75	43.5Ω/M	66	20.5	100	2.9
							200	4.3
			100% Sweep Tested				500	6.2
							900	8.4
							50	1.5
							100	2.1
C5775	.270	6.86	75	6.4Ω/M′	78	17.3	200	3.1
							500	5.0
							900	6.9
							50	1.3
			JACKET ONLY PASSES				100	2.1
			VW-1 VERTICAL FLAME TEST				200	3.1
C1154	.405	10.29	52	1.87Ω/M′	66	29.5	400	5.0
							900	7.8
							50	1.2
C1198	.405	10.29	50	1.48Ω/M′	78	26	100	1.8
			Superflex®				200	2.6
							400	3.8
							50	1.1
C5015	.405	10.29	50	1.15Ω/M′	78	26	100	1.7
			Permafoam®				200	2.4
							400	3.9
							50	1.5
			JACKET ONLY PASSES				100	2.1
			VW-1 VERTICAL FLAME TEST				200	3.2
							400	4.7
C1160	.405	10.29	75	6.06Ω/M′	66	20.5	600	6.0
							1000	8.0
							50	1.0
C5026	.380	9.65	75	2.5Ω/M′	78	17.3	100	1.5
			100% Sweep Tested				200	2.2
			UL STYLE 1594				500	3.7
							900	5.6
							50	1.0
C5025	.405	10.29	75	2.5Ω/M′	78	17.3	100	1.5
							100	2.2
			100% Sweep Tested				500	3.7
							900	5.2
			DOUBLE SHIELDED				50	1.0
							100	1.5
C5027	.475	12.07	75	2.5Ω/M′	78	17.3	200	2.2
			100% Sweep Tested				400	3.3
							50	3.0
C1166	.195	4.95	53.5	10.1Ω/M′	66	28.5	100	4.5
							200	6.2
			UL STYLE 1594				400	9.5
							900	14.5

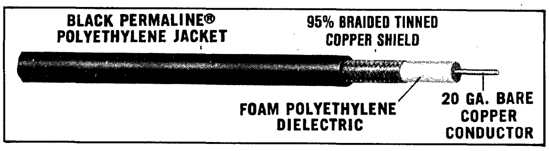
* Manufactured to current government specifications and subsequent revisions.
REQUEST QUOTATIONS ON PRODUCTION QUANTITIES OF RG/U CABLES NOT LISTED.
NOTE: For descriptions on FLEXLIFE®, PERMAFOAM®, PERMALINE® and SUPERFLEX®, see Technical Data.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

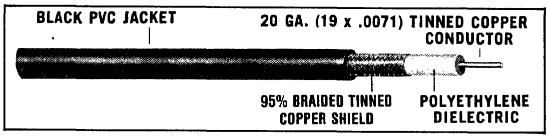
COAXIAL CABLE

RG TRANSMISSION LINE CABLE

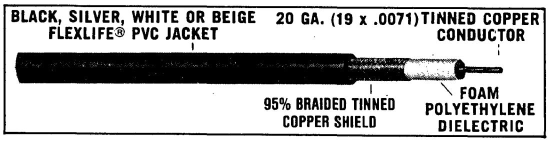
58/U TYPE


BLACK PERMALINE® POLYETHYLENE JACKET
95% BRAIDED TINNED COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC
20 GA. BARE COPPER CONDUCTOR

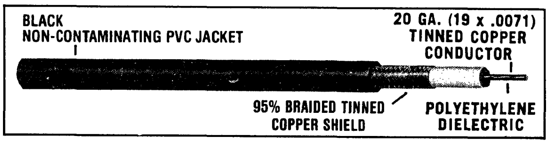
58A/U JAN. C17A


BLACK PVC JACKET
20 GA. (19 x .0071) TINNED COPPER CONDUCTOR
95% BRAIDED TINNED COPPER SHIELD
POLYETHYLENE DIELECTRIC

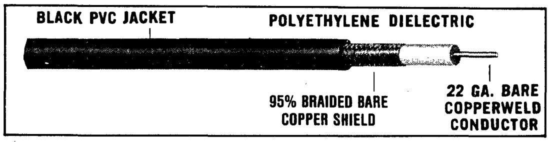
58A/U TYPE


BLACK, SILVER, WHITE OR BEIGE FLEXLIFE® PVC JACKET
20 GA. (19 x .0071)TINNED COPPER CONDUCTOR
95% BRAIDED TINNED COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC

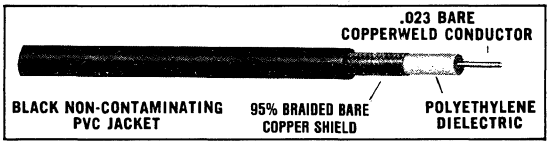
58C/U MIL-C17O


BLACK NON-CONTAMINATING PVC JACKET
20 GA. (19 x .0071) TINNED COPPER CONDUCTOR
95% BRAIDED TINNED COPPER SHIELD
POLYETHYLENE DIELECTRIC

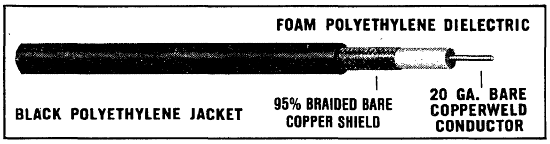
59/U JAN. C17A


BLACK PVC JACKET
POLYETHYLENE DIELECTRIC
95% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR

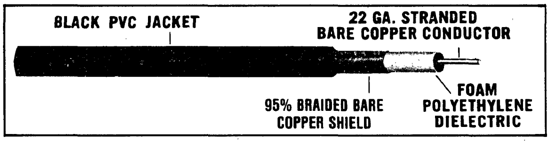
59B/U MIL-C17O


.023 BARE COPPERWELD CONDUCTOR
BLACK NON-CONTAMINATING PVC JACKET
95% BRAIDED BARE COPPER SHIELD
POLYETHYLENE DIELECTRIC

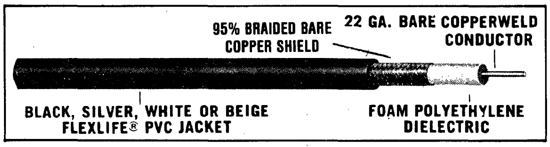
59/U TYPE


FOAM POLYETHYLENE DIELECTRIC
BLACK POLYETHYLENE JACKET
95% BRAIDED BARE COPPER SHIELD
20 GA. BARE COPPERWELD CONDUCTOR

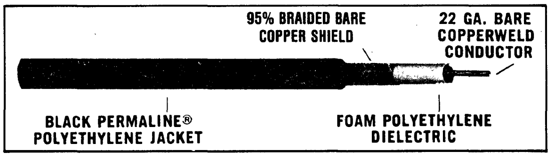
59/U TYPE


BLACK PVC JACKET
22 GA. STRANDED BARE COPPER CONDUCTOR
95% BRAIDED BARE COPPER SHIELD
FOAM POLYETHYLENE DIELECTRIC

59/U TYPE


95% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
BLACK, SILVER, WHITE OR BEIGE FLEXLIFE® PVC JACKET
FOAM POLYETHYLENE DIELECTRIC

59/U TYPE


95% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
BLACK PERMALINE® POLYETHYLENE JACKET
FOAM POLYETHYLENE DIELECTRIC

Catalog Number	Nominal O.D.		Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft	
	Inches	mm					MHz	dB
C5045	.195	4.95	53	10.1Ω/M′ Permafoam®	78	22.0	50 100 200 400 900	3.7 4.8 6.9 10.0 15.5
C1178	.195	4.95	50	10.8Ω/M′ Superflex®	66	30.8	50 100 200 400 900	4.1 5.3 8.2 12.6 20.0
C1188	.195	4.95	50	10.8Ω/M′ Superflex®	78	26	50 100 200 400 900	3.7 4.8 6.9 10.0 15.5
C1155	.195	4.95	50	10.8Ω/M′	66	30.8	50 100 200 400 900	4.1 5.3 8.2 12.6 20.0
C1104	.242	6.15	73	55.0Ω/M′ 100% Sweep Tested UL STYLE 1594	66	21	50 100 200 500 900	2.4 3.4 4.9 9.1 13.9
C1106	.242	6.15	75	47.0Ω/M′ 100% Sweep Tested	66	20.5	50 100 200 500 900	2.4 3.4 4.9 9.1 13.9
C1102	.242	6.15	75	34.5Ω/M′	78	17.3	50 100 200 500 900	1.8 2.6 3.8 6.2 8.4
C1103	.242	6.15	75	15.0Ω/M′ 100% Sweep Tested UL STYLE 1594	78	17.3	100 200 400	2.60 3.80 5.60
C1135	.242	6.15	80	55.0Ω/M′ Superflex® 100% Sweep Tested	78	16.3	50 100 200 500 900	2.1 2.9 4.1 6.6 8.8
C5035	.242	6.15	80	55.0Ω/M′ Permafoam® 100% Sweep Tested	78	16.3	50 100 200 500 900	2.1 2.9 4.1 6.6 8.8

* Manufactured to current government specifications and subsequent revisions.

REQUEST QUOTATIONS ON PRODUCTION QUANTITIES OF RG/U CABLES NOT LISTED.

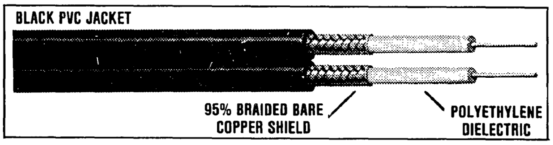
NOTE: For descriptions on FLEXLIFE®, PERMAFOAM®, PERMALINE® and SUPERFLEX®, see Technical Data.

CAROL

CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COAXIAL CABLE

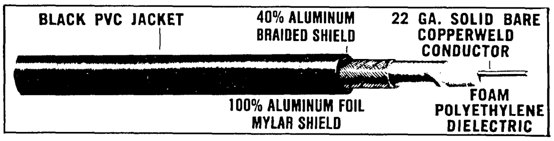
RG TRANSMISSION LINE CABLE

59/U DUAL TYPE


BLACK PVC JACKET
95% BRAIDED BARE COPPER SHIELD
POLYETHYLENE DIELECTRIC

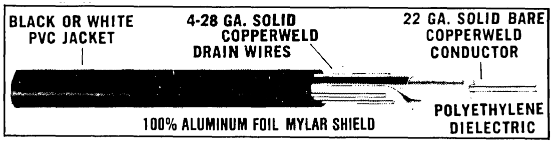
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C8005	.242	6.15	75	2.6Ω/M′	66	20.5	100	3.5
							200	5.1
							400	7.5
			UL STYLE 20063				700	11.4
							900	12.0
							1000	12.7

59/U TYPE


BLACK PVC JACKET
40% ALUMINUM BRAIDED SHIELD
22 GA. SOLID BARE COPPERWELD CONDUCTOR
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

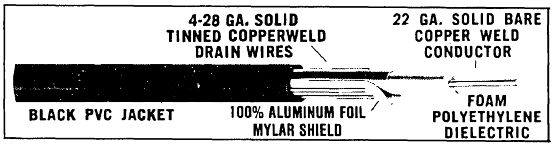
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C5770	.242	6.15	80	55.0Ω/M′	78	16.3	50	1.9
							100	2.7
							200	4.0
			100% Sweep Tested				500	6.5
			UL STYLE 1594				900	9.0

59/U TYPE


BLACK OR WHITE PVC JACKET
4-28 GA. SOLID COPPERWELD DRAIN WIRES
22 GA. SOLID BARE COPPERWELD CONDUCTOR
100% ALUMINUM FOIL MYLAR SHIELD
POLYETHYLENE DIELECTRIC

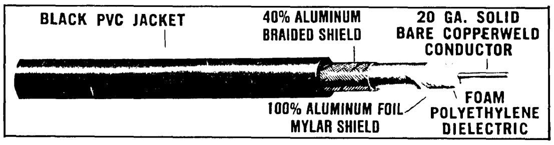
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C5750	.242	6.15	75	55.0Ω/M′	66	20.5	50	2.5
							100	3.2
							200	4.6
			100% Sweep Tested				500	6.2

59/U TYPE


4-28 GA. SOLID TINNED COPPERWELD DRAIN WIRES
22 GA. SOLID BARE COPPER WELD CONDUCTOR
BLACK PVC JACKET
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

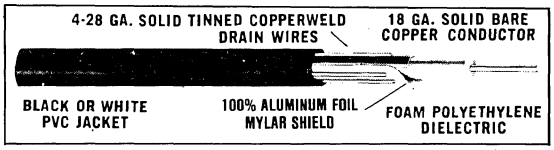
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C5755	.242	6.15	80	55.0Ω/M′	78	17.5	50	2.0
							100	2.7
							200	3.9
			100% Sweep Tested				500	6.0
							900	8.5

59/U TYPE


BLACK PVC JACKET
40% ALUMINUM BRAIDED SHIELD
20 GA. SOLID BARE COPPERWELD CONDUCTOR
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

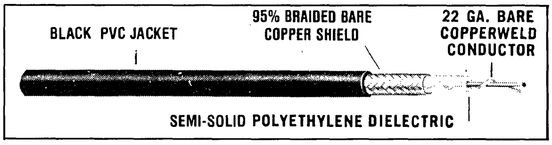
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C5780	.242	6.15	75	34.5Ω/M′	78	17.3	50	1.8
							100	2.6
							200	3.8
			100% Sweep Tested				500	6.2
			UL STYLE 1594				900	8.6

59/6U TYPE


4-28 GA. SOLID TINNED COPPERWELD DRAIN WIRES
18 GA. SOLID BARE COPPER CONDUCTOR
BLACK OR WHITE PVC JACKET
100% ALUMINUM FOIL MYLAR SHIELD
FOAM POLYETHYLENE DIELECTRIC

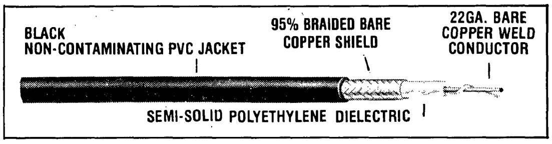
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C5760	.242	6.15	75	6.4Ω/M′	78	17.5	50	1.5
							100	2.1
							200	3.1
			100% Sweep Tested				500	5.0
							900	6.9

62/U


BLACK PVC JACKET
95% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

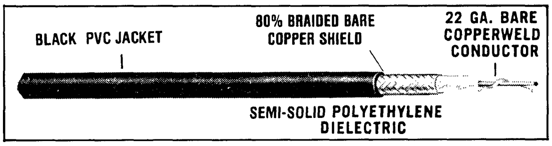
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C1163	.242	6.15	93	55.0Ω/M′	84	13.5	100	3.1
							200	4.4
							400	6.3
							900	11.0

62A/U


BLACK NON-CONTAMINATING PVC JACKET
95% BRAIDED BARE COPPER SHIELD
22GA. BARE COPPER WELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

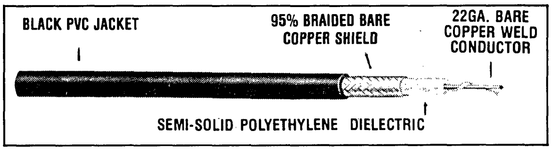
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C1162	.242	6.15	93	55.0Ω/M′	84	13.5	100	3.1
							200	4.4
							400	6.3
							900	11.0

62/U


BLACK PVC JACKET
80% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C1161	.242	6.15	93	55.0Ω/M′	84	13.5	100	3.1
							200	4.4
							400	6.3
							900	11.0

62/U


BLACK PVC JACKET
95% BRAIDED BARE COPPER SHIELD
22GA. BARE COPPER WELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

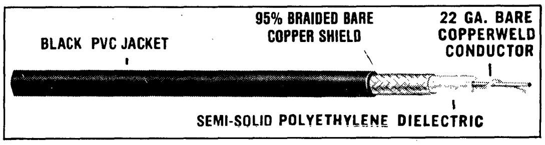
Catalog Number	Nominal O.D. Inches	Nominal O.D. mm	Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft MHz	dB
C1164	.242	6.15	93	40Ω/M′	84	13.5	100	3.1
							200	4.4
							400	6.3
			UL STYLE 1381				900	11.0

* Manufactured to current government specifications and subsequent revisions.
REQUEST QUOTATIONS ON PRODUCTION QUANTITIES OF RG/U CABLES NOT LISTED.
NOTE: For descriptions on FLEXLIFE®, PERMAFOAM®, PERMALINE® and SUPERFLEX®, see Technical Data.

CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION
COAXIAL CABLE

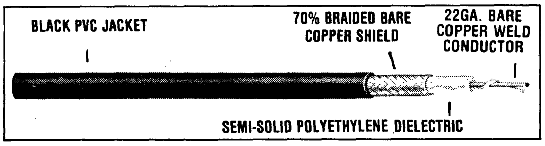
RG TRANSMISSION LINE CABLE

62/U



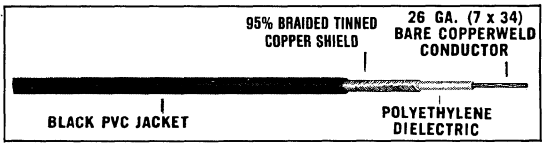
BLACK PVC JACKET
95% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

62/U



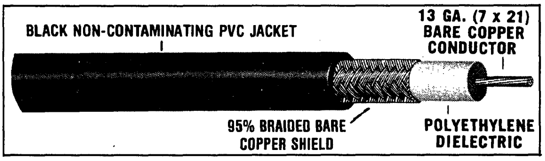
BLACK PVC JACKET
70% BRAIDED BARE COPPER SHIELD
22GA. BARE COPPER WELD CONDUCTOR
SEMI-SOLID POLYETHYLENE DIELECTRIC

174/U TYPE



95% BRAIDED TINNED COPPER SHIELD
26 GA. (7 x 34) BARE COPPERWELD CONDUCTOR
BLACK PVC JACKET
POLYETHYLENE DIELECTRIC

213/U MIL-C17D

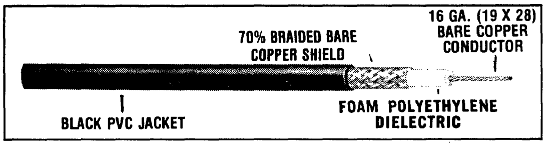


BLACK NON-CONTAMINATING PVC JACKET
13 GA. (7 x 21) BARE COPPER CONDUCTOR
95% BRAIDED BARE COPPER SHIELD
POLYETHYLENE DIELECTRIC

Catalog Number	Nominal O.D.		Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft	
	Inches	mm					MHz	dB
C1165	.260	6.60	93	40Ω/M'	84	13.5	100 200 400 900	3.1 4.4 6.3 11.0
C1167	.242	6.15	93	55.0Ω/M'	84	13.5	100 200 400 900	3.1 4.4 6.3 11.0
C1156	.100	2.54	50	97Ω/M'	66	30.8	50 100 200 400	6.5 8.80 13.00 20.00
C1176	.405	10.29	50	1.87Ω/M'	68	30.8	50 100 200 400 600 1000	1.35 2.10 3.10 5.00 6.50 8.80

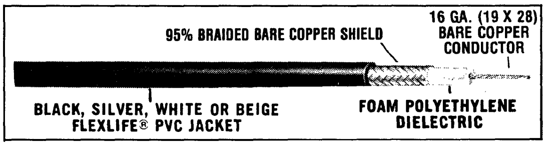
MINIATURE RG 8X

MINI 8/X



16 GA. (19 X 28) BARE COPPER CONDUCTOR
70% BRAIDED BARE COPPER SHIELD
BLACK PVC JACKET
FOAM POLYETHYLENE DIELECTRIC

MINI 8/X



16 GA. (19 X 28) BARE COPPER CONDUCTOR
95% BRAIDED BARE COPPER SHIELD
BLACK, SILVER, WHITE OR BEIGE FLEXLIFE® PVC JACKET
FOAM POLYETHYLENE DIELECTRIC

Catalog Number	Nominal O.D.		Nom. Imp. (Ohms)	D.C.R.	Nom. % Vel. of Prop.	Nom. Cap. PF/Ft	Nominal Attenuation per 100 Ft	
	Inches	mm					MHz	dB
C1107	.242	6.15	50	3.80Ω/M'	78	28	50 100 200 400	3.0 4.3 5.7 9.5
C1108	.242	6.15	50	3.80Ω/M' Superflex®	78	28	50 100 200 400	2.8 4.0 5.3 9.0

* Manufactured to current government specifications and subsequent revisions.
REQUEST QUOTATIONS ON PRODUCTION QUANTITIES OF RG/U CABLES NOT LISTED.
NOTE: For descriptions on FLEXLIFE®, PERMAFOAM®, PERMALINE® and SUPERFLEX®, see Technical Data.

TECHNICAL DATA

FLEXFOIL® Laminated aluminum foil/polyester shielding material. Provides 100% shielding, easy termination and reduced cable diameter. Unique construction eliminates metal to metal contact, providing isolation between adjacent shields in a cable assembly. Polyester film provides extra insulation and mechanical strength.

FLEXLIFE® Specially formulated jacketing material provides outstanding high gloss appearance, remarkable flexibility and long life.

PERMAFOAM® Transmission cables utilizing low loss foam polyethylene dielectrics and permaline jackets for extra long life.

PERMALINE® High molecular weight polyethylene jacketing material which contains a small percentage of carbon black. Non-contaminating, high resistance to weather, salt air, chemical fumes, fungus and acids. Permaline has excellent moisture resistance, allowing it to be used in direct burial installations.

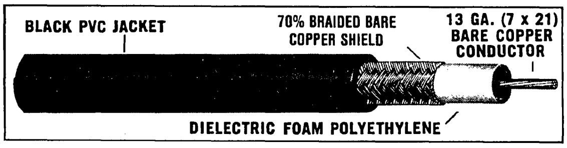
SUPERFLEX® RG type cables having foam polyethylene dielectric which provide low loss. Flexlife jackets give the cable outstanding appearance, flex and long life.

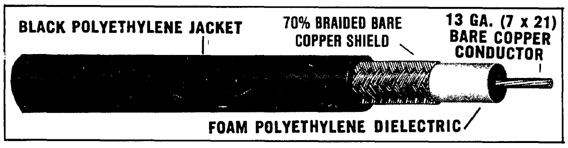
CAROL CAROL CABLE COMPANY, INC. / ELECTRONIC CABLES DIVISION

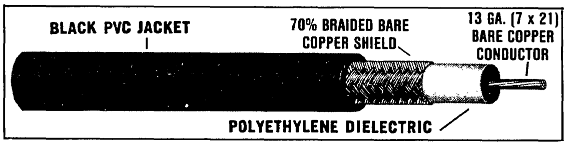
COAXIAL CABLE

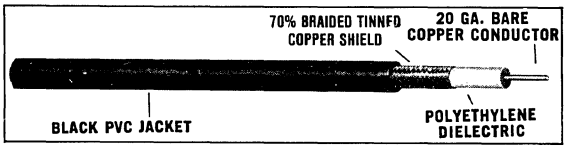
FULL POWER® TV, MATV AND CB TRANSMISSION LINE CABLE

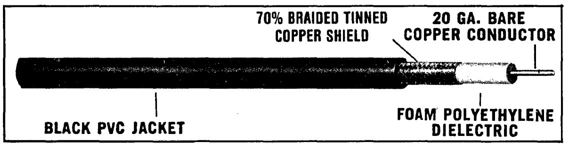
The Full Power® line of coaxial cable consists of a variety of commercial type cables suitable for many CB and television applications. Full Power® cables provide good performance at low cost.

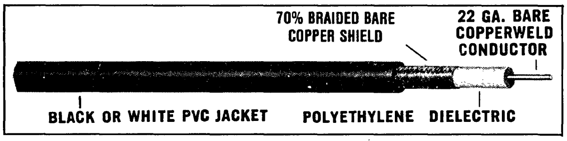

BLACK PVC JACKET
70% BRAIDED BARE COPPER SHIELD
13 GA. (7 x 21) BARE COPPER CONDUCTOR
DIELECTRIC FOAM POLYETHYLENE

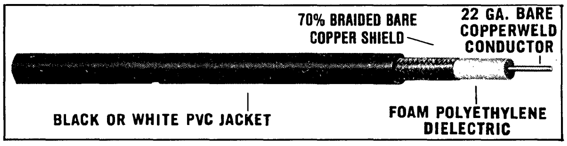

BLACK POLYETHYLENE JACKET
70% BRAIDED BARE COPPER SHIELD
13 GA. (7 x 21) BARE COPPER CONDUCTOR
FOAM POLYETHYLENE DIELECTRIC


BLACK PVC JACKET
70% BRAIDED BARE COPPER SHIELD
13 GA. (7 x 21) BARE COPPER CONDUCTOR
POLYETHYLENE DIELECTRIC


70% BRAIDED TINNED COPPER SHIELD
20 GA. BARE COPPER CONDUCTOR
BLACK PVC JACKET
POLYETHYLENE DIELECTRIC


70% BRAIDED TINNED COPPER SHIELD
20 GA. BARE COPPER CONDUCTOR
BLACK PVC JACKET
FOAM POLYETHYLENE DIELECTRIC


70% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
BLACK OR WHITE PVC JACKET
POLYETHYLENE DIELECTRIC


70% BRAIDED BARE COPPER SHIELD
22 GA. BARE COPPERWELD CONDUCTOR
BLACK OR WHITE PVC JACKET
FOAM POLYETHYLENE DIELECTRIC

	Catalog Number	Nominal O.D.		Nom. Imp. (Ohms)	D.C.R.	Nom. Cap.	Nominal Attenuation per 100 Ft	
		Inches	mm				MHz	dB
8/U TYPE	C1109	.405	10.29	50	1.87Ω/M′	26.0	50 100 200 400	1.9 2.9 3.9 5.9
8/U TYPE	C5013	.405	10.29	50	1.87Ω/M′	26.0	50 100 200 400	1.9 2.9 3.9 5.9
8/U TYPE	C1113	.405	10.29	50	1.87Ω/M′	29.5	50 100 200 400	1.9 2.2 3.3 5.3
58/U TYPE	C1117	.195	4.95	55	10.1Ω/M′	28.5	50 100 200 400	3.1 4.6 6.3 9.6
58/U TYPE	C1116	.195	4.95	55	10.1Ω/M′	22.0	50 100 200 400	3.0 3.6 5.6 8.9
59/U TYPE	C1110	.242	6.15	73	55.0Ω/M′	21	50 100 200 400 690	2.5 3.5 5.0 9.2 14.0
59/U TYPE	C1112	.242	6.15	80	55.0Ω/M′	16.3	50 100 200 300 400	2.2 3.0 4.2 6.7 8.9

REQUEST QUOTATIONS ON PRODUCTION QUANTITIES OF RG/U CABLES NOT LISTED.
NOTE: For descriptions of DURA-COLOR®, PERMAFOAM® and PERMALINE®, see Technical Data.
For Twinaxial Constructions refer to Computer Cable Section

COONER WIRE

UL APPROVED FLEXIBLE POWER & GROUND CABLES.

Round Silicone Rubber Insulated Constructions

PART NUMBER	AWG SIZE	CONSTR. OF STRAND	NO. OF ENDS	CIRC. MIL	WALL THICKNESS	NOM. FIN. O.D.	NOM. CARRY CAPAC. AMPS
AS 105-05	24	42x40	42	404	.030″	.084″	
AS 105-04	22	3x22x40	66	634	.030″	.089″	
AS 105-03	20	7x15x40	105	1009	.030″	.099″	
AS 105-02	18	7x24x40	168	1614	.030″	.112″	
AS 105-01	16	7x15x36	105	2625	.030″	.127″	16
AS 105-0	14	7x24x36		4200	.030″	144″	20
AS 105-2	12	7x37x36	269	6475	.030″	.164″	25
AS 105-4	10	7x59x36	413	10325	.045″	.222″	40
AS 105-6	8	7x95x36	665	16625	.060″	.287″	55
AS 105-8	7	7x119x36	833	20825	.060″	.307″	60
AS 105-10	6	7x150x36	1050	26250	.060″	.330″	85
AS 105-12	4	7x7x34x36	1666	41650	.060″	.420″	105
AS 105-14	2	7x7x54x36	2646	66150	.060″	.499″	140
AS 105-16	1	7x7x68x36	3332	83300	.080″	.585″	180
AS 105-18	1/0	7x7x86x36	4214	105350	.080″	.640″	205

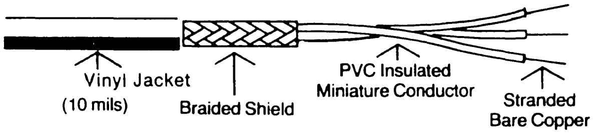
Round, PVC Insulated Constructions

PART NUMBER	AWG SIZE	CONSTR. OF STRAND	NO. OF ENDS	CIRC. MIL	WALL THICKNESS	NOM. FIN. O.D.	NOM. CARRY CAPAC. AMPS
AS 108-02	18	7x9x36	63	1,575	.015″	.082″	12
AS 108-01	16	7x15x36	105	2,625	.015″	.097″	16
AS 108-0	14	7x24x36	168		.020″	.124″	20
AS 108-2	12	7x37x36	259		.020″	.144″	25
AS 108-4	10	7x59x36	413		.020″	.172″	40
AS 108-6	8	7x95x36	665		.030″	.227″	55
AS 108-8	7	7x119x36	883		.030″	.247″	60
AS 108-10	6	7x100x36	1050		.030″	.270″	85
AS 108-12	4	7x7x34x36	1666		.030″	.360″	105
AS 108-14	2	7x7x54x36	2646		.030″	.439″	140
AS 108-16	1	7x7x68x36	3332		.040″	.505″	180
AS 108-18	1/10	7x7x86x36	4214		.040″	.560″	205

COONER WIRE
SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

ULTRA FLEXIBLE MICROMINIATURE



DESCRIPTION:

Conductors are ultra flexible, bunched bare copper strands insulated with 5 mil walls of color coded 90°C Polyvinylchloride. Extra flexible braided shields, jackets or both can be applied over the cabled conductors.

APPLICATIONS:

Phonograph tone arms, miniature relays, biomedical instruments, computers and other specialized applications requiring 200 volt, 90°C ultra flexible microminiature multiconductor cables.

		SINGLE CONDUCTOR DATA				NOM.	SHIELD		JACKET	
PART NUMBER	NO. OF COND.	AWG SIZE	STRAND CONSTR.	NOM. WALL THICK.	NOM. DIA.	DIA. OVER CABLED COND.	CONSTR.	NOM. DIA. OVER SHIELD	WALL THICK.	NOM. O.D.
NMUF 1/30-4046S	1	30	40/46 Bunch	.005	.022	.022	12-5-44	.031		
NMUF 1/30-4046SJ	1	30	40/46 Bunch	.005	.022	.022	12-5-44	.031	.010	.051
NMUF 2/30-4046U	2	30	40/46 Bunch	.005	.022	.044				
NMUF 2/30-4046S	2	30	40/46 Bunch	.005	.022	.044	12-7-44	.053		
NMUF 2/30-4046J	2	30	40/46 Bunch	.005	.022	.044			.010	.064
NMUF 2/30-4046SJ	2	30	40/46 Bunch	.005	.022	.044	12-7-44	.053	.010	.073
NMUF 3/30-4046U	3	30	40/46 Bunch	.005	.022	.047				
NMUF 3/30-4046S	3	30	40/46 Bunch	.005	.022	.047	12-7-44	.056		
NMUF 3/30-4046J	3	30	40/46 Bunch	.005	.022	.047			.010	.067
NMUF 3/30-4046SJ	3	30	40/46 Bunch	.005	.022	.047	12-7-44	.056	.010	.076
NMUF 4/30-4046U	4	30	40/46 Bunch	.005	.022	.053				
NMUF 4/30-4046S	4	30	40/46 Bunch	.005	.022	.053	16-6-44	.062		
NMUF 4/30-4046J	4	30	40/46 Bunch	.005	.022	.053			.010	.073
NMUF 4/30-4046SJ	4	30	40/46 Bunch	.005	.022	.053	16-6-44	.062	.010	.082
NMUF 5/30-4046U	5	30	40/46 Bunch	.005	.022	.059				
NMUF 5/30-4046S	5	30	40/46 Bunch	.005	.022	.059	16-8-44	.068		
NMUF 5/30-4046J	5	30	40/46 Bunch	.005	.022	.059			.010	.079
NMUF 5/30-4046SJ	5	30	40/46 Bunch	.005	.022	.059	16-8-44	.068	.010	.088
NMUF 1/32-6550S	1	32	65/50 Bunch	.005	.020	.020	8-4-44	.029		
NMUF 1/32-6550SJ	1	32	65/50 Bunch	.005	.020	.020	8-4-44	.029	.010	.049
NMUF 2/32-6550U	2	32	65/50 Bunch	.005	.020	.040				
NMUF 2/32-6550S	2	32	65/50 Bunch	.005	.020	.040	12-7-44	.049		
NMUF 2/32-6550J	2	32	65/50 Bunch	.005	.020	.040			.010	.060
NMUF 2/32-6550SJ	2	32	65/50 Bunch	.005	.020	.040	12-7-44	.049	.010	.069
NMUF 3/32-6550U	3	32	65/50 Bunch	.005	.020	.043				
NMUF 3/32-6550S	3	32	65/50 Bunch	.005	.020	.043	16-6-44	.052		
NMUF 3/32-6550J	3	32	65/50 Bunch	.005	.020	.043			.010	.063
NMUF 3/32-6550SJ	3	32	65/50 Bunch	.005	.020	.043	16-6-44	.052	.010	.072

COONER WIRE
SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

ULTRA FLEXIBLE MICROMINIATURE

		SINGLE CONDUCTOR DATA				NOM. DIA. OVER CABLED COND.	SHIELD		JACKET	
PART NUMBER	NO. OF COND.	AWG SIZE	STRAND CONSTR.	NOM. WALL THICK.	NOM. DIA.		CONSTR.	NOM. DIA. OVER SHIELD	WALL THICK.	NOM. O.D.
NMUF 4/32-6550U	4	32	65/50 Bunch	.005	.020	.048				
NMUF 4/32-6550S	4	32	65/50 Bunch	.005	.020	.048	16-7-44	.057		
NMUF 4/32-6550J	4	32	65/50 Bunch	.005	.020	.048			.010	.068
NMUF 4/32-6550SJ	4	32	65/50 Bunch	.005	.020	.048	16-7-44	.057	.010	.077
NMUF 5/32-6550U	5	32	65/50 Bunch	.005	.020	.054				
NMUF 5/32-6550S	5	32	65/50 Bunch	.005	.020	.054	16-7-44	.063		
NMUF 5/32-6550J	5	32	65/50 Bunch	.005	.020	.054			.010	.074
NMUF 5/32-6550SJ	5	32	65/50 Bunch	.005	.020	.054	16-7-44	.063	.010	.083
NMUF 1/34-4050S	1	34	40/50 Bunch	.005	.018	.018	12-7-44	.027		
NMUF 1/34-4050SJ	1	34	40/50 Bunch	.005	.018	.018	12-7-44	.027	.010	.047
NMUF 2/34-4050U	2	34	40/50 Bunch	.005	.018	.036				
NMUF 2/34-4050S	2	34	40/50 Bunch	.005	.018	.036	12-7-44	.045		
NMUF 2/34-4050J	2	34	40/50 Bunch	.005	.018	.036			.010	.056
NMUF 2/34-4050SJ	2	34	40/50 Bunch	.005	.018	.036	12-7-44	.045	.010	.065
NMUF 3/34-4050U	3	34	40/50 Bunch	.005	.018	.039				
NMUF 3/34-4050S	3	34	40/50 Bunch	.005	.018	.039	12-7-44	.048		
NMUF 3/34-4050J	3	34	40/50 Bunch	.005	.018	.039			.010	.059
NMUF 3/34-4050SJ	3	34	40/50 Bunch	.005	.018	.039	12-7-44	.048	.010	.068
NMUF 4/34-4050U	4	34	40/50 Bunch	.005	.018	.043				
NMUF 4/34-4050S	4	34	40/50 Bunch	.005	.018	.043	16-6-44	.052		
NMUF 4/34-4050J	4	34	40/50 Bunch	.005	.018	.043			.010	.063
NMUF 4/34-4050SJ	4	34	40/50 Bunch	.005	.018	.043	16-6-44	.052	.010	.072
NMUF 5/34-4050U	5	34	40/50 Bunch	.005	.018	.049				
NMUF 5/34-4050S	5	34	40/50 Bunch	.005	.018	.049	16-7-44	.058		
NMUF 5/34-4050J	5	34	40/50 Bunch	.005	.018	.049			.010	.069
NMUF 5/34-4050SJ	5	34	40/50 Bunch	.005	.018	.049	16-7-44	.058	.010	.078
NMUF 1/36-2550S	1	36	25/50 Bunch	.005	.016	.016	8-5-44	.025		
NMUF 1/36-2550SJ	1	36	25/50 Bunch	.005	.016	.016	8-5-44	.025	.010	.045
NMUF 2/36-2550U	2	36	25/50 Bunch	.005	.016	.032				
NMUF 2/36-2550S	2	36	25/50 Bunch	.005	.016	.032	12-6-44	.041		
NMUF 2/36-2550J	2	36	25/50 Bunch	.005	.016	.032			.010	.052
NMUF 2/36-2550SJ	2	36	25/50 Bunch	.005	.016	.032	12-6-44	.041	.010	.061
NMUF 3/36-2550U	3	36	25/50 Bunch	.005	.016	.034				
NMUF 3/36-2550S	3	36	25/50 Bunch	.005	.016	.034	12-7-44	.043		
NMUF 3/36-6550J	3	36	25/50 Bunch	.005	.016	.034			.010	.054
NMUF 3/36-2550SJ	3	36	25/50 Bunch	.005	.016	.034	12-7-44	.043	.010	.063
NMUF 4/36-2550U	4	36	25/50 Bunch	.005	.016	.039				
NMUF 4/36-2550S	4	36	25/50 Bunch	.005	.016	.039	12-7-44	.048		
NMUF 4/36-2550J	4	36	25/50 Bunch	.005	.016	.039			.010	.059
NMUF 4/36-2550SJ	4	36	25/50 Bunch	.005	.016	.039	12-7-44	.048	.010	.068
NMUF 5/36-2550U	5	36	25/50 Bunch	.005	.016	.043				
NMUF 5/36-2550S	5	36	25/50 Bunch	.005	.016	.043	16-6-44	.052		
NMUF 5/36-2550J	5	36	25/50 Bunch	.005	.016	.043			.010	.063
NMUF 5/36-2550SJ	5	36	25/50 Bunch	.005	.016	.043	16-6-44	.052	.010	.072

COONER WIRE

SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

BRAIDED COPPER CABLES

Tubular Constructions
Tinned Copper Wire Shielding Braids

Manufactured to Federal Specification QQB-575A.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQ 24136	22	600	36	24	24-1-36	1/32″	500.0	2.0
NEQ 16132	20	1,024	32	16	16-1-32	1/16″	303.0	3.3
NEQ 16234	19	1,270	34	32	16-2-34	1/16″	233.0	4.3
NEQ 24236	19	1,200	36	48	24-2-36	1/16″	250.0	4.0
NEQ 24336	18	1,800	36	72	24-3-36	5/64″	167.0	6.0
NEQ 16232	17	2,048	32	32	16-2-32	7/64″	152.0	6.6
NEQ 16434	16	2,540	34	64	16-4-34	7/64″	114.0	8.8
NEQ 24436	16	2,400	36	96	24-4-36	7/64″	122.0	8.2
NEQ 24232	15	3,072	32	48	24-2-32	1/8″	99.0	10.1
NEQ 24334	16	2,858	34	72	24-3-34	1/8″	109.0	9.2
NEQ 24536	15	3,000	36	120	24-5-36	1/8″	97.0	10.3
NEQ 241036	12	6,000	36	240	24-10-36	5/32″	47.8	20.9
NEQ 24332	14	4,608	32	72	24-3-32	11/64″	68.0	14.7
NEQ 24534	13	4,763	34	120	24-5-34	11/64″	64.1	15.6
NEQ 24736	14	4,200	36	168	24-7-36	11/64″	69.9	14.3
NEQ 24532	11	7,680	32	120	24-5-32	13/64″	40.7	24.6
NEQ 24834	11	7,620	34	192	24-8-34	13/64″	35.8	27.9
NEQ 241336	11	7,800	36	312	24-13-36	13/64″	35.7	28.0
NEQ 344-36	11	8,600	36	344	(16-14-36) (8-15-36)	1/4″	30.4	32.9
NEQ 241636	10	9,600	36	384	24-14-36	1/4″	29.0	34.5
NEQ 24530	9	12,000	30	120	24-5-30	9/32″	23.8	42.0
NEQ 24430	10	9,600	30	96	24-4-30	3/8″	31.0	32.3
NEQ 24730	8	16,800	30	168	24-7-30	3/8″	17.5	57.0
NEQ 48332	11	9,216	32	144	48-3-32	3/8″	30.9	32.4
NEQ 48534	10	9,526	34	240	48-5-34	3/8″	30.6	32.7
NEQ 48836	10	9,600	36	384	48-8-36	3/8″	29.0	34.5
NEQ 241030	6	24,000	30	240	24-10-30	7/16″	12.4	80.6
NEQ 241530	5	36,000	30	360	24-15-30	1/2″	8.5	117.0
NEQ 48432	9	12,288	32	192	48-4-32	1/2″	25.0	40.0
NEQ 48734	9	13,336	34	336	48-7-34	1/2″	21.0	47.0
NEQ 481136	9	13,200	36	528	48-11-36	1/2″	21.0	47.7
NEQ 481030	3	48,000	30	480	48-10-30	9/16″	6.6	151.0
NEQ 481630	1	76,800	30	768	48-16-30	21/36″	3.9	254.0
NEQ 48732	7	21,504	32	336	48-7-32	25/32″	13.8	72.7
NEQ 524-34	7	20,798	34	524	(48-11-34) (4-10-34)	25/32″	14.0	71.4
NEQ 481836	7	21,600	36	864	48-18-36	25/32″	13.6	73.5

Tubular Constructions
Extra-Large Tinned Copper Wire Shielding Braids

Manufactured to QQB-575A standards although these extra large sizes are not listed in the present specifications.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQL 48730	5	33,600	30	336	48-7-30	7/8″	8.5	118.
NEQL 48830	4	38,400	30	384	48-8-30	1″	7.4	135.
NEQL 48930	4	43,200	30	432	48-9-30	1-1/8″	6.7	150.
NEQL 481030	3	48,000	30	480	48-10-30	1-1/4″	6.1	165.
NEQL 481130	3	48,000	30	528	48-11-30	1-3/8″ - 1-1/2″	6.1	165.
NEQL 481230	3	57,600	30	576	48-12-30	1-1/2″ - 1-3/4″	5.1	195.
NEQL 481430	2	67,200	30	672	48-14-30	1-7/8″ - 2-1/8″	4.4	225.
NEQL 481630	1	76,800	30	768	48-16-30	2-1/4″ - 2-1/2″	3.9	255.

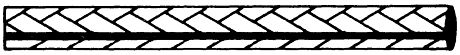
COONER WIRE

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

SALES & MARKETING DIVISION

BRAIDED COPPER CABLES

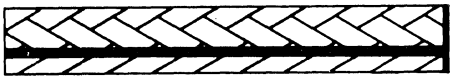
Tubular Constructions
Silver-Plated Copper Wire Shielding Braids



Manufactured to QQB-575A standards with the exception that 40 micro inches of Silver Plating has been substituted for the regular Tin Plating. This substitution is necessary when the shielding is to be subjected to temperatures exceeding 200°C, of if special corrosion resistance is required.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQ 24136S	22	600	36	24	24-1-36	1/32″	500.0	2.0
NEQ 24236S	19	1,200	36	48	24-2-36	1/16″	250.0	4.0
NEQ 24336S	18	1,800	36	72	24-3-36	5/64″	167.0	6.0
NEQ 24436S	16	2,400	36	96	24-4-36	7/64″	122.0	8.2
NEQ 24536S	15	3,000	36	120	24-5-36	1/8″	97.0	10.3
NEQ 24836S	13	4,800	36	192	24-8-36	3/16″	61.3	16.3
NEQ 24834S	11	7,620	34	192	24-8-34	1/4″	40.2	24.9
NEQ 48636S	12	7,200	36	288	48-6-36	5/16″	41.3	24.2
NEQ 48836S	10	9,600	36	384	48-8-36	3/8″	29.0	34.5
NEQ 48634S	10	11,431	34	288	48-6-34	7/16″	25.4	39.3
NEQ 481136S	9	13,200	36	528	48-11-36	1/2″	21.0	47.7
NEQ 481536S	8	18,000	36	720	48-15-36	5/8″	16.8	59.4
NEQ 481836S	7	21,600	36	864	48-18-36	3/4″	13.6	73.5
NEQ 481032S	5	30,720	32	480	48-10-32	7/8″	10.0	100.0
NEQ 48830S	4	38,400	30	384	48-8-30	1″	7.4	135.0
NEQ 48930S	4	43,200	30	432	48-9-30	1-1/8″	6.7	150.0
NEQ 481030S	3	48,000	30	480	48-10-30	1-1/4″	6.1	165.0
NEQ 481130S	3	52,800	30	528	48-11-30	1-3/8 - 1-1/2″	5.6	180.0
NEQ 481230S	3	57,600	30	576	48-12-30	1-1/2 - 1-3/4″	5.1	195.0
NEQ 481430S	2	67,200	30	672	48-14-30	1-7/8 - 2-1/8″	4.4	225.0
NEQ 481630S	1	76,000	30	768	48-16-30	2-1/4 - 2-1/2″	3.9	225.0

Flat Constructions
Extra-Wide Braided Copper Cables



Manufactured of Bare or Tinned Copper Wire.

PART NUMBER	AWG SIZE	CIR. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER 1000′
NE 3483530T		504,000	30	5,040	3x(48-35-30)	2-1/4″	1/2″	.60	1,670.
NE 2483230T		307,200	30	3,072	2x(48-32-30)	2-1/8″	5/16″	.97	1,034.
NE 485230T		249,600	30	2,496	48-52-30	2-1/2″	5/32″	1.30	784.
NE 484430T	4/0	211,200	30	2,112	48-44-30	2-3/8″	5/32″	1.50	663.
NE 483530T	3/0	168,000	30	1,680	48-35-30	2-1/4″	5/32″	1.80	541.
NE 483230T	3/0	153,600	30	1,536	48-32-30	2″	5/32″	2.00	500.
NE 483830T	2/0	134,400	30	1,344	48-28-30	2″	1/8″	2.20	455.
NE 482230T	1/0	105,600	30	1,056	48-22-30	1-3/4″	1/8″	2.80	357.
NE 481830T	1	86,400	30	864	48-18-30	1-5/8″	1/8 ″	3.60	278.
NE 481630T	1	76,800	30	768	48-16-30	1-1/2″	1/8″	3.85	260.
NE 481430T	2	67,200	30	672	48-14-30	1-3/8″	1/8″	4.40	225.
NE 481030T	3	48,000	30	480	48-10-30	1-1/4″	1/8″	6.20	163.
NE 48830T	4	38,400	30	384	48-8-30	1″	1/16″	7.60	132.
NE 48730T	5	33,600	30	336	48-7-30	1-3/8″	1/16″	8.50	117.
NE 48530T	6	24,000	30	240	48-5-30	3/4″	1/16″	12.00	83.

The suffix "T" stands for Tinned Copper Braids. If a Bare Copper Braid is desired, replace the "T" with a "B"

COONER WIRE
SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

BRAIDED COPPER CABLES

Flat Constructions
Standard Braided Copper Cables

Manufactured of Bare or Tinned Copper Wire for bonds, grounds, leads, flexible connectors.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER 1000′
NE 4243230T		307,200	30	3,072	4x(24-32-30)	1-3/8″	1/2″	1.00	1,080.0
NE 3243230T	4/0	230,400	30	2,304	3x(24-32-30)	1-1/4″	3/8″	1.26	795.0
NE 2243530T	3/0	168,000	30	1,680	2x(24-35-30)	1-1/4″	1/4″	1.75	570.0
NE 2243230T	3/0	153,600	30	1,536	2x(24-32-30)	1-1/4″	1/4″	1.88	530.0
NE 2242730T	2/0	129,600	30	1,296	2x(24-27-30)	1-1/8″	1/4″	2.25	445.0
NE 244430T	1/0	105,600	30	1,056	24-44-30	1-1/4″	1/8″	2.80	355.0
NE 488436T	1/0	100,800	36	4,032	48-84-36	1-5/8″	1/8″	2.82	354.0
NE 243230T	1	76,800	30	768	24-32-30	1″	1/8″	3.8	265.0
NE 486036T	1	72,000	36	2,880	48-60-36	1-1/4″	3/32″	4.0	250.0
NE 242730T	2	64,800	30	648	24-27-30	15/16″	1/8″	4.5	220.0
NE 242030T	3	48,000	30	480	24-20-30	3/4″	1/8″	6.0	165.0
NE 484036T	3	48,000	36	1,920	48-40-36	1″	3/32″	6.2	160.0
NE 488640T	4	39,670	40	4,128	48-86-40	1″	1/8″	7.7	130.0
NE 246736T	4	40,200	36	1,608	24-67-36	3/4″	3/32″	7.4	135.0
NE 241530T	5	36,000	30	360	24-15-30	5/8″	3/32″	8.5	118.0
NE 482236T	6	26,400	36	1,056	48-22-36	7/8″	1/16″	11.1	90.4
NE 241030T	6	24,000	30	240	24-10-30	1/2″	3/32″	12.5	80.0
NE 244036T	6	24,000	36	960	24-40-36	17/32″	3/32″	13.3	75.0
NE 481936T	7	22,800	36	912	48-19-36	13/16″	1/16″	13.0	77.0
NE 832-36T	7	20,800	36	832	(32-17-36) (16-18-36)	1″	1/16″	13.9	72.0
NE 481536T	8	18,000	36	720	(48-15-36)	5/8″	1/16″	17.1	58.8
NE 24730T	8	16,800	30	168	24-7-30	7/16″	1/16″	18.0	56.0
NE 481136T	9	13,200	36	528	48-11-36	5/8″	3/64″	22.0	46.6
NE 24530T	9	12,000	30	120	24-5-30	3/8″	1/16″	25.0	40.0
NE 24430T	10	9,600	30	96	24-4-30	5/16″	1/16″	31.0	32.0
NE 241636T	10	9,600	36	384	24-16-36	3/8″	1/16″	32.0	31.0
NE 48836T	10	9,600	36	384	48-8-36	1/2″	1/32″	31.0	32.0
NE 241336T	11	7,800	36	312	24-13-36	9/32″	3/64″	40.0	25.0
NE 48636T	12	7,200	36	288	48-6-36	3/8″	1/32″	41.3	24.2
NE 241036T	12	6,000	36	240	24-10-36	1/4″	3/64″	50.0	20.00
NE 24736T	14	4,200	36	168	24-7-36	7/32″	1/32″	71.0	14.10
NE 24536T	15	3,000	36	120	24-5-36	3/16″	1/32″	100.0	10.00
NE 24436T	16	2,400	36	96	24-4-36	5/32″	1/32″	125.0	8.00
NE 124244T	17	2,016	44	504	12-42-44	.065″ round		165.0	6.07
NE 16536T	17	2,000	36	80	16-5-36	1/8″	1/32″	150.0	6.70
NE 24336T	18	1,800	36	72	24-3-36	7/64″	1/32″	175.0	5.70
NE 16436T	18	1,600	36	64	16-4-36	3/32″	1/32″	196.0	5.10
NE 24236T	19	1,200	36	48	24-2-36	3/32″	1/32″	260.0	3.86
NE 16336T	19	1,200	36	48	16-3-36	3/32″	1/32″	260.0	3.86
NE 12940T	20	1,038	40	108	12-9-40	.049″ round		299.0	3.34
NE 16640T	20	923	40	96	16-6-40	1/16″	1/32″	325.0	3.08
NE 16236T	21	800	36	32	16-2-36	1/16″	1/32″	380.0	2.63
NE 16134T	22	635	34	16	16-1-34	.037″ round		535.0	1.87
NE 66-40T	22	634	40	66	(14-4-40) (2-5-40)	.036″ round		526.0	1.90
NE 8336T	22	600	36	24	8-3-36	.038″ round		515.0	1.94
NE 12236T	22	600	36	24	12-2-36	3/64″	1/32″	515.0	1.94
NE 24136T	22	600	36	24	24-1-36	3/64″	1/32″	515.0	1.94
NE 16340T	23	461	40	48	16-3-40	.035″ round		671.0	1.49
NE 16136T	24	400	36	16	16-1-36	.029″ round		800.0	1.25
NE 8134T	25	318	34	8	8-1-34	.030″ round		1,000.0	1.00
NE 16240T	25	308	40	32	16-2-40	.026″ round		943.0	1.06
NE 12136T	25	300	36	12	12-1-36	.028″ round		1,000.0	1.00
NE 12240T	26	231	40	24	12-2-40	.025″ round		1,250.0	.80
NE 8136T	27	200	36	8	8-1-36	.026″ round		1,600.0	.62
NE 8240T	28	154	40	16	8-2-40	.020″ round		1,950.0	.51
NE 6136T	28	150	36	6	6-1-36	.022″ round		2,100.0	.48
NE 12242T	28	150	42	24	12-2-42	.023″ round		2,440.0	.41
NE 6240T	29	113	40	12	6-2-40	.018″ round		2,800.0	.36
NE 4136T	30	100	36	4	4-1-36	.019″ round		3,000.0	.33

The suffix "T" stands for Tinned Copper Braids. If a Bare Copper Braid is desired, replace the "T" with a "B"

COONER WIRE
SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

BRAIDED COPPER CABLES

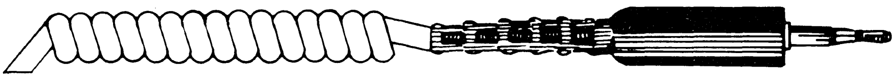
Oval Constructions
Stainless Steel Braided Cables

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	NOMINAL FLAT WIDTH	FEET PER POUND	POUNDS PER 1000′
NES 16336-304S	19	1,200	36	48	16-3-36	1/32″	1/16″	250.63	3.99
NES 24236-304S	19	1,200	36	48	24-2-36	1/16″	3/32″	250.63	3.99
NES 24336-304S	18	1,800	36	72	24-3-36	5/64″	7/64″	166.67	6.00
NES 24436-304S	16	2,400	36	96	24-4-36	7/64″	1/8″	125.00	8.00
NES 24536-304S	15	3,000	36	120	24-5-36	1/8″	5/32″	100.10	9.99
NES 24736-304S	14	4,200	36	168	24-7-36	11/64″	1/4″	71.48	13.99
NES 24836-304S	13	4,800	36	192	24-8-36	3/16″	1/4″	62.58	15.98
NES 241036-304S	12	6,000	36	240	24-10-36	7/32″	1/4″	50.03	19.99
NES 241336-304S	11	7,800	36	312	24-13-36	1/4″	5/16″	38.49	25.98
NES 48736-304S	11	8,400	36	336	48-7-36	3/8″	1/2″	35.75	27.97
NES 48836-304S	10	9,600	36	384	48-8-36	7/16″	5/8″	31.46	31.97
NES 48936-304S	10	10,800	36	432	48-9-36	1/2″	11/16″	27.80	35.97
NES 481136-304S	9	13,200	36	528	48-11-36	5/8″	3/4″	22.75	43.96
NES 481536-304S	8	18,000	36	720	48-15-36	3/4″	15/16″	16.68	59.95
NES 481836-304S	7	21,600	36	864	48-18-36	7/8″	1″	13.90	71.94
NES 48730-304S	5	33,600	30	336	48-7-30	1″	1-1/4″	8.94	111.80
NES 48830-304S	4	38,400	30	384	48-8-30	1-1/4″	1-7/16″	7.83	127.78
NES 481030-304S	3	48,000	30	480	48-10-30	1-1/2″	1-5/8″	6.26	159.72

CABLE ASSEMBLIES & MOLDED ASSEMBLIES

Coiled Coil Assemblies

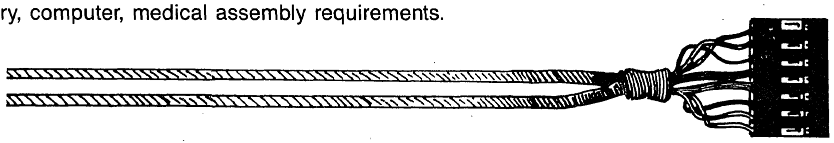
Coiled Cords from Cooner Wire are manufactured to customer specifications and assembled with or without molded backshells and strain reliefs.

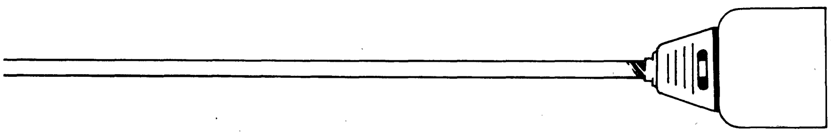


Electronic Cable Assemblies

Cooner Wire Company manufactures cable assemblies to customer specifications from standard or special components. At Cooner Wire Company, we have endeavored to make available to our customers, assemblies processed to more closely meet their needs; than those otherwise available. We are able to meet standard needs, or fabricate assemblies and molded assemblies that incorporate the use of our highly specialized wire and cables. Molded assemblies available in most melt extrudable compounds as well as thermosettings such as Silicone Rubber.

Call us for your special military, computer, medical assembly requirements.





COONER WIRE

SALES & MARKETING DIVISION

9186 INDEPENDENCE, CHATSWORTH, CA 91311 (818) 882-8311 TELEX 353-734

CORD ELECTRONICS
INCORPORATED (Formerly the OEM Division of MURA)

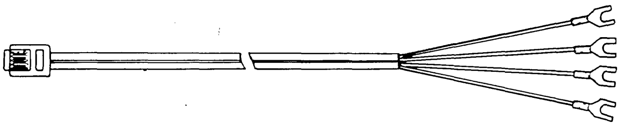
177 Cantiague Rock Road, Westbury, N.Y. 11590 U.S.A.
Phone: (516) 935-3640 • Tlx: 4758020 • Fax: (516) 935-0780

MODULAR TELEPHONE CORDS

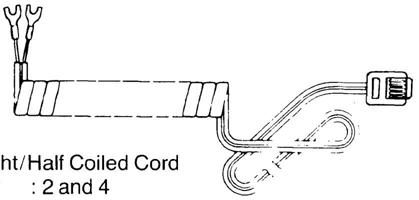
Cord offers a complete combination of modular telephone cord colors, terminations and designs. We also welcome the opportunity to work with you on modifications in developing cord assemblies to your specification.

All products are manufactured to FCC requirements under the license of Western Electric. Modern manufacturing automation and technique assures a high quality and uniformly made product. Each production lot undergoes a MIL-STD-105D single sample inspection at General inspection level II, AQL 1.0% for performance and 1.25% for appearance.

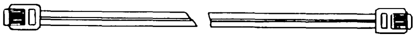
If you are looking for a professional supplier with consistency, economy and reliability, call us.



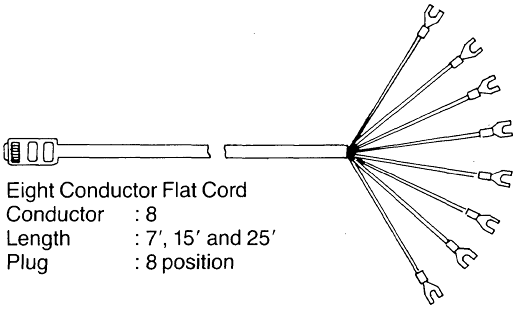
TCO Modular Line Cord
Conductor : 2, 4, and 6
Length : 7′, 15′ and 25′
Plug : 6 position



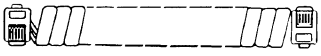
TC10 Half Straight/Half Coiled Cord
Conductor : 2 and 4
Length : 14′
Plug : 6 position



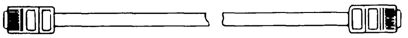
TC01 Modular Extension Cord
Conductor : 2, 4, and 6
Length : 7′, 15′ and 25′
Plug : 6 position



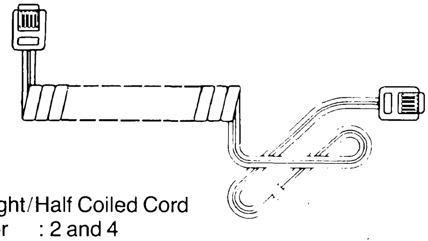
TC14 Eight Conductor Flat Cord
Conductor : 8
Length : 7′, 15′ and 25′
Plug : 8 position



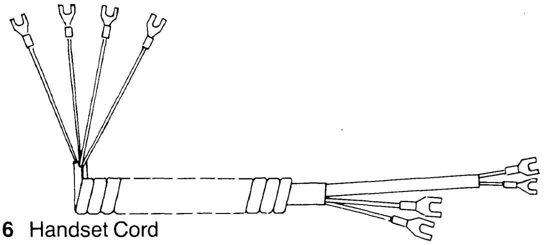
TC8 Modular Handset Cord
Conductor : 4
Length : 7′, 15′ and 25′
Plug : 4 position



TC15 Conductor Flat Cord
Conductor : 8
Length : 7′, 15′ and 25′
Plug : 8 position



TC9 Half Straight/Half Coiled Cord
Conductor : 2 and 4
Length : 14′
Plug : 6 position



TC16 Handset Cord
Conductor : 4
Length : 7′, 15′ and 25′

ALSO AVAILABLE–

Cord offers a complete line of Modular Jack Connectors for 2, 4, 6 and 8 wire connections.

DABURN

SHRINKABLE IRRADIATED POLYOLEFIN TUBING

This series is designed for maximum mechanical strength at stress or points of connection. It is strong, abrasion resistant and is supplied in expanded sizes. It insulates, jackets, splices, encapsulates, weatherproofs components, connectors, cables and irregular shaped objects. When exposed to heat (275°F) the tubing shrinks 50% in diameter, 5% longitudinal contraction. Controlled shrinkage to exact requirement takes place. SH275 meets or exceeds MIL-1-23053B/5 Class 1 and 2. SH290 meets or exceeds MIL-I-23053/6 available with UL approval. UL File No. E-51336. AMS 3636B; 3637A.

SPECIFICATIONS —

All Tests Made on Tubing in Recovered Dimension

Continuous Operating Temp: 135°C	Shrinkage Ratio: 2:1 (50%)
Longitudinal Change: 5% Max.	Dielectric Strength: 500 V/MIL Min.
Tensile Strength: 1500 PSI Min.	Dielectric Constant: 2.87 Max.
Ultimate Elongation: 200% Min.	Corrosive Resistance: Non-Corrosive
Special Gravity: 1.29 Max.	Resistance to Soldering Iron: Excellent
Low Temp. Flexibility (−54°C): No Cracking	Fuel, Oil, Solvent, Acid, Alkali, Hydraulic Fluid Resistance: Excellent

PACK ASSORTMENTS

DAFLEX Cat. No.	Lengths Per Pack	Tubing Size
SH275-PA1	30	¹⁄₁₆″ thru ³⁄₁₆″
SH275-PA2	16	¼″ thru ¾″
SH275-PA3	10	1″

COLORS: Black, White, Clear, Red. Each pack contains an assortment of 6″ lengths in mixed sizes and colors.

DAFLEX SH275 All Purpose	DAFLEX SH290 Semi-Rigid†	Equiv. I.D. AWG	Before Shrinkage As Supplied Expand I.D.	Recovered I.D.	Recovered Nom. Wall*	Standard†† Package
SH275-¹⁄₁₆	SH290-¹⁄₁₆	22-20	.063″	.031″	.016″	100′, 250′, 1000′
SH275-³⁄₃₂	SH290-³⁄₃₂	18-16	.093″	.046″	.020″	100′, 250′, 1000′
SH275-⅛	SH290-⅛	14	.125″	.062″	.020″	100′, 250′, 1000′
SH275-³⁄₁₆	SH290-³⁄₁₆	12-10	.187″	.093″	.020″	100′, 250′, 1000′
SH275-¼	SH290-¼	8	.250″	.125″	.025″	100′, 250′, 500′
SH275-⅜	SH290-⅜	4	.375″	.187″	.025″	100′, 200′,
SH275-½	SH290-½	2	.500″	.250″	.025″	100′, 200′,
SH275-¾		⅜	.750″	.375″	.030″	100′, 200′,
SH275-1″		½	1.000″	.500″	.035″	100′, 200′,
SH275-1½″		¾	1.500″	.750″	.040″	12′**, 24′**
SH275-2″		1	2.000″	1.000″	.045″	12′**, 24′**
SH275-3″		1½	3.000″	1.500″	.050″	12′**, 24′**
SH275-4″		2	4.000″	2.000″	.055″	12′**, 24′**

STOCK COLORS: Black, White, Red, Clear. Additional colors available. Although processed by hi-energy radiation the **Daflex SH275** and **SH290** shrinkable tubings **do not** at any time become radioactive or possess any residual radioactivity.

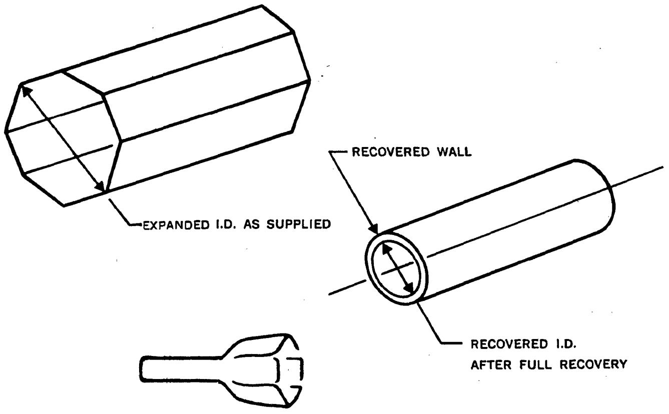
* Wall thickness will be less if recovery is restricted.

** 4′ lengths.

† STOCK: Black 4′ lengths. Colors avail.

†† Also stocked: 4′, ½″, 1″, and 6″ lengths.

NEW! 4:1 SHRINKABLE POLYOLEFIN TUBING



DAFLEX SH277 shrinkable irradiated polyolefin tubing recovers to 25% of its supplied size when full recovery is permitted. Material will shrink with the application of 120°C (250°F); is rated for continuous operation from −55°C to 135°C and will withstand up to 300°C (572°F) for short durations.

SH277 is flame retardant and meets or exceeds the specified properties of MIL-I-23053/5 Class 1 and 3. Its longitudinal shrinkage is a maximum of 10%. **DAFLEX SH277** can be hot stamped.

Typical applications are where tubing must fit over a large object such as the repair or replacement of cable jacketing.

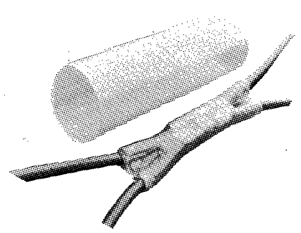
DABURN Cat. No.	Expanded I.D. Min.		Recovered* I.D. Max.		Recovered* Wall		Standard Package
	In.	MM	In.	MM	In.	MM	
SH277-1″	1.0	25.4	.250	6.5	.060	1.5	20′, 60′, 120′ †
SH277-2″	2.0	50.8	.500	12.7	.060	1.5	20′. 60′, 120′ †
SH277-3″	3.0	76.2	.750	19.0	.060	1.5	15′, 30′, 75′ †
SH277-4″	4.0	101.6	1.00	25.4	.060	1.5	15′, 30′, 75′ †

* When full recovery is allowed. † Preferred package

STANDARD COLOR: Black

STANDARD PACKAGING: SH277-1″ & SH277-2″ — 4 ft. lengths
SH277-3″ & SH277-4″ — 3 ft. lengths.

NEW! DAFLEX SHRINK/MELT IRRADIATED POLYOLEFIN TUBING Ⓤⓛ



Daburn's dual wall polyolefin heat shrinkable tubing is designed to provide a tight moisture proof encapsulating seal. When 115°C is applied, the inner wall melts and flows, as the outer wall shrinks; forcing the melting wall to fill voids and interstices and to encapsulate what is covered. The result is a semi-rigid mass.

Daflex SM270 series is ideal for covering splices, cable junctions and as a shield for coarse surfaces. SM270 is flame retardant. It resists oil, hydraulic fluids, acids and alkalis.

It meets or exceeds MIL-I-23053/4, is UL approved VW-1 for 105°C.

STANDARD COLOR: Black. Clear (not flame retardant) available to order.

STANDARD LENGTH: 100′, 1000′, in 4′ lengths, additional lengths to order.

Ordering Size Nom. I.D. Size	Minimum Expanded I.D.		Maximum Recovered† I.D.		Nominal Recovered Wall	
	Inch	MM	Inch	MM	Inch	MM
SM270-⅛	.125	3.2	.023	.06	.038	0.96
SM270-³⁄₁₆	.187	4.8	.060	1.5	.043	1.09
SM270-¼	.250	6.4	.080	2.0	.047	1.19
SM270-⅜	.375	9.5	.120	3.0	.050	1.27
SM270-½	.500	12.7	.157	4.0	.055	1.39
SM270-¾	.750	19.0	.313	8.0	.065	1.65
SM270-1″	1.000	25.4	.400	10.2	.075	1.90

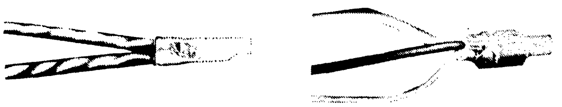
† When full recovery is permitted.

PROPERTIES

Tensile Strength, Min.: 1500 PSI
Elongation, Min.: 200%
Longitudinal Change, Max.: 10%
Operating Temperature: −55°C to +125°C
Shrinkage Temperature Nom.: 125°C
Fungus Resistance: Inert
Dielectric Strength, Min.: 500 V/MIL
Dielectric Constant, Max.: 3.1

DABURN

DUAL-WALL TEFLON* ENCAPSULATING SHRINKABLE TUBING



NEW DAFLON SM450 is a new dual wall shrink and melt Teflon tubing which gives a tight, moisture-proof seal. It is made from two types of Teflon. The outer wall is TFE Teflon and the inner lining is FEP Teflon. When heated to 400°F the FEP melts and at 621°F the TFE shrinks tightly. The FEP is squeezed into a solid or near solid mechanical encapsulation. DAFLON SM450 tubing protects against most environmental hazards involving pull, vibration, moisture, chemicals, etc. It may be used over wires, terminals, splices, connectors and as a strain relief and end cap. VW-1.

Operating Temperature: 450°F.

DAFLON Cat. No.	Nom. I.D. Size	Nom. Expanded I.D.	Nom. Expanded Wall	Recovered I.D.
SM450-1	1/32"	.036" .92mm	.022"	.000"**
SM450-2	1/16"	.060" 1.52mm	.028"	.000"**
SM450-3	⅛"	.130" 3.30mm	.031"	.000"**
SM450-4	5/32"	.160" 4.06mm	.032"	.000"**
SM450-5	3/16"	.190" 4.83mm	.035"	.062"
SM450-7	¼"	.250" 6.35mm	.036"	.125"
SM450-9	11/32"	.350" 8.89mm	.036"	.190"
SM450-11	7/16"	.450" 11.43mm	.055"	.312"
SM450-13	11/16"	.700" 17.78mm	.055"	.440"
SM450-16	1"	.950" 24.13mm	.065"	.680"

STANDARD PACKAGE: 100′ in 1 to 3 ft. lengths. Special lengths available to order. ** Will fully close off.

DAFLON SHRINK SH-400 (FEP)

Made with Modified TEFLON‡ FEP will shrink over inserted objects upon exposure to moderate heat. Heretofore, many joints, parts, components, devices could not be protected because of hi temperature required for shrinkage. FEP TEFLON‡, which has a continuous service temperature of 400°F, will shrink at 300°F. Supplied in natural (transparent) color. Complete shrinkage at 350°F. Now, many heat sensitive products can use the permanent protection of TEFLON.* Will not burn or support flame, long lengths available. Will not split or melt. Extruded. Meets MIL-I-23053/11. VW-1.

DABURN Cat. No.	Size	I.D.	Min. Exp. I.D.	Recovered Max. I.D.	Recovered Wall Thickness*	DABURN Cat. No.	Size	I.D.	Min. Exp. I.D.	Recovered Max. I.D.	Recovered Wall Thickness*
SH400-24	24	.023"	.031"	.027"	.008"	SH400-4	4	.214"	.290"	.226"	.011"
SH400-22	22	.028"	.036"	.032"	.008"	SH400-3	3	.234"	.310"	.249"	.011"
SH400-20	20	.034"	.045"	.039"	.008"	SH400-2	2	.268"	.365"	.280"	.012"
SH400-18	18	.042"	.060"	.049"	.008"	SH400-1	1	.294"	.400"	.311"	.012"
SH400-16	16	.053"	.075"	.061"	.009"	SH400-0	0	.336"	.440"	.349"	.012"
SH400-14	14	.066"	.092"	.072"	.009"	SH400-⅜	⅜"	.375"	.500"	.383"	.015"
SH400-12	12	.085"	.115"	.089"	.009"	SH400-7/16	7/16"	.437"	.580"	.448"	.020"
SH400-10	10	.108"	.141"	.114"	.010"	SH400-½	½"	.500"	.666"	.510"	.020"
SH400-9	9	.118"	.158"	.124"	.010"	SH400-⅝	⅝"	.625"	.830"	.637"	.025"
SH400-8	8	.136"	.180"	.143"	.010"	SH400-¾	¾"	.750"	1.000"	.764"	.030"
SH400-7	7	.148"	.197"	.158"	.011"	SH400-⅞	⅞"	.875"	1.170"	.891"	.035"
SH400-6	6	.170"	.225"	.180"	.011"	SH400-1"	1"	1.000"	1.330"	1.020"	.035"
SH400-5	5	.186"	.248"	.198"	.011"						

STANDARD PACKAGE: 100 ft., (with 4′ minimum lengths).
‡ DUPONT

All items on this page are available to cut to length or cut and marked.
* When full recovery permitted. FEP roll covers available to order.

DAFLON SHRINK SH-621 (TFE)

TFE TUBING MIL-I-23053/12 VW-1

Made of modified TEFLON‡ polytetrafluorethylene will shrink when heated to 621°F. Suitable where hi temp protection is required. Extruded. Will not support combustion, dielectric strength (20 Mil Wall) 850 V/M, low temp. brittle point −66°F, superior chemical resistance. Operating Temp: −67°C to +250°C.

DAFLON Cat. No.	Nominal Tubing Size	Minimum Expanded I.D.	Recovered Dimensions		DAFLON Cat. No.	Nominal Tubing Size	Minimum Expanded I.D.	Recovered Dimensions	
			Maximum I.D.	Wall Thickness				Maximum I.D.	Wall Thickness
SH621-26	26	.046"	.022"	.009"	SH621-9	9	.205"	.124"	.015"
SH621-24	24	.050"	.027"	.010"	SH621-8	8	.240"	.141"	.015"
SH621-22	22	.055"	.032"	.010"	SH621-7	7	.270"	.158"	.015"
SH621-20	20	.060"	.039"	.012"	SH621-6	6	.302"	.178"	.015"
SH621-19	19	.065"	.043"	.012"	SH621-5	5	.320"	.198"	.015"
SH621-18	18	.076"	.049"	.012"	SH621-4	4	.370"	.224"	.015"
SH621-17	17	.085"	.054"	.012"	SH621-3	3	.390"	.249"	.015"
SH621-16	16	.093"	.061"	.012"	SH621-2	2	.430"	.278"	.015"
SH621-15	15	.110"	.067"	.012"	SH621-1	1	.450"	.311"	.015"
SH621-14	14	.120"	.072"	.012"	SH621-0	0	.470"	.347"	.015"
SH621-13	13	.140"	.080"	.012"	SH621-⅜	⅜"	.560"	.399"	.020"
SH621-12	12	.150"	.089"	.012"	SH621-7/16	7/16"	.655"	.462"	.020"
SH621-11	11	.170"	.101"	.012"	SH621-½	½"	.750"	.524"	.020"
SH621-10	10	.191"	.112"	.012"					

STANDARD PACKAGE: 100 feet in 2 ft. lengths with 1 ft. min. lengths. Additional Sizes and Colors to Order.
WALL TOLERANCES: 26 thru 22 ±.002; 20 thru 10 ±.003; 9 thru 0 ±.004.

DAFLON 4:1 SHRINKABLE PTFE TUBING

DAFLON SH421 Shrinkable Teflon Tubing recovers to approximately 25% of its expanded size when heated to the gel point (621°F). Thus it is now possible to use shrinkable Teflon tubing, with its excellent chemical and physical properties, over objects which require more than the standard 2:1 shrinkdown ratio (see SH621).

NOTE: Tubing should be allowed to recover **at least 50%.** Conforms to MIL-I-23053/12 and AMS-3584. **Operating Temp.:** −85°F to +500°C. VW-1.

DAFLON Cat. No.	Nom. Size	Expanded Min. I.D.	Recovered		DAFLON Cat. No.	Nom. Size	Expanded Min. I.D.	Recovered	
			Max. I.D.	Nom.* Wall				Max. I.D.	Nom.* Wall
SH421-5/64	5/64"	.078"	.025"	.009"	SH421-½	½"	.500"	.144"	.015"
SH421-⅛	⅛"	.125"	.038"	.010"	SH421-⅝	⅝"	.625"	.178"	.015"
SH421-3/16	3/16"	.187"	.050"	.012"	SH421-¾	¾"	.750"	.225"	.015"
SH421-¼	¼"	.250"	.063"	.012"	SH421-⅞	⅞"	.875"	.244"	.015"
SH421-5/16	5/16"	.312"	.079"	.012"	SH421-1"	1"	1.000"	.278"	.015"
SH421-⅜	⅜"	.375"	.096"	.012"	SH421-1¼"	1¼"	1.250"	.347"	.015"

STANDARD PACKAGE: 100′ in 4 ft. lengths. Tubing may be ordered cut to length.
STANDARD COLOR: Natural (Clear). * When full recovery is allowed.

DABURN No. HG1 — Heat Gun for SH162, SH265, SH267, SH275, SH277, SH290, ST275, SH300, SM270 Series.
DABURN No. HG2 — Heat Gun for SH400, SH421, SH621, SH350, SM450 Series.

DABURN ELECTRONICS & CABLE CORP. • 70 E. OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

TUBULAR BRAID PER MIL SPEC QQ-B-575

Tinned copper shielded braid mf'd completely round per Mil Spec QQ-B-575. Maintains its round configuration. Shielding coverage is 95% or more. Used in military applications where maximum shielding is required against electrostatic interference. Useful against mechanical abrasion and stresses for cables — as grounding cable.

DABURN No.	Nom. Inside Diam. When Rounded	Construction Total No. of Wires	Car-riers	AWG of Indiv. Wires	Approx. AWG Equiv.	Nom. Circular Mils	*Current Carrying Cap.
2350-1/32	1/32″	24	24	#36	#22	640	7.0 amps
2350-1/16	1/16″	48	24	#36	#19	1290	11.0 amps
2350-5/64	5/64″	72	24	#36	#17	1900	18.0 amps
2350-7/64	7/64″	96	24	#36	#16	2500	22.0 amps
2350-1/8	1/8″	120	24	#36	#15	3260	28.0 amps
2350-5/32	5/32″	240	24	#36	#12	6200	39.0 amps
2350-11/64	11/64″	168	24	#36	#14	4500	32.0 amps
2350-3/16	3/16″	192	24	#36	#13	5100	35.0 amps
2350-13/64	13/64″	312	24	#36	#11	8200	46.0 amps
2350-1/4	1/4″	384	24	#36	#10	10,400	53.0 amps
2350-9/32	9/32″	120	24	#30	# 9	12,060	60.0 amps
2350-3/8	3/8″	384	48	#36	#10	10,400	53.0 amps
2350-7/16	7/16″	240	24	#30	# 6	24,120	90.0 amps
2350-1/2	1/2″	528	48	#36	# 9	13,200	70.0 amps
2350-9/16†	9/16″	528	48	#36	# 9	13,200	70.0 amps
2351-9/16	9/16″	480	48	#30	# 3	48,240	145.0 amps
2350-21/32	21/32″	768	48	#30	# 1	77,180	190.0 amps
2350-11/16†	11/16″	720	48	#36	# 7	19,000	82.0 amps
2350-25/32	25/32″	864	48	#36	# 7	21,750	85.0 amps
2350-13/16	13/16	864	48	#36	# 7	21,750	85.0 amps
2350-7/8	7/8″	336	48	#30	# 5	33,700	100.0 amps
2350-1″	1″	384	48	#30	# 4	38,600	120.0 amps
2350-1 1/8″	1 1/8″	432	48	#30	# 4	43,330	130.0 amps
2350-1 1/4″†	1 1/4″	480	48	#30	# 3	48,150	145.0 amps
2350-1 3/8″	1 3/8″	528	48	#30	# 3	53,000	150.0 amps
2350-1 1/2″	1 1/2″	576	48	#30	# 2	57,775	165.0 amps

STANDARD SPOOL PUT-UP: 50 Ft., 100 Ft., 250 Ft. Larger Spools Available — Advise.

* Values based on copper in free air at 65°F and intended as a guide only.

† These sizes are mfg. to standards of QQ-B-575 although they are not listed in the specification.

Additional constructions and variations made to order. Also available in **silver plated copper**, bare copper, stainless steel, and nickel plated copper.

TINNED COPPER SHIELDING — FLAT BRAID

Soft annealed tinned copper woven braid, rolled flat at time of manufacture. It is extremely flexible. Used as battery grounding, bonding strap for aircraft, vehicles, marine equipment. Eliminates ignition interference and moving parts. Slides over wire and cables.

DABURN No.	Size and No. of Wires	I.D. Flat	O.D. Flat	Approx. AWG Equiv.	Nom. Circular Mils	*Current Carrying Cap.
2355-1/32	12x 2x36	1/32″	3/64″	24	400	6.0
2355-3/64	12x 2x36	3/64″	1/16″	22	600	7.0
2355-1/16	16x 3x36	1/16″	5/64″	20	1200	11.0
2355-3/32	16x 3x36	3/32″	5/32″	19	1200	11.0
2355-1/8	24x 5x36	1/8″	5/32″	18	1800	16.0
2355-3/16	24x 5x36	3/16″	7/32″	15	3000	25.0
2355-1/4	24x 7x36	1/4″	9/32	14	4200	32.0
2355-3/8	48x 4x36	3/8″	15/32″	12	7200	46.0
2355-1/2	48x 7x36	1/2″	19/32″	10	9600	53.0
2355-5/8	48x 8x36	5/8″	23/32″	10	9600	53.0
2355-3/4	48x11x36	3/4″	13/16″	7	20,800	85.0
2355-25/32	48x19x36	25/32″	27/32″	7	20,800	85.0
2355-1″	48x19x36	1″	1 1/16″	7	20,800	85.0
2355-1 3/8″	48x19x36	1 3/8″	1 7/16	7	33,700	85.0
2355-1 1/2″	48x19x36	1 1/2″	1 9/16″	3	53,064	150.0
2355-1 3/4″	48x27x30	1 3/4″	1 7/8″	00	125,425	280.0
2355-2″	48x32x30	2″	2 1/4″	000	154,368	310.0
2355-2 1/4″	48x35x30	2 1/4″	2 1/2″	000	168,840	320.0
2355-2 1/2″	48x45x30	2 1/2″	2 3/4″	000	192,000	340.0
2355-3″	48x64x30	3″	3 1/4″	0000	225,000	390.0

STANDARD SPOOL PUT-UP: 50 Ft., 100 Ft., 500 Ft., 1000 Ft.

ADDITIONAL CONSTRUCTION AND VARIATIONS MADE TO ORDER.
Oval Commercial Braid available to order.

NEW! CONTROLLED IMPEDANCE FLAT RIBBON CABLE

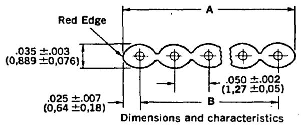
UL STYLE 2651 — 105°C — 300 VOLTS — VW-1

DESCRIPTION: Each conductor is 28 AWG, 7 strand of 36 AWG T.C. with .010″ nominal wall of extruded PVC insulation overall. Conductors are to provide .050″ ±.002″, center to center conductor spacing allowing for nominal impedance of 105 Ohms (measured ground-signal-ground). Cables are listed under UL style 2651 and meet UL VW-1 flame test. Conductors separate cleanly and one has a red stripe for polarity. Because of controlled center to center spacing, cables may be mass terminated with insulation displacement connectors designed for .050″ spacing of conductors. Crosstalk is also controllable.

AWG: 28 (7/36) T.C.
NOM. WALL: .010″ (.25mm)
CENTER TO CENTER SPACING: .050 ±.002 (1.27mm ±.05)
UL STYLE: 2651
FLAMABILITY RATING: UL VW-1
TEMPERATURE RATING: 105°C
CURRENT RATING: 1 Amp
VOLTAGE RATING: 300 V RMS
HEIGHT: .035 ±.003″ (.84mm ±.08)
COLOR: Gray with red polarity stripe
CAPACITANCE NOM.: 15 PF/FT. (G.S.G.)
IMPEDANCE: 105 Ohms nom. (G.S.G.)
STANDARD PUT-UP: 100′ (30.48M); larger packages available to order.

DIELECTRIC WITHSTAND VOLTAGE: 2000 VRMS
INSULATION RESISTANCE: 10^{10} Ohms/10 ft. min.
PROPAGATION DELAY: 1.4 ns/ft. (G.S.G.) nom.

28 AWG (7/36)
Stranded Tinned Copper



Dimensions and characteristics subject to change without notice.

DABURN Cat. No.	No. of Cond.	Nom. Width A in.	Nom. Width A mm	Nom. Span B in.	Nom. Span B mm
1888/9	9	.45 ±.01	11.43	.40 ±.007	10.16
1888/10	10	.50 ±.01	12.70	.45 ±.007	11.43
1888/14	14	.70 ±.01	17.80	.65 ±.007	16.51
1888/15	15	.75 ±.01	19.05	.70 ±.007	17.78
1888/16	16	.80 ±.01	20.35	.75 ±.009	19.05
1888/20	20	1.00 ±.02	25.40	.95 ±.009	24.13
1888/24	24	1.20 ±.02	30.50	1.15 ±.009	29.21
1888/25	25	1.25 ±.02	31.75	1.20 ±.009	30.48
1888/26	26	1.30 ±.02	33.00	1.25 ±.009	31.75
1888/34	34	1.70 ±.02	43.20	1.65 ±.009	41.91
1888/37	37	1.85 ±.02	47.00	1.80 ±.009	45.92
1888/40	40	2.00 ±.02	50.80	1.95 ±.011	49.53
1888/50	50	2.50 ±.02	63.50	2.45 ±.011	62.23
1888/60	60	3.00 ±.02	76.20	2.95 ±.011	74.93
1888/64	64	3.20 ±.02	81.30	3.15 ±.011	80.01

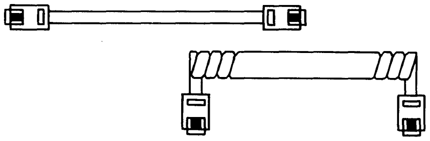
MODULAR PLUG CABLES

Each Daburn modular cord is #28 AWG 7/36 soft tinned copper, color coded, and an overall PVC jacket, modular plugs at each end. Shielded constructions use an overall aluminum/polyester shield and drain wire. Standard constructions use flat cable. Round cable is available to order.

Daburn modular cords are suitable for data equipment, interface, keyboards, audio, telephone handsets, security & alarm applications.

They resist oils, grease, acids, fumes and are abrasion resistant. They will not mar other surfaces with which they come in contact.

Note: "Half-modular" cords — lugs on one end and keyed plugs are available to order. Specify — cross wired or straight wired.



STRAIGHT CORDS — MODULAR PLUGS			RETRACTILE MODULAR PLUG CORDS		
DABURN Cat. No.	No. of Cond.	Length* in Ft.	DABURN Cat. No.	No. of Cond.	Length* Extended
28-04-7	4	7 Ft.	28-14-1	4	6 Ft.
28-04-14	4	14 Ft.	28-14-2	4	12 Ft.
28-04-25	4	25 Ft.	28-14-5	4	25 Ft.
28-06-7	6	7 Ft.	28-16-1	6	6 Ft.
28-06-14	6	14 Ft.	28-16-2	6	12 Ft.
28-06-25	6	25 Ft.	28-16-5	6	25 Ft.
28-08-7	8	7 Ft.	28-18-1	8	6 Ft.
28-08-14	8	14 Ft.	28-18-2	8	12 Ft.
28-08-25	8	25 Ft.	28-18-5	8	25 Ft.
SHIELDED			SHIELDED		
28-08-7S	8	7 Ft.	28-18-1S	8	6 Ft.
28-08-14S	8	14 Ft.	28-18-2S	8	12 Ft.
28-08-25S	8	25 Ft.	28-18-5S	8	25 Ft.

JACKET COLOR: Silver satin. Other colors available to order.
STANDARD PACKAGE: 25 pcs.
* Additional lengths to order.

DABURN

RETRACTILE POWER & COMMUNICATION CORDS—Ⓤⓛ & CSA

Long Lasting Service—useful wherever cords much change length or position. Extend to approximately five times its retracted length. Returns to its original shape or length when released. Eliminates tangling, twisting or knots. Cords are UL and CSA approved.

POWER CORDS

RETRACTED LENGTHS: 1, 2, 3 & 4 FT. EXTENDED LENGTHS: 5, 10, 15 & 20 FT.

UL LISTED—NEOPRENE JACKETED CORD

Operating Temperature: −20°C to +60°C

DABURN No. & Retracted Lengths				No. Cond.	Size	Strand	UL‡ & CSA Type	Amps	Volt Rating	Coil Nom. O.D.		Cord Nom.	
4 Ft.*	3 Ft.	2 Ft.	1 Ft.							in.	mm	in.	mm
986-4	986-3	986-2	986-1	2	18	41/34	SVO	7	300	7/8	22	.270	7
986/3-4	986/3-3	986/3-2	986/3-1	3	18	41/34	SVO	7	300	1	25	.275	7
989-4	989-3	989-2	989-1	2	18	41/34	SJO	7	300	1 3/16	30	.310	8
989/3-4	989/3-3	989/3-2	989/3-1	3	18	41/34	SJO	7	300	1 3/8	35	.330	9
989/4-4	989/4-3	989/4-2	989/4-1	4	18	41/34	SJO	5.6	300	1 7/16	37	.360	10
989/5-4	—	989/5-2	—	5	18	41/34	SJO	5.6	300	1 3/4	41	.440	11
989/7-4	—	989/7-2	—	7	18	41/34	SJO	5.6	300	1 7/8	48	.522	13
989/15-4	—	—	—	15	18	41/34	SVO	7	300	2 1/8	54	.575	15
990/3-4	—	990/3-2	—	3	18	41/34	SO	7	600	1 9/16	40	.405	10
990/4-4	—	990/4-2	—	4	18	41/34	SO	5.6	600	1 5/8	41	.435	11
991-4	991-3	991-2	991-1	2	16	65/34	SJO	10	300	1 3/8	35	.330	9
991/3-4	991/3-3	991/3-2	991/3-1	3	16	65/34	SJO	10	300	1 7/16	37	.365	10
991/4-4	991/4-3	991/4-2	—	4	16	65/34	SJO	8	300	1 5/8	38	.395	11
991/5-4	—	991/5-2	—	5	16	65/34	SO	8	600	2	54	.540	14
991/6-4	—	991/6-2	—	6	16	65/34	SO	8	600	2 1/8	51	.550	14
					6/16	#16-64/34	—	#16-8					
991/7-4	—	991/7-2	—	7	1/14	#14-41/30	SO	#14-12	600	2 1/4	57	.600	15
992/3-4	—	992/3-2	—	3	16	65/34	SO	10	600	1 13/16	46	.470	12
992/4-4	—	992/4-2	—	4	16	65/34	SO	8	600	1 7/8	48	.500	13
993-4	993-3	993-2	—	2	14	41/30	SO	15	600	2	54	.535	14
993/3-4	993/3-3	993/3-2	—	3	14	41/30	SO	15	600	2 1/8	54	.560	14
993/4-4	993/4-3	993/4-2	—	4	14	41/30	SO	12	600	2 1/4	57	.605	15
994-4	994-3	994-2	—	2	12	65/30	SO	20	600	2 1/4	57	.605	15
994/3-4	994/3-3	994/3-2	—	3	12	65/30	SO	20	600	2 3/8	60	.635	16
994/4-4	994/4-3	994/4-2	—	4	12	65/30	SO	16	600	2 1/2	60	.665	17
					2/12	#12-65/30	—	#12-17					
994/6-4	—	—	—	6	4/18	#18-41/34	—	#18-6	600	2 1/4	57	.605	15
994/7-4	—	994/7-2	—	7	12	65/30	SO	16	600	2 5/8	67	.775	20

+ Wherever UL Type is shown, approved by CSA Testing Laboratories.
* Preferred Put-up. 6″ Tangents on all but I FT cords—12″ Tangents
Standard Package: 5

Conductor Color Code:
1-Black, 2-White, 3-Green, 4-Red,
5-Blue, 6-Orange, 7-Yellow.

RETRACTILE TEST LEAD WIRE

Stretch coiled kinkless test lead wire description. 12″ coil — stretches to approximately 6 feet. One conductor #20 stranded copper rubber insulation .165 O.D. Colors: Red, Black.

Coil O.D. 3/4″.

Working Voltage: 1000V, 4 Amps.

DABURN No.	Length in.	Size	Strand	Coil O.D.		Cord O.D.	
				in.	mm	in.	mm
984A	12	20	41/36	3/4	19	.165	4.2
984	24	20	41/36	3/4	19	.165	4.2

12″ Extends Approx. 5 Ft. Specify Color, Red or Black.
24″ Extends Approx. 10 Ft. Standard Package: 6

DABURN MINIATURE RETRACTILE COMMUNICATION CORDS

1, 2 Ft. Retracted—5, 10 Ft. Extended

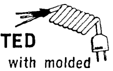
Miniature size. Suitable for compact equipment. Black plastic jacket overall.

Operating Temp.: −20°C to +60°C
Std. Pkg.: 10

DABURN No.		Cond.	Size	Strand	Coil O.D.		Cord O.D.	
2 Ft.	1 Ft.				in.	mm	in.	mm
975/28	975/28A	2	28	19/40TC	1/2	13	.135	3.4
976/28	976/28A	3	28	19/40TC	1/2	13	.140	3.5
977/28	977/28A	4	28	19/40TC	1/2	13	.150	3.8

Avail. to Order: 36″ & 48″ Cords Extend to 15 Ft. & 20 Ft.

Ⓤⓛ LISTED RETRACTILE POWER CORD SETS



18″ Retracted—Approx. 7½ Ft. Extended—300V—UL LISTED

For portable use. Mobile and office equipment. Neoprene jacketed cord sets with molded male plug on one end, other end remove jacket and strip cond. Operating Voltage: 300 Volts.

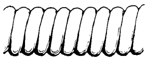
DABURN	No. Cond.	AWG Size	Amps	Strand	Type UL	Coil O.D.		Cord O.D.	
						in.	mm	in.	mm
980	2	18	7	41/34	SVO	7/8	22	.250	7
980/3	3	18	7	41/34	SVO	1	25	.275	7
981	2	18	7	41/34	SJO	1 3/16	30	.310	8
981/3	3	18	7	41/34	SJO	1 3/8	35	.350	9
982	2	16	13	65/34	SJO	1 3/8	35	.350	9
982/3	3	16	13	65/24	SJO	1 7/16	37	.365	10

Conductor Color Code: 1-Black, 2-White, 3-Green. Standard Package: 10

PLASTIC RETRACTILE COMMUNICATION CORDS—UL LISTED

Retracted Lengths 2, 3 & 4 Ft.—Extended Lengths 10, 15 & 20 Ft.

Multi-conductors stranded extra flexible #23 AWG 21/36 tinned soft copper for long flex life. "Danyon" plastic jacketed. 120 volt working, current carrying capacity 1 amp. Nom. cond. resist. .022 ohms per linear foot, .185 ohms per retracted foot. For communication equipment such as ham operations, telephone car carriers, radio equipment, head sets, etc.
Operating Temp. −20°C to +60°C
Maximum Voltage: 100V



DANYON PLASTIC JACKETED

DABURN No. - Retracted Lengths			No. Cond.	Size	Strand	Nom. Coil. O.D.		Nom. Cord O.D.	
4 Ft.†	3 Ft.	2 Ft.				in.	mm	in.	mm
975D-4	975D-3	975D-2	2	23	21/36	5/8	16	.220	5.6
976D-4	976D-3	976D-2	3	23	21/36	3/4	19	.230	5.8
977D-4	977D-3	977D-2	4	23	21/36	7/8	22	.255	6.5
978D-4	978D-3	978D-2	5	23	21/36	1	25	.265	6.7
978D/6-4	978D/6-3	978D/6-2	6	23	21/36	1 1/8	29	.305	7.7
978D/7-4	978D/7-3	978D/7-2	7	23	21/36	1 3/16	30	.325	8.3
978D/8-4	978D/8-3	978D/8-2	8	23	21/36	1 1/4	32	.360	9.1
978D/10-4	978D/10-3	978D/10-2	10	23	21/36	1 3/8	35	.380	9.7
978D/12-4	978D/12-3	978D/12-2	12	23	21/36	1 1/2	38	.390	9.9
978D/15-4	978D/15-3	978D/15-2	15	23	21/36	1 5/8	41	.400	10.2

Conductor Color Code: 1-Black, 2-White, 3-Red, 4-Green, 5-Blue, 6-Yellow, 7-Brown, 8-Orange, 9-White/Black Tracer, 10-White/Red Tracer, 11-White/Green Tracer, 12-White/Blue Tracer, 13-White/Yellow Tracer, 14-White/Brown Tracer, 15-White/Orange Tracer.
† Preferred Put-up Standard Package: 5

RETRACTILE COMMUNICATION CORDS

Retracted Lengths 2, 3 & 4 Ft.—
Extended Lengths 10, 15 & 20 Ft.

Multi-conductors stranded extra flexible #23 AWG 21/36 tinned soft copper for long life, Neoprene jacketed cable. 120 volt working, current carrying capacity 1 amp. Nom. cond. resist. .022 ohms per linear foot, .185 ohms per retracted foot.

For communication equipment such as ham operations, telephone car carriers, radio equipment, head sets. etc.

OPERATING TEMPERATURE: −20°C to +60°C **MAXIMUM VOLTAGE:** 100V

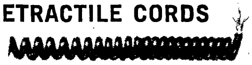
NEOPRENE JACKETED

DABURN Cat. Nos. Retracted Length 4 Ft.	No. Cond.	Size	Strand	Coil Nom. O.D.	Nom. Cord O.D.
975-4	2	23	21/36	3/4″	.200″
976-4	3	23	21/36	13/16″	.210″
977-4	4	23	21/36	7/8″	.240″
978-4	5	23	21/36	1″	.285″
978/6-4	6	23	21/36	1 1/8″	.305″
978/7-4	7	23	21/36	1 1/4″	.320″
978/15-4	15	23	21/36	1 1/2″	.470″

CONDUCTOR COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-White/Black.

OVERALL SHIELDED PLASTIC RETRACTILE CORDS

Retracted Lengths 1, 2, 3, 4 Ft.
Extended Lengths 5, 10, 15, 20 Ft.



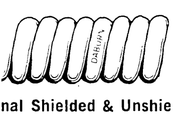
Shielded communication cords 23 AWG 21/36 soft tinned copper with 85% spiral T.C. shield coverage. Black "Danyon" plastic jacket overall. Six inch tangents on 2, 3 & 4 ft. cords. Twelve inch tangents on 1 ft. cords. Operating voltage 120V max. Current carrying capacity 1.0 amp. Std. pkg. 10 pcs.

	DABURN Cat. Nos. Retracted Length			No. Cond.	Nom. O.D.		Nom. Coil	
4 Ft.†	3 Ft.	2 Ft.	1 Ft.		in.	mm	in.	mm
995D-4	995D-3	995D-2	995D-1	1	.175	4.4	5/8	16
995D/2-4	995D/2-3	995D/2-2	995D/2-1	2	.220	5.6	5/8	16
995D/3-4	995D/3-3	995D/3-2	995D/3-1	3	.230	5.9	3/4	19
995D/4-4	995D/4-3	995D/4-2	995D/4-1	4	.260	7.0	7/8	22
995D/5-4	995D/5-3	995D/5-2	995D/5-1	5	.285	7.2	1	25
995D/6-4	995D/6-3	995D/6-2	995D/6-1	6	.310	7.9	1 1/8	29

SHIELDED RETRACTILE COMMUNICATION CORDS

Retracted Lengths 1, 2 & 4 Ft.—
Extended Lengths 5, 10 & 20 Ft.

Single and multi-conductors. Shielded mike cables. Neoprene or "Danyon" plastic jacketed shielded conductors are individually shielded. Shield can be pigtailed for soldering. Safe — Reliable.



Additional Shielded & Unshielded Retractile Communication Cables Stocked. Send for Your Own Copy of Our Full Catalog.

DANYON PLASTIC JACKETED

DABURN No. & Retracted Lengths			No. Cond.	Size	Strand	Nom. Coil O.D.		Nom. Cord O.D.		Volt Rating	Capacitance	
4 Ft.†	2 FT.	1 Ft.				in.	mm	in.	mm		MMF Lin. Ft.	MMF Retr. Ft.
995D-4	995D-2	995D-1	1	23(S)	21/36	5/8	16	.175	4.1	100	56	410
999D-4	999D-2	999D-1	2	2-23 (Ind. S & J)	21/36	7/8	22	.260	5.7	100	56	440
997D-4	997D-2	997D-1	3	2-23 1-23(S)	21/36	1 1/8	29	.250	6.4	100	56	450
998D-4	998D-2	998D-1	4	2-23 2-23 (Ind. S & J)	21/36	1 1/8	29	.290	7.4	100	56	450

NEOPRENE JACKETED

DABURN No. & Retracted Lengths 4 Ft.	No. Cond.	Size	Strand	Nom. Coil O.D.		Nom. Cord O.D.		Volt Rating	Capacitance	
				in.	mm	in.	mm		Lin. Ft. MMF	Retr. Ft. MMF
995-4	1	23(S)	21/36	3/4	19	.200	5.1	100	56	440
997-4	3	2-23 1-24(S)	21/36 41/40	7/8	22	.240	6.1	100 75	56	450
998-4	4	2-23 2-24(S**)	21/36 41/40	1	25	.270	6.9	100 75	56	450

** Individually shielded † Preferred Put-up Standard Package: 10 **Conductors Are Color Coded.**

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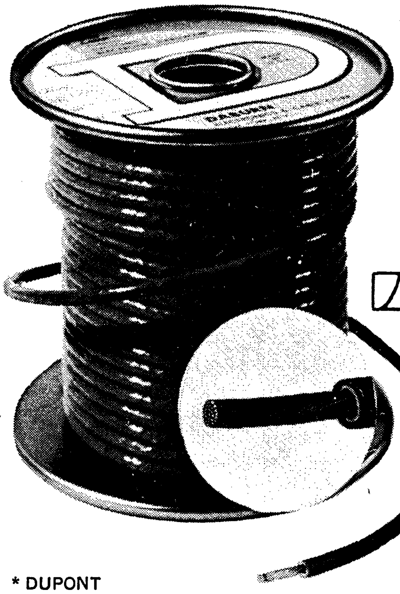
DABURN

HI-VOLT CORONA RESISTANT TEFLON* CABLE©



Voltage Rating at Sea Level—
Voltage Rating at 80,000 feet, approximately ⅓ lower—
Minimum life expectancy: 10,000 hours

* DUPONT

SMALL SIZE: You do not need bulky, thick, insulation jacketing as used with silicone rubber and polyethylene insulations to get your hi-voltage requirements. Wire used is MIL-SPEC QQ-W-343 and MIL-W-16878. Insulation used conforms to and surpasses MIL-SPEC-W-16878.

AVOID CORONA PROBLEMS: Corona Resistant Teflon construction is specifically designed to retard and prevent corona penetration.

Temperature variations from −60°C to +250°C have no life effect on the corona resistant Teflon. In addition, there is no stress or crack failure under severe, adverse conditions including mechanical strain, moisture, corona or chemical conditions.

DESCRIPTION: Single Conductor, Stranded Silver Plated Copper, Corona Resistant Teflon* Insulation.

TEMPERATURE RATING: −90°C to +250°C.

VOLTAGE RATING: Based on insulation thickness.

AVAILABLE COLORS: White, Black, Red, Green, Yellow, Lt. Blue, Brown, Orange, Gray, Violet. (Also available in tracer colors)

PUT-UP: 250′, 500′, 1000′

ADDITIONAL SIZES AND VOLTAGES AVAILABLE

DABURN No.	AWG Size	Strand	Voltage Rating		Nom. O.D.
			AC	DC	
CRT12-2	12	19/25	2500	10,000	.142″
CRT12-2.5	12	19/25	3750	12,500	.152″
CRT12-3	12	19/25	4500	15,000	.162″
CRT12-3.5	12	19/25	5300	17,500	.172″
CRT12-4	12	19/25	6000	20,000	.182″
CRT12-5	12	19/25	7500	25,000	.202″
CRT12-6.5	12	19/25	10,000	32,500	.232″
CRT12-8	12	19/25	12,000	40,000	.262″
CRT12-10	12	19/25	15,000	50,000	.302″
CRT14-2	14	19/27	2500	10,000	.124″
CRT14-2.5	14	19/27	3750	12,500	.134″
CRT14-3	14	19/27	4500	15,000	.144″
CRT14-3.5	14	19/27	5300	17,500	.154″
CRT14-4	14	19/27	6000	20,000	.164″
CRT14-5	14	19/27	7500	25,000	.184″
CRT14-6.5	14	19/27	10,000	32,500	.214″
CRT14-8	14	19/27	12,000	40,000	.244″
CRT14-10	14	19/27	15,000	50,000	.284″
CRT16-2	16	19/29	2500	10,000	.111″
CRT16-2.5	16	19/29	3750	12,500	.119″
CRT16-3	16	19/29	4500	15,000	.129″
CRT16-3.5	16	19/29	5300	17,500	.141″
CRT16-4	16	19/29	6000	20,000	.151″
CRT16-5	16	19/29	7500	25,000	.172″
CRT16-6.5	16	19/29	10,000	32,500	.201″
CRT16-8	16	19/29	12,000	40,000	.231″
CRT16-10	16	19/29	15,000	50,000	.271″
CRT18-2	18	19/30	2500	10,000	.105″
CRT18-2.5	18	19/30	3750	12,500	.114″
CRT18-3	18	19/30	4500	15,000	.124″
CRT18-3.5	18	19/30	5300	17,500	.135″
CRT18-4	18	19/30	6000	20,000	.145″
CRT18-5	18	19/30	7500	25,000	.166″
CRT18-6.5	18	19/30	10,000	32,500	.194″
CRT18-8	18	19/30	12,000	40,000	.225″
CRT18-10	18	19/30	15,000	50,000	.265″

DABURN No.	AWG Size	Strand	Voltage Rating		Nom. O.D.
			AC	DC	
CRT20-2	20	19/32	2500	10,000	.095″
CRT20-2.5	20	19/32	3750	12,500	.105″
CRT20-3	20	19/32	4500	15,000	.115″
CRT20-3.5	20	19/32	5300	17,500	.126″
CRT20-4	20	19/32	6000	20,000	.135″
CRT20-5	20	19/32	7500	25,000	.156″
CRT20-6.5	20	19/32	10,000	32,500	.185″
CRT20-8	20	19/32	12,000	40,000	.215″
CRT20-10	20	19/32	15,000	50,000	.255″
CRT22-2	22	19/34	2500	10,000	.087″
CRT22-2.5	22	19/34	3750	12,500	.097″
CRT22-3	22	19/34	4500	15,000	.107″
CRT22-3.5	22	19/34	5300	17,500	.118″
CRT22-4	22	19/34	6000	20,000	.127″
CRT22-5	22	19/34	7500	25,000	.148″
CRT22-6.5	22	19/34	10,000	32,500	.177″
CRT22-8	22	19/34	12,000	40,000	.207″
CRT22-10	22	19/34	15,000	50,000	.247″
CRT24-2	24	19/36	2500	10,000	.081″
CRT24-2.5	24	19/36	3750	12,500	.091″
CRT24-3	24	19/36	4500	15,000	.101″
CRT24-3.5	24	19/36	5300	17,500	.112″
CRT24-4	24	19/36	6000	20,000	.121″
CRT24-5	24	19/36	7500	25,000	.142″
CRT24-6.5	24	19/36	10,000	32,500	.171″
CRT24-8	24	19/36	12,000	40,000	.201″
CRT24-10	24	19/36	15,000	50,000	.241″
CRT26-2	26	7/34	2500	10,000	.071″
CRT26-2.5	26	7/34	3750	12,500	.081″
CRT26-3	26	7/34	4500	15,000	.091″
CRT26-3.5	26	7/34	5300	17,500	.101″
CRT26-4	26	7/34	6000	20,000	.111″
CRT26-5	26	7/34	7500	25,000	.131″
CRT26-6.5	26	7/34	10,000	32,500	.161″
CRT26-8	26	7/34	12,000	40,000	.191″
CRT26-10	26	7/34	15,000	50,000	.231″

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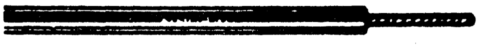
PLASTIC KINKLESS TEST LEAD WIRE

Soft formulation vinyl maximum flexibility. Temperature stability from −80°C to +115°C. Exceed requirements for MIL-I-3930A Type JP (PVC). Suitable for test leads, etc. Resistant to gasoline and oil. Excellent abrasion resistance.

DESCRIPTION: One conductor tinned copper stranded, special formulation vinyl insulation — smooth surface.

OPERATING TEMPERATURE: −80°C to +105°C, 5000V rating.

COLORS: Black, Red, Yellow, Green, White, Blue.



DABURN No.	Size	Strand	Ins	Nom. O.D.
2722/22	22	26/36	.032″	.100″
2722/20	20	26/34	.032″	.104″
2722/18	18	65/36	.032″	.112″
2722/16	16	65/34	.032″	.129″

STD. PUT-UP: 100 Ft., 500 Ft., 1000 Ft.

RUBBER KINKLESS TEST LEAD WIRE: Stocked in Red, Black; #20 & #18 AWG.

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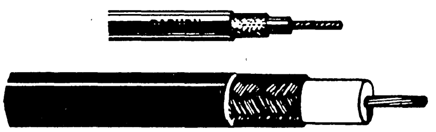
DABURN

PLENUM CABLE

PER NEC 725 CLASS 2, UL SUBJECT 13 NON-CONDUIT



DABURN Cat. No.	RG Type	AWG No.	Nom. Imped.	Nom. O.D.
D59	59/u	22	75 Ohm	.225″
D62A	62A/u	22	93 Ohm	.225″

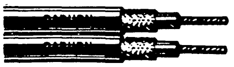
STANDARD PUT-UP: 1000 Ft.

NOTE: Daburn runs multi conductor non-conduit plenum constructions to NEC 725, 760 and 800.

TWIN-AXIAL CABLE

Suitable for computer applications — long or short haul signal transmissions; electronic cash register interconnect when high levels of noise interference may be anticipated.

1922



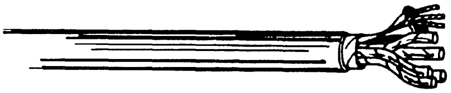
1923

DABURN Cat. No.	No. Cond.	AWG No.	Stranding	Shield Coverage	Dielectric	Nom. Imp.	Vel. Prop.	Nom. Cap./Ft.	Nom. O.D.	UL Style
1922	2	20	7/28 T.C., 7/28 B.C.	95% T.C.	Solid Poly	100	66%	15.5	.330	2498
1923	Dual 59/u	23	Solid B.C.	95% B.C.	Solid Poly	75	66%	20.5	.242 x .505	—

STANDARD PUT-UP: 500 Ft., 1000 Ft.

NOTE: #1922 is designed for IBM System 34-5250 (Cable #736221).
#1923 is designed for Wang System (Cable #420-0057).

COMPUTER CABLE MULTIPAIR FOIL SHIELD TO UL STYLE 2464



DESCRIPTION: Each conductor is #24 AWG 7/32 tinned copper, color coded, .009″ wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted in pairs. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire. Gray PVC jacket. To UL style 2464.

Construction is suitable for computer, communication and control applications.

Cable resists acids, alkalis, oil, solvents, moisture and fungus.

TEMPERATURE RANGE: −20°C to +80°C

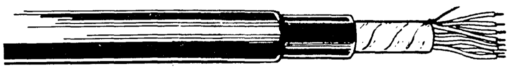
VOLTAGE RATING: 300V

FLAMMABILITY: Passes UL VW-1

DABURN Cat. No.	No. of Pairs	Nom. Jacket Wall		Nominal O.D.	
		Inches	MM	Inches	MM
2937	1	.032	.81	.162	4.08
2937/2	2	.032	.81	.220	5.59
2937/3	3	.032	.81	.240	6.10
2937/4	4	.032	.81	.275	6.99
2937/6	6	.032	.81	.290	7.37
2937/9	9	.032	.81	.360	9.14
2937/11	11	.032	.81	.375	9.53
2937/15	15	.032	.81	.430	10.92
2937/19	19	.032	.81	.445	11.30
2937/27	27	.032	.81	.515	13.08
2937/51	51	.053	1.35	.715	18.16

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
Additional constructions to order.

MULTICONDUCTOR FOIL SHIELD TO UL STYLE 2464



DESCRIPTION: Each conductor is #24 AWG 7/32 tinned copper, color coded, .009″ wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire. Cable is jacketed with gray PVC. To UL Style 2464.

Construction is suitable for computer, communication and control applications.

Cable resists acids, alkalis, oil, solvents, moisture and fungus.

TEMPERATURE RANGE: −20°C to +80°C

VOLTAGE RATING: 300V

FLAMMABILITY: Passes UL VW-1

DABURN Cat. No.	No. of Cond.	Nom. Jacket Wall		Nominal O.D.	
		Inches	MM	Inches	MM
2980	2	.032	.081	.164	4.17
2980/3	3	.032	.081	.168	4.29
2980/4	4	.032	.081	.185	4.70
2980/6	6	.032	.801	.210	5.33
2980/8	8	.032	.081	.225	5.72
2980/10	10	.032	.081	.250	6.35
2980/15	15	.032	.081	.280	7.11
2980/20	20	.032	.081	.305	7.75
2980/25	25	.032	.081	.345	8.76
2980/50	50	.032	.081	.445	11.30
2980/60	60	.032	.081	.475	12.07

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
Additional constructions to order.

UNINSULATED

TINNED COPPER WIRE

Pure Electrolytic, Copper, annealed, tinned for quick soldering—Solid Soft Drawn
MIL — W — 3861 Type S, ASTM — B — 33 Specifications, QQ — W — 343 Type S

DABURN No.	Size AWG	Area Circ. Mills	O.D.	DABURN No.	Size AWG	Area Circ. Mills	O.D.
2360/4	4	41,704	.204″	2360/18	18	1,624	.040″
2360/6	6	26,250	.162″	2360/20	20	1,022	.033″
2360/8	8	16,510	.129″	2360/22	22	624.4	.025″
2360/10	10	10,380	.103″	2360/24	24	404.0	.020″
2360/12	12	6,530	.082″	2360/26	26	254.1	.016″
2360/14	14	4,107	.065″	2360/28	28	159.8	.013″
2360/16	16	2,583	.051″	2360/30	30	100.5	.010″

STANDARD PUT-UP: 100 Ft., 1000 Ft. See Magnet Wire Section For Additional Sizes.

BUS BAR WIRE (Hard Drawn)

QQ—W—343 Type S

For hooking up all types of transmitters, especially ultra short wave equipment. All bus wire is made of hard drawn copper, tinned, straightened, and cut in 2 ft. lengths.

MIL—W—3861 Types S, ASTM—B—33, ASTM—B—246—51 Specifications

DABURN No.	Nom. Circ. Mil Area	Size	Nom. O.D.
2362/10	10,380	10	.103″
2362/12	6,530	12	.082″
2362/14	4,107	14	.065″
2362/16	2,583	16	.051″
2362/18	1,642	18	.040″
2362/20	1,022	20	.033″
2362/22	634	22	.025″

STANDARD PUT-UP: 100 Per Package in two foot lengths.

MIL-W-16878 INSTRUMENTATION — SHIELDED • UNSHIELDED

DESCRIPTION: One or more conductors, each conductor silver plated concentrically stranded copper wire. Type E Extruded TFE .010″ insulation. When shielded, braided silver plated copper shield over conductor(s), 90% shield coverage. When covered, either a TEFLON* impregnated fiberglass braid or a .010″ TEFLON* fused, double tape jacket overall. Fungus, solvent, moisture, flame, acid, alkali and oil resistant. Multiconductors are twisted.

TEMP. RATING: −65°C to +200°C. FOR 250°C USE N.P. CONDUCTOR.

VOLT. RATING: 600V.

TEFLON* IMPREGNATED BRAID OVER SHIELD

TEFLON* TAPE WRAP JACKET OVER SHIELD

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2444	1	26	7/34	.075″	2447	1	20	19/32	.093″	2454	1	26	7/34	.078″	2457	1	20	19/32	.099″
2444/2	2	26	7/34	.119″	2447/2	2	20	19/32	.154″	2545/2	2	26	7/34	.125″	2457/2	2	20	19/32	.158″
2445	1	24	19/36	.081″	2447/3	3	20	19/32	.163″	2455	1	24	19/36	.084″	2457/3	3	20	19/32	.167″
2445/2	2	24	19/36	.126″	2447/4	4	20	19/32	.180″	2455/2	2	24	19/36	.128″	2457/4	4	20	19/32	.184″
2445/3	3	24	19/36	.133″	2447/5	5	20	19/32	.195″	2455/3	3	24	19/36	.135″	2457/5	5	20	19/32	.204″
2445/4	4	24	19/36	.144″	2448	1	18	19/30	.097″	2455/4	4	24	19/36	.148″	2458	1	18	19/30	.109″
2445/5	5	24	19/36	.156″	2448/2	2	18	19/30	.162″	2455/5	5	24	19/36	.162″	2458/2	2	18	19/30	.178″
2446	1	22	19/34	.088″	2448/3	3	18	19/30	.172″	2456	1	22	19/34	.090″	2458/3	3	18	19/30	.189″
2446/2	2	22	19/34	.137″	2448/4	4	18	19/30	.192″	2456/2	2	22	19/34	.140″	2458/4	4	18	19/30	.208″
2446/3	3	22	19/34	.144″	2448/5	5	18	19/30	.207″	2456/3	3	22	19/34	.148″	2458/5	5	18	19/30	.230″
2446/4	4	22	19/34	.158″	2449	1	16	19/29	.117″	2456/4	4	22	19/34	.162″	2459	1	16	19/29	.130″
2446/5	5	22	19/34	.172″	2449/2	2	16	19/29	.196″	2456/5	5	22	19/34	.183″	2459/2	2	16	19/29	.230″

STANDARD SPOOL PUT-UPS: 250 Ft., 500 Ft., 1000 Ft. **CONDUCTOR COLOR CODE:** 1-White, 2-Black, 3-Red, 4-Green, 5—Yellow.

SHIELDED BRAID OVERALL

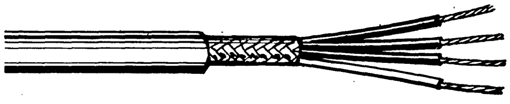
NO SHIELD—TEFLON* IMPREGNATED FIBERGLASS OVERALL

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2434	1	26	7/34	.066″	2437	1	20	19/32	.082″	2464	1	26	7/34	.040″	2467	1	20	19/32	.058″
2434/2	2	26	7/34	.104″	2437/2	2	20	19/32	.142″	2464/2	2	26	7/34	.080″	2467/2	2	20	19/32	.118″
2435	1	24	19/36	.068″	2437/3	3	20	19/32	.151″	2465	1	24	19/36	.044″	2467/3	3	20	19/32	.127″
2435/2	2	24	19/36	.112″	2437/4	4	20	19/32	.168″	2465/2	2	24	19/36	.088″	2467/4	4	20	19/32	.144″
2435/3	3	24	19/36	.120″	2437/5	5	20	19/32	.180″	2465/3	3	24	19/36	.096″	2467/5	5	20	19/32	.156″
2435/4	4	24	19/36	.132″	2438	1	18	19/30	.093″	2465/4	4	24	19/36	.108″	2468	1	18	19/30	.069″
2435/5	5	24	19/36	.140″	2438/2	2	18	19/30	.162″	2465/5	5	24	19/36	.116″	2468/2	2	18	19/30	.138″
2436	1	22	19/34	.075″	2438/3	3	18	19/30	.172″	2466	1	22	19/34	.051″	2468/3	3	18	19/30	.148″
2436/2	2	22	19/34	.124″	2438/4	4	18	19/30	.191″	2466	2	22	19/34	.100″	2468/4	4	18	19/30	.167″
2436/3	3	22	19/34	.132″	2438/5	5	18	19/30	.210″	2466/3	3	22	19/34	.108″	2468/5	5	18	19/30	.186″
2436/4	4	22	19/34	.146″	2439	1	16	19/29	.103″	2466/4	4	22	19/34	.122″	2469	1	16	19/29	.086″
2436/5	5	22	19/34	.154″	2439/2	2	16	19/29	.184″	2466/5	5	22	19/34	.131″	2469/2	2	16	19/29	.172″

STANDARD SPOOL PUT-UPS: 250 Ft., 500 Ft., 1000 Ft. **CONDUCTOR COLOR CODE:** 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow.
Special cable constructions and colors available.

FEP TEFLON* CABLE

FEP EXTRUDED JACKET OVER SHIELD



DESCRIPTION: Each conductor silver plated stranded copper wire, Type E extruded TFE .010″ insulation. Color coded, cabled, braided silver plated copper shield — 90% coverage, FEP white teflon jacket overall.

TEMPERATURE RATING: −65°C to +200°C

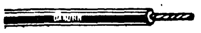
CONDUCTOR COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green * Dupont

STD. PUT-UP: 500 Ft., 1000 Ft.

Additional FEP construction available to order.

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2480	1	24	19/36	.085″
2480/2	2	24	19/36	.130″
2480/3	3	24	19/36	.135″
2480/4	4	24	19/36	.148″
2481	1	22	19/34	.091″
2481/2	2	22	19/34	.150″
2481/3	3	22	19/34	.158″
2481/4	4	22	19/34	.172″
2482	1	20	19/32	.100″
2482/2	2	20	19/32	.168″
2482/3	3	20	19/32	.178″
2482/4	4	20	19/32	.193″
2483	1	18	19/30	.110″
2483/2	2	18	19/30	.188″
2483/3	3	18	19/30	.207″
2483/4	4	18	19/30	.222″
2484	1	16	19/29	.123″
2484/2	2	16	19/29	.220″

TEFLON* WIRE TYPE E—600 VOLTS



SPEC. MIL-W-16878 High Temperature Rating −90°C to +200°C

Single conductor, stranded silver plated copper, .010″ TFE Teflon® insulation. Acid, alkalis, oil, flame, moisture, fungus, solvent resistant. Order nickel plated for 250°C.

DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.
2401	—	E-32	7/40	.033″	2405S	—	E-24(1)	1	.045″	2408	2415/18	E-18	19/30	.074″
2402	—	E-30	7/38	.036″	2406	2415/22	E-22	19/34	.054″	2409	2415/16	E-16	19/29	.079″
2403	2415/28	E-28	7/36	.039″	2406-7	—	E-22	7/30	.054″	2409/14	—	E-14	19/27	.097″
2404	2415/26	E-26	7/34	.043″	2406S	—	E-22(1)	1	.048″	2409/12	—	E-12	19/25	.120″
2404S	—	E-26(1)	1	.040″	2407	2415/20	E-20	19/32	.062″	2409/10	—	E-10	37/26	.139″
2405	2415/24	E-24	19/36	.048″	2407-7	—	E-20	7/28	.062″					
2405-7	—	E-24	7/32	.048″	2407S	—	E-20(1)	1	.056″					

STD. PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
COLORS: Black, Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White, White/Black, White/Red, White/Green, White/Yellow, White/Blue, White/Brown, White/Orange, White/Gray, White/Violet. Additional special custom constuction available to order.

NOTE: Daburn also stocks Type EE, ET, B, C, D, E, FF Pge MIL-W-16878; UL Style 1213, 1080, 1164, 1007, 1011, 1015, 1061 & 1422.

DABURN ELECTRONICS & CABLE CORP. • 70 E. OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

DABURN

LACING CORD-TAPE TO MEET MIL-T-713C TYPE P* AND MIL-T-43435 COMP. P-TYPE S NYLON FLAT BRAIDED LACING TAPE

Nylon fiber flat braided impregnated with MW microcrystaline fungicidal wax. Stays flat. Designed to create a wider contact to distribute the stress. Flexible. Won't slip when knotted. Resistant to fungus, flame, abrasion, acids, MIL-T-43435 (new) supersedes MIL-T-713 (old).

DABURN No.	Color	(New) Size	(Old) Class	Nom. Width	Nom. Thick-ness	Tensile Strength	Standard Put-Up Tubes
2035	Natural White	1	—	.200″	.014″	150 lbs.	250 yd.
2035B	Black	1	—	.200″	.014″	150 lbs.	250 yd.
2036	Natural White	2	1	.120″	.014″	80 lbs.	250 yd.
2036B	Black	2	1	.120″	.014″	80 lbs.	250 yd.
2037	Natural White	3	2*	.090″	.014″	50 lbs.	500 yd.
2037B	Black	3	2*	.090″	.014″	50 lbs.	500 yd.
2038	Natural White	4	3	.065″	.010″	30 lbs.	500 yd.
2038B	Black	4	3	.065″	.010″	30 lbs.	500 yd.
2039	Natural White	5	4	.046″	.010″	15 lbs.	500 yd.
2039B	Black	5	4	.046″	.010″	15 lbs.	500 yd.

DACRON FLAT BRAIDED LACING TAPE

Dacron fiber flat braided impregnated with non-slip fungicidal finish. Will not cut or damage insulation. Stays flat. Has all characteristics of nylon with elongation, better resistance to acids.

DABURN No.	Color	Nom. Width	Nom. Thickness	Tensile Strength	Standard Put-Up Tubes
2041	Natural White	.120″	.014″	80	250 yd.
2041B	Black	.120″	.014″	80	250 yd.
2042	Natural White	.090″	.014″	48	500 yd.
2042B	Black	.090″	.014″	48	500 yd.
2043	Natural White	.060″	.010″	35	500 yd.
2043B	Black	.060″	.010″	35	500 yd.
2044	Natural White	.046″	.010″	25	500 yd.
2044B	Black	.046″	.010″	25	500 yd.

TEFLON* FIBERGLASS FLAT BRAIDED LACING TAPE

Teflon coated fiberglass flat braided lacing tape bonded for high temp. operations (550°). Stays flat — for strength, stability. Teflon finish increases strength and abrasion resistant surface. Will not cut or damage insulation.

DABURN No.	Color	Nom. Width	Nom. Thickness	Test lbs.	Standard Put-Up Tubes
2045	White	.170″	.025″	150	250 yd.
2046	White	.120″	.020″	90	250 yd.
2047	White	.080″	.020″	70	500 yd.

TEFLON* FLAT BRAIDED LACING TAPE

for high temperature operations (550°F)

DABURN No.	Color	Nom. Width	Nom. Thickness	Test lbs.	Standard Put-Up Tubes
2048	Brown	.100″	.016″	35	250 yd.
2049	Brown	.075″	.010″	15	500 yd.

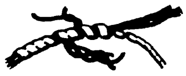
ROUND TWISTED NYLON LACING CORD

Manufactured to meet MIL-T-713A Type P specification, Composition P, Classes 3, 2, 1. Wax finish — compounded with fungicide to resist mildew. Easy to tie.

PUT-UP ON 1 LB. TUBES

DABURN No.	Color	Class	Tensile Strength	Nom. Diam.	Yds. Per Tube
2070	Natural	1	70 lbs.	.039″	600
2070B	Black	1	70 lbs.	.039″	600
2071	Natural	2	48 lbs.	.029″	800
2071B	Black	2	48 lbs.	.029″	800
2072	Natural	3	32 lbs.	.025″	1140
2072B	Black	3	32 lbs.	.025″	1140
2072/1	Natural	4	20 lbs.	.020″	2400
2072/1B	Black	4	20 lbs.	.020″	2400

SPIRAL WRAP — PLASTIC TUBING FOR HARNESSES



Available in four formulations: Polyethylene, Rulan (flame retardant polyethylene), Nylon and Teflon. Easily applied. Twists on easily. Can be flexed repeatedly without cracking or breaking. Reusable, bends around sharp corners. Expandable. **Per MIL-P-22692, MIL-I-631D, MIL-P-3803.**

POLYETHYLENE

Temp. Range: −105°F to +200°F

DABURN Cat. No.		Covers Wire Groups	Outside Diam.	Nom. Wall	Standard Package
Natural	Black*				
605-⅛″	605B-⅛″	1/16″ to ½″	⅛″	.031″	100′, 500′, 1000′
605-¼″	605B-¼″	3/16″ to 2″	¼″	.045″	100′, 500′, 1000′
605-⅜″	605B-⅜″	5/16″ to 3″	⅜″	.058″	100′, 500′, 1000′
605-½″	605B-½″	¾″ to 4″	½″	.058″	100′, 500′, 1000′

*** Black Polyethylene is Ultra Violent Resistant and Recommended for Outdoor Use.**

RULAN (White)

Temp. Range −10°F to +200°F

606-⅛″		1/16″ to ½″	⅛″	.030″	100′, 500′, 1000′
606-¼″		3/16″ to 1½″	¼″	.058″	100′, 500′, 1000′
606-⅜″		5/16″ to 2″	⅜″	.058″	100′, 1000′
606-½″		¾″ to 4″	½″	.060″	100′, 1000′

Per MIL-P-17091B, MIL-P-20693 & MIL-M-22096

NYLON

Temp. Range: −212°F to +300°F

607-⅛″	607B-⅛″	1/16″ to ½″	⅛″	.030″	100′, 500′, 1000′
607-¼″	607B-¼″	3/16″ to 2″	¼″	.025″	100′, 500′, 1000′
607-⅜″	607B-⅜″	5/16″ to 3″	⅜″	.035″	100′, 500′, 1000′
607-½″	607B-½″	¾″ to 4″	½″	.035″	100′, 500′, 1000′

*** Black Nylon is Recommended for Outdoor Use.**

Per MIL-I-22129

TEFLON (Natural)

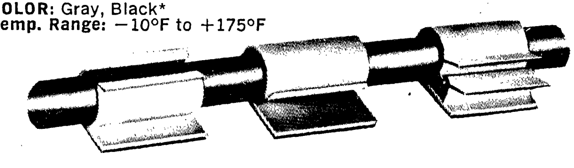
Temp. Range: −450°F to +500°F

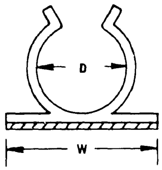
608-⅛″		1/16″ to ½″	⅛″	.031″	100′, 500′
608-¼″		3/16″ to 2″	¼″	.030″	100′, 500′
608-⅜″		5/16″ to 2½″	⅜″	.030″	100′, 500′
608-½″		¾″ to 3″	½″	.030″	100′, 500′

COLOR: Natural (White).

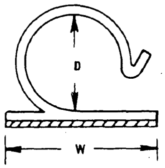
DABURN STIK KLIPS™ — SELF ADHESIVE

MATERIAL: PVC
COLOR: Gray, Black*
Temp. Range: −10°F to +175°F

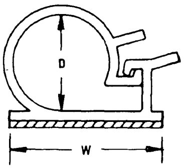




CAT. NO. 660



CAT. NO. 670



CAT. NO. 680 (LOCKING)

For fast secure mounting on smooth surfaces. No need to screw, nail or staple in place. Fastens in a flash — just peel off the protective backing and press in place on a clean, dry surface. For best results allow a few seconds for adhesive to set before applying load.

These plastic clips are insulating, strong and elastic. They have many uses, such as keeping telephone wires off the floor, holding wire, cable, tubing rods, etc. in position.

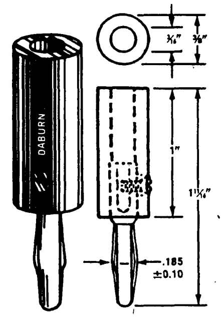
DABURN Cat. No.	D	W	Std. Pkg.
660-⅛	⅛″	¾″	100, 1000
660-¼	¼″	¾″	100, 1000
660-⅜	⅜″	¾″	100, 1000
660-½	½″	1″	100, 1000
660-¾	¾″	1″	100, 1000
670-⅛	⅛″	¾″	100, 1000
670-¼	¼″	¾″	100, 1000
670-⅜	⅜″	¾″	100, 1000
670-½	½″	1″	100, 1000
670-¾	¾″	1″	100, 1000
680-¼*	¼″	¾″	100, 1000
680-½	½″	1″	100, 1000
680-¾	¾″	1″	100, 1000

DABURN

PLUGS & JACKS

INSULATED BANANA PLUG

SOLDERLESS



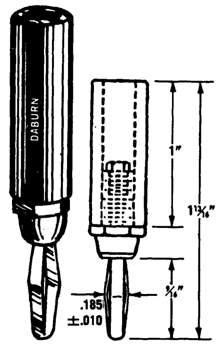
Mates with any standard banana jack. Side set screw secures wire without soldering. Plug is brass, nickle plated. Plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify)

Spring	
DABURN No.	**Std. Pkg.**
19-46 Phosphor Bronze N.P.	50
19-46A Beryilium Copper N.P.	50

INSULATED BANANA PLUG

SOLDERLESS



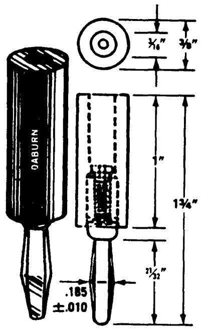
Mates with any standard banana jack. Plug is Hex Brass, nickle plated. Wire may be soldered to body or passed thru hex brass stud, flared and secured by screwing into body. Shock resistant plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify)

Spring	
DABURN No.	**Std. Pkg.**
19-04 Phosphor Bronze N.P.	50
19-04B Beryilium Copper S.P.	50

INSULATED BANANA PLUG

SOLDERLESS



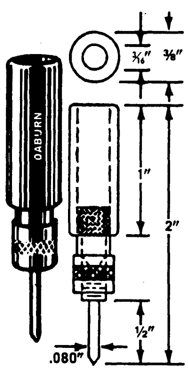
Mates with any standard banana jack. Plug is brass, nickel plated. Wire may be soldered to body or secured by solderless means, as with our #19-04. Handle is flush fitting, shock resistant. Plastic.

COLORS: Red, Black, Yellow, Green, Blue, (specify)

Spring	
DABURN No.	**Std. Pkg.**
19-65 Phosphur Bronze N.P.	50
19-65B Beryllium Copper S.P.	50

INSULATED PHONE TIP

SOLDERLESS JUNIOR



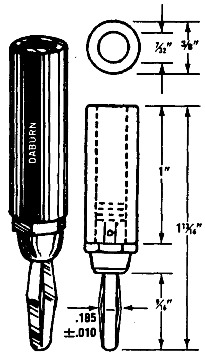
Fits any standard phone tip jack. Brass, nickle plated body. Solderless connection for wire which fits thru body of tip and secured under knurled nut. Shock resistant plastic handle.

COLORS: Red, Black, Yellow, Green, Blue. (specify)

DABURN No.		**Std. Pkg.**
19-15	Junior	50

INSULATED BANANA PLUG

SOLDERLESS



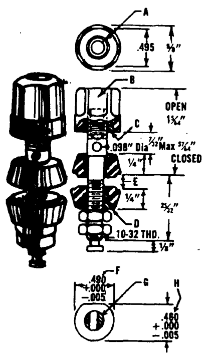
Mates with any standard banana jack. Wire may be soldered or passed through side hole and dressed around brass, nickle plated body to be secured by flush fitting shock resistant plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify)

Spring	
DABURN No.	**Std. Pkg.**
19-63 Phosphur Bronze N.P.	50

BINDING POSTS - MULTI-PURPOSE

Wrap Around

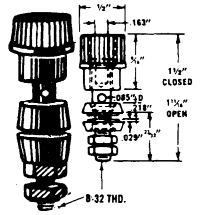


Molded nylon body. Accepts tip plug, spade lug. banana plug, wire alligator clip and direct solder connection. Has molded-in brass inserts in head and washer. Rated at 30 amps. AC Capacitance 5. OMMFD. Banana plug recepticle .161" I.D. head non-removable from stud and washer completely insulates post from panel. For panels 1/16" to 1/4" thick; drill 1/2" hole for mounting washers. Wire hole is at right angle to flat on insulated washer.

COLORS: Red, Black (specify)

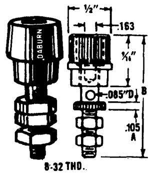
DABURN No.	**Std. Pkg.**
18-72 Fluted Head Post	100
18-75 Hex-head Post	100

STANDARD DUTY BINDING POST



Molded nylon captive head. Brass, nickle plated stud and nuts. Rated at 15 amps. AC, capacitance 3.0 PF. Mounts in 1/4" round hole in panels up to 1/8" thick.

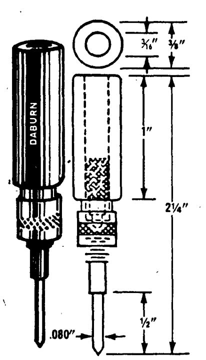
COLORS: Red, Black (specify)



DABURN No.	**Std. Pkg.**
18-78 All insulated type	100
18-79 Grounded type	100

INSULATED PHONE TIP

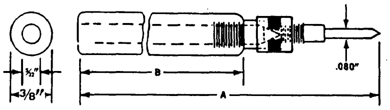
SOLDERLESS SENIOR



Fits any standard phone jack. Brass, nickle plated body. Solderless connection for wire which fits thru body of tip and secured under knurled nut. Shock-resistant plastic handle.

DABURN No.		**Std. Pkg.**
19-09	Senior	50

SOLDERLESS TEST PROD

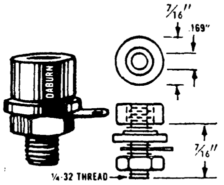


Body is brass, nickle plated with molded plastic handle. Solderless connection for wire fits thru handle and plug body and wraps under knurled nut.

COLORS: Red, Black (specify)

DABURN No.	Handle (B)	Overall length (A)	Std. Pkg.
19-10	4"	5-3/16"	50
19-43	5"	6½"	50

INSULATED BANANA JACK

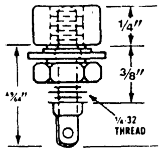


Body is brass nickel plated, mounts in 5/16" hole in panels up to 3/8" thick. Comes thru with hex nut, tinned copper lug and fibre washer. Takes all standard banana plugs. Molded plastic head.

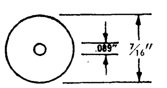
COLORS

Red, Black, Yellow, Green, Blue, (Specify)

DABURN No.	Description	Std. Pkg.
19-06	Insulated Jack	50



INSULATED PHONE TIP JACK

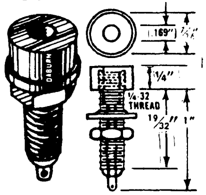


Fits all standard phone tips. Brass nickel plated body. Phosphor bronze spring provides positive contact. Comes thru complete with hex nut and fibre washer. Molded plastic head.

COLORS: Red, Black, Yellow, Green, Blue. (Specify)

DABURN No.		Std. Pkg.
19-07	Insulated Phone Tip Jack	50

INSULATED JACK COMBINATION



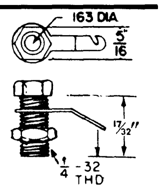
Will take senior phone tips or standard banana plugs Body is brass, nickel plated. Mounts in 5/16" hole in panels up to 1/2" thick. Springs are phosphor bronze. Comes thru with hex nut and fibre washer.

COLORS:

Red, Black, Yellow, Green, Blue. (Specify)

DABURN No.	Description	Std. Pkg.
19-33	Insulated Combination Jack	50

BANANA JACK



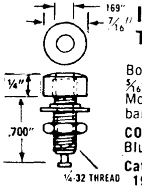
Hexed brass nickel plated hex nut and tinned copper lug. Has recessed head. Mounts in 1/4" hole in panels up to 5/16" thick. Fits all standard banana plugs.

Rated: 15 amps AC.

Daburn No.		Std. Pkg.
17-03	Banana Jack	100

MATE WITH 19-46, 19-44, 19-63, 19-65, 19-04, 17-40, 17-41

INSULATED BANANA JACK TURRET TERMINAL



Body is brass nickel plated. Mounts in 5/16" hole in panels up to 3/8" thick. Molded plastic head. Takes standard banana plugs.

COLORS: Red, Black, Yellow, Green, Blue, White.

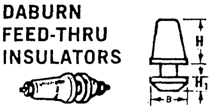
Cat. No.		Std. Pkg.
19-26	Banana jack	100

DABURN ELECTRONICS & CABLE CORP. • Dept. EM, 70 E. Oak St., Norwood, NJ 07648 (201) 768-5400 TWX 710-991-9856

DABURN

INSULATORS • FASTENINGS • NYLON WASHERS • SPACERS • SCREWS • NUTS

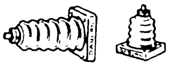
DABURN FEED-THRU INSULATORS



These are quality porcelain insulators smoothly glazed. Heavy nickel plated brass hardware used. Cushion washers supplied.

DABURN No.	Hgt. H	B	H1	Mtg. Hole	H'dwe	Std. Pkg.
10-58	5/8"	11/16"	1/4"	5/16"	6-32	50
10-78	1"	13/16"	5/16"	7/16"	10-32	25
10-125	1 1/4"	7/8"	3/8"	7/16"	10-32	25
10-234	2 3/4"	2"	1"	1 1/4"	1/4-20	10

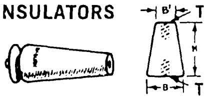
DABURN METAL BASE INSULATORS



Made of hi tensile strength, low absorption ceramic, fully glazed corrugated surface. Provides longer leakage path. Drawn metal bases.

Daburn No.	Hgt. H	B	D	Mtg. Screw	H'dwe	Std. Pkg.
10-67	1 3/8"	1 7/8"x1 5/16"	1 1/2"	2 #8	10-32	25
10-176	2 3/4"	1 3/4"x1 3/4"	1 3/8"	4 #10	1/4-20	10
10-451	4 1/2"	2 1/4"x2 1/4"	1 3/4"	4 #10	1/4-20	5

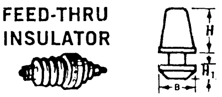
DABURN STEATITE CONE INSULATORS



Steatite cones have smooth glaze white. Come complete with brass nickel plated screws and cushion washers

Daburn No.	Hgt. H	B	B1	T	Mtg. Hole	Std. Pkg.
10-30	5/8"	5/8"	7/16"	6-32	5/32"	100
10-31	1"	11/16"	1/2"	8-32	3/16"	50
10-32	1 1/2"	7/8"	5/8"	10-32	7/32"	50
10-33	2 3/4"	1 1/4"	3/4"	1/4-20	9/32"	25

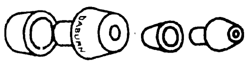
CORRUGATED FEED-THRU INSULATOR



These numbers have twice the leakage path of the straight type due to the increased surface area. Brass nickel plated hardware and cushion washers supplied.

DABURN No.	Hgt. H	B	H1	Mtg. Hole	H'dwe	Std. Pkg.
10-79	1 3/8"	1 1/4"	11/16"	9/16"	10-32	25
10-76	2 3/4"	1 5/8"	1"	3/4"	1/4-20	10
10-52	4 1/2"	2 1/8"	1 1/2"	1"	1/4-20	5

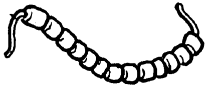
DABURN STEATITE FEED-THRU INSULATORS



Feedthrus come thru with tops and bottoms for chassis, panel, shields, rack mounting. No hardware included. Made of L5 glazed Steatite.

Daburn No.	Hgt. Top	Diam.	Hole Panel	T'kness Panel To	Screw Size Max.	Std. Pkg.
10-205	7/32"	5/8"	7/16"	1/8"	8-32	50
10-206	3/8"	1/2"	1/4"	3/16"	6-32	50
10-208	3/4"	1 1/8"	3/4"	3/8"	10-32	50
10-209	1 5/8"	1 1/4"	1/2"	2"	10-32	50

DABURN FISH SPINE BEADS

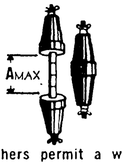


Suitable for buss and heavy lines insulation. Beads follow bends and curves because of ball and socket style interlocks. Made of Steatite. Std. Pkg. 100, 1000.

				Approx.	
Cat. No.	Grade	O.D.	I.D.	# Pcs. In.	100 Pcs. Cover
10-215	L-5	.312"	.125"	4	26"
10-215A	L-3	.125"	.056"	8	11"
10-215B	L-3	.172"	.068"	6	14"

Additional sizes available to order.

DABURN LEADIN INSULATORS

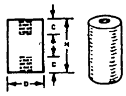


Sections are each 2 3/4" high hi vitrified porcelain glazed. Comes thru with 2 additional bushings 1/4" and 1/2" long, permitting complete insulation of the threaded rod of any length in multiples of 1/4". Complete with brass nickel plated hardware. Lead and cushion washers permit a water tight seal.

DABURN No.	Description	A	Std. Pkg.
10-237	10" Rod/Bushings	2 1/4	10
10-238	15" Rod/Bushings	6 1/4	10

DABURN STEATITE STANDOFFS

JAN-I-8 AND JAN-I-10 SPECS.



These threaded Steatite pillars are made of L5 glazed Steatite with threaded holes on both sides have one hole mounting.
COLOR: White

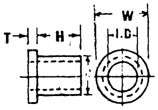
Daburn No.	Conforms to NEW Type	Hgt.	Diam.	L'gth of Thr'd	Thr'd
10-41		1/4"	1/4"	All	6-32
10-41B		3/8"	1/4"	5/32"	6-32
10-41A		1/2"	1/4"	5/32"	6-32
10-44A		3/4"	1/4"	1/4"	6-32
10-45A		1"	1/4"	1/4"	6-32
10-42		3/8"	3/8"	5/32"	6-32
10-42A	NL523W01-004	1/2"	3/8"	5/32"	6-32
10-43A	NL523W01-005	5/8"	3/8"	1/4"	6-32
10-44B	NL523W01-006	3/4"	3/8"	1/4"	6-32
10-45B	NL523W01-008	1"	3/8"	3/8"	6-32
10-46B	NL523W01-010	1 1/4"	3/8"	3/8"	6-32
10-46A	NL523W01-012	1 1/2"	3/8"	3/8"	6-32
10-46C	NL523W01-016	2"	3/8"	3/8"	6-32
10-43		1/2"	1/2"	1/4"	6-32
10-44		3/4"	1/2"	1/4"	6-32
10-45		1"	1/2"	3/8"	6-32
10-46		1 1/2"	1/2"	3/8"	6-32
10-47		2 1/2"	1/2"	3/8"	6-32
10-40	NL523W02-005	5/8"	1/2"	3/16"	8-32
10-40A	NL523W02-006	3/4"	1/2"	1/4"	8-32
10-40B	NL523W02-008	1"	1/2"	3/8"	8-32
10-40C	NL523W02-010	1 1/4"	1/2"	3/8"	8-32
10-40D	NL523W02-012	1 1/2"	1/2"	3/8"	8-32
10-40E	NL523W02-016	2"	1/2"	3/8"	8-32
10-40F	NL523W02-020	2 1/2"	1/2"	3/8"	8-32
10-40G	NL523W02-024	3"	1/2"	3/8"	8-32
10-44C		3/4"	3/4"	1/4"	10-32
10-45C	NL523W03-008	1"	3/4"	3/8"	10-32
10-45D	NL523W03-010	1 1/4"	3/4"	3/8"	10-32
10-45E	NL523W03-012	1 1/2"	3/4"	3/8"	10-32
10-45F	NL523W03-016	2"	3/4"	3/8"	10-32
10-45G	NL523W03-020	2 1/2"	3/4"	3/8"	10-32
10-45H	NL523W03-024	3"	3/4"	3/8"	10-32
10-45S	NL523W03-032	4"	3/4"	3/8"	10-32
10-47B	NL523W04-012	1 1/2"	1"	1/2"	1/4-20
10-47D	NL523W04-016	2"	1"	5/8"	1/4-20
10-47E	NL523W04-020	2 1/2"	1"	5/8"	1/4-20

STD. PKG: 100 except 10-47B, D, E, which are 50.

DABURN NYLON SPACER/BUSHINGS

Wide flanges isolates screw from mounting surface. Has hi-tensile and torque strength.

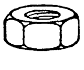
6/6 Nylon



COLOR: Natural. MIL-P-20693A. Std. Pkg.: 100, 1000

Daburn No.	Screw Size I.D.	W	T	H	D
14-79	# 4 (.115")	.235"	3/64"	1/4"	.146"
14-79A	# 6 (.140")	.290"	3/64"	1/4"	.170"
14-79B	# 8 (.173")	.344"	1/16"	3/8"	.205"
14-79C	#10 (.200")	.399"	1/16"	3/8"	.260"
14-79D	1/4" (.260")	.513"	1/16"	3/8"	.312"

DABURN NYLON HEX NUTS

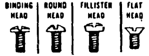


Daburn No.	Size	Daburn No.	Size
14-85	2-56	14-88	8-32
14-86	4-40	14-89	10-32
14-87	6-32	14-90	1/4-20

COLOR: Natural. MIL-P-20693A. Std. Pkg.: 100, 1000

SEND FOR FREE COMPLETE CATALOG

DABURN NYLON FASTENINGS ZYTEL 101 MIL-P-20693A



Has outstanding insulation specs. hi-resistance to heat, shock, vibration, chemical. Is light in weight, superior torque strength. Corrosion resistant, non magnetic. Continuous service temperature to 300°F. All parts made to American thread standards to Class 2A or 2B fit. B18.2 (hex nuts), B18.6 (machine screws), B1.1 (thread specs.).

Daburn No.	Size	Type	Daburn No.	Size	Type
14-40	2-56 x 1/4"	Rd. Hd.	14-48A	6-32 x 1/2"	Bind. Hd.
14-40A	2-56 x 1/4"	Fill. Hd.	14-48B	6-32 x 1/2"	Fill. Hd.
14-40B	2-56 x 1/4"	Bind. Hd.	14-48C	6-32 x 1/2"	Flat. Hd.
14-41	2-56 x 3/8"	Rd. Hd.	14-49	6-32 x 3/4"	Rd. Hd.
14-41A	2-56 x 3/8"	Fill. Hd.	14-49A	6-32 x 3/4"	Fill. Hd.
14-41B	2-56 x 3/8"	Bind. Hd.	14-49B	6-32 x 3/4"	Bind. Hd.
14-42	2-56 x 1/2"	Rd. Hd.	14-50	6-32 x 1"	Rd. Hd.
14-42A	2-56 x 1/2"	Fill. Hd.	14-50C	6-32 x 1"	Flat. Hd.
14-42B	2-56 x 1/2"	Bind. Hd.	14-51	8-32 x 1/4"	Rd. Hd.
14-43	4-40 x 1/4"	Rd. Hd.	14-51A	8-32 x 1/4"	Fill. Hd.
14-43A	4-40 x 1/4"	Fill. Hd.	14-51B	8-32 x 1/4"	Bind. Hd.
14-43B	4-40 x 1/4"	Bind. Hd.	14-52	8-32 x 1/2"	Rd. Hd.
14-44	4-40 x 3/8"	Rd. Hd.	14-52A	8-32 x 1/2"	Fill. Hd.
14-44A	4-40 x 3/8"	Fill Hd.	14-52B	8-32 x 1/2"	Bind. Hd.
14-44B	4-40 x 3/8"	Bind. Hd.	14-52C	8-32 x 1/2"	Flat. Hd.
14-44C	4-40 x 3/8"	Flat Hd.	14-54	8-32 x 5/8"	Rd. Hd.
14-45	4-40 x 1/2"	Rd. Hd.	14-54A	8-32 x 5/8"	Fill. Hd.
14-45A	4-40 x 1/2"	Fill. Hd.	14-55	8-32 x 3/4"	Rd. Hd.
14-45B	4-40 x 1/2"	Bind. Hd.	14-55A	8-32 x 3/4"	Fill. Hd.
14-61	4-40 x 1"	Rd. Hd.	14-55B	8-32 x 3/4"	Bind. Hd.
14-61C	4-40 x 1"	Flat Hd.	14-56A	8-32 x 1"	Fill. Hd.
14-46	6-32 x 1/4"	Rd. Hd.	14-56C	8-32 x 1"	Flat. Hd.
14-46A	6-32 x 1/4"	Fill. Hd.	14-57	10-32 x 3/8"	Rd. Hd.
14-46B	6-32 x 1/4"	Bind. Hd.	14-58	10-32 x 1/2"	Rd. Hd.
14-46C	6-32 x 1/4"	Flat Hd.	14-58C	10-32 x 1/2"	Flat Hd.
14-47	6-32 x 3/8"	Rd. Hd.	14-59	10-32 x 5/8"	Rd. Hd.
14-47A	6-32 x 3/8"	Bind. Hd.	14-60	10-32 x 1"	Rd. Hd.
14-47B	6-32 x 3/8"	Fill. Hd.	14-60C	10-32 x 1"	Flat Hd.
14-47C	6-32 x 3/8"	Flat. Hd.	14-62	1/4-20 x 1"	Rd. Hd.
14-48	6-32 x 1/2"	Rd. Hd.	14-63	1/4-20 x 2"	Rd. Hd.

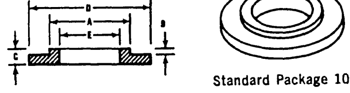
STOCK COLOR: Natural. Additional sizes available to order. Std. Pkg.: 100, 1000

DABURN NYLON FLAT WASHERS

Daburn No.	For Screw Size	I.D.	O.D.	Thickness
14-92	2	3/32"	1/4"	.016"
14-93	4	1/8"	1/4"	.016"
14-94	6	5/32"	5/16"	.031"
14-95	8	.170"	3/8"	.031"
14-96	10	.195"	3/8"	.031"
14-97	1/4	9/32"	5/8"	.063"

COLOR: Natural 6/6 Nylon Std. Pkg.: 100, 1000

DABURN NYLON SHOULDER WASHERS



Standard Package 1000

Natural Nylon Per MIL-P-20693A

Catalog No.	E	Hole Size	D	C	B	A
14-540	.140	6	.375	.093	.031	.237
14-541	.110	4	.250	.062	.031	.187
14-542	.136	6	.250	.093	.031	.187
14-543	.136	6	.312	.093	.031	.187
14-544	.250	1/4"	.500	.093	.028	.312
14-545	.172	8	.375	.093	.031	.246
14-546	.196	10	.375	.093	.031	.308
14-547	.265	17/64"	.500	.097	.031	.365
14-548	.375	3/8"	.750	.093	.031	.500
14-549	.385	3/8"	.625	.093	.031	.500

DABURN ELECTRONICS & CABLE CORP. • Dept. EM, 70 E. Oak St., Norwood, NJ 07648 (201) 768-5400 TWX 710-991-9856

DATAK FLEXY®MARKER™ for wire

A MAJOR ADVANCE in Marking Wire. The ULTRA-THIN FLEXY-MARKER

GENERAL SPECIFICATIONS

DIMENSIONS (Printed Markers): .25"W (nom.) x 1.125"L. Max. wire dia. for full wrap = 0.35". Min. wire dia. for legible marking = 0.040". See table for write-on marker dimensions.

BASE FILM: Soft, conformable .003" vinyl film.

MARKING INK: Black thermosetting. Fused into base film for permanency.

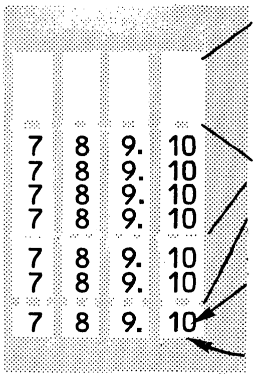
ADHESIVE: Modified acrylic. Excellent adhesion to metals and most wire insulations, including all vinyls. For reliable results on Teflon make a full wrap with overlap. Surfaces must be oil-free before application.

TEMPERATURE RANGE: −55°C (−67°F) to 130°C (266°F). Marker will withstand brief excursions to a 150°C ambient but yellowing will occur after several hundred hours.

RESISTANCE TO PETROLEUM PRODUCTS: Unaffected by immersion in most lubricating and hydraulic oils.

NOTE: Your conditions may vary from our test parameters. Test this product under your conditions to determine its ultimate suitability.

PRINTED MARKERS



TAB has no adhesive. Flick with a fingernail, apply marker and pull off in one easy motion.

MARKER FILM is dead-soft. Conforms perfectly even if wire is flexed.

3 PERFORATIONS are graduated in strength. You can pull off marker sections in order as you apply. Save balance for reuse.

LEGENDS are baked in. Won't fade, dissolve or wear off.

ADHESIVE bonds securely, even to vinyls. Markers won't loosen or fall off in time.

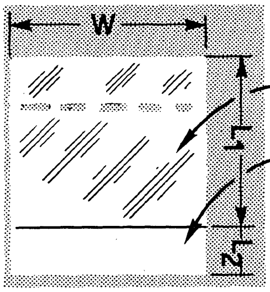
HOW SUPPLIED

FLEXY-MARKER™ wire markers are supplied in sets of 24 identical 3¼ x 5⅞ inch sheets bound into a handy pocket pad. A set has 1056 two figure markers, 768 three figure markers or 624 four figure markers per set. Each can be separated into 3 smaller markers.

COLOR ASSORTMENT. Twelve EIA and NEMA standard colors are available in an assortment called FCOLORS.

SEQUENTIAL NUMBERS AND ELECTRICAL TERMS. A number assortment from 1 to 104 (F1S104) and an assortment of miscellaneous electrical designations ((FBUS) are available.

WRITE-ON MARKERS



CLEAR FILM wraps around and protects write-on surface.

WRITE-ON SURFACE will accept pencil, pen or typewriter. Markings may be corrected immediately after typing or writing but become indelible after several hours.

HOW SUPPLIED

WRITE-ON WIRE MARKERS supplied in sets of 6 identical 8½" x 9¾" sheets suitable for typewriter or platen-feed printers. Markers are spaced in 1/6" multiples for easy typing. The write-on area is treated to absorb inks slowly so that corrections can be made if done at once. The write-on portion is protected by a clear vinyl overwrap when the marker is wrapped around a wire. Available in the following sizes:

CAT NO	W	L1	L2	Max. Wire Dia.	Markers/ Set
FWR1	0.50	0.5	0.1875	0.156 Inch	630
FWR2	1.25	0.5	0.1875	0.156	252
FWR3	2.00	0.5	0.1875	0.156	168
FWR4	0.50	1.20	0.300	0.375	360
FWR5	1.25	1.20	0.300	0.375	144
FWR6	2.00	1.20	0.300	0.275	96
FWR7	1.25	2.40	0.750	0.750	72
FWR8	2.00	2.40	0.750	0.750	48
FWR9	1.90	3.83	0.750	1.220	48

PRINTED WIRE MARKERS are available in the following styles as bound sets of 24 sheets:

FNOSLASH	Ø	F425S456	425 thru 456	FT4	T4	F240V	240V
FNO	0 (number)	F457S88	457 thru 488	FT5	T5	F277V	277V
F1 etc. to	1	F489S20	489 thru 520	FT6	T6	F440V	440V
F520	520	FA etc. to	A (letter)	FT7	T7	F480V	480V
F1S22*	1 thru 22	FZ	Z	FT8	T8	FAC	AC
F1S104**	1 thru 104	FALPHA	A thru Z	FGND	GND	FDC	DC
F23S66	23 thru 66	FBUS	see below †	FHOT	HOT	FBLK	(black)
F67S104	67 thru 104	FCOLORS	12 NEMA colors	FMINUS	−	FBRN	(brown)
F105S36	105 thru 136	FL1	L1	FNEG	NEG	FRED	(red)
F137S68	137 thru 168	FL2	L2	FNEUT	NEUT	FORG	(orange)
F169S00	169 thru 200	FL3	L3	FPLUS	+	FYEL	(yellow)
F201S32	201 thru 232	FL4	L4	FPOS	POS	FLTGRN	(lt. green)
F233S64	233 thru 264	FPH1	PH1	FXTRA	XTRA	FDKGRN	(dk. green)
F265S96	265 thru 296	FPH2	PH2	F110V	110V	FLTBLU	(lt. blue)
F297S28	297 thru 328	FPH3	PH3	F115V	115V	FDKBLU	(dk. blue)
F329S60	329 thru 360	FT1	T1	F120V	120V	FVIO	(violet)
F361S92	361 thru 392	FT2	T2	F208V	208V	FGRY	(gray)
F393S24	393 thru 424	FT3	T3	F220V	220V	FWHT	(white)

*contains 48 sets 1-22 **contains 24 sets 1-22 & 12 sets 23-104

†contains 8 sets A thru Z and one sheet each of POS, NEG, GND, AC, DC, 120V, 240V, HOT, NEUT, PH1, PH2, PH3, L1, L2, L3, L4, XTRA, T1, T2, T3.

© 1982 The DATAK Corporation

ANY F# FLEXY-MARKER SET (24 bound 3¼ x 5⅞ inch sheets) .... **$ 6.95**

ANY FWR# WRITE-ON FLEXY-MARKER SET (6 loose 8½ x 9¾ inch sheets) .... **$ 6.95**

See Sections 1700 and 2400 for DATAK Printed Circuit Sets and Panel Marking Sets

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Dearborn is totally committed to bringing you the absolute finest and technologically-correct electronic wire, cable, and insulation. We have know-how, experience and a variety of quality products for all of the following applications: Audio-Video, Automotive, Cellular Communications, Commercial, Computer, Communications Systems, Crane and Hoist Systems, Data Processing, Fiber Optics, Instrumentation, Manufacturing and Process Controls, Medical, Military, and more.

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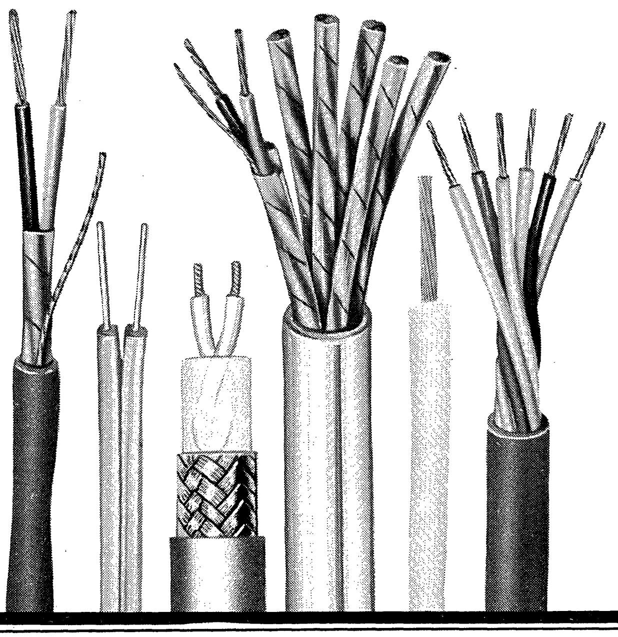


▪ Cables

We offer a complete selection of high-quality cables in a variety of constructions, including multiconductor, paired, unshielded, shielded, braided copper shields, spiral wrap shield or our exclusive Alumylar™ foil shield that offers 100% coverage.

▪ Sound, Broadcast & Instrumentation ▪ Audio and Data ▪ Computer ▪ Coaxial ▪ Power-Limited Circuit Cables ▪ High-Temperature ▪ Data Transmission ▪ EC™ Plenum Cables ▪ Portable Cordage ▪ Welding Cable ▪ Many More

▪ Insulation

Our complete line of quality insulation features:

▪ Extruded Tubing ▪ Heat Shrinkable ▪ Polyolefin ▪ Teflon ▪ Neoprene ▪ Kynar

▪ Wire

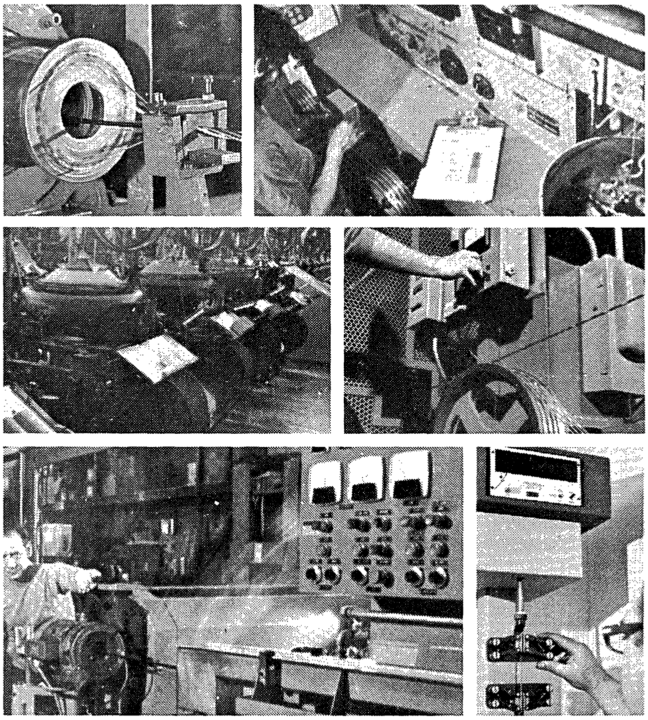
Our complete line of wire is manufactured to meet and exceed the highest testing requirements. Popular types include:

▪ Aircraft ▪ Appliance & Fixture ▪ Bus Bar ▪ High-Voltage ▪ High-Temperature ▪ Hook-Up Wire ▪ Kynar ▪ Machine Tool ▪ Magnet ▪ Silicone ▪ Test Prod ▪ Teflon

▪ We're Your Full Service Source

Dearborn will custom fabricate to your specifications. Our services include Special Cables, Jacketing, Striping, Marking, Numbering, Lettering, Cutting & Stripping, Terminating, Harness Assemblies, Molded Plugs & Cord Sets, and Cabling.

We Will Be Pleased To Quote On Your Blue Print Sketches Or Job Specifications.

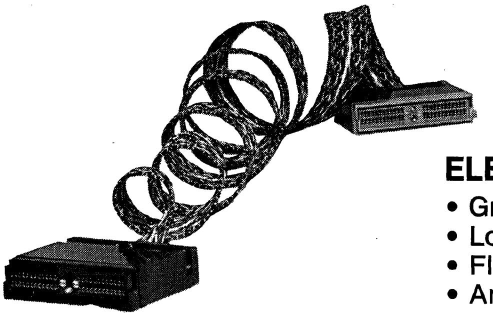


DEARBORN WIRE AND CABLE CO.

250 Carpenter Avenue • Wheeling, IL 60090

WOVEN CABLE
CABLE ASSEMBLIES
WIRE/CABLE IDENTIFICATION

TOP QUALITY
COMPETITIVE COSTS
PROMPT DELIVERY
ANY SPECS



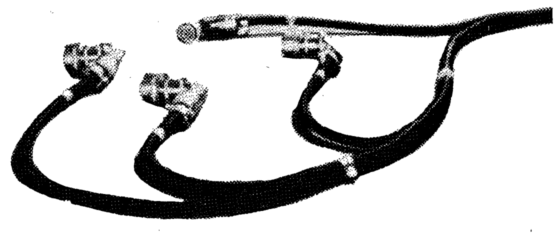
ELECTRONIC WOVEN CABLE

- Great flexibility
- Long service life
- Flat and compact
- Any combination of conductors
- Electronics to suit the job
- Over 20 years aerospace and industrial experience

WIRE & CABLE MARKERS

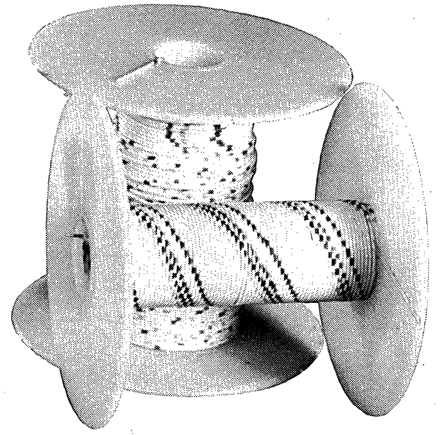
- Shrinkable or non-shrinkable tubing
- Cable ties
- Logos and special designs
- Colors and materials to enhance any job
- Character height and color to suit
- Mil-spec materials and procedures

CG-1704/VRC
(4FT 0IN)
A16A2E4
W16E
311475-2
SET 710123-9
GSI



CABLE ASSEMBLIES

- Hand laid-up or programmed
- Flat or round
- Soldered or crimped terminals
- MIL-Spec or industrial standards
- Braided shields and outer jackets



WIRE MARKING

- Bands, stripes or alphanumerics
- 12 to 30 AWG
- Teflon, PVC or other insulations
- 100 percent spark testing
- For military aircraft and submersibles

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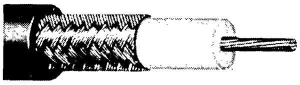
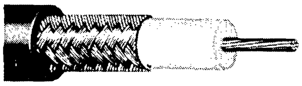
COAXIAL CABLES

6/U

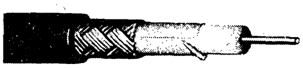

8/U, 8A/U

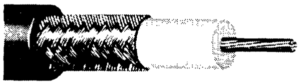

11/U

58/U, 58A/U, 58C/U

MINI 8/U

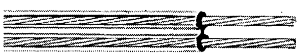
59/U, 59B/U


59/U


213/U

RG NO.	PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD	JACKET AND O.D.	NOM. IMP. (OHMS)	NOM. VEL. OF PROP.	NOM. CAP. PF/FT
6/U	JFG-06	18 (SOLID) CCS	FPE (.180)	100% FOIL + 46% AL	PVC (.270)	75	78%	17.3
8/U	JPA-08	13 (7/21) BC	PE (.285)	96% BC	PVC (.405)	52	66%	29.6
8A/U	JPA-08R	13 (7/21) BC	PE (.285)	96% BC	NCPVC (.405)	52	66%	29.5
8/U TYPE	JFB-08	13 (7/21) BC	FPE (.285)	80% BC	PVC (.405)	57	78%	22.6
11/U	JPB-11	18 (7/26) BC	PE (.285)	80% BC	PVC (.405)	75	66%	20.5
58/U	JPA-58	20 (SOLID) BC	PE (.116)	96% TC	PVC (.195)	53.5	66%	28.5
58A/U	JPA-58R	20 (19/33) TC	PE (.116)	96% TC	PVC (.195)	50	66%	30.8
58C/U	JPA-58T	20 (19/33) TC	PE (.116)	96% TC	NCPVC (.195)	50	66%	30.8
58/U	JPB-58	20 (SOLID) BC	PE (.116)	80% BC	PVC (.195)	53	66%	28.5
58/U TYPE	JFB-58	20 (SOLID) BC	FPE (.116)	80% BC	PVC (.195)	53	78%	22.0
58A/U TYPE	JFB-58R	20 (19/33) BC	FPE (.116)	80% BC	PVC (.195)	50	78%	26.0
8/U MINI	JFA-08Q	16 (19/29) BC	FPE (.157)	95% BC	PVC (.240)	50	78%	26.0
59/U	JPA-59	22 (SOLID) CCS	PE (.146)	95% BC	PVC (.240)	73	66%	21.0
59B/U	JPA-59S	23 (SOLID) CCS	PE (.146)	95% BC	NCPVC (.240)	75	66%	20.5
59/U	JPB-59	22 (SOLID) CCS	PE (.146)	80% BC	PVC (.240)	73	66%	21.0
59/U	JPC-59	22 (SOLID) CCS	PE (.146)	70% BC	PVC (.240)	73	66%	21.0
59/U TYPE	JFC-59	22 (SOLID) CCS	FPE (.146)	70% BC	PVC (.240)	80	78%	16.3
59/U TYPE	JFG-59	22 (SOLID) CCS	FPE (.146)	100% FOIL + 38% AL	PVC (.240)	80	78%	16.3
59/U TYPE	JFG-59R	20 (SOLID) CCS	FPE (.146)	100% FOIL + 38% AL	PVC (.240)	75	78%	17.3
213/U	JPA-213	13 (7/21) BC	PE (.285)	96% BC	NCPVC (.405)	50	66%	30.8

PARALLEL CORD



TYPE	PART NO.	NUMBER OF CONDUCTORS	CONDUCTOR SIZE	INSULATION AND O.D.
12/2	JSW-12	2	12 (65/30) BC	PVC (.200 x .405)
14/2	JSW-14	2	14 (19/27) BC	PVC (.160 x .255)
16/2	JSW-16	2	16 (19/29) BC	PVC (.120 x .215)
18/2	JSW-18	2	18 (16/30) BC	PVC (.105 x .200)
20/2	JSW-20	2	20 (7/28) BC	PVC (.090 x .185)
22/2	JSW-22	2	22 (7/30) BC	PVC (.068 x .130)
24/2	JSW-24	2	24 (7/32) BC	PVC (.062 x .125)

Judd Wire

DIVISION OF
HIGH VOLTAGE ENGINEERING

Turnpike Road, Turners Falls, MA 01376
Tel. (413) 863-4357 • TWX 510-290-2147
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PIONEERS IN IRRADIATED WIRE

JUDD WIRE is a diversified wire and cable company offering hook-up wire, multiconductor cable and many specialized products for the electronics industry. Products are available for applications in the temperature range of -55°C to 200°C.

In addition to conventional products JUDD WIRE has pioneered and specializes in the manufacture of irradiation cross linked wire and cable product lines.

JUDD WIRE's design engineers work daily on providing solutions to wire and cable problems. Our customer count on JUDD WIRE to meet their requirements for engineering, manufacturing, testing, and packaging everything from the smallest hook-up wire to complex, state of the art multiconductor cables.

Decades of experience and thousands of design efforts back the commitment of JUDD WIRE to engineer solutions for today and tomorrow's wire and cable needs.

JUDD WIRE APPLICATION GUIDE

Airframe Wire
Anticapillary Wire
Apparatus Wire
Audio Cable
Braid Shielded Cable
Cathodic Protection Cable
Coaxial Cable
Communication Cable
Computer Cable
Control Cable
CSA Approved Wire & Cable
Customized Cable
Flame Retardant Wire & Cable
Flat Cable, Bonded
Flat Cable, Woven
Foil Shielded Cable
High Temperature Wire
High Voltage Wire
Hook-up Wire
Instrumentation Cable
Irradiated Wire & Cable
Kynar Back Panel Wire
Low Capacitance Cable
Medical Cable
Microphone Cable
Miniature Cable
Military Specified Wire & Cable
Motor Lead Wire
Multiconductor Cable
Parallel Cable
Paired Cable
Radiation Resistant Wire & Cable
Ribbon Cable
RG Coaxial Cable
RS 232 Cable
SIS Wire
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Telephone Cable
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Tinsel Wire
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UL Approved Wire & Cable

PCA THE UNIVERSAL HOOK-UP WIRE

PCA is JUDD WIRE's tradename or an acronym for Polychloroalkene, which is an exclusive irradiation cross-linked polyvinylchloride insulation.

In order to process PVC by electron beam, it is necessary to improve the formulation of the plastic insulation to withstand the high energy electrons that bombard the wire insulation. Electron beam irradiation of the special PCA formula results in a superior thermoset that improves the inherent desirable characteristics of PVC.

Compare the product advantages of PCA with conventional non-irradiated PVC and learn why billions of feet are sold annually to a variety of industries which prefer the superior characteristics and cost savings of JUDD WIRE's PCA hook-up wire.

THE JUDD WIRE PCA hook-up wire cross-reference guide for tri-rated approvals

UL					CSA				MIL-W-16878E			
STYLE NO.	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	AVERAGE WALL THICK.	CLASS	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	SPEC. SHEET	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES
1472	80°C	125 V	32-20	.007″	AWM	80°C	125 V	32-16				
1429	80°C	150 V	32-16	.011″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1534	80°C	No Voltage Specified	14	.012″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1536	80°C	No Voltage Specified	12-10	.013″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1787	80°C	300 V	32-16	.011″					1	105°C	600 V	32-14
1430	105°C	300 V	30-16	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
1557	105°C	No Voltage Specified	14-10	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
3317	105°C	300 V	14-10	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
1431	105°C	600 V	30-10 8 6-2	.032″ .051″ .065″	REW	105°C	600 V	24-10	3	105°C	3000 V	24-2

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FLEXRAD 125® HIGH TEMPERATURE HOOK-UP WIRE

FLEXRAD 125 is a flexible irradiation cross-linked polyethylene wire with a high temperature rating of 125° C. This proven high temperature hook-up wire with a flame retardant rating of VW-1 (FR-1), offers excellent abrasion and solder resistance and an unusual ability to withstand exposure to many chemicals and solvents.

FLEXRAD 125 has a variety of uses in many industries. Its high temperature and flame retardant ratings recommend it as a replacement for many other UL and CSA approved wires. It is also approved for military applications under Specification Mil-W-16878, Revision E, slash sheets 14, 15 and 16.

Electrical and electronic component and equipment manufacturers now have an alternative to solve the problems encountered while using conventional PVC. The problems of a limited temperature range, solder iron shrinkback, creeping insulation during automated cut and strip operations, and poor abrasion resistance can now be eliminated by utilizing FLEXRAD 125.

Silver plated copper wire conductors must be used in order to withstand the high heat encountered when processing many fluorocarbon constructions. Fluctuations in the precious metals market over the past several years have caused many users of fluorocarbon insulated wires to review their use of these expensive constructions and seek comparable alternatives that provide similar quality.

FLEXRAD 125, processed with tinned copper conductors, provides an ideal alternative to fluorocarbon insulations for most applications where the maximum operating temperature does not exceed 125° C.

Production problems associated with fluorocarbon insulations, such as poor cold flow, low adhesion, poor cut through resistance, short lengths, limited flexibility, and poor potability, will be alleviated by specifying FLEXRAD 125.

THE JUDD WIRE FLEXRAD 125 cross-reference guide for tri-rated approvals

UL					CSA				MIL-W-16878E			
STYLE NO.	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	AVERAGE WALL THICK.	CLASS	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	SPEC. SHEET	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES
3265	125°C	150 V	32-16	.011"	AWM	125°C	150 V	30-16	14	125°C	600 V	32-14
3266	125°C	300 V	32-10	.016"	AWM	125°C	300 V	32-12	15	125°C	1000 V	26-12
3266	125°C	300 V	32-10	.016"	CL 1252	125°C	300 V	22-10	15	125°C	1000 V	26-12
3271	125°C	600 V	30-10 8 6-2	.032" .047" .063"	CL 1251	125°C	600 V	22-2	16	125°C	3000 V	26-12
3272	125°C	600 V	26-10 8-4	.032" .047"	CL 1251	125°C	600 V	22-2	16	125°C	3000 V	26-12

CUSTOM CABLE DESIGN

JUDD WIRE can custom design, or manufacture to your specification, a broad spectrum of special cables. Cables are available without shielding, or with conventional braids, spiral braids, aluminum foils, or conductive plastics. JUDD WIRE's cable jacketing facilities extrude irradiation cross-linked compounds as well as vinyls, nylons, polyethylenes, polyurethanes, and 150°C fluorocarbons. JUDD WIRE is a completely integrated wire and cable manufacturing facility combining technology with superior customer service.

PCA cables offer all the advantages of JUDD WIRE's exclusive irradiation cross-linked polychloro alkene insulation in a multi-conductor package.

Manufacturers of computers, data processing equipment, communication systems, and test equipment can use the superior characteristics and cost saving benefits of PCA cables.

THE JUDD WIRE PCA multi-conductor cable cross-reference for tri-rated approvals

CABLE UL STYLE	PRIMARY UL STYLE	CABLE CSA STYLE	PRIMARY MILITARY SPECIFICATION	PRIMARY NOMINAL WALL	JACKET NOMINAL WALL	TEMPERA-TURE	VOLTAGE RATING	WIRE AWG SIZES
2584	1472	AWM		.007"	.031-.060"	80°C	125 V	30-20
2576	1429	AWM	Mil-W-16878E/1	.011"	.030"	80°C[1]	150 V[2]	30-10
2095	1787		Mil-W-16878E/1	.011"	.015-.060"	80°C[1]	300 V[2]	30-16
2464	1787		Mil-W-16878E/1	.011"	.030-.060"	80°C[1]	300 V[2]	30-16
2517	1430	AWM	Mil-W-16878E/2	.016"	.030-.060"	105°C	300 V[3]	30-10
2586	1431	AWM	Mil-W-16878E/3	.031"	.031-.060"	105°C	600 V[4]	30-10

[1] Military Temperature Rating: 105°C
[2] Military Voltage Rating: 600 V
[3] Military Voltage Rating: 1000 V
[4] Military Voltage Rating: 3000 V

FLEXRAD 125 MULTI-CONDUCTOR CABLES

Industrial Automation and Central Process Computer Control cables manufactured with JUDD WIRE's FLEXRAD 125 primary conductors and irradiation cross-linked polyethylene jacket compound, are a superior instrumentation cable for applications utilizing data processing systems interfaced with manufacturing control equipment.

THE JUDD WIRE FLEXRAD 125 high temperature multi-conductor cable cross-reference guide

CABLE UL STYLE	CABLE CSA STYLE	PRIMARY MILITARY SPECIFICATIONS	PRIMARY NOMINAL WALL	JACKET NOMINAL WALL	TEMPERA-TURE	VOLTAGE RATING	WIRE AWG SIZES
4311	AWM	Mil-W-16878E/14	.011"	.030-.045"	125°C	150 V[1]	28-16
4312	AWM	Mil-W-16878E/15	.016"	.030-.060"	125°C	300 V[2]	28-10
4313	AWM	Mil-W-16878E/16	.032"	.045-.080"	125°C	600 V[3]	26-10

Military Voltage : [1] 600 V, [2] 1000 V, [3] 3000 V

FOR IMMEDIATE TECHNICAL ASSISTANCE CALL 1-800-243-8160

WIRE GAUGES— DIAMETER, AREA AND COPPER WEIGHT

	Diameter at 20°C (68°F)		Area at 20°C (68°F)			Weight at 20°C (68°F), bare copper wire		
Size, AWG	mils	mm	mils	c mils	mm	lb/1,000 ft.	lb/mile	kg/km
4/0	460.0	11.68	166,200	211,600	107.2	640.5	3,382	953.2
3/0	409.6	10.40	131,800	167,800	85.01	507.8	2,681	755.7
2/0	364.8	9.266	104,500	133,100	67.43	402.8	2,127	599.5
1/0	324.9	8.252	82,891	105,600	53.49	319.5	1,687	477.6
1	289.3	7.348	85,730	83,690	42.41	253.3	1,338	337.0
2	257.6	6.543	52,120	66,360	33.62	200.9	1,061	298.9
3	229.4	5.827	41,330	52,620	26.67	159.3	841.1	237.1
4	204.3	5.189	32,780	41,740	21.15	126.3	667.1	188.0
5	181.9	4.620	25,990	33,090	16.77	100.2	528.8	149.0
6	162.0	4.115	20,610	26,240	13.30	79.44	419.4	118.2
7	144.3	3.665	16,350	20,820	10.55	63.03	332.8	93.80
8	128.5	3.264	12,970	16,510	8.367	49.98	263.9	74.38
9	114.4	2.906	10,280	13,090	6.631	39.61	209.2	58.95
10	101.9	2.588	8,155	10,380	5.261	31.43	166.0	46.77
11	90.7	2.304	6,460	8,230	4.17	24.90	131	37.1
12	80	2.05	5,130	6,530	3.310	19.8	104	29.4
13	72.0	1.83	4,070	5,180	2.63	15.7	82.9	23.4
14	64.1	1.63	3,230	4,110	2.08	12.4	65.7	18.5
15	57.1	1.45	2,560	3,260	1.650	9.87	52.1	14.7
16	50.8	1.29	2,030	2,580	1.31	7.81	41.2	11.6
17	45.3	1.150	1,610	2,050	1.040	6.21	32.8	9.24
18	40.3	1.02	1,280	1,620	0.823	4.92	26.0	7.32
19	35.9	0.912	1,010	1,290	0.653	3.90	20.6	5.81
20	32.0	0.813	804.0	1,020	0.519	3.10	16.4	4.61
21	28.5	0.724	638.0	812.0	0.412	2.46	13.0	3.66
22	25.3	0.643	503.0	640.0	0.324	1.94	10.2	2.88
23	22.6	0.574	401.0	511.0	0.259	1.55	8.16	2.30
24	20.1	0.511	317.0	404.0	0.205	1.22	6.46	1.82
25	17.9	0.455	252.0	320.0	0.162	0.970	5.12	1.44
26	15.9	0.404	199.0	253.0	0.128	0.765	4.04	1.14
27	14.2	0.361	158.0	202.0	0.102	0.610	3.22	0.908
28	12.6	0.320	125	159.0	0.0804	0.481	2.54	0.715
29	11.3	0.287	100.0	128.0	0.0647	0.387	2.04	0.575
30	10.0	0.254	78.50	100.0	0.0507	0.303	1.60	0.450
31	8.9	0.226	62.20	79.2	0.0401	0.240	1.27	0.357
32	8.0	0.203	50.30	64.0	0.0324	0.194	1.02	0.288
33	7.1	0.180	39.60	50.40	0.0255	0.153	0.806	0.227
34	6.3	0.160	31.20	39.7	0.0201	0.120	0.634	0.179
35	5.6	0.142	24.60	31.4	0.0159	0.0940	0.501	0.141
36	5.0	0.127	19.60	25.00	0.0127	0.0757	0.400	0.113
37	4.50	0.114	15.90	20.20	0.0103	0.0613	0.324	0.0912
38	4.0	0.102	12.60	16.0	0.00811	0.0484	0.256	0.0721
39	3.5	0.0889	9.62	12.2	0.00621	0.0371	0.196	0.0552
40	3.1	0.0787	7.55	9.61	0.00487	0.0291	0.154	0.0433
41	2.8	0.0711	6.16	7.84	0.00397	0.0237	0.125	0.0353
42	2.5	0.0635	4.91	6.25	0.00317	0.0189	0.0999	0.0282
43	2.2	0.0559	3.80	4.84	0.00245	0.0147	0.0774	0.0218
44	2.0	0.0508	3.14	4.00	0.00203	0.0121	0.0639	0.0180
45	1.8	0.0457	2.54	3.24	0.00164	0.00981	0.0519	0.0146
46	1.6	0.0406	2.01	2.56	0.00130	0.00775	0.0409	0.0115
47	1.4	0.0356	1.54	1.96	0.000993	0.00593	0.0313	0.00883
48	1.2	0.0305	1.13	1.44	0.000730	0.00436	0.0230	0.00649
49	1.1	0.0279	0.950	1.21	0.000613	0.00366	0.0193	0.00545
50	1.0	0.0254	0.785	1.00	0.000507	0.00303	0.0160	0.00450

Contract assembly

Lamtech Electronics:

State of the art technology and experience provide the profitable combination for precision-built, quality-assured, electronic systems and OEM products.

ELECTRONIC SUB-ASSEMBLIES:

- Multi-layered P.C. board assemblies
- Double-sided P.C. board assemblies
- Surface Mount Technology

CABLES, WIRING, HARNESSES:

- Harness Fabrication
- Cable or harness mounting to frames
- Wiring of devices to a printed circuit board or mechanical frame
- Fully automated wire cutting, stripping, capabilities (all sizes)

ENGINEERING DESIGN CAPABILITIES:

- Electronic Design
- Mechanical Design
- In-circuit Test (Gen-Rad™ 2272)
- Functional Test
- Environmental Test

ELECTRO-MECHANICAL ASSEMBLIES:

- Printed circuit boards mounted to chassis
- Electrical devices mounted to mechanical frames
- Rack mounting assemblies

LAMTECH QUALITY-ASSURANCE GUARANTEE:

We guarantee that the electronic systems we build will perform to your specifications.

Our quality control includes individual and statistical inspection of all incoming components, in-process testing, in-circuit test (Gen-Rad™ 2272), final product and functional test.

Gen-Rad™ is a Registered TradeMark of General Radio

The Lamtech AQL process satisfies the requirements of MIL-I-45208A.

Lamtech Electronics Corp.

620 East Street • Garland, Texas 75042

Phone: (214) 272-3504 or 454-6540.

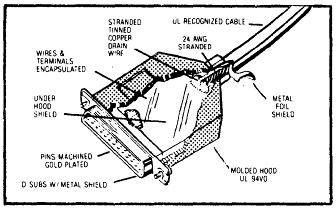
L-COM MOLDED DATA CABLES BUILT FOR A LIFETIME

DATA COMMUNICATION CABLES BUILT FOR A LIFETIME OF WEAR & TEAR!

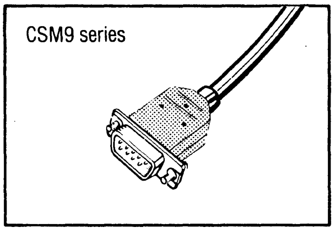
The drawing shows how our CSM series cables are built to last a lifetime. Optimum shielding is achieved by use of a conductive-Mylar-foil and a metal cover for the wires under the hood.

In addition, these cables are built to take years of abuse by encapsulating and fusing all twenty-five wires and the connector pins together resulting in an indestructible integral component. We know that almost all cable defects stem from breaks or shorts in the cable end, but this is now, totally eliminated—for a lifetime.

All data cable comply with EIA RS232C standards and have 25 conductors solder connected through to both **D-Sub Connectors. Attractive prices and quantity discounts available.**


STRANDED TINNED COPPER DRAIN WIRE
UL RECOGNIZED CABLE
24 AWG STRANDED
WIRES & TERMINALS ENCAPSULATED
UNDER HOOD SHIELD
METAL FOIL SHIELD
PINS MACHINED GOLD PLATED
MOLDED HOOD UL 94V0
D SUBS W/METAL SHIELD

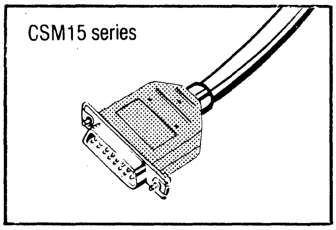
9 Position, RS-449 & other applications


CSM9 series

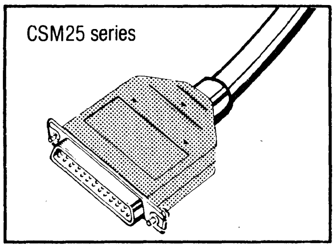
MODEL-FT.	GENDER
CSM9MM-2.5	Male/Male
CSM9MM-5	Male/Male
CSM9MM-10	Male/Male
CSM9MM-15	Male/Male
CSM9MM-25	Male/Male
CSM9MM-50	Male/Male
CSM9MF-2.5	Male/Female
CSM9MF-5	Male/Female
CSM9MF-10	Male/Female
CSM9MF-15	Male/Female
CSM9MF-25	Male/Female
CSM9MF-50	Male/Female

15 Position, RS-449, RS-422A, RS-423A

MODEL-FT.	GENDER
CSM15MM-2.5	Male/Male
CSM15MM-5	Male/Male
CSM15MM-10	Male/Male
CSM15MM-15	Male/Male
CSM15MM-25	Male/Male
CSM15MM-50	Male/Male
CSM15MF-2.5	Male/Female
CSM15MF-5	Male/Female
CSM15MF-10	Male/Female
CSM15MF-15	Male/Female
CSM15MF-25	Male/Female
CSM15MF-50	Male/Female


CSM15 series

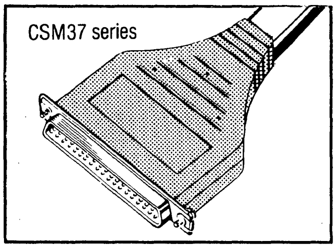
25 Position, RS-232 & other applications


CSM25 series

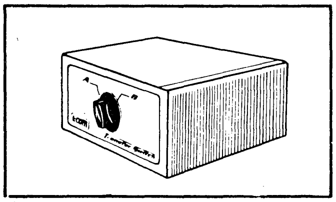
MODEL-FT.	GENDER
CSM25MM-2.5	Male/Male
CSM25MM-5	Male/Male
CSM25MM-10	Male/Male
CSM25MM-15	Male/Male
CSM25MM-25	Male/Male
CSM25MM-50	Male/Male
CSM25MF-2.5	Male/Female
CSM25MF-5	Male/Female
CSM25MF-10	Male/Female
CSM25MF-15	Male/Female
CSM25MF-25	Male/Female
CSM25MF-50	Male/Female

37 Position, RS-449 & other applications

MODEL-FT.	GENDER
CSM37MM-2.5	Male/Male
CSM37MM-5	Male/Male
CSM37MM-10	Male/Male
CSM37MM-15	Male/Male
CSM37MM-25	Male/Male
CSM37MM-50	Male/Male
CSM37MF-2.5	Male/Female
CSM37MF-5	Male/Female
CSM37MF-10	Male/Female
CSM37MF-15	Male/Female
CSM37MF-25	Male/Female
CSM37MF-50	Male/Female


CSM37 series

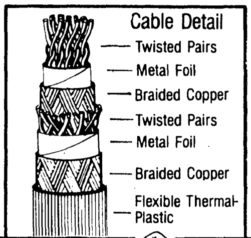
COMPUTOR MULTIPORT DATA TRANSFER SWITCH BOXES



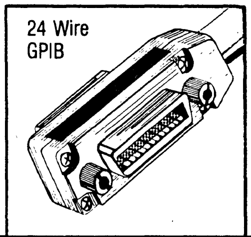
- HIGHEST QUALITY "METAL CASE" FULLY SHIELDED, BEIGE COLOR.
- NO POWER REQUIRED.
- 10,000 OPERATION LIFE EXPECTANCY.
- 12 MONTHS WARRANTY.
- HIGHEST QUALITY ROTARY SWITCH.
- BERYLLIUM COPPER SILVER ALLOY PLATED CONTACTS.
- PRICES ON REQUEST.

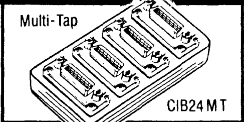
MODEL	POSITION	PINNING CONFIGURATION
DB2512-2V	2 (1 in 2 out)	RS232 DB25 female connectors, gold plated pins
DB2512-3V	3 (1 in 3 out)	Switches 12 active signals—2-6, 8, 15, 17, 20, 22, 24, 25 &
DB2512-4V	4 (1 in 4 out)	pin 1, 7 grounded
DB2512-X	X-Switch	Switches AaBb to AbBa of 12 active signals
DB2525-2V	2 (1 in 2 out)	RS232 DB25 female connectors, gold plated pins
DB2525-3V	3 (1 in 3 out)	Switches all 25 active signals
DB2525-4V	4 (1 in 4 out)	Use pin 1 as common ground
DB2525-X	X-Switch	Switches AaBb to AbBa of all 25 active signals
CN3625-2V	2 (1 in 2 out)	Centronics 36 pin female connectors, gold plated pins
CN3625-3V	3 (1 in 3 out)	Switches 1-16, 18, 31-36, 19-30 tied common, 17 ground
CN3625-4V	4 (1 in 4 out)	Special designed for IBM PC's and parallel printers
CN3625-X	X-Switch	Switches AaBb to AbBa of 25 signals
CN3636-2V	2 (1 in 2 out)	Centronics 36 pin female connectors, gold plated pins
CN3636-3V	3 (1 in 3 out)	Switches all 36 active signals
CN3636-4V	4 (1 in 4 out)	
CN3636-X	X-Switch	Switches AaBb to AbBa of all 36 active signals

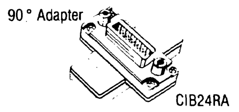
Our GPIB CABLES are Double Shielded to IEE-488 Latest Standards

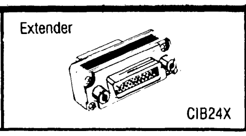

Cable Detail
Twisted Pairs
Metal Foil
Braided Copper
Twisted Pairs
Metal Foil
Braided Copper
Flexible Thermal-Plastic

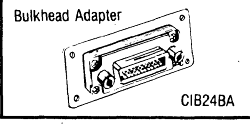
MODEL	METERS	FEET	H-P (equiv)
CIB24-05M	.5	1.64	10833D
CIB24-1M	1	3.28	10833A
CIB24-2M	2	6.56	10833B
CIB24-3M	3	9.84	
CIB24-4M	4	13.12	10833C
CIB24-5M	5	16.40	


24 Wire GPIB


Multi-Tap
CIB24MT


90° Adapter
CIB24RA


Extender
CIB24X


Bulkhead Adapter
CIB24BA

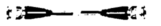
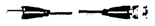
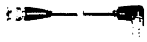
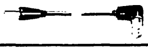
All GPIB Cables with two metal connectors. Accessories and Quantity prices on request

L-COM TO ORDER call 800-343-1455 TECHNICAL SUPPORT 617-682-6936

DATA PRODUCTS 1755 Osgood St., No. Andover, MA 01845

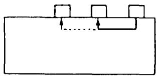
MOLDED IN BNC COAXIAL CABLES FROM STOCK

COMPARE PRICE ★ ★ ★ COMPARE QUALITY ★ ★ ★ COMPARE FEATURES ★ ★ ★ COMPARE SERVICE

															
	MODEL-Ft	**1-9**	**10-24**	**MODEL-Ft**	**1-9**	**10-24**	**MODEL-Ft**	**1-9**	**10-24**	**MODEL-Ft**	**1-9**	**10-24**	**MODEL-Ft**	**1-9**	**10-24**
RG58C	CC58C-1	3.55	3.23	**RG-58C EXTENSION CABLES NOT STOCKED BUT MADE TO ORDER**			CC58C-1RA	4.90	4.46	CC58CX-1RA	5.10	4.64	CC58C-1RA2	6.25	5.69
	CC58C-1.5	3.70	3.37				CC58C-1.5RA	5.05	4.60	CC58CX-1.5RA	5.25	4.78	CC58C-1.5RA2	6.40	5.82
	CC58C-2	3.85	3.50				CC58C-2RA	5.20	4.73	CC58CX-2RA	5.40	4.91	CC58C-2RA2	6.55	5.96
	CC58C-2.5	4.10	3.73				CC58C-2.5RA	5.35	4.87	CC58CX-2.5RA	5.55	5.05	CC58C-2.5RA2	6.70	6.10
	CC58C-4	4.40	4.00				CC58C-3RA	5.50	5.00	CC58CX-3RA	5 70	5.19	CC58C-3RA2	6.85	6.23
	CC58C-5	4.65	4.23				CC58C-4RA	5.80	5.28	CC58CX-4RA	6.00	5.46	CC58C-4RA2	7.15	6.51
	CC58C-10	6.05	5.51				CC58C-5RA	6.10	5.55	CC58CX-5RA	6.30	5.73	CC58C-5RA2	7.45	6.78
	CC58C-15	7.45	6.78				CC58C-7.5RA	6.85	6.23	CC58CX-7.5RA	7.05	6.42	CC58C-7.5RA2	8.20	7.46
	CC58C-25	10.75	9.33				CC58C-10RA	7.60	6.92	CC58CX-10RA	7.80	7.10	CC58C-10RA2	8.95	8.14
RG59B	CC59B-1	3.65	3.32	**Shorter Lengths Made To Order**			CC59B-1RA	4.90	4.46	CC59BX-1RA	5.10	4.64	CC59B-1RA2	6.25	5.69
	CC59B-2.5	4.00	3.64				CC59B-1.5RA	5.05	4.60	CC59BX-1.5RA	5.25	4.78	CC59B-1.5RA2	6.40	5.82
	CC59B-5	4.75	4.32				CC59B-2RA	5.20	4.73	CC59BX-2RA	5.40	4.91	CC59B-2RA2	6.55	5.96
	CC59B-10	6.25	5.69	CC59BX-5	4.95	4.50	CC59B-2.5RA	5.35	4.87	CC59BX-2.5RA	5.55	5.05	CC59B-2.5RA2	6.70	6.10
	CC59B-15	7.75	7.05	CC59BX-10	6.45	5.87	CC59B-3RA	5.50	5.00	CC59BX-3RA	5.70	5.19	CC59B-3RA2	6.85	6.23
	CC59B-25	10.75	9.78	CC59BX-15	7.95	7.23	CC59B-4RA	5.80	5.28	CC59BX-4RA	6.00	5.46	CC59B-4RA2	7.15	6.51
	CC59B-50	18.25	16.61	CC59BX-25	10.95	9.96	CC59B-5RA	6.10	5.55	CC59BX-5RA	6.30	5.73	CC59B-5RA2	7.45	6.78
	CC59B-100	33.25	30.26	CC59BX-50	18.45	16.79	CC59B-7.5RA	6.85	6.23	CC59BX-7.5RA	7.05	6.42	CC59B-7.5RA2	8.20	7.46
							CC59B-10RA	7.60	6.92	CC59BX-10RA	7.80	7.10	CC59B-10RA2	8.95	8.14
RG62A	CC62A-1	3.60	3.28				CC62A-1RA	4.90	4.46	CC62AX-1RA	5.10	4.64	CC62A-1RA2	6.25	5.69
	CC62A-2.5	3.95	3.59				CC62A-1.5RA	5.05	4.60	CC62AX-1.5RA	5.25	4.78	CC62A-1.5RA2	6.40	5.82
	CC62A-5	4.70	4.28	CC62AX-5	4.90	4.46	CC62A-2RA	5.20	4.73	CC62AX-2RA	5.40	4.91	CC62A-2RA2	6.55	5.96
	CC62A-10	6.15	5.60	CC62AX-10	6.35	5.78	CC62A-2.5RA	5.35	4.87	CC62AX-2.5RA	5.55	5.05	CC62A-2.5RA2	6.70	6.10
	CC62A-15	7.60	6.92	CC62AX-15	7.80	7.10	CC62A-3RA	5.50	5.00	CC62AX-3RA	5.70	5.19	CC62A-3RA2	6.85	6.23
	CC62A-25	10.50	9.56	CC62AX-25	10.70	9.74	CC62A-4RA	5.80	5.28	CC62AX-4RA	6.00	5.46	CC62A-4RA2	7.15	6.51
	CC62A-50	17.75	16.15	CC62AX-50	17.95	16.33	CC62A-5RA	6.10	5.55	CC62AX-5RA	6.30	5.73	CC62A-5RA2	7.45	6.78
	CC62A-100	32.25	29.35	CC62AX-100	32.45	29.53	CC62A-7.5RA	6.85	6.23	CC62AX-7.5RA	7.05	6.42	CC62A-7.5RA2	8.20	7.46
							CC62A-10RA	7.60	6.92	CC62AX-10RA	7.80	7.10	CC62A-10RA2	8.95	8.14
RG174	CC174-1	3.60	3.28	**RG-174 EXTENSION CABLES NOT STOCKED BUT MADE TO ORDER**			CC174-1RA	4.90	4.46	CC174X-1RA	5.10	4.64	CC174-1RA2	6.25	5.69
	CC174-1.5	3.75	3.41				CC174-1.5RA	5.05	4.60	CC174X-1.5RA	5.25	4.78	CC174-1.5RA2	6.40	5.82
	CC174-2	3.90	3.55				CC174-2RA	5.20	4.73	CC174X-2RA	5.40	4.91	CC174-2RA2	6.55	5.96
	CC174-2.5	4.05	3.69				CC174-2.5RA	5.35	4.87	CC174X-2.5RA	5.55	5.05	CC174-2.5RA2	6.70	6.10
	CC174-4	4.50	4.10				CC174-3RA	5.50	5.00	CC174X-3RA	5.70	5.19	CC174-3RA2	6.85	6.23
	CC174-5	4.80	4.37				CC174-4RA	5.80	5.28	CC174X-4RA	6.00	5.46	CC174-4RA2	7.15	6.51
	CC174-10	6.35	5.78				CC174-5RA	6.10	5.55	CC174X-5RA	6.30	5.73	CC174-5RA2	7.45	6.78
	CC174-15	7.90	7.19				CC174-7.5RA	6.85	6.23	CC174X-7.5RA	7.05	6.42	CC174-7.5RA2	8.20	7.46
	CC174-25	11.00	10.01				CC174-10RA	7.60	6.92	CC174X-10RA	7.80	7.10	CC174-10RA2	8.95	8.14

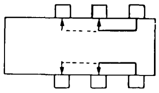
COAXIAL TRANSFER SWITCHES

SPDT

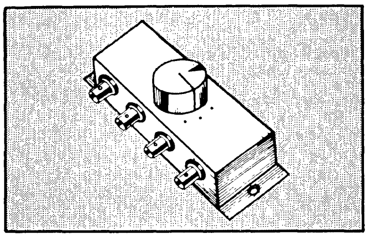


MODEL	TYPE	1-9
DS13B	BNC	49.95
DS13T	TNC	51.95

DPDT



MODEL	TYPE	1-9
DS12B	BNC	39.95
DS12T	TNC	41.45



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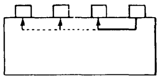
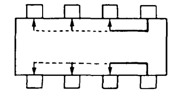
SP3T



MODEL	TYPE	1-9
DS22B	BNC	54.95
DS22BT	BNC-TNC	56.45

DP3T



MODEL	TYPE	1-9
DS23B	BNC	67.95
DS23BT	BNC-TNC	69.95

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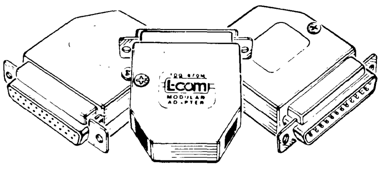
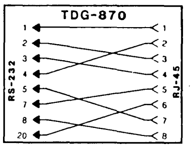
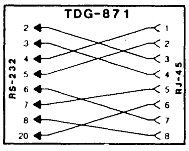
MODEL	TYPE	CODE	1-9
TDG-870M	Male	A	16.95
TDG-871M	Male	B	16.95
TDG-870F	Female	A	16.95
TDG-871F	Female	B	16.95



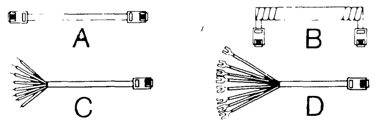


CODE A



CODE B

MODULAR "8" POS COND



MODEL	TYPE	1-9	MODEL	TYPE	1-9
TDC003-2	A	2.95	TDC005-2	C	2.25
TDC003-7	A	3.55	TDC005-7	C	2.95
TDC003-14	A	4.85	TDC005-14	C	3.95
TDC003-25	A	6.95			
TDC001-6	B	3.95	TDC004-2	D	2.25
TDC001-8	B	4.55	TDC004-7	D	2.95
TDC001-10	B	4.95	TDC004-14	D	3.95

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drives · ba [illegible] power
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EEM PRODUCT SELECTION GUIDES

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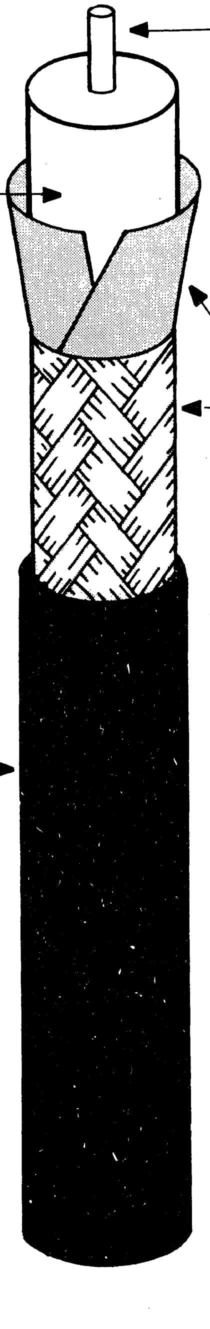
NETWORK COAXIAL CABLE CONSTRUCTION



CENTER CONDUCTOR

BC -	Bare Copper
CCAL -	Copper Clad Aluminum
CCS -	Copper Covered Steel
SC -	Silvered Copper
TC -	Tinned Copper

DIELECTRIC

AD/PE -	Air Dielectric Polyethylene
FEP -	Solid Teflon®
FFEP -	Foam Teflon®
FP -	Foam Polyethylene
PE -	Solid Polyethylene

SHIELD

ALS -	Aluminum Sheath
BC -	Bare Copper
FOIL + AL-	Foil + Aluminum Braid
FOIL + TC-	Foil + Tinned Copper Braid
SC -	Silvered Copper
TC -	Tinned Copper

JACKET

FEP -	Teflon® Flourinatedethylene-propylene
NCPVC -	Noncontaminating Polyvinylchloride
PE -	Polyethylene
PVC -	Polyvinylchloride

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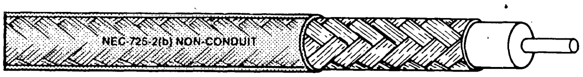
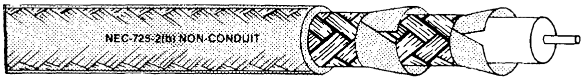
PLENUM COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 '

50 Ohm Cables

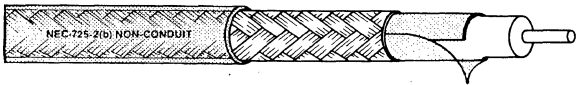

NEC-725-2(b) NON-CONDUIT

58 A/U TYPE	2100	20(SOLID)BC	FEP .112	TC-95%	FEP .178	28.5	69%	50.0	9.5 db @ 400 MHz
58 A/U TYPE FOAM	2120	18(SOLID)BC	FFEP. 112	TC-95%	FEP .178	23.0	84%	53.5	9.5 db @400 MHz

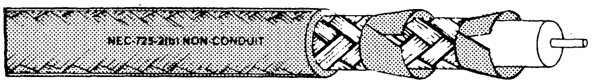

NEC-725-2(b) NON-CONDUIT

ETHERNET™ TYPE	2280	.0855(SOLID)BC	FFEP .247	2 FOIL + 2-TC 90%	FEP .375	25.0	81%	50	.52 db @ 10 MHz

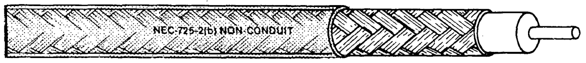
75 Ohm Cables


NEC-725-2(b) NON-CONDUIT

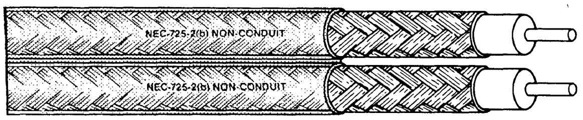
59 MATV TYPE	2020	20(SOLID)CCS	FFEP .144	FOIL + AL - 67%	FEP .215	16.2	84%	75	5.5 db @ 400 MHz
59/U TYPE	2045	22(SOLID)CCS	FFEP .140	FOIL + TC - 90%	FEP .212	16.0	84%	75	5.5 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

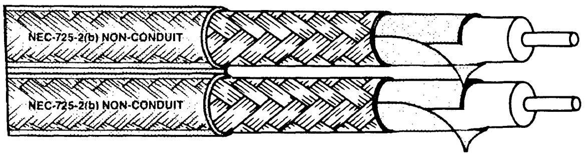
59 QUAD SHIELD	2022	20(SOLID)CCS	FFEP .144	2-FOILS + 1-AL-40% 1-AL-50%	FEP .236	16.2	84%	75	5.5 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

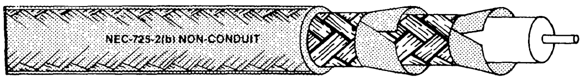
59/U TYPE FOAM	2039	20(SOLID)CCS	FFEP .135	BC - 95%	FEP .208	16.0	84%	75	6.5 db @ 400 MHz
59/U TYPE	2040	22(SOLID)CCS	FEP .135	BC - 95%	FEP .208	19.5	70%	70	7.1 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT
NEC-725-2(b) NON-CONDUIT

59 B/U TYPE DUAL	2095	23(SOLID)CCS	FEP .135	BC - 95%	FEP 2/.208	19.5	70%	75	7.1 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT
NEC-725-2(b) NON-CONDUIT

59 DUAL FOAM	2096	20(SOLID)CCS	FFEP .144	FOIL + TC - 95%	FEP 2/.215	16.2	84%	75	5.5 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

6 QUAD SHIELD	2227	18(SOLID)CCS	FFEP .180	2-FOILS + 1-AL-40% 1-AL-60%	FEP .272	15.8	84%	75	4.6 db @400 MHz

*Classified By Underwriter's Laboratories Inc. As To Fire And Smoke Characteristics Only (In Accordance With Section 725-2(b) or 820-15 Of The National Electrical Code).

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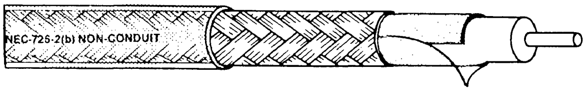
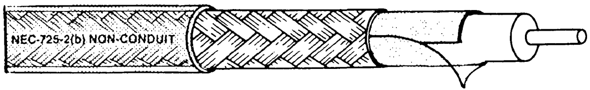
PLENUM COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 '

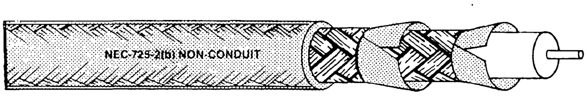
75 Ohm Cables (Continued)


NEC-725-2(b) NON-CONDUIT

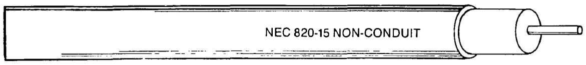
6 MATV TYPE	2275	18(SOLID)CCS	FFEP .180	FOIL + AL - 60%	FEP. 251	15.8	84%	75	4.6 db @ 400 MHz
6/U TYPE	2279	18(SOLID)CCS	FFEP .175	FOIL + TC - 90%	FEP .248	15.8	84%	75	4.8 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

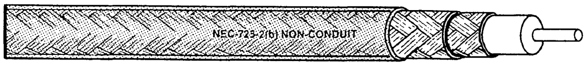
11 MATV TYPE	2285	14(SOLID)CCS	FFEP .280	FOIL + AL - 60%	FEP .351	16.2	82%	75	3.6 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

11 QUAD SHIELD	2287	14(SOLID)CCS	FFEP .280	2-FOILS + 1-AL-40% 1-AL-60%	FEP .372	16.2	82%	75	3.6 db @ 400 MHz

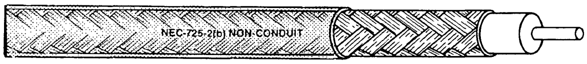

NEC 820-15 NON-CONDUIT

.500 PLENUM TRUNK	2311	.109"(SOLID)CCAL	FFEP. 450	ALS .500	N/A	16.4	86%	75	2.0 db @ 400 MHz

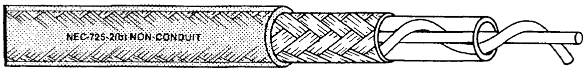

NEC-725-2(b) NON-CONDUIT

PLENUM VIDEO BROADCAST	2525	20(SOLID)BC	FEP .200	2-TC-95%	FEP .298	19.0	70%	75	2.7 db @ 100 MHz

93 Ohm Cables

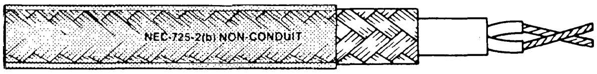

NEC-725-2(b) NON-CONDUIT

62 FOAM	2250	23(SOLID)CCS	FFEP .144	BC - 95%	FEP .215	13.5	84%	93	7 db @ 400 MHz


NEC-725-2(b) NON-CONDUIT

62 AIR DIELECTRIC	2251	22(SOLID)CCS	FEP .144	BC - 95%	FEP .215	13.5	84%	93	7 db @ 400 MHz

100 Ohm Cables


NEC-725-2(b) NON-CONDUIT

PLENUM TWINAXIAL	2290	2-20(7/28) 1-BC, 1-TC	FEP .205	TC - 95%	FEP .282	13.0	72%	100	10.2db @ 400 MHz

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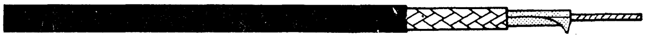
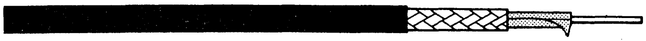
CONVENTIONAL COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)

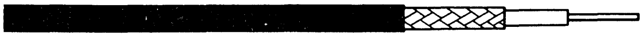
50 Ohm Cables



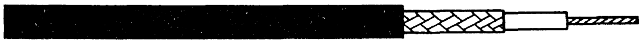
58 A/U TYPE ЯU 1354	3111	20(19/32)TC	FP .114	FOIL + TC - 60%	PVC .193	26	78%	50	1.2 / 4.5 / 14.5



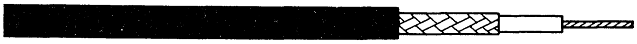
58/U TYPE ЯU 1354	3112	20(SOLID)BC	PE .116	FOIL + TC - 60%	PVC .193	28.5	66%	53	1.3 / 4.5 / 17.



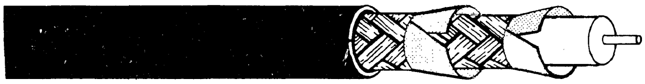
58/U COMMERCIAL	3123	20(SOLID)BC	PE .116	BC - 80%	PVC .193	28.5	66%	53	1.3 / 4.5 / 17.0



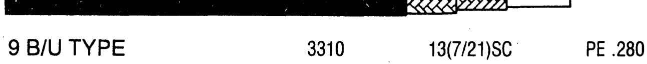
58 A/U COMMERCIAL	3125	20(19/33)TC	PE .116	TC - 80%	PVC .193	30.5	66%	50	1.4 / 4.9 / 21.5
58/U JAN-C-17 TYPE ЯU 1354	3130	20(19/33)BC	PE .116	TC - 95%	PVC .193	28.5	66%	53	1.3 / 4.5 / 17.0
58 A/U MIL-C-17 TYPE	3135	20(19/33)TC	PE .116	TC - 95%	PVC .193	30.5	66%	50	1.4 / 4.9 / 21.5
58 C/U MIL-C-17 TYPE	3137	20(19/33)TC	PE .116	TC - 95%	NCPVC.193	30.5	66%	50	1.4 / 4.9 / 21.5
58 A/U TYPE ЯU 1354	3139	20(19/32)BC	FP .114	TC - 95%	PVC .193	26.0	78%	50	1.2 / 4.5 / 14.5



8/U TYPE ЯU 1354	3240	11(7/19)BC	FP .285	BC - 95%	PVC .405	26.0	78%	50	.50 / 1.8 / 7.1
8/U COMMERCIAL	3244	13(7/21)BC	PE .285	BC - 80%	PVC .405	29.5	66%	50	.55 / 2.2 / 8.9
8/U JAN-C-17 TYPE	3247	13(7/21)BC	PE .285	BC - 95%	PVC .405	29.5	66%	50	.55 / 2.2 / 8.9
8 A/U MIL-C-17 TYPE ЯU 1354	3249	13(7/21)BC	PE .285	BC - 95%	NCPVC.405	29.5	66%	50	.55 / 2.2 / 8.9



ETHERNET™ ЯU 1478	3250	.0855(SOLID)BC	FP .247	2-FOIL + 2-TC-90%	PVC .405	24.0	82%	50	.52 db @ 10 MHz



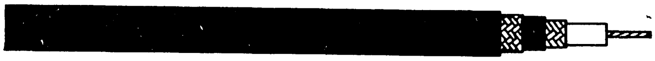
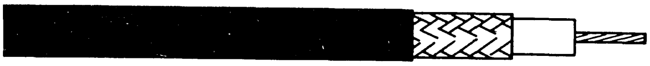
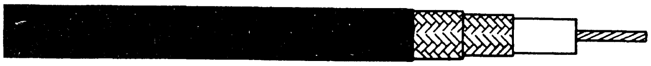
9 B/U TYPE	3310	13(7/21)SC	PE .280	2-SC-96%	NCPVC.420	30.8	66%	50	.55 / 2.2 / 8.9

ETHERNET™ is a registered trademark of Xerox Corporation.

M/A-COM
CABLE HOME GROUP

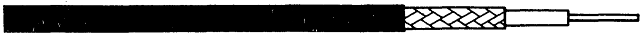
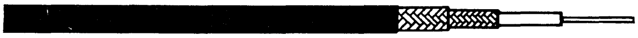
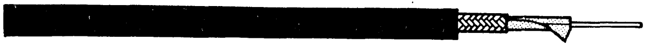
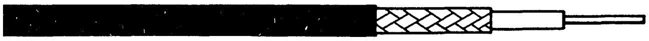
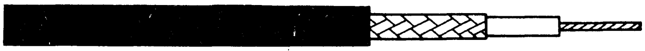
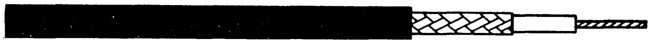
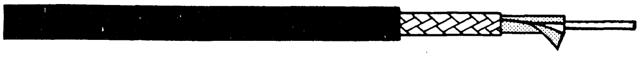
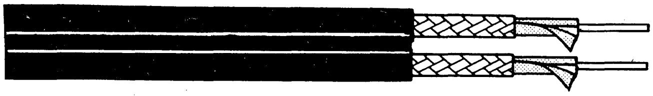
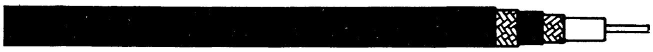
CONVENTIONAL COAXIAL CABLES

50 Ohm Cables (Continued)

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND NOM O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ′ 10/100/1000 (MHz)
									
8/U TYPE TRIAX	7815	11(7/19)BC	FP .285	2-BC - 95%	PE-INNER PE-OUTER .480	26	78%	50	— / 1.8 / 7.1
174/U TYPE ЯU 1354	7711	26(7/34)CCS	PE .060	TC - 88%	PVC .100	30.8	66%	50	3.9 / 8.9 / 30.0
174 A/U TYPE	7712	26(7/34)CCS	PE .060	TC - 88%	NCPVC .100	30.8	66%	50	3.9 / 8.9 / 30.0
									
213/U MIL-C-17 TYPE ЯU 1354	7713	12(7/.0296)BC	PE .285	BC - 95%	NCPVC.405	30.8	66%	50	.66 / 2.2 / 8.9
									
214/U MIL-C-17 TYPE ЯU 1354	7714	12(7/.0296)SC	PE .285	2-SC-95%	NCPVC.425	30.8	66%	50	.66 / 2.2 / 8.9
214/U TYPE ЯU 1354	7715	12(7/.0296)TC	PE .285	2-TC-95%	NCPVC .425	30.8	66%	50	.66 / 2.2 / 8.9
223/U MIL-C-17 TYPE	7723	19(SOLID)SC	PE .116	2-SC - 95%	NCPVC.212	30.8	66%	50	1.2 / 4.5 / 16.3

M/A-COM
CABLE HOME GROUP

CONVENTIONAL COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100' 10/100/1000 (MHz)
75 Ohm Cables									
									
6/U TYPE	5700	18(SOLID)BC	FP .180	BC - 95%	PVC .272	16.2	82%	75	0.8 / 2.8 / 6.8
									
6 A/U TYPE	5710	21(SOLID)CCS	PE .185	2-BC-95%	PE .332	20.5	66%	75	1.2 / 2.7 / 9.8
6/U TYPE	5713	18(SOLID)BC	FP .180	2-BC - 95%	PVC .290	16.2	82%	75	0.8 / 2.1 / 6.8
									
6/U TYPE UL 1354	5715	18(SOLID)BC	FP .180	FOIL + TC - 60%	PVC .272	16.2	82%	75	0.8 / 2.1 / 6.8
6 MATV TYPE	5725	18(SOLID)CCS	FP .180	FOIL + AL - 40%	PVC .272	16.2	82%	75	0.8 / 2.1 / 6.8
6 MATV TYPE	5726	18(SOLID)CCS	FP .180	FOIL + AL - 60%	PVC .272	16.2	82%	75	0.8 / 2.1 / 6.8
6 MATV TYPE	5727	18(SOLID)CCS	FP .180	FOIL + AL - 90%	PVC .272	16.2	82%	75	0.8 / 2.1 / 6.8
									
11/U TYPE	5903	14(SOLID)BC	FP .285	BC - 95%	PE .405	16.2	82%	75	.45 / 1.3 / 4.5
									
11/U COMMERCIAL	5905	18(7/26)TC	PE .285	BC - 80%	PVC .405	20.5	66%	75	.66 / 2.0 / 7.8
									
11/U JAN-C-17 TYPE	5908	18(7/26)TC	PE .285	BC - 95%	PVC .405	20.5	66%	75	.66 / 2.0 / 7.8
11 A/U MIL-C-17 TYPE	5909	18(7/26)TC	PE .285	BC - 95%	NCPVC .405	20.5	66%	75	.66 / 2.0 / 7.8
									
11 MATV TYPE	5913	14(SOLID)CCS	FP .280	FOIL + AL - 60%	PVC .405	16.2	82%	75	.45 / 1.3 / 4.5
11 MATV TYPE	5915	14(SOLID)CCS	FP .280	FOIL + AL - 90%	PVC .405	16.2	82%	75	.45 / 1.3 / 4.5
									
11 TYPE DUAL	5917	14(SOLID)CCS	FP .280	FOIL + AL - 90%	PVC 2/.405	16.2	82%	75	.45 / 1.3 / 4.5
									
11/U TYPE TRIAX	7820	14(SOLID)BC	FP .285	2-BC - 93%	PE-INNER PE-OUTER .475	16.2	82%	75	.45 / 1.3 / 4.5

M/A-COM
CABLE HOME GROUP

CONVENTIONAL COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)

75 Ohm Cables (Continued)

59/U TYPE ᴿᵁ 1354	5550	22(7/30)BC	FP .146	BC - 95%	PVC .242	17.3	80%	75	1.0 / 2.5 / 8.8
59/U TYPE	5552	20(SOLID)CCS	FP .146	BC - 95%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8
59/U TYPE	5555	22(SOLID)CCS	FP .146	BC - 95%	PVC .242	16.3	78%	80	1.1 / 2.5 / 8.8
59/U COMMERCIAL	5556	22(SOLID)CCS	FP .146	BC - 80%	PVC .242	16.3	78%	80	1.1 / 2.5 / 8.8
59/U TYPE	5557	20(SOLID)CCS	FP .146	BC - 80%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8
59/U COMMERCIAL ᴿᵁ 1354	5559	22(SOLID)CCS	PE .146	BC - 80%	PVC .242	21.0	66%	73	1.8 / 3.4 / 11.5
59/U JAN-C-17 TYPE ᴿᵁ 1354	5560	22(SOLID)CCS	PE .146	BC - 95%	PVC .242	21.0	66%	73	1.8 / 3.4 / 11.5
59/U TYPE	5567	20(SOLID)CCS	FP .146	BC - 95%	PE .242	16.2	82%	75	1.1 / 2.5 / 8.8

59 B/U JAN-C-17 TYPE	5563	23(SOLID)CCS	PE .146	BC - 95%	NCPVC.242	21.0	66%	75	1.8 / 3.5 / 12.0

59/U TYPE	5569	20(SOLID)CCS	FP .146	FOIL + TC - 60%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8

59 MATV TYPE	5571	20(SOLID)CCS	FP .146	FOIL + AL 40%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8
59 MATV TYPE	5572	20(SOLID)CCS	FP .146	FOIL + AL 67%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8
59 MATV TYPE	5573	20(SOLID)CCS	FP .146	FOIL + AL 95%	PVC .242	16.2	82%	75	1.1 / 2.5 / 8.8

59 TYPE DUAL	5585	20(SOLID)CCS	FP .146	FOIL + AL - 95%	PVC 2/.242	16.2	82%	75	1.1 / 2.5 / 8.8

59 B/U TYPE DUAL ᴿᵁ 20063	5589	23(SOLID)CCS	PE .146	BC - 95%	PVC 2/.242	21.0	66%	75	1.8 / 3.5 / 12.0

VIDEO BROADCAST COAXIAL	7500	20(SOLID)BC	PE .198	2TC - 95%	PE .304	21.0	66%	75	.78 / 2.70 / —

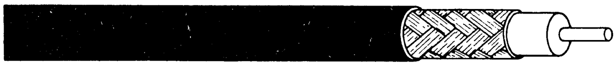
59/U TYPE TRIAX	7810	20(SOLID)CCS	FP .146	2-BC - 95%	PE-INNER PE-OUTER .325	16.2	82%	75	1.1 / 2.5 / 8.8

M/A-COM
CABLE HOME GROUP

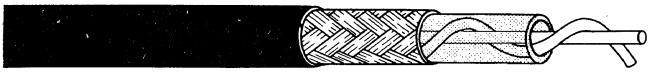
CONVENTIONAL COAXIAL CABLES

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)

93 Ohm Cables



PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)
62 GEN. PURP. ЯU 1478	6200	22(SOLID)CCS	FP .146	BC - 95%	PVC .242	12.2	86%	93	.81 / 2.7 / 9.3
62 COMMERCIAL ЯU 1354	6201	22(SOLID)CCS	FP .146	BC - 80%	PVC .242	12.2	86%	93	.81 / 2.7 / 9.3
62 OUTDOOR ЯU 1478	6205	22(SOLID)CCS	FP .146	BC - 95%	PVC .260	12.2	86%	93	.81 / 2.7 / 9.3

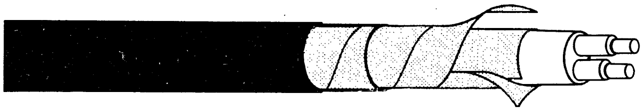


PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)
62 A/U OUTDOOR ЯU 1478	6605	22(SOLID)CCS	AD/PE .146	BC - 95%	PVC .260	13.5	84%	93	.81 / 2.7 / 9.3
62 A/U COMMERCIAL ЯU 1381	6608	22(SOLID)CCS	AD/PE .146	BC - 80%	PVC .242	13.5	84%	93	.81 / 2.7 / 9.3
62 A/U GEN. PURP. ЯU 1478	6609	22(SOLID)CCS	AD/PE .146	BC - 95%	PVC .242	13.5	84%	93	.81 / 2.7 / 9.3
62 A/U MIL-C-17 TYPE ЯU 1354	6611	22(SOLID)CCS	AD/PE .146	BC - 95%	NCPVC.242	13.5	84%	93	.81 / 2.7 / 9.3
62 TYPE BURIAL	6615	22(SOLID)CCS	AD/PE .146	BC - 95%	PE .242	13.5	84%	93	.81 / 2.7 / 9.3

100 Ohm Cables

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)
DATA TWINAXIAL	7901	2-20(7/28) 1-BC, 1-TC	PE .240	TC - 95%	PVC .325	15.5	66%	100	0.4 / 1.1 / 4.1
BURIAL TWINAXIAL	7905	2-20(7/28) 1-BC, 1-TC	PE .240	TC - 95%	PE .330	15.5	66%	100	0.4 / 1.1 / 4.1

Special Application Cables



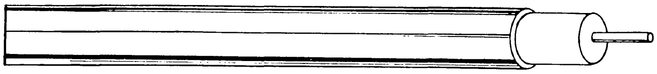
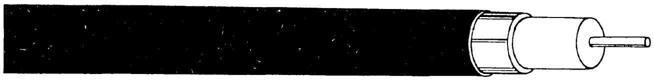
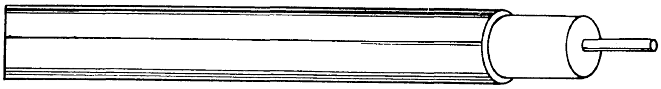
PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)
VIDEO PAIR	7902	2-16(SOLID)BC	FP .310	2 COPPER FOILS	PE .450	10.4	—	125	.17 / .53 / —

M/A-COM

CABLE HOME GROUP

CONVENTIONAL COAXIAL CABLES

Network Trunk Cables

PRODUCT DESCRIPTION AND RG TYPE	M/A-COM PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD CONSTRUCTION	JACKET AND NOM O.D.	NOM CAP Pf/Ft	NOM VEL. OF PROP	NOM IMP. (OHMS)	NOMINAL ATTENUATION db/100 ' 10/100/1000 (MHz)
 QR .500 JACKETED*	4101	.117"(SOLID)CCAL	FP .476	ALS .500	PE .580	15.3	88%	75	.22 / .70 / 2.35
 .500 UNJACKETED	4102	.111"(SOLID)CCAL	FP .450	ALS .500	N/A	15.3	87%	75	.23 / .74 / 2.4
 .500 JACKETED	4103	.111"(SOLID)CCAL	FP .450	ALS .500	PE .600	15.3	87%	75	.23 / .74 / 2.4
 .750 UNJACKETED	4104	.169"(SOLID)CCAL	FP .678	ALS .750	N/A	15.3	87%	75	.16 / .50 / 1.7
 .750 JACKETED	4105	.169"(SOLID)CCAL	FP .678	ALS .750	PE .850	15.3	87%	75	.16 / .50 / 1.7

*QUANTUM REACH™ is M/A-COM's designation for its low loss coaxial cable providing improved flexibility for ease of installation.

M/A-COM
CABLE HOME GROUP

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire gauge

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct current
DIAC bidirectional trigger diode
DIL dual in-line
DIN Deutsche Industrie Normenausschuss
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EMP electromagnetic pulse
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IDC insulation displacement contact
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LIF low insertion force
LNA low noise amplifier
LNB low noise band
LSI large scale integration
LVDT linear velocity displacement transformer

M

MASER microwave amplification by stimulated emission of radiation
MATV master antenna television
μF microforad
MHz megahertz
MIPS million instructions per second
MIB microcomputer interface board
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOSIGT metal-oxide semiconductor insulated-gate transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NEMP nuclear electromagnetic pulse
NIM nuclear instrumentation module
NOR not OR
NTC negative temperature coefficient

O

OCR optical character reader
OEM original equipment manufacturer
OR a logical operator

P

PC printed circuit
PCB printed circuit board
pF picofarad
PGA pin grid array
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PLL phased lock loop
PPI plan position indicator
PROM programmable read only memory
PTC positive temperature coefficient
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SCS silicon controlled switch
SDA source & detector assemblies
SIDAC bidirectional voltage-triggered switch
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic
SUS silicon unilateral switch

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC bidirectional AC switch
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UJT silicon unijunction transistor
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VME virtual machine environment
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

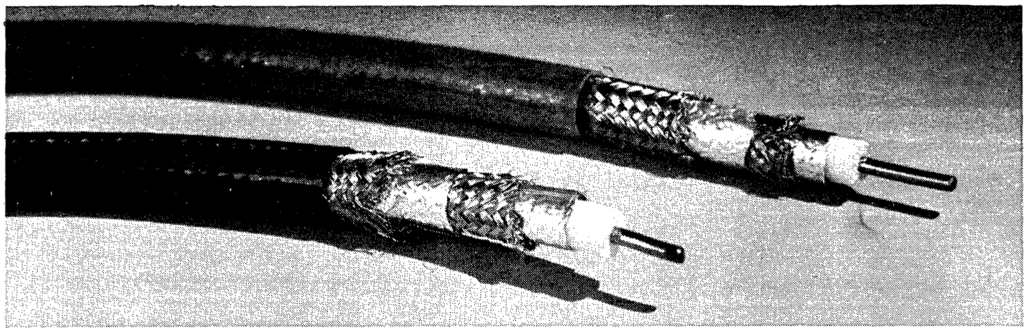
YIG yttrium iron garnet

Z

ZIF zero insertion force

Connector and Cable Division
Microdot Electronic Components Group

WIRE and CABLE



MALCO-SOUTH PASADENA, an innovator in wire and cable technology, offers a broad array of high-quality plenum, miniature, proprietary and custom designed cables and cable assemblies. Continual research and development — which produced such breakthroughs as the "Mini-Noise"™ low-noise cables and plenum cable — help Malco maintain its recognized leadership in the field.

In 1979, Malco pioneered the development of non-conduit plenum cable for local area networks. Since then, Malco Micro-Cell™ plenum cables with foamed Teflon® dielectrics and Teflon® jackets have been listed and classified by Underwriters Laboratories for flame resistance and low-smoke properties in accordance with NEC regulation #725-2(b). Malco Micro-Cell™ cable can therefore be used directly in plenums, without conduit, wherever NEC rules and exceptions apply. The unique and proven properties of Malco non-conduit cable reduce the risk and spread of fire in air plenums and ducts at a significant cost savings.

A leader in cable miniaturization, Malco's original work in suppression of motion-generated noise has earned it an outstanding reputation in the field of instrumentation. Among the important characteristics designed into Malco miniature cables are low-noise, low-capacitance, and high-operating temperatures.

As an innovator in connection technology as well, Malco combines state-of-the-art design and quality with years of experience in custom cable assemblies. Virtually the entire spectrum of Malco connectors and cables is available to meet your design requirements.

® Trademark of DUPONT   T M Trademark of MALCO

PRODUCTS

- **Plenum cable for local area networks**
- **Low noise coaxial cables**
- **Microminiature coaxial cables**
- **Twinaxial cables**
- **Triaxial cables**
- **Gigahertz cables**
- **RG type cables**
- **Multi-conductor cables**
- **Custom cable assemblies**

For additional information contact Malco South Pasadena (818) 799-9171.

MALCO

MALCO - Montgomeryville
12 Progress Drive
Montgomeryville, PA 18936

MALCO - South Pasadena
306 Pasadena Avenue
South Pasadena, CA 91030

MALCO - Franklin Park
11535 Franklin Avenue
Franklin Park, IL 60131

Typical Properties of

Resistance Wires

Material		Moleculoy	Electroloy	Protoloy	35-20 Ni Chromium	Neutroloy	Manganin	18% Nickel Silver
Nominal Composition, Percent		20 Cr 4 Al 1 Si 1-5 Mn Bal. Ni	60 Ni 15 Cr Bal. Fe	80 Ni 20 Cr	35 Ni 20 Cr Bal. Fe	55 Cu 45 Ni	12 Mn 4 Ni Bal. Cu	55 Cu 27 Zn 18 Ni
Specific Resistivity	**Ohm • cir. mil/ft**	800	675	650	610	300	290	190
	Micro-ohm • cm	133	112	108	101.5	50.5	48	31
Temperature Coefficient of Resistance ppm/°C Ref. 25°C	**High Temp. Range, °C**	±5/±10 (+150)	+140±30 (+200)	+80±20 (+250)	+400±40 (+125)	±20 (+150)	±15*	+290±30 (+125)
	Low Temp. Range, °C	±5/±10 (−65)	+140±30 (−65)	+80±20 (−65)	+380±40 (−65)	±20 (−65)	±15*	+290±30 (−55)
Magnetic Attraction		None	Para	None	Para	None	None	None
Specific Heat cal/g/°C @ 20°C		.115	.107	.104	.110	.094	.097	.090
Linear Cooefficient of Thermal Expansion	**10^{-6}/°C**	13.2	14	13	15.7	14.9	18.7	16.7
	Temp. Range, °C	+20 to +100	+20 to +100	+20 to +100	+20 to +100	+20 to +100	+20 to +100	+20 to +300
Density @ 20°C	**g/cm³**	8.1	8.2	8.4	8.0	8.9	8.3	8.7
	lb/in³	.29	.30	.30	.29	.32	.30	.31
Thermal EMF vs. Copper	**mV/°C**	+.002	+.002	+.006	−.001	−.045	−.003	−.05
	Temp. Range, °C	0 to +100	−65 to +200	−65 to +250	+25 to +100	−65 to +150	+15 to +35	+20 to +100
Maximum Recommended Operating Temperature, °C		250	900	1150	815	500	35	500
Nominal Tensile Strength psi @ 20°C	**Minimum**	130,000	95,000	100,000	80,000	60,000	40,000	60,000
	Maximum	250,000	175,000	200,000	175,000	135,000	90,000	145,000

* Temperature Range 25°–35°C with Peak Resistance at 28°C

Your complete source for premium wires

When your project calls for fine resistance wire that's .0002″ in diameter, .050″ in diameter, or anything in between, turn to Molecu-Wire as your complete source.

The chart above gives you just a sampling of the dozens of "off-the-shelf" metals and alloys that engineers and designers often specify. In addition, our R&D group—a dedicated group of metallurgical specialists—can work with you to create a custom material having the exact properties you need.

Whatever wire you select, you'll find a wide array of finishes and coatings to meet your specific application. Our engineering staff is available to help you evaluate your options.

Metal and Alloy Wires†

Resistance Wires (Continued)

Material		180 Alloy	Pelcoloy	90 Alloy	60 Alloy	Nickel 200	Nickel 270	30 Alloy
Nominal Composition, Percent		23 Ni Bal. Cu	70 Ni 30 Fe	11 Ni Bal. Cu	6 Ni Bal. Cu	** 99.5 Ni	** 99.9 Ni	2 Ni Bal. Cu
Specific Resistivity	**Ohm • cir. mil/ft**	180	120	90	60	57	45	30
	Micro-ohm • cm	30	19.9	14.9	10	9.5	7.5	5
Temperature Coefficient of Resistance ppm/°C Ref. 25°C	**High Temp. Range, °C**	+ 180 ± 30 (+ 150)	+4300 ± 400 (+ 100)	+ 450 ± 50 (+ 150)	+ 700 ± 200 (+ 150)	+5000 ± 500 (+ 125)	+6000 ± 300 (+ 125)	+1400 ± 300 (+ 150)
	Low Temp. Range, °C	+ 180 ± 30 (− 65)	+ 3700 ± 300 (− 50)	+ 450 ± 50 (− 65)	+ 700 ± 200 (− 65)	+4000 ± 500 (− 55)	+5000 ± 300 (− 65)	+ 1400 ± 300 (− 65)
Magnetic Attraction		None	Strong	None	None	Strong	Strong	None
Specific Heat cal/g/°C @ 20°C		.092	.125	.092	.092	.11	.11	.092
Linear Cooefficient of Thermal Expansion	**10^{-6}/°C**	15.9	15	17.1	16.3	14.4	14.4	16.5
	Temp. Range, °C	+ 25 to + 105	+ 20 to + 700	+ 20 to + 300	+ 25 to + 105	+ 20 to + 315	+ 20 to + 315	+ 20 to + 105
Density @ 20°C	**g/cm^3**	8.9	8.5	8.9	8.9	8.9	8.9	8.9
	lb/in^3	.32	.30	.32	.32	.32	.32	.32
Thermal EMF vs. Copper	**mV/°C**	− .037	− .040	− .026	− .022	− .022	− .022	− .014
	Temp. Range, °C	− 65 to + 150	+ 25 to + 105	− 65 to + 150	− 65 to + 155	+ 20 to + 100	+ 20 to + 100	− 65 to + 150
Maximum Recommended Operating Temperature, °C		500	590	425	300	315	315	200
Nominal Tensile Strength psi @ 20°C	**Minimum**	50,000	70,000	35,000	35,000	60,000	50,000	30,000
	Maximum	100,000	150,000	75,000	70,000	135,000	100,000	60,000

** Trademark of International Nickel Company

† For information only. For specific design data, contact Molecu-Wire.

Charts continue onto next page ⟶

Besides resistance wires, you can also turn to us for braided insulation (fiberglass, cotton, etc.), twisted pairs, bifilar, stranding, and colored enamel coatings (polimide, polyester, polyvinyl, etc.).

Call or write us today for further information or a quotation.

MOLECU WIRE CORPORATION

Mailing Address:
P.O. Box 495
Farmingdale, NJ 07727

Shipping Address:
Route 547
Wall, NJ 07719

Telephone: (201) 938-9473
TWX: 710-723-6943
Cable: MOLECUWIRE

Thermal Expansion and Mechanical Wires

Material		36% Ni Iron	42% Ni Iron	Fenicoloy	46% Ni Iron	50% Ni Iron	304 Stainless Steel	316 Stainless Steel	420 Stainless Steel
Nominal Analysis, Percent		36 Ni Bal. Fe	42 Ni Bal. Fe	29 Ni 17 Co .2 Mn Bal. Fe	46 Ni Bal. Fe	50 Ni Bal. Fe	18 Cr 8 Ni Bal. Fe	18 Cr 12 Ni 2.5 Mo Bal. Fe	13 Cr .15 Min. C Bal. Fe
Linear Coefficient of Thermal Expansion ppm/°C Ref. 25°C	**10^{-6}/°C**	1.0	6.0	5.3	7.5	9.9	17.3	16.0	12.2
	Temp. Range, °C	+ 20 to + 100	+ 30 to + 400	+ 30 to + 450	+ 30 to + 400	+ 30 to + 400	+ 20 to + 100	+ 20 to + 100	0 to + 650
Magnetic Attraction		Strong	Strong	Strong	Strong	Strong	None	None	Strong
Specific Heat cal/g/°C @ 20°C		.12	.12	.12	.12	.12	.12	.12	.11
Density @ 20°C	**g/cm^3**	8.1	8.1	8.4	8.2	8.2	7.9	8.0	7.7
	lb/in^3	.29	.29	.30	.30	.30	.29	.29	.28
Maximum Recommended* Operating Temperature, °C		200	400	450	500	525	500	500	425
Nominal Tensile Strength psi @ 20°C	**Minimum**	70,000	70,000	75,000	70,000	70,000	90,000	90,000	125,000
	Maximum	150,000	150,000	150,000	150,000	150,000	355,000	275,000	250,000

*Dependent on usage

Electrical Conductor Wire

Material		Silver	Copper	Gold	Cadmium Copper (C16200)	Zirconium Copper (C15000)	1350 Aluminum (EC)	1100 Aluminum	5005 Aluminum	Beryllium Copper (C17200)
Nominal Analysis, Percent		Commer-cially Pure Ag	99.90 Min. Cu (ETP)	Commer-cially Fine Au	1 Cd Bal. Cu	.15 Zr Bal. Cu	99.5 Min. Al	99.0 Min. Al	.8 Mg Bal. Al	.19 Be .20 Ni Min. Bal. Cu
Electrical Conductivity % IACS @ 20°C	**Soft**	102.8	100	73.4	90	N.A.(1)	61.8	59	52	18
	Hard	98	97	N.A.(1)	85	93	61.0	57	52	23
Linear Coefficient of Thermal Expansion	**10^{-6}/°C**	20.6	17.0	14.2	17.0	16.9	23.6	23.6	23.7	17.0
	Temp. Range, °C	0 to + 500	+ 20 to + 100	@ 20	+ 20 to + 100	+ 20 to + 100	+ 20 to + 100	+ 20 to + 100	+ 20 to + 100	+ 20 to + 200
Specific Heat cal/g/°C @ 20°C		.056	.092	.031	.092	.092	.215	.216	.215	.100
Density @ 20°C	**g/cm^3**	10.5	8.9	19.3	8.9	8.9	2.7	2.7	2.7	8.2
	lb/in^3	.38	.32	.70	.32	.32	.10	.10	.10	.30
Maximum Recommended(2) Operating Temperature, °C		Room Temp.	100	Room Temp.	150	150	100	100	100	200
Nominal Tensile Strength psi @ 20°C	**Minimum**	18,800	35,000	19,000	38,000	30,000	14,000	14,000	18,000	80,000
	Maximum	50,800	66,000	32,000	88,000	76,000	25,000	25,000	29,000	190,000

(1) N.A. = Not Applicable (2) Dependent on usage

In addition to a full range of round wires with various finishes and coatings (see previous page), Molecu-Wire's Electrical Conductor and Thermal Expansion Wires are available flat in any size/thickness combination within a 1:15 ratio.

MOLECU
WIRE CORPORATION

P.O. Box 495
Farmingdale, NJ 07727
(201) 938-9473 • TWX 710-723-6943

MAXIMUM CURRENT CAPACITY—CONDUCTORS

Size, AWG	MIL-W-5088				National Electrical Code	Underwriters Laboratory		American Insurance Association	500 c mils/A
	Copper		Aluminum						
	Single-wire	Wire-bundled	Single-wire	Wire-bundled		60°C	80°C		
30	...	...	...	...	...	0.2	0.4	...	0.20
28	...	...	...	...	...	0.4	0.6	...	0.32
26	...	...	...	...	...	0.6	1.0	...	0.51
24	...	...	...	...	...	1.0	1.6	...	0.81
22	9	5	...	...	...	1.6	2.5	...	1.28
20	11	7.5	...	...	...	2.5	4.0	3	2.04
18	16	10	...	...	6	4.0	6.0	5	3.24
16	22	13	...	...	10	6.0	10.0	7	5.16
14	32	17	...	...	20	10.0	16.0	15	8.22
12	41	23	...	...	30	16.0	26.0	20	13.05
10	55	33	...	...	35	...	...	25	20.8
8	73	46	58	36	50	...	...	35	33.0
6	101	60	86	51	70	...	...	50	52.6
4	135	80	108	64	90	...	...	70	83.4
2	181	100	149	82	125	...	...	90	132.8
1	211	125	177	105	150	...	...	100	167.5
0	245	150	204	125	200	...	...	125	212.0
00	283	175	237	146	225	...	...	150	266.0
000	328	200	...	...	275	...	...	175	336.0
0000	380	225	...	...	325	...	...	225	424.0

LARGEST SELECTION OF WIRE PRODUCTS

- ALUMINUM
- BERYLLIUM COPPER
- BRASS
- BUS WIRE
- COPPER CLAD ALUMINUM
- DUMET
- EXOTIC ALLOYS
- INCONEL
- INDIUM
- KOVAR
- LITZ WIRE
- LOCKWIRE/MS20995
- MOLYBDENUM
- MONEL
- MAGNET WIRE
  - All sizes to 56 AWG Round per— NEMA MW 1000, JW 1177A, MIL W 583C
  - High Temperatures, Colors, Half Sizes, Bondable Wires, Copper, Aluminum and Special Conductors
- **MICROSQUARE™ MAGNET WIRE**
  - Miniature Square and Rectangular smaller than 14 AWG
- MULTIFILAR® MAGNET WIRES
  - 2—20 Conductor, Parallel Bonded, Color Coded
- MUSIC WIRE
- NICKEL
- NICKEL SILVER
- NIOBIUM
- OFHC COPPER
- PHOSPHOR BRONZE
- PLATED WIRE AND RIBBON
  - Gold, Silver, Tin, Cadmium
- PRECIOUS METALS
  - Gold, Silver, Platinum
- RESISTANCE ALLOYS
  - Nickel-Chrome, Copper-Nickel, Nickel-Iron, Manganin
- SPECIAL CABLES
- STAINLESS STEEL
- SUPERCONDUCTOR
- TANTALUM
- TITANIUM
- THERMOCOUPLE WIRE
- TUNGSTEN
- "WISKER DISK" WINDING AIDS

FACILITIES/SERVICES

CUSTOM ENAMELING

In our custom enameling facilities we enamel most metals from .072" to .0004" round or square and rectangular sizes smaller than 14 AWG or 3500 sq. mil. cross-sectional area. Insulations are available in special colors, builds and bondable over-coats. Our short run production capabilities provide an alternative to large factory minimums and long deliveries.

DRAWING AND ANNEALING

Our drawing and annealing capabilities round out our custom manufacturing facilities. These capabilities allow us to fabricate most metals from .064" through .0004" diameter in the quantity you require.

TESTING LABORATORY

Expanded test facility provides complete chemical, physical and electrical test data for applicable military, federal, commercial and customer standards. We can provide you with fast and accurate answers to your technical questions.

CUSTOM PACKAGING

MWS has designed custom molded, individual foam shipping containers for our 2½," 3," 5" and 6" spools. These containers eliminate damage in shipping, and later prevent breakage in storage and production line handling.

WIRE TWISTING

MWS operates facilities for twisting 2 or more conductors 24 AWG and finer. Twisting tightness up to 30 twists per inch and to tolerances of ± 1%. Conductor materials include copper, plated conductors and specialty alloys. All insulations meet NEMA MW 1000, JW 1177A, 105-220°C, single thru quadruple film builds. Up to 10 insulation colors are available to aid in conductor identification.

WIRE SPOOLING

Spooling facilities handle every size wire from heavy square and rectangular to ultra-fine. This enables you to buy the quantity of wire you need on the spool size you want.

CALL TOLL FREE

1 800 423-5097

In California 1 800 992 8553 • In Los Angeles Area: (818) 991-8553

Our goal is to have the wire you need, when you need it. That's why MWS stocks the largest inventory of specialty wires in the country. Over 20,000 types and sizes.

If we don't have the wire you need in stock, we'll custom manufacture it. Our short run capabilities provide an alternative to large factory minimums and long deliveries.

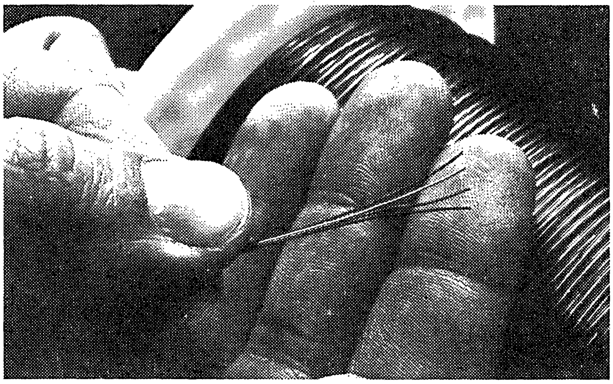
MWS®

Wire Industries

31200 Cedar Valley Dr., Westlake Village, CA 91362

®Multifilar is a registered trademark of MWS Wire Industries.

MULTIFILAR® MAGNET WIRE



Whenever two or more magnet wires travel together, MULTIFILAR magnet wire is worth a closer look. This parallel-bonded, color-coded magnet wire offers many benefits for both small and large users.

Engineers should specify it when they're concerned with space, weight and reliability. Where consistent capacitance and impedance characteristics are needed, MULTIFILAR magnet wire outperforms windings where two separate magnet wires are used.

Production users benefit from increased layer winding speeds, reduced labor and handling. Color-coding assists in conductor identification and reduces termination errors.

MULTIFILAR magnet wires are custom produced by MWS. We guarantee flat, parallel construction in an array of sizes 16 AWG and finer, with up to 20 conductors in some sizes.

Both round and flat constructions are available. Color-coded conductors are available in most insulations with up to 10 different colors in some sizes. Conductor separation is also guaranteed with certain bonding mediums.

For an even closer look, send for a free sample, specifications and ordering information. Production minimums are as low as 500 feet.

GENERAL PRODUCT INFORMATION

Code No.	INSULATIONS	Thermal Rating	NEMA MW1000	MILW583 Class/Type
1	**Polyurethane***	105°C	MW2C	CL-105 T thru T-4
2	**Poly-Nylon***	130°C	MW28C	CL-130 B thru B-4
4	**Modified Polyester**	180°C	MW30C	CL-180 H thru H-4
5	**Armored Polyester**	200°C	MW35C	CL-200 K thru K-4
6	**Solderable Polyester***	180°C	MW26C	CL-155
7	**Formvar**	105°C	MW15C	CL-105 T thru T-4
8	**Pyre M.L.†**	220°C	MW16C	CL-220 M thru M-4

Code No.	Bonding Films (operating temp.)	Solvents for Conductor Separation	BOND THICKNESS STANDARDS		
			AWG Size	Thickness	Tolerances
1	**Polyvinyl Butyral** (105°C)	Alcohol Isopropyl or Denatured	16-20	.0007"	±.0002"
			21-28	.0005"	±.0002"
2	**Polyamide (Nylon)** (105°C)	None	29-32	.0004"	±.0001"
			33-36	.0003"	±.0001"
3	**Epoxy** (130°C)	Acetone	37-41	.0002"	±.0001"
			42-finer	.0001"	+.0001" -.0

* Solderable Insulations †Trademark of DuPont

NOTE: The above referenced insulations, bonding films, and bond thickness are standard. Other insulations, films and thicknesses are available upon request. CONDUCTOR SEPARATION: Bonding films can be softened and removed by immersion in appropriate solvents. Some mechanical action (i.e. wiping wires following immersion in solvent) may be required to affect conductor separation.

PART NUMBER ORDERING SYSTEM

Make your own 8 digit part number by following the guidelines outlined below.

EXAMPLE **B-2 3 8 1 1 1 1**

B	2	3 8	1	1	1	1
Product letter for all multifilar magnet wire	Number of conductors. Use ( ) for more than 9 conductors	AWG gauge sizes	Insulation thickness 1= single 2=heavy 3=triple 4=quadruple	Insulation type "See above chart for correct code number"	Color coded conductors 0=none required 1=red/green 2=green/clear 3=red/green/clear *9=special – call for color code	Bonding film "See above chart for correct code number"

EXAMPLE = 2 Conductors—38AWG Single Polyurethane—Red/Green—Butyral Bond
* Denotes Change

If you have any questions regarding how to specify a correct part number for the **multifilar** wire you need, don't hesitate to call us. Our salesmen or engineering staff will be happy to assist you.

CALL TOLL FREE 1 800 423-5097
In California: 1 800 992-8553 In Los Angeles Area: (818) 991-8553.
31200 Cedar Valley Drive, Westlake Village, California 91362

MWS
Wire Industries

THE SOLUTION

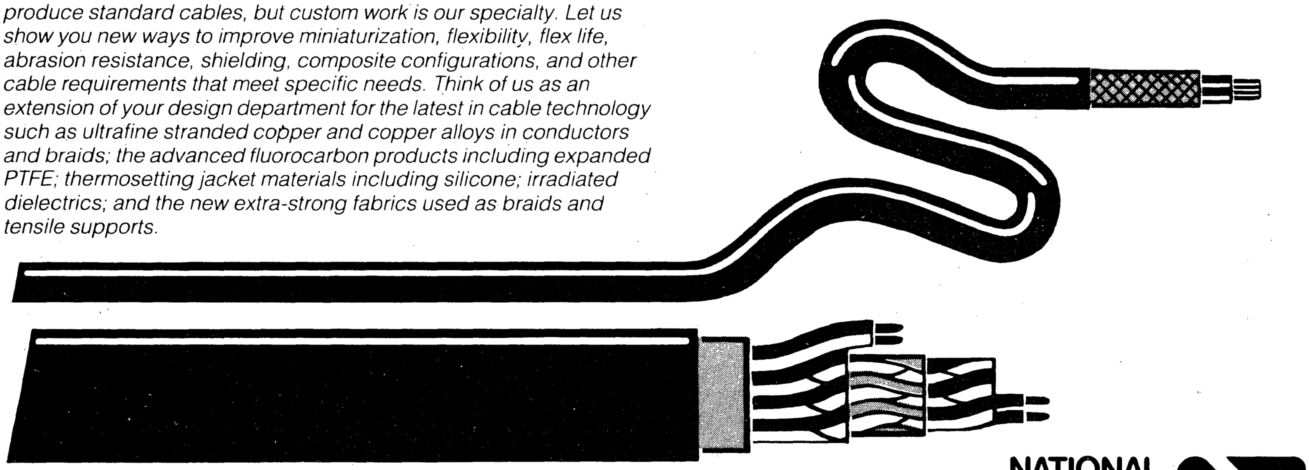
What are you looking for in a cable? Reliability? Flexibility? Miniaturization? Reducing interconnection costs? If you have a cable or cable assembly problem, we can solve it.

We're electronic cable specialists. National Electric Cable designs, tests, produces and improves cables, connectors and complete cable assemblies for specific applications. Our experience has taught us that advanced cable technology not only influences system design but frequently determines whether a system is functionally and economically viable and reliable.

Our engineers can help solve difficult interconnect problems with existing products, or help create special products to fit your needs.

Electronic Cables

As experienced manufacturers of cables, we know that all your designs cannot be met by the standard cables available. We can produce standard cables, but custom work is our specialty. Let us show you new ways to improve miniaturization, flexibility, flex life, abrasion resistance, shielding, composite configurations, and other cable requirements that meet specific needs. Think of us as an extension of your design department for the latest in cable technology such as ultrafine stranded copper and copper alloys in conductors and braids; the advanced fluorocarbon products including expanded PTFE; thermosetting jacket materials including silicone; irradiated dielectrics; and the new extra-strong fabrics used as braids and tensile supports.

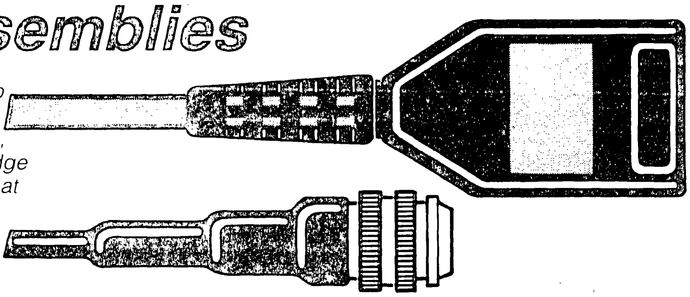


NATIONAL ELECTRIC CABLE

A National Applied Science Company

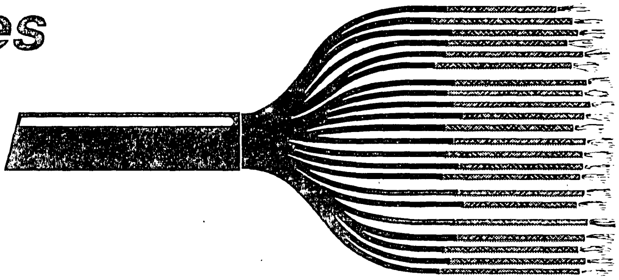
Electronic Cable Assemblies

We design and produce exceptionally high quality cable assemblies for high tech products ranging from flight simulators to medical diagnostic machines. Assemblies involving molded connectors, stringent military standards, microminiature soldering, and other processes requiring advanced interconnection knowledge are typical of the ongoing projects of Systems Engineering Group at National Electric Cable. Tell us your needs and we'll build you a prototype.



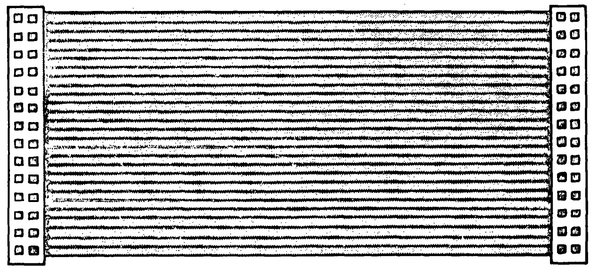
Micro-miniature Coaxes

Ultrasmall cables designed for maximum flex-life and flexibility are the specialty of National Electric Cable's design department and manufacturing facilities. Micro primaries are insulated with Teflon®. Coaxes (28-34 AWG) are of Tex-L 88® low-density Teflon, foamed Teflon, full-density Teflon and irradiated cross-linked foamed polyolefin (50-125ohm) with braid, tape or spiral shields. All of our Microflex™ cable assemblies are precisely terminated.



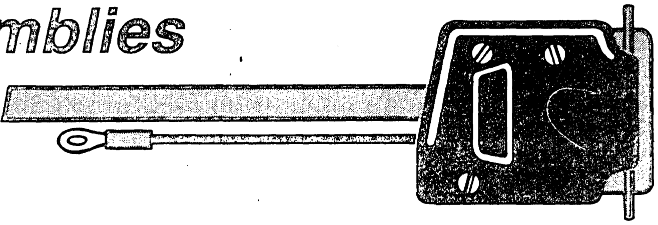
Precision Transmission

National Electric Cable's Precision™ Transmission Lines use PTFE insulated ribbon cable for high speed data transmission applications. Available for 50, 75, 95 and 100 – 110 ohm interconnections, Precision ribbon cables are assembled with AMP® Pro-G grounds-programmable receptacles in 10, 20, 26, 34, 40 and 50 positions to mate with a double row of posts on .100" x .100" grid or with AMP universal pin headers.



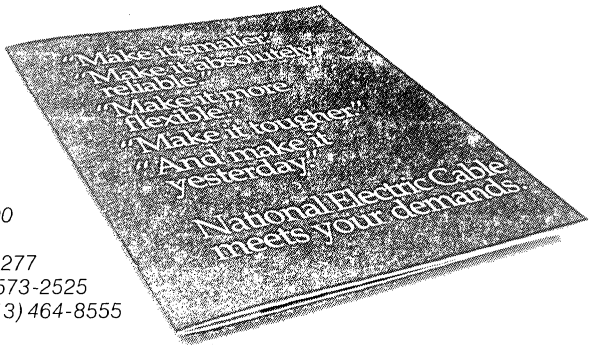
Standard Cable Assemblies

We have assembled more than a million feet of standard low capacitance and long haul low capacitance RS-232C, RS-449 and RS-422A cables to standard connectors. Our IEEE-488 has a double braid shield with separating extruded layer to prevent electrostatic generation between shields. All cables can conform with Class A of the FCC regulations against RF interference in data processing equipment. Guaranteed reliability, fast delivery and competitive pricing on standard or made-to-order lengths.



MORE INFORMATION

Want to read more about our custom capabilities? Ask for our brochure, a full-color booklet which outlines examples of custom cable development and manufacturing. Yours free for the asking. For fast delivery, call our factory in Portland (503) 620-9400

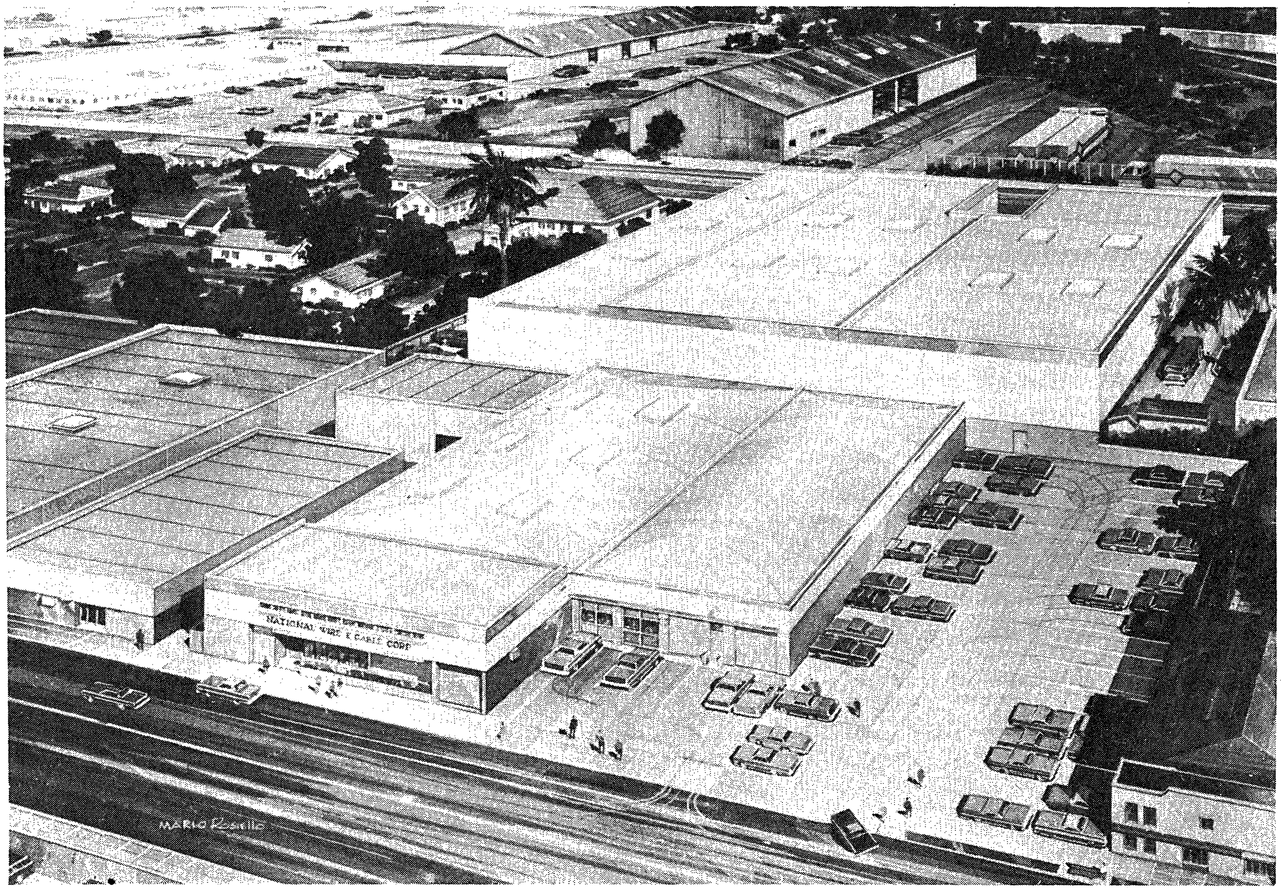


Illinois: *1730 Elmhurst Rd., Elk Grove Village, 60007, (312) 593-8100*
Oregon: *16566 S.W. 72nd Ave., Portland, 97224, (503) 620-9400*
California: *3475 Investment Blvd. #5, Hayward, 94545, (415) 785-1277*
Delaware: *One Commerce Center #713, Wilmington, 19801, (302) 573-2525*
Texas: *1414 West Belt N. #150, P.O. Box 79692, Houston, 77279, (713) 464-8555*

**NATIONAL
ELECTRIC
CABLE**
A National Applied Science Company

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569



As a manufacturer of wire and cable products . . . with warehouses on both East and West coasts, National Wire & Cable is ready to fill your immediate needs. Choose from our standard lines of wire or cable . . . OR let us design and custom manufacture exactly what you require for your application.

Our wire inventory is now over 160 million feet, and our 500 different standard multi-conductor cables total in excess of 1.3 million feet!

When you call National Wire, you'll find we are especially well equipped to handle your large as well as minimal requirements. If our "standard" items won't meet your application, we have the wire inventory, the machinery, the expertise to come up with exactly what you need. 105,000 square feet of manufacturing area and our expert engineering staff are at your disposal!!! All cable components are produced within our own facility in order to assure complete quality control.

Review the following catalog pages. If you need some assistance with your specific requirement, call our factory direct, or call our representative nearest you. See Manufacturers and Sales Office Directory Yellow Pages.

NATIONAL WIRE
AND CABLE CORPORATION

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Fed. Stock Code H4-04569

U/L Listed Wire

CSA Listed Wire

- Wires listed by the Underwriter's Laboratories, Inc. for operation in an air or an oil environment. U.L. File #E35793.
- Wires listed by the Canadian Standards Association for radio or electronic uses. CSA File #LR-20482 & LR-32511.

U/L Style 1061

Appliance wiring material available as FR-1 rated 80-degree C Service. .009" semi-rigid vinyl insulation U/L rated: 300-volt service. Meets Mil-W-16878D Type B, and CSA S-R PVC. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
28	N304-736U	7	36	.015	.034	69.0	1.0
26	N304-1938U	19*	38	.019	.038	42.9	1.5
24	N304-1936U	19*	36	.024	.043	26.8	2.0
22	N304-1934U	19*	34	.030	.050	16.7	3.0
20	N304-1932U	19*	32	.038	.057	10.5	4.75
18	N304-1930U	19	30	.048	.068	6.57	6.5
16	N304-1929U	19	29	.057	.077	4.85	9.0

U/L Style 1007

Appliance wiring available as FR-1 rated 80-degree C Service. 1/64" vinyl insulation U/L rated: 300 volt appliance, use 600 volt electronic use. Meets Mil-W-16878D Type C. Also approved by CSA as Type TR-64 radio wiring for 90-degree C Service. Colors: 10 standard colors plus tracers on solid colors. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N303-732U	7	32	.024	.058	26.8	2.75
22	N303-1934U	19*	34	.030	.063	16.7	3.75
20	N303-1932U	19*	32	.038	.072	10.5	5.50
18	N303-1930U	19	30	.048	.082	6.57	8.0
16	N303-1929U	19	29	.057	.090	4.85	10.0

U/L Style 1015

Appliance wiring material available as FR-1 rated 105-degree C Service 1/32" vinyl insulation U/L rated, 2500 volts electronic use, 600 volt appliance use. Meets Mil-W-16878D Type D. Colors: 10 standard colors plus tracers on solid colors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N600-732U	7	32	.024	.082	26.8	4.0
22	N600-730U	7	30	.030	.090	16.7	5.2
20	N600-728U	7	28	.038	.098	10.5	7.3
18	N600-1930U	19	30	.048	.108	6.57	10.0
16	N600-1929U	19	29	.057	.117	4.85	12.0
14	N600-1927U	19	27	.071	.130	3.05	17.1
12	N600-1925U	19	25	.090	.162	1.92	27.4
10	N600-4927U	49	27	.111	.181	1.24	38.6

CSA/Type TR-32 Radio Wire

Rated: 90-degree C 600 volt, 1/32" vinyl insulation. Also listed as CSA Appliance Wiring Material 90-degree 600 V. Meets U/L Style 1015 & Mil-W-16878D Type D.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N307-732U	7	32	.024	.082	26.8	4.0
22	N307-730U	7	30	.030	.090	16.7	5.2
20	N307-728U	7	28	.038	.098	10.5	7.3
18	N307-1930U	19	30	.048	.108	6.57	10.0
16	N307-1929U	19	29	.057	.117	4.85	12.0
14	N307-1927U	19	27	.071	.130	3.05	17.1
12	N307-1925U	19	25	.090	.162	1.92	27.4
10	N307-4927U	49	27	.111	.181	1.24	38.6

*Also available in 7 strands

CSA Listed Type TR-64 Radio Wire

Rated 90-degree C 300 volt, 1/64" vinyl insulation. Meets U/L Style 1007 & Mil-W-16878D Type C.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N308-732U	7	32	.024	.058	28.4	2.75
22	N308-1934U	19*	34	.030	.063	19.0	3.50
20	N308-1932U	19*	32	.038	.072	13.12	5.25
18	N308-1930U	19	30	.048	.082	7.89	6.75
16	N308-1929U	19	29	.057	.090	4.97	10.0

Also available with Nylon Jacket

NATIONAL WIRE
AND CABLE CORPORATION

Military Electronic Hookup Wire

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

MIL-W-16878/1

Type BU

For internal wiring of electronic equipment.
.010" wall vinyl primary insulation. No outer covering.
—54-degree C to +105-degree C, 600 V, R.M.S. (working).
Also available as NABOND.
Meets U/L Style 1061, and CSA S-R PVC.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740U	7	40	.009	.028	179.0	0.70
30	NB738U	7	38	.012	.031	111.0	0.75
28	NB736U	7	36	.015	.034	69.0	1.0
26	NB1938U	19*	38	.019	.038	42.9	1.5
24	NB1936U	19*	36	.024	.043	26.8	2.0
22	NB1934U	19*	34	.030	.050	16.7	3.0
20	NB1932U	19*	32	.038	.057	10.5	4.5
18	NB1930U	19	30	.048	.068	6.57	6.5
16	NB1929U	19	29	.057	.077	4.85	9.0
14	NB1927U	19	27	.071	.091	3.05	14.0

*Also available in 7 strands

MIL-W-16878/1

Type BN

For internal wiring of electronic equipment.
Vinyl primary insulation with Nylon jacket overall.
—54-degree C to +115-degree C, 600 V, R.M.S. (working). Meets U/L Style 1006.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740N	7	40	.009	.032	179.0	0.75
30	NB738N	7	38	.012	.036	111.0	1.0
28	NB736N	19	40	.015	.039	69.0	1.25
26	NB1938N	19*	38	.019	.044	42.9	1.75
24	NB1936N	19*	36	.024	.049	26.8	2.25
22	NB1934N	19*	34	.030	.056	16.7	3.25
20	NB1932N	19*	32	.038	.063	10.5	4.75
18	NB1930N	19	30	.048	.074	6.57	7.0
16	NB1929N	19	29	.057	.083	4.85	9.0
14	NB1927N	19	27	.071	.098	3.05	14.7

*Also available in 7 strands

MIL-W-16878/2

Type CU

For internal wiring of meters, panels & electronic equipment, .015" Wall Vinyl primary insulation (no outer covering).
−54° C to +105° C, 1000 Volts, R.M.S. (working).
Also available as NABOND.
Meets U/L Style 1007 and CSA TR-64.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
26	NC734U	7	34	.019	.053	42.9	2.1
24	NC732U	7	32	.024	.058	26.8	2.75
22	NC1934U	19*	34	.030	.063	16.7	3.75
20	NC1932U	19*	32	.038	.072	10.5	5.50
18	NC1930U	19	30	.048	.082	6.57	8.0
16	NC1929U	19	29	.057	.090	4.85	10.0
14	NC1927U	19	27	.071	.104	3.05	15.0
12	NC1925U	19	25	.090	.124	1.92	24.0

*Also available in 7 strands

MIL-W-16878/3

Type DU

Resists the effect of salt water, aviation fuel, motor oil, ethylene glycol and alcohols (methyl or ethyl).
.031" wall vinyl primary insulation. No outer covering.
—54-degree C to +105-degree, 3000 V, R.M.S. (working). Meets U/L Style 1015 and CSA TR-32.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	ND732U	7	32	.024	.082	26.8	4.0
22	ND730U	7	30	.030	.090	16.7	5.2
20	ND728U	7	28	.038	.098	10.5	7.3
18	ND1930U	19	30	.048	.108	6.57	10.0
16	ND1929U	19	29	.057	.117	4.85	12.0
14	ND1927U	19	27	.071	.130	3.05	17.1
12	ND1925U	19	25	.090	.162	1.92	27.4
10	ND4927U	49	27	.111	.181	1.24	38.6
8	ND13329U	133	29	.167	.246	0.726	70.5
6	ND13327U	133	27	.210	.290	0.444	104.0

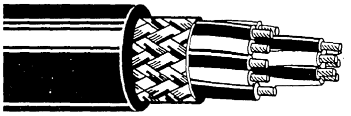
*Also available in 7 strands.

NOTE: THE ABOVE WIRES COME IN 10 STANDARD COLORS PLUS TRACERS ON SOLID COLORS.

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Single Conductors (NX Series)



(NX1922SJ shown)

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010″ wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

IN STOCK

MIL-SPEC U.L. LISTED COMPUTER GRADE STYLE 2343

For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 5000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.
Insulation Leakage:	200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.
Sheath Leakage:	10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.
Temperature Range:	Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

MULTICONDUCTOR STOCK CABLED SINGLES

Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M′	PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	SHIELD AWG	NOM. O.D.	WEIGHT LB/M′
NX-524 J	5	24	.045	.062	.220	32 Lbs.	NX-524 SJ	5	24	.045	.062	36	.245	44 Lbs.
NX-724 J	7	24	.045	.062	.250	40 Lbs.	NX-724 SJ	7	24	.045	.062	36	.275	55 Lbs.
NX-1224J	12	24	.045	.062	.300	53 Lbs.	NX-1224SJ	12	24	.045	.062	36	.325	68 Lbs.
NX-1524J	15	24	.045	.062	.330	65 Lbs.	NX-1524SJ	15	24	.045	.062	36	.350	80 Lbs.
NX-1924J	19	24	.045	.062	.340	73 Lbs.	NX-1924SJ	19	24	.045	.062	36	.365	88 Lbs.
NX-2724J	27	24	.045	.062	.390	85 Lbs.	NX-2724SJ	27	24	.045	.062	36	.415	102 Lbs.
NX-3724J	37	24	.045	.062	.420	120 Lbs.	NX-3724SJ	37	24	.045	.062	36	.445	140 Lbs.
NX-4824J	48	24	.045	.062	.470	142 Lbs.	NX-4824SJ	48	24	.045	.062	36	.495	172 Lbs.
NX-6024J	60	24	.045	.062	.510	170 Lbs.	NX-6024SJ	60	24	.045	.062	36	.535	205 Lbs.
NX-522 J	5	22	.050	.062	.265	40 Lbs.	NX-522 SJ	5	22	.050	.062	36	.285	50 Lbs.
NX-722 J	7	22	.050	.062	.270	48 Lbs.	NX-722 SJ	7	22	.050	.062	36	.295	58 Lbs.
NX-1222J	12	22	.050	.062	.330	72 Lbs.	NX-1222SJ	12	22	.050	.062	36	.355	87 Lbs.
NX-1522J	15	22	.050	.062	.350	85 Lbs.	NX-1522SJ	15	22	.050	.062	36	.380	101 Lbs.
NX-1922J	19	22	.050	.062	.370	96 Lbs.	NX-1922SJ	19	22	.050	.062	36	.395	111 Lbs.
NX-2722J	27	22	.050	.062	.430	130 Lbs.	NX-2722SJ	27	22	.050	.062	36	.455	150 Lbs.
NX-3722J	37	22	.050	.062	.480	163 Lbs.	NX-3722SJ	37	22	.050	.062	34	.510	193 Lbs.
NX4822J	48	22	.050	.062	.530	210 Lbs.	NX-4822SJ	48	22	.050	.062	34	.560	245 Lbs.
NX-6022J	60	22	.050	.062	.570	255 Lbs.	NX-6022SJ	60	22	.050	.062	34	.600	295 Lbs.
NX-520 J	5	20	.057	.062	.275	49 Lbs.	NX-520 SJ	5	20	.057	.062	36	.300	59 Lbs.
NX-720 J	7	20	.057	.062	.290	59 Lbs.	NX-720 SJ	7	20	.057	.062	36	.315	69 Lbs.
NX-1220J	12	20	.057	.062	.360	90 Lbs.	NX-1220SJ	12	20	.057	.062	36	.385	105 Lbs.
NX-1520J	15	20	.057	.062	.390	110 Lbs.	NX-1520SJ	15	20	.057	.062	36	.415	137 Lbs.
NX-1920J	19	20	.057	.062	.410	128 Lbs.	NX-1920SJ	19	20	.057	.062	36	.435	158 Lbs.
NX-2720J	27	20	.057	.062	.490	166 Lbs.	NX-2720SJ	27	20	.057	.062	36	.515	196 Lbs.
NX-3720J	37	20	.057	.062	.520	220 Lbs.	NX-3720SJ	37	20	.057	.062	34	.550	255 Lbs.
NX-4820J	48	20	.057	.062	.580	275 Lbs.	NX-4820SJ	48	20	.057	.062	34	.610	320 Lbs.
NX-6020J	60	20	.057	.062	.640	335 Lbs.	NX-6020SJ	60	20	.057	.062	34	.670	385 Lbs.

NATIONAL WIRE
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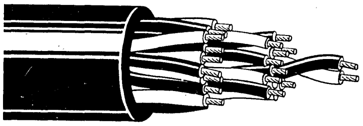
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NXP Series)



(NXP1924J shown)

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010″ wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on white per table below.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Denotes U.L. Style 2344.

IN STOCK MIL-SPEC

U.L. LISTED COMPUTER GRADE STYLE 2343 & 2344

For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 5000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.
Insulation Leakage:	200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.
Sheath Leakage:	10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.
Temperature Range:	Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

Impedance: (24. AWG pairs)
Balanced: 87. ohms ±5%
Unbalanced: 52. ohms ±5%

MULTI-CONDUCTOR STOCK CABLED PAIRS

Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M′	PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	SHLD. AWG	NOM. O.D.	WEIGHT LB/M′
NXP-524 J	5	24	.045	.062	.330	52 Lbs.	NXP-524 SJ	5	24	.045	.062	36	.355	67 Lbs.
NXP-724 J	7	24	.045	.062	.350	60 Lbs.	NXP-724 SJ	7	24	.045	.062	36	.375	75 Lbs.
NXP-1224J	12	24	.045	.062	.435	90 Lbs.	NXP-1224SJ	12	24	.045	.062	36	.460	115 Lbs.
NXP-1524J	15	24	.045	.062	.485	110 Lbs.	NXP-1524SJ	15	24	.045	.062	36	.510	140 Lbs.
NXP-1924J	19	24	.045	.062	.505	126 Lbs.	NXP-1924SJ	19	24	.045	.062	36	.530	161 Lbs.
NXP-2724J	27	24	.045	.062	.590	167 Lbs.	NXP-2724SJ	27	24	.045	.062	34	.620	211 Lbs.
NXP-3724J	37	24	.045	.062	.660	216 Lbs.	NXP-3724SJ	37	24	.045	.062	34	.690	266 Lbs.
NXP-4824J	48	24	.045	.062	.745	270 Lbs.	NXP-4824SJ	48	24	.045	.062	34	.775	330 Lbs.
NXP-6024J	60	24	.045	.062	.815	325 Lbs.	NXP-6024SJ*	60	24	.045	.062	34	.845	390 Lbs.
NXP-522 J	5	22	.050	.062	.365	56 Lbs.	NXP-522 SJ	5	22	.050	.062	36	.390	77 Lbs.
NXP-722 J	7	22	.050	.062	.390	82 Lbs.	NXP-722 SJ	7	22	.050	.062	36	.415	100 Lbs.
NXP-1222J	12	22	.050	.062	.470	120 Lbs.	NXP-1222SJ	12	22	.050	.062	36	.495	150 Lbs.
NXP-1522J	15	22	.050	.062	.545	145 Lbs.	NXP-1522SJ	15	22	.050	.062	34	.575	185 Lbs.
NXP-1922J	19	22	.050	.062	.550	170 Lbs.	NXP-1922SJ	19	22	.050	.062	34	.580	210 Lbs.
NXP-2722J	27	22	.050	.062	.640	230 Lbs.	NXP-2722SJ	27	22	.050	.062	34	.670	280 Lbs.
NXP-3722J	37	22	.050	.062	.750	300 Lbs.	NXP-3722SJ	37	22	.050	.062	34	.780	357 Lbs.
NXP-4822J*	48	22	.050	.080	.850	375 Lbs.	NXP-4822SJ*	48	22	.050	.080	34	.880	445 Lbs.
NXP-6022J*	60	22	.050	.080	.930	460 Lbs.	NXP-6022SJ*	60	22	.050	.080	34	.960	535 Lbs.
NXP-520 J	5	20	.057	.062	.395	82 Lbs.	NXP-520 SJ	5	20	.057	.062	36	.420	102 Lbs.
NXP-720 J	7	20	.057	.062	.440	108 Lbs.	NXP-720 SJ	7	20	.057	.062	36	.465	123 Lbs.
NXP-1220J	12	20	.057	.062	.540	163 Lbs.	NXP-1220SJ	12	20	.057	.062	34	.570	203 Lbs.
NXP-1520J	15	20	.057	.062	.600	196 Lbs.	NXP-1520SJ	15	20	.057	.062	34	.630	241 Lbs.
NXP-1920J	19	20	.057	.062	.630	235 Lbs.	NXP-1920SJ	19	20	.057	.062	34	.660	280 Lbs.
NXP-2720J	27	20	.057	.062	.745	320 Lbs.	NXP-2720SJ	27	20	.057	.062	34	.775	380 Lbs.
NXP-3720J	37	20	.057	.062	.820	420 Lbs.	NXP-3720SJ*	37	20	.057	.080	34	.850	490 Lbs.
NXP-4820J*	48	20	.057	.080	.950	530 Lbs.	NXP-4820SJ*	48	20	.057	.080	34	.980	605 Lbs.
NXP-6020J*	60	20	.057	.080	1.040	650 Lbs.	NXP-6020SJ*	60	20	.057	.080	34	1.070	735 Lbs.

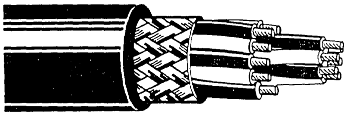
COLOR CODING USED IN TWISTED PAIRS

PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS
1	White with Black	11	Black with Red	21	Brown with Green	31	Orange with Yellow	41	Green with Violet	51	Wht/Blk with Green
2	White with Brown	12	Black with Orange	22	Brown with Blue	32	Orange with Green	42	Green with Gray	52	Wht/Blk with Blue
3	White with Red	13	Black with Yellow	23	Brown with Violet	33	Orange with Blue	43	Blue with Violet	53	Wht/Blk with Violet
4	White with Orange	14	Black with Green	24	Brown with Gray	34	Orange with Violet	44	Blue with Grey	54	Wht/Ik with Gray
5	White with Yellow	15	Black with Blue	25	Red with Orange	35	Orange with Gray	45	Violet with Gray	55	Wht/Brn with Black
6	White with Green	16	Black with Violet	26	Red with Yellow	36	Yellow with Green	46	Wht/Blk with Black	56	Wht/Brn with Brown
7	White with Blue	17	Black with Gray	27	Red with Green	37	Yellow with Blue	47	Wht/Blk with Brown	57	Wht/Brn with Red
8	White with Violet	18	Brown with Red	28	Red with Blue	38	Yellow with Violet	48	Wht/Blk with Red	58	Wht/Brn with Orange
9	White with Gray	19	Brown with Orange	29	Red with Violet	39	Yellow with Gray	49	Wht/Blk with Orange	59	Wht/Brn with Yellow
10	Black with Brown	20	Brown with Yellow	30	Red with Gray	40	Green with Blue	50	Wht/Blk with Yellow	60	Wht/Brn with Green

NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

Heavy Duty Signal & Control Cables Single Conductors (NW Series)


(NW1918SJ shown)

IN STOCK

MIL-SPEC U.L. LISTED — STYLE 2343 & 2344

National Wire & Cable Corporation manufactures a complete line of multiple conductor control cable. Conductors are stranded tinned copper with 1/64" wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type C.* Insulated for 1000 volts working voltage. Color coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape serve over cable bundle. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078, and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C vinyl meeting MIL-I-631 Class F. All materials are self-extinguishing and fungus resistant. All cables are U. L. LISTED STYLE 2343; rated 80°C. (Higher temp. ratings apply to any non-U.L. service.) U.L. certification furnished only when requested.

Standard Putups: 100, 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

For applications in extreme environments, consult factory for alternative sheath materials.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 8000 volts AC RMS, 60 cps.
U.L. Voltage Rating:	300 volts RMS AC (appliance use). 600 volts RMS AC (electronic use).
Military Voltage Rating:	1000 volts RMS.
Capacitance:	Nominal capacitance from a wire to all else in the cable ranges from 40 to 65 mmfd per ft., @ 1000 cps; dependent on gauge and position.
Insulation Leakage Res.:	200. megohms/1000 ft. min. at 500 VDC from any conductor to all else in cable.
Sheath Leakage Res.:	10. megohms/1000 ft. min. at 500 VDC from overall shield through sheath to outside world.
Usable Temp. Range:	Suitable for continuous use from +105°C to −55°C.
Cold Bending Capability:	All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

* Insulated wires also meet U.L. style 1007 and CSA type TR-64.
† Denotes U.L. Style 2344.

Conductor sizes 22, 20, 18, 16, 14 & 12 gauge. 22 AWG is 7 strand. All others 19 strand.												
UNSHIELDED						**OVERALL SHIELDED**						
PART NO.	**NO. COND.**	**COND. AWG**	**JKT. THICK**	**NOM. O.D.**	**WEIGHT PER M'**	**PART NO.**	**NO. COND**	**COND AWG**	**T.C. SHIELD**	**JKT. THICK**	**NOM. O.D.**	**WEIGHT PER M'**
NW-722 J	7	22	.060	.315	40 Lbs.	NW-722 SJ	7	22	No. 36	.060	.340	55 Lbs.
NW-1222J	12	22	.060	.385	70 Lbs.	NW-1222SJ	12	22	No. 34	.060	.410	90 Lbs.
NW-1922J	19	22	.060	.440	110 Lbs.	NW-1922SJ	19	22	No. 34	.060	.465	145 Lbs.
NW-2722J	27	22	.060	.510	160 Lbs.	NW-2722SJ	27	22	No. 34	.060	.535	200 Lbs.
NW-3722J	37	22	.060	.565	200 Lbs.	NW-3722SJ	37	22	No. 34	.060	.590	245 Lbs.
NW-4822J	48	22	.060	.635	245 Lbs.	NW-4822SJ	48	22	No. 34	.060	.660	300 Lbs.
NW-6022J	60	22	.060	.695	300 Lbs.	NW-6022SJ	60	22	No. 34	.060	.720	355 Lbs.
NW-7222J	72	22	.060	.755	360 Lbs.	NW-7222SJ	72	22	No. 34	.060	.780	425 Lbs.
NW-8822J	88	22	.060	.820	425 Lbs.	NW-8822SJ	88	22	No. 34	.080	.895†	500 Lbs.
NW-10222J	102	22	.080	.920†	485 Lbs.	NW-10222SJ	102	22	No. 34	.080	.945†	560 Lbs.
NW-720 J	7	20	.060	.340	50 Lbs.	NW-720 SJ	7	20	No. 34	.060	.365	68 Lbs.
NW-1220J	12	20	.060	.420	105 Lbs.	NW-1220SJ	12	20	No. 34	.060	.445	125 Lbs.
NW-1920J	19	20	.060	.485	160 Lbs.	NW-1920SJ	19	20	No. 34	.060	.510	195 Lbs.
NW-2720J	27	20	.060	.565	210 Lbs.	NW-2720SJ	27	20	No. 34	.060	.590	250 Lbs.
NW-3720J	37	20	.060	.630	280 Lbs.	NW-3720SJ	37	20	No. 34	.060	.655	325 Lbs.
NW-4820J	48	20	.060	.710	360 Lbs.	NW-4820SJ	48	20	No. 34	.060	.735	415 Lbs.
NW-6020J	60	20	.060	.775	435 Lbs.	NW-6020SJ	60	20	No. 34	.060	.800	500 Lbs.
NW-7220J	72	20	.080	.885†	485 Lbs.	NW-7220SJ	72	20	No. 34	.080	.910†	555 Lbs.
NW-8820J	88	20	.080	.960†	580 Lbs.	NW-8820SJ	88	20	No. 34	.080	1.035†	660 Lbs.
NW-10220J	102	20	.080	1.030†	670 Lbs.	NW-10220SJ	102	20	No. 34	.080	1.055†	750 Lbs.
NW-718 J	7	18	.060	.370	75 Lbs.	NW-718 SJ	7	18	No. 34	.060	.395	95 Lbs.
NW-1218J	12	18	.060	.460	135 Lbs.	NW-1218SJ	12	18	No. 34	.060	.485	170 Lbs.
NW-1918J	19	18	.060	.535	225 Lbs.	NW-1918SJ	19	18	No. 34	.060	.560	265 Lbs.
NW-2718J	27	18	.060	.625	300 Lbs.	NW-2718SJ	27	18	No. 34	.060	.650	350 Lbs.
NW-3718J	37	18	.060	.700	390 Lbs.	NW-3718SJ	37	18	No. 34	.060	.725	445 Lbs.
NW-4818J	48	18	.060	.790	510 Lbs.	NW-4818SJ	48	18	No. 34	.060	.815	575 Lbs.
NW-6018J	60	18	.080	.905†	600 Lbs.	NW-6018SJ	60	18	No. 34	.080	.930†	680 Lbs.
NW-7218J	72	18	.080	.985†	720 Lbs.	NW-7218SJ	72	18	No. 34	.080	1.010†	820 Lbs.
NW-716 J	7	16	.060	.395	95 Lbs.	NW-716 SJ	7	16	No. 34	.060	.420	125 Lbs.
NW-1216J	12	16	.060	.495	155 Lbs.	NW-1216SJ	12	16	No. 34	.060	.520	195 Lbs.
NW-1916J	19	16	.060	.575	230 Lbs.	NW-1916SJ	19	16	No. 34	.060	.600	275 Lbs.
NW-2716J	27	16	.060	.615	320 Lbs.	NW-2716SJ	27	16	No. 34	.060	.640	375 Lbs.
NW-3716J	37	16	.060	.755	430 Lbs.	NW-3716SJ	37	16	No. 34	.060	.780	500 Lbs.
NW-4816J	48	16	.080	.895†	625 Lbs.	NW-4816SJ	48	16	No. 34	.080	.920†	700 Lbs.
NW-6016J	60	16	.080	.975†	750 Lbs.	NW-6016SJ	60	16	No. 34	.080	1.000†	830 Lbs.
NW-714 J **	7	14	.060	.435	150 Lbs.	NW-714 SJ	7	14	No. 34	.060	.465	180 Lbs.
NW-1214J **	12	14	.060	.555	240 Lbs.	NW-1214SJ	12	14	No. 34	.060	.580	280 Lbs.
NW-1914J **	19	14	.060	.645	370 Lbs.	NW-1914SJ	19	14	No. 34	.060	.670	420 Lbs.
NW-2714J **	27	14	.060	.760	515 Lbs.	NW-2714SJ	27	14	No. 34	.060	.785	575 Lbs.
NW-512 J **	5	12	.060	.460	175 Lbs.	NW-512 SJ	5	12	No. 34	.060	.485	210 Lbs.
NW-712 J **	7	12	.060	.500	225 Lbs.	NW-712 SJ	7	12	No. 34	.060	.525	265 Lbs.
NW-1212J **	12	12	.060	.680	375 Lbs.	NW-1212SJ	12	12	No. 34	.060	.705	430 Lbs.
NW-1912J **	19	12	.060	.745	560 Lbs.	NW-1912SJ	19	12	No. 34	.060	.770	625 Lbs.

**Not listed under UL styles 2343 or 2344 in these gauges.

**NATIONAL WIRE
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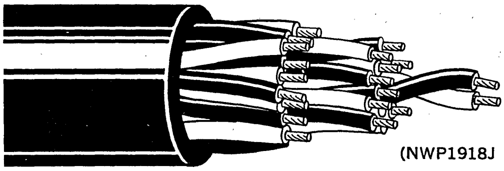
Heavy Duty
Signal & Control Cables
Twisted Pairs
(NWP Series)



(NWP1918J shown)

IN STOCK MIL-SPEC

U.L. LISTED

Identical to National's NW-Series Cables except offered as twisted pairs.

National Wire & Cable Corporation manufactures a complete line of multiple pair control cables. Conductors are of tinned copper strand with $\frac{1}{64}$" vinyl primary insulation for use up to 105° C per MIL-W-16878D Type C. Insulated for **1000** volts working voltage. Conductors are color coded using 10 standard basic colors, plus spiral tracers on white per table below.

All pairs are planetary cabled and contra-helically laid with a Mylar tape serve over the cable bundle. The overall jacket is a 105°C black vinyl plastic per MIL-I-631; or may be Neoprene to MIL-R-6855 Class 2 Grade 60 specification. (Neoprene at added cost and only available for non-U.L. applications).

SHIELDED CABLES

National Multiple Conductor SHIELDED CABLES are to the same specifications as above with addition of tinned copper braided shield over cable complex with 85-90% coverage to MIL-C-7078A.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 8,000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance wire to wire for a pair ranges from 27. to 40. mmfd/ft. Capacitance from both wires tied together measured to all else in common ranges from 35. to 60. mmfd/ft. dependent on gauge and position. Overall shield has negligible effect on W-W capacitance.
Insulation Leakage Res.:	200. megohms / 1000 ft. min. at 500 VDC from any conductor to all else in cable.
Sheath Leakage Res.:	10. megohms / 1000 ft. min. at 500 VDC from overall shield through sheath to outside world.
Usable Temp. Range:	Suitable for continuous use from +105°C to −55°C.
Cold Bending Capability:	All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

UNSHIELDED OVERALL						OVERALL SHIELDED					
PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT	PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT
NWP-722 J	7	22	.045	.470	90 Lbs.	NWP-722 SJ	7	22	.045	.495	135 Lbs.
NWP-1222J	12	22	.050	.600	150 Lbs.	NWP-1222SJ	12	22	.050	.630	206 Lbs.
NWP-1922J	19	22	.050	.700	200 Lbs.	NWP-1922SJ	19	22	.050	.730	260 Lbs.
NWP-2722J	27	22	.055	.830	280 Lbs.	NWP-2722SJ	27	22	.055	.860	358 Lbs.
NWP-3722J	37	22	.060	.960	370 Lbs.	NWP-3722SJ	37	22	.060	.990	460 Lbs.
NWP-4822J	48	22	.060	1.080	470 Lbs.	NWP-4822SJ	48	22	.060	1.110	570 Lbs.
NWP-6022J	60	22	.060	1.200	560 Lbs.	NWP-6022SJ	60	22	.060	1.230	675 Lbs.
NWP-720 J	7	20	.050	.520	120 Lbs.	NWP-720 SJ	7	20	.050	.550	170 Lbs.
NWP-1220J	12	20	.050	.660	200 Lbs.	NWP-1220SJ	12	20	.050	.690	260 Lbs.
NWP-1920J	19	20	.050	.800	290 Lbs.	NWP-1920SJ	19	20	.050	.830	355 Lbs.
NWP-2720J	27	20	.060	.960	420 Lbs.	NWP-2720SJ	27	20	.060	.990	510 Lbs.
NWP-3720J	37	20	.060	1.100	500 Lbs.	NWP-3720SJ	37	20	.060	1.130	603 Lbs.
NWP-4820J	48	20	.060	1.240	620 Lbs.	NWP-4820SJ	48	20	.060	1.270	735 Lbs.
NWP-6020J	60	20	.060	1.380	750 Lbs.	NWP-6020SJ	60	20	.060	1.410	880 Lbs.
NWP-718 J	7	18	.050	.580	150 Lbs.	NWP-718 SJ	7	18	.050	.610	205 Lbs.
NWP-1218J	12	18	.050	.740	290 Lbs.	NWP-1218SJ	12	18	.050	.770	360 Lbs.
NWP-1918J	19	18	.060	.920	400 Lbs.	NWP-1918SJ	19	18	.060	.950	487 Lbs.
NWP-2718J	27	18	.060	1.080	560 Lbs.	NWP-2718SJ	27	18	.060	1.110	660 Lbs.
NWP-3718J	37	18	.060	1.240	750 Lbs.	NWP-3718SJ	37	18	.060	1.270	865 Lbs.
NWP-4818J	48	18	.060	1.400	900 Lbs.	NWP-4818SJ	48	18	.060	1.430	1030 Lbs.
NWP-716 J	7	16	.050	.640	180 Lbs.	NWP-716 SJ	7	16	.050	.670	240 Lbs.
NWP-1216J	12	16	.060	.840	300 Lbs.	NWP-1216SJ	12	16	.060	.870	377 Lbs.
NWP-1916J	19	16	.060	1.020	430 Lbs.	NWP-1916SJ	19	16	.060	1.050	520 Lbs.
NWP-2716J	27	16	.060	1.200	720 Lbs.	NWP-2716SJ	27	16	.060	1.230	830 Lbs.
NWP-3716J	37	16	.060	1.380	1000 Lbs.	NWP-3716SJ	37	16	.060	1.410	1330 Lbs.

COLOR CODING USED ON TWISTED PAIRS

PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS
1.	WHITE WITH BLACK	11.	BLACK WITH RED	21.	BROWN WITH GREEN	31.	ORANGE WITH YELLOW	41.	GREEN WITH VIOLET	51.	WHT/BLK WITH GREEN
2.	WHITE WITH BROWN	12.	BLACK WITH ORANGE	22.	BROWN WITH BLUE	32.	ORANGE WITH GREEN	42.	GREEN WITH GRAY	52.	WHT/BLK WITH BLUE
3.	WHITE WITH RED	13.	BLACK WITH YELLOW	23.	BROWN WITH VIOLET	33.	ORANGE WITH BLUE	43.	BLUE WITH VIOLET	53.	WHT/BLK WITH VIOLET
4.	WHITE WITH ORANGE	14.	BLACK WITH GREEN	24.	BROWN WITH GRAY	34.	ORANGE WITH VIOLET	44.	BLUE WITH GREY	54.	WHT/BLK WITH GRAY
5.	WHITE WITH YELLOW	15.	BLACK WITH BLUE	25.	RED WITH ORANGE	35.	ORANGE WITH GRAY	45.	VIOLET WITH GRAY	55.	WHT/BRN WITH BLACK
6.	WHITE WITH GREEN	16.	BLACK WITH VIOLET	26.	RED WITH YELLOW	36.	YELLOW WITH GREEN	46.	WHT/BLK WITH BLACK	56.	WHT/BRN WITH BROWN
7.	WHITE WITH BLUE	17.	BLACK WITH GRAY	27.	RED WITH GREEN	37.	YELLOW WITH BLUE	47.	WHT/BLK WITH BROWN	57.	WHT/BRN WITH RED
8.	WHITE WITH VIOLET	18.	BROWN WITH RED	28.	RED WITH BLUE	38.	YELLOW WITH VIOLET	48.	WHT/BLK WITH RED	58.	WHT/BRN WITH ORANGE
9.	WHITE WITH GRAY	19.	BROWN WITH ORANGE	29.	RED WITH VIOLET	39.	YELLOW WITH GRAY	49.	WHT/BLK WITH ORANGE	59.	WHT/BRN WITH YELLOW
10	BLACK WITH BROWN	20.	BROWN WITH YELLOW	30.	RED WITH GRAY	40.	GREEN WITH BLUE	50.	WHT/BLK WITH YELLOW	60.	WHT/BRN WITH GREEN

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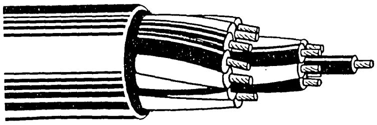
Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010″ wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.

All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

MIL-SPEC & U.L. LISTED STYLE 2464

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from −40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006″ greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED SINGLES

Conductor sizes 28, 26, 24, 22 are 7 strand. All others 19 strand.

UNSHIELDED CABLES							OVERALL SHIELDED CABLES						
Part No.	**No. Cond.**	**Cond. AWG**	**Cond. Diam.**	**Jkt. Wall**	**Nom. O.D.**	**Wght. LB/M'**	**Part No.**	**No. Cond.**	**Cond. AWG**	**Cond. Diam.**	**Jkt. Wall**	**Nom. O.D.**	**Wght. LB/M'**
NQ-228 J	2	28	.034	.031	.135	8	NQ-228 SJ	2	28	.034	.031	.159	16
NQ-328 J	3	28	.034	.031	.142	9	NQ-328 SJ	3	28	.034	.031	.165	17
NQ-428 J	4	28	.034	.031	.150	11	NQ-428 SJ	4	28	.034	.031	.173	20
NQ-528 J	5	28	.034	.031	.161	12	NQ-528 SJ	5	28	.034	.031	.184	21
NQ-628 J	6	28	.034	.031	.171	13	NQ-628 SJ	6	28	.034	.031	.194	23
NQ-728 J	7	28	.034	.031	.171	14	NQ-728 SJ	7	28	.034	.031	.194	24
NQ-828 J	8	28	.034	.031	.196	19	NQ-828 SJ	8	28	.034	.031	.219	31
NQ-928 J	9	28	.034	.031	.206	22	NQ-928 SJ	9	28	.034	.031	.229	35
NQ-1028 J	10	28	.034	.031	.206	23	NQ-1028SJ	10	28	.034	.031	.229	36
NQ-1228 J	12	28	.034	.031	.212	25	NQ-1228SJ	12	28	.034	.031	.235	38
NQ-1528 J	15	28	.034	.031	.231	28	NQ-1528SJ	15	28	.034	.031	.254	42
NQ-1928 J	19	28	.034	.031	.241	33	NQ-1928SJ	19	28	.034	.031	.264	48
NQ-2728 J	27	28	.034	.031	.282	42	NQ-2728SJ	27	28	.034	.031	.305	60
NQ-3728 J	37	28	.034	.031	.311	55	NQ-3728SJ	37	28	.034	.031	.333	75
NQ-226 J	2	26	.038	.031	.144	9	NQ-226 SJ	2	26	.038	.031	.167	17
NQ-326 J	3	26	.038	.031	.150	11	NQ-326 SJ	3	26	.038	.031	.173	20
NQ-426 J	4	26	.038	.031	.160	13	NQ-426 SJ	4	26	.038	.031	.183	22
NQ-526 J	5	26	.038	.031	.171	15	NQ-526 SJ	5	26	.038	.031	.194	25
NQ-626 J	6	26	.038	.031	.183	17	NQ-626 SJ	6	26	.038	.031	.205	28
NQ-726 J	7	26	.038	.031	.183	18	NQ-726 SJ	7	26	.038	.031	.205	29
NQ-826 J	8	26	.038	.031	.210	23	NQ-826 SJ	8	26	.038	.031	.233	36
NQ-926 J	9	26	.038	.031	.222	25	NQ-926 SJ	9	26	.038	.031	.245	39
NQ-1026 J	10	26	.038	.031	.222	26	NQ-1026SJ	10	26	.038	.031	.245	40
NQ-1226 J	12	26	.038	.031	.228	30	NQ-1226SJ	12	26	.038	.031	.251	44
NQ-1526 J	15	26	.038	.031	.249	35	NQ-1526SJ	15	26	.038	.031	.272	51
NQ-1926 J	19	26	.038	.031	.261	42	NQ-1926SJ	19	26	.038	.031	.284	58
NQ-2726 J	27	26	.038	.031	.306	55	NQ-2726SJ	27	26	.038	.031	.329	75
NQ-3726 J	37	26	.038	.031	.339	70	NQ-3726SJ	37	26	.038	.031	.362	92
NQ-4826 J	48	26	.038	.031	.384	92	NQ-4826SJ	48	26	.038	.031	.407	117

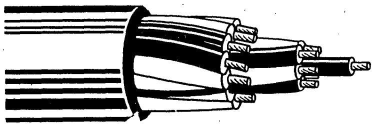
(continued on following page)

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

MIL-SPEC & U.L. LISTED

STYLE 2464

MULTI-CONDUCTOR STOCK CABLED SINGLES continued from previous page.

UNSHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 J	2	24	.043	.031	.154	11
NQ-324 J	3	24	.043	.031	.161	13
NQ-424 J	4	24	.043	.031	.172	15
NQ-524 J	5	24	.043	.031	.185	18
NQ-624 J	6	24	.043	.031	.198	21
NQ-724 J	7	24	.043	.031	.198	23
NQ-824 J	8	24	.043	.031	.229	27
NQ-924 J	9	24	.043	.031	.242	30
NQ-1024 J	10	24	.043	.031	.242	32
NQ-1224 J	12	24	.043	.031	.249	37
NQ-1524 J	15	24	.043	.031	.273	44
NQ-1924 J	19	24	.043	.031	.286	53
NQ-2724 J	27	24	.043	.031	.337	70
NQ-3724 J	37	24	.043	.031	.374	93
NQ-4824 J	48	24	.043	.031	.425	120
NQ-6024 J	60	24	.043	.031	.462	145
NQ-222 J	2	22	.050	.031	.166	13
NQ-322 J	3	22	.050	.031	.174	17
NQ-422 J	4	22	.050	.031	.186	20
NQ-522 J	5	22	.050	.031	.201	25
NQ-622 J	6	22	.050	.031	.216	28
NQ-722 J	7	22	.050	.031	.216	31
NQ-822 J	8	22	.050	.031	.251	36
NQ-922 J	9	22	.050	.031	.266	40
NQ-1022 J	10	22	.050	.031	.266	43
NQ-1222 J	12	22	.050	.031	.274	50
NQ-1522 J	15	22	.050	.031	.301	60
NQ-1922 J	19	22	.050	.031	.316	73
NQ-2722 J	27	22	.050	.031	.374	100
NQ-3722 J	37	22	.050	.031	.416	142
NQ-4822 J	48	22	.050	.031	.474	169
NQ-6022 J	60	22	.050	.031	.590	210
NQ-220 J	2	20	.057	.031	.182	17
NQ-320 J	3	20	.057	.031	.191	23
NQ-420 J	4	20	.057	.031	.205	28
NQ-520 J	5	20	.057	.031	.223	33
NQ-620 J	6	20	.057	.031	.240	39
NQ-720 J	7	20	.057	.031	.240	43
NQ-820 J	8	20	.057	.031	.281	51
NQ-920 J	9	20	.057	.031	.298	55
NQ-1020 J	10	20	.057	.031	.298	60
NQ-1220 J	12	20	.057	.031	.307	70
NQ-1520 J	15	20	.057	.031	.339	85
NQ-1920 J	19	20	.057	.031	.356	103
NQ-2720 J	27	20	.057	.031	.423	143
NQ-3720 J	37	20	.057	.031	.472	190
NQ-218 J	2	18	.068	.031	.202	23
NQ-318 J	3	18	.068	.031	.213	29
NQ-418 J	4	18	.068	.031	.229	37
NQ-518 J	5	18	.068	.031	.250	44
NQ-618 J	6	18	.068	.031	.270	52
NQ-718 J	7	18	.068	.031	.270	59
NQ-818 J	8	18	.068	.031	.318	68
NQ-918 J	9	18	.068	.031	.338	75
NQ-1018 J	10	18	.068	.031	.338	82
NQ-1218 J	12	18	.068	.031	.349	96
NQ-1518 J	15	18	.068	.031	.386	117
NQ-1918 J	19	18	.068	.031	.406	144
NQ-2718 J	27	18	.068	.031	.484	206

OVERALL SHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 SJ	2	24	.043	.031	.177	20
NQ-324 SJ	3	24	.043	.031	.184	22
NQ-424 SJ	4	24	.043	.031	.195	25
NQ-524 SJ	5	24	.043	.031	.208	29
NQ-624 SJ	6	24	.043	.031	.221	33
NQ-724 SJ	7	24	.043	.031	.221	35
NQ-824 SJ	8	24	.043	.031	.252	41
NQ-924 SJ	9	24	.043	.031	.265	45
NQ-1024SJ	10	24	.043	.031	.265	47
NQ-1224SJ	12	24	.043	.031	.272	53
NQ-1524SJ	15	24	.043	.031	.296	61
NQ-1924SJ	19	24	.043	.031	.309	71
NQ-2724SJ	27	24	.043	.031	.360	92
NQ-3724SJ	37	24	.043	.031	.397	118
NQ-4824SJ	48	24	.043	.031	.453	148
NQ-6024SJ	60	24	.043	.031	.490	176
NQ-222 SJ	2	22	.050	.031	.189	23
NQ-322 SJ	3	22	.050	.031	.197	27
NQ-422 SJ	4	22	.050	.031	.209	31
NQ-522 SJ	5	22	.050	.031	.224	37
NQ-622 SJ	6	22	.050	.031	.239	41
NQ-722 SJ	7	22	.050	.031	.239	44
NQ-822 SJ	8	22	.050	.031	.274	52
NQ-922 SJ	9	22	.050	.031	.289	57
NQ-1022SJ	10	22	.050	.031	.289	60
NQ-1222SJ	12	22	.050	.031	.297	67
NQ-1522SJ	15	22	.050	.031	.324	79
NQ-1922SJ	19	22	.050	.031	.339	93
NQ-2722SJ	27	22	.050	.031	.397	125
NQ-3722SJ	37	22	.050	.031	.434	169
NQ-4822SJ	48	22	.050	.031	.502	201
NQ-6022SJ	60	22	.050	.031	.618	245
NQ-220 SJ	2	20	.057	.031	.205	28
NQ-320 SJ	3	20	.057	.031	.214	35
NQ-420 SJ	4	20	.057	.031	.228	41
NQ-520 SJ	5	20	.057	.031	.246	47
NQ-620 SJ	6	20	.057	.031	.263	54
NQ-720 SJ	7	20	.057	.031	.263	58
NQ-820 SJ	8	20	.057	.031	.304	69
NQ-920 SJ	9	20	.057	.031	.321	74
NQ-1020SJ	10	20	.057	.031	.321	79
NQ-1220SJ	12	20	.057	.031	.330	90
NQ-1520SJ	15	20	.057	.031	.362	107
NQ-1920SJ	19	20	.057	.031	.379	126
NQ-2720SJ	27	20	.057	.031	.451	171
NQ-3720SJ	37	20	.057	.031	.500	221
NQ-218 SJ	2	18	.068	.031	.225	35
NQ-318 SJ	3	18	.068	.031	.236	42
NQ-418 SJ	4	18	.068	.031	.252	51
NQ-518 SJ	5	18	.068	.031	.273	60
NQ-618 SJ	6	18	.068	.031	.293	69
NQ-718 SJ	7	18	.068	.031	.293	76
NQ-818 SJ	8	18	.068	.031	.341	88
NQ-918 SJ	9	18	.068	.031	.361	97
NQ-1018SJ	10	18	.068	.031	.361	104
NQ-1218SJ	12	18	.068	.031	.372	119
NQ-1518SJ	15	18	.068	.031	.409	142
NQ-1918SJ	19	18	.068	.031	.434	171
NQ-2718SJ	27	18	.068	.031	.513	238

NATIONAL WIRE
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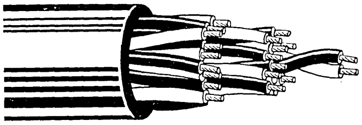
Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010″ wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.

All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

** Jacket material is military rated for +105°C; meets MIL-I-631, Class F.

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from −40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006″ greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED PAIRS

UNSHIELDED CABLES						
No. Part	No. of Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O/A Diam.	LB/M' Wght.
NQP- 228J	2	28	.034	.031	.206	15
NQP- 328J	3	28	.034	.031	.217	16
NQP- 428J	4	28	.034	.031	.234	20
NQP- 528J	5	28	.034	.031	.255	23
NQP- 628J	6	28	.034	.031	.276	29
NQP- 728J	7	28	.034	.031	.276	28
NQP- 828J	8	28	.034	.031	.325	34
NQP- 928J	9	28	.034	.031	.346	41
NQP-1028J	10	28	.034	.031	.346	39
NQP-1228J	12	28	.034	.031	.357	43
NQP-1528J	15	28	.034	.031	.395	55
NQP-1928J	19	28	.034	.031	.416	61
NQP- 226J	2	26	.038	.031	.222	20
NQP- 326J	3	26	.038	.031	.234	21
NQP- 426J	4	26	.038	.031	.253	26
NQP- 526J	5	26	.038	.031	.277	34
NQP- 626J	6	26	.038	.031	.300	37
NQP- 726J	7	26	.038	.031	.300	38
NQP- 826J	8	26	.038	.031	.355	52
NQP- 926J	9	26	.038	.031	.370	60
NQP-1026J	10	26	.038	.031	.370	51
NQP-1226J	12	26	.038	.031	.382	59
NQP-1526J	15	26	.038	.031	.420	75
NQP-1926J	19	26	.038	.031	.441	85
NQP-2726J	27	26	.038	.031	.530	115

OVERALL SHIELDED CABLES						
Part No.	Pairs No. of	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O/A Diam.	LB/M' Wght.
NQP- 228SJ	2	28	.034	.031	.229	28
NQP- 328SJ	3	28	.034	.031	.240	29
NQP- 428SJ	4	28	.034	.031	.257	35
NQP- 528SJ	5	28	.034	.031	.278	37
NQP- 628SJ	6	28	.034	.031	.299	46
NQP- 728SJ	7	28	.034	.031	.299	45
NQP- 828SJ	8	28	.034	.031	.348	55
NQP- 928SJ	9	28	.034	.031	.369	63
NQP-1028SJ	10	28	.034	.031	.369	61
NQP-1228SJ	12	28	.034	.031	.380	66
NQP-1528SJ	15	28	.034	.031	.423	81
NQP-1928SJ	19	28	.034	.031	.444	88
NQP- 226SJ	2	26	.038	.031	.245	34
NQP- 326SJ	3	26	.038	.031	.257	36
NQP- 426SJ	4	26	.038	.031	.276	42
NQP- 526SJ	5	26	.038	.031	.300	52
NQP- 626SJ	6	26	.038	.031	.323	56
NQP- 726SJ	7	26	.038	.031	.323	57
NQP- 826SJ	8	26	.038	.031	.378	75
NQP- 926SJ	9	26	.038	.031	.393	85
NQP-1026SJ	10	26	.038	.031	.393	76
NQP-1226SJ	12	26	.038	.031	.405	84
NQP-1526SJ	15	26	.038	.031	.448	103
NQP-1926SJ	19	26	.038	.031	.469	115
NQP-2726SJ	27	26	.038	.031	.558	152

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NATIONAL WIRE
AND CABLE CORPORATION

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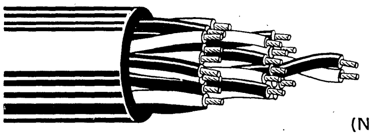
Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

MULTI-CONDUCTOR STOCK CABLED PAIRS

continued from previous page.

UNSHIELDED CABLES							OVERALL SHIELDED CABLES						
Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'	Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQP- 224J	2	24	.043	.031	.216	24	NQP- 224SJ	2	24	.043	.031	.239	39
NQP- 324J	3	24	.043	.031	.237	26	NQP- 324SJ	3	24	.043	.031	.260	42
NQP- 424J	4	24	.043	.031	.256	32	NQP- 424SJ	4	24	.043	.031	.279	50
NQP- 524J	5	24	.043	.031	.280	40	NQP- 524SJ	5	24	.043	.031	.303	59
NQP- 624J	6	24	.043	.031	.312	46	NQP- 624SJ	6	24	.043	.031	.335	67
NQP- 724J	7	24	.043	.031	.312	47	NQP- 724SJ	7	24	.043	.031	.335	68
NQP- 824J	8	24	.043	.031	.365	65	NQP- 824SJ	8	24	.043	.031	.390	91
NQP- 924J	9	24	.043	.031	.383	75	NQP- 924SJ	9	24	.043	.031	.406	102
NQP-1024J	10	24	.043	.031	.383	65	NQP-1024SJ	10	24	.043	.031	.406	92
NQP-1224J	12	24	.043	.031	.395	74	NQP-1224SJ	12	24	.043	.031	.418	102
NQP-1524J	15	24	.043	.031	.444	95	NQP-1524SJ	15	24	.043	.031	.467	127
NQP-1924J	19	24	.043	.031	.462	108	NQP-1924SJ	19	24	.043	.031	.485	142
NQP-2724J	27	24	.043	.031	.554	141	NQP-2724SJ	27	24	.043	.031	.577	185
NQP- 222J	2	22	.050	.031	.236	30	NQP- 222SJ	2	22	.050	.031	.259	47
NQP- 322J	3	22	.050	.031	.260	33	NQP- 322SJ	3	22	.050	.031	.283	51
NQP- 422J	4	22	.050	.031	.282	42	NQP- 422SJ	4	22	.050	.031	.305	62
NQP- 522J	5	22	.050	.031	.309	51	NQP- 522SJ	5	22	.050	.031	.332	73
NQP- 622J	6	22	.050	.031	.346	62	NQP- 622SJ	6	22	.050	.031	.369	86
NQP- 722J	7	22	.050	.031	.346	64	NQP- 722SJ	7	22	.050	.031	.369	88
NQP- 822J	8	22	.050	.031	.406	87	NQP- 822SJ	8	22	.050	.031	.430	116
NQP- 922J	9	22	.050	.031	.426	100	NQP- 922SJ	9	22	.050	.031	.449	131
NQP-1022J	10	22	.050	.031	.426	88	NQP-1022SJ	10	22	.050	.031	.449	119
NQP-1222J	12	22	.050	.031	.440	102	NQP-1222SJ	12	22	.050	.031	.463	134
NQP-1522J	15	22	.050	.031	.496	131	NQP-1522SJ	15	22	.050	.031	.519	167
NQP-1922J	19	22	.050	.031	.516	143	NQP-1922SJ	19	22	.050	.031	.539	180
NQP-2722J	27	22	.050	.031	.620	198	NQP-2722SJ	27	22	.050	.031	.645	245
NQP- 220J	2	20	.057	.031	.263	39	NQP- 220SJ	2	20	.057	.031	.286	58
NQP- 320J	3	20	.057	.031	.292	45	NQP- 320SJ	3	20	.057	.031	.315	65
NQP- 420J	4	20	.057	.031	.312	57	NQP- 420SJ	4	20	.057	.031	.335	79
NQP- 520J	5	20	.057	.031	.348	70	NQP- 520SJ	5	20	.057	.031	.371	95
NQP- 620J	6	20	.057	.031	.391	85	NQP- 620SJ	6	20	.057	.031	.414	112
NQP- 720J	7	20	.057	.031	.391	89	NQP- 720SJ	7	20	.057	.031	.414	116
NQP- 820J	8	20	.057	.031	.460	121	NQP- 820SJ	8	20	.057	.031	.483	154
NQP- 920J	9	20	.057	.031	.484	139	NQP- 920SJ	9	20	.057	.031	.507	174
NQP-1020J	10	20	.057	.031	.484	124	NQP-1020SJ	10	20	.057	.031	.507	159
NQP-1220J	12	20	.057	.031	.500	144	NQP-1220SJ	12	20	.057	.031	.525	181
NQP-1520J	15	20	.057	.031	.565	176	NQP-1520SJ	15	20	.057	.031	.588	216
NQP-1920J	19	20	.057	.031	.588	205	NQP-1920SJ	19	20	.057	.031	.615	248
NQP- 218J	2	18	.068	.031	.297	52	NQP- 218SJ	2	18	.068	.031	.320	74
NQP- 318J	3	18	.068	.031	.330	60	NQP- 318SJ	3	18	.068	.031	.353	83
NQP- 418J	4	18	.068	.031	.360	77	NQP- 418SJ	4	18	.068	.031	.383	103
NQP- 518J	5	18	.068	.031	.396	96	NQP- 518SJ	5	18	.068	.031	.420	124
NQP- 618J	6	18	.068	.031	.447	117	NQP- 618SJ	6	18	.068	.031	.475	148
NQP- 718J	7	18	.068	.031	.447	122	NQP- 718SJ	7	18	.068	.031	.475	153
NQP-1218J	12	18	.068	.031	.575	188	NQP-1218SJ	12	18	.068	.031	.600	230

These pages are only a partial reproduction of our master catalog. If our "standard" items won't meet your application, let us **CUSTOM DESIGN** and manufacture exactly what you need. Write or call our customer services dept. for technical assistance.

NATIONAL WIRE AND CABLE CORPORATION

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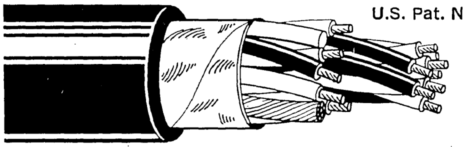
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

IN STOCK

Digital Data Transmission Cables

(D-200 Series)

UL AWM STYLE 2835



U.S. Pat. No. 3489844

Grey (Extra Flexible) or Black Vinyl Jackets
D-200 XX (XX designates number of pairs)
D-200 XXRF (RF designates braided shield over aluminum mylar foil shield) △

LOW VOLTAGE COMPUTER CABLE

THE D-200 SERIES CABLES ARE MULTIPLE-PAIR FLEXIBLE CABLES DESIGNED FOR TRANSMISSION OF DIGITAL PULSE SIGNALS BETWEEN A COMPUTER AND ITS PERIPHERAL EQUIPMENT.

DESIGN FEATURES OF THE D-200 SERIES DIGITAL DATA CABLE

Unlike conventional flexible cable construction, the primary features offered by the D-200 series data cable are the high and accurately controlled characteristic impedance of every pair, regardless of its position in the cable and special geometry chosen to reduce crosstalk.

ADVANTAGES

1. Less crosstalk and noise from mismatched loads, due to proper matching.
2. Uniform light loading on drivers allows direct I.C. drive, accurate prediction of current demands from power supply, and driver power dissipation.
3. Proper load match reduces re-flection and inversion noise where driver end is not matched to line. (Typical of TTL.)
4. Special geometry and pair construction provides exceptionally close capacitance balance between pair wires, reducing differential crosstalk.

USAGE

We recommend use of balanced drive and differential-input line receivers for lowest crosstalk and best pulse reproduction, utilizing the 110 ohm balanced impedance of the pairs. With such a system, TTL speeds have been used on D-200 cable at 1 mc data rates over 1000 ft.

Where the system is single-ended drive and receive, all pairs exhibit the 78 ohm impedance. Since these line receivers cannot discriminate between noise and the desired signal, crosstalk limits the cable distance over which transmission is reliable. Typical runs for DTL having 50 ns risetimes are 200 ft. Where risetimes can be slowed to longer than 100 ns, run lengths are practical to 500 ft. Without differential line reception, runs over 500 ft are not recommended for D-200 cable due to external noise aspects.

The D-210 series cable are recommended for high noise or long-run application. (Utilizing individual shields.)

Although use of balanced drive and differential line reception will avoid most noise problems, there are some installations where the expected external noise is unknown but assumed to be very great. Here, the use of data cables having individually-shielded pairs may be considered as conservative engineering practice. The assurance of a lower received noise may justify the increased size, cost and risetime.

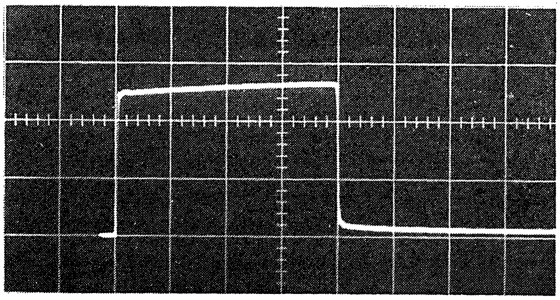
For these high noise-long run applications, Dynatronic Cable Engineering Corp has developed the D-210 series data cables. Electrical performance is essentially the same as the D-200 series cables, which use only an overall shield. △ An overall tinned-copper shield braid may be specified on either series by the suffix -RF on the part number. Standard D-200 shield is aluminum-mylar foil.

For runs of 1000-5000 ft. or where extra-fast output pulse risetime is required, we offer the D-220 series cable: a larger version of the D-200 series having improved transmission properties with sufficient mechanical strength for long pulls in conduit. Consult factory for technical data.

PULSE TRANSMISSION LOSS in D-series data cables causes a moderate amplitude loss, with definite rounding of the leading and trailing edges from 50% to 90% amplitude. The photos below (for a 1.25 megabit clock rate) show typical waveforms. The D-220 and D-222 series cables offer even lower losses than the D-200 or D-210 cables for long-run or fast-clocked applications.

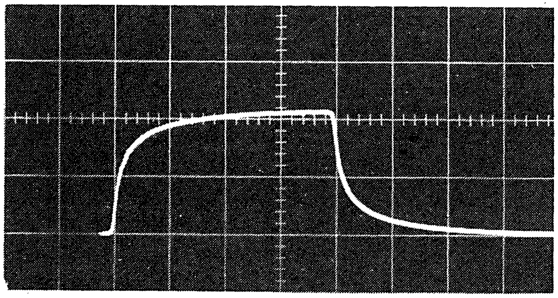
Contact our factory engineering staff for detailed pulse-shape versus distance information, or for special applications.

INPUT PULSE



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

OUTPUT PULSE at 500.FT.



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Motley or Steve Keith in our Engineering Dept.

NATIONAL WIRE
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Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569
Manufactured by our affiliate, Dynatronic Cable Engineering Corp.

Digital Data Transmission Cables (D-200 Series continued)

Low Voltage Computer Cable

UL AWM STYLE 2835

STANDARD DATA CABLE CONSTRUCTIONS—D-200 SERIES

Part No.						
Black Jacket	Extra Flexible Gray Jacket	No. of Pairs	Cond. AWG.	Delay NS/FT	Cable Diam.	Weight (Lbs. per M ft.)
D-200-4	D-200-4G	4	24	1.61	.315″	41.
D-200-7	D-200-7G	7	24	1.61	.410″	73.
D-200-12	D-200-12G	12	24	1.61	.455″	96.
D-200-15	D-200-15G	15	24	1.61	.510″	120.
D-200-20	D-200-20G	20	24	1.61	.635″	160.
D-200-24	D-200-24G	24	24	1.61	.660″	180.
D-200-27	D-200-27G	27	24	1.61	.690″	210.
D-200-30	D-200-30G	30	24	1.61	.710″	230.
D-200-33	D-200-33G	33	24	1.61	.750″	250.
D-200-42	D-200-42G	42	24	1.61	.840″	280.
D-200-50	D-200-50G	50	24	1.61	.910″	320.

TECHNICAL DATA

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	78. ohms ±4%
Capacitance	14. pf/ft.	21. pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	6 x cable diameter	

*One conductor of each pair tied to common.

STANDARD DATA CABLE CONSTRUCTIONS — D-210 SERIES INDIVIDUALLY SHIELDED DATA PAIRS

Part. No.	No. of Pairs	Z_o	Delay NS/FT	Cond. AWG.	Cable Diam.	Sheath
D-210-1	1	110.	1.61	24	.220	PVC
D-210-12	12	110.	1.61	24	.980	PVC
D-210-15	15	110.	1.61	24	1.06	PVC
D-210-20	20	110.	1.61	24	1.20	PVC
D-210-30	30	110.	1.61	24	1.42	PVC
D-210-40	40	110.	1.61	24	1.69	PVC
D-210-48	48	110.	1.61	24	1.76	PVC

TECHNICAL DATA

All items available in 50 ft. multiples.

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	63. ohms ±4%
Capacitance	14. pf/ft.	23.5 pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	9 x cable diameter	

**Both driven, one inverted. *One conductor of each pair tied to common.

We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Motley or Mr. Steve Keith in our Engineering Dept.

NATIONAL WIRE
AND CABLE CORPORATION

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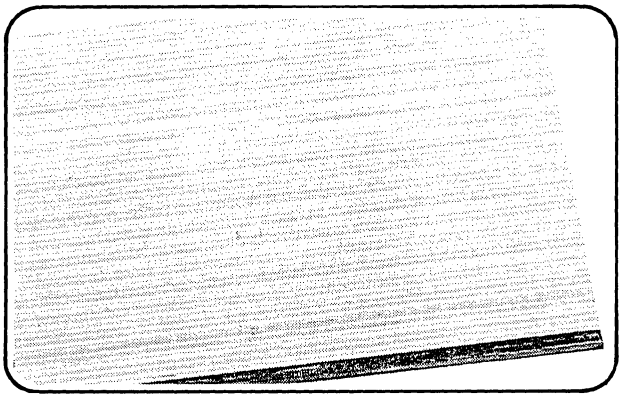
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569

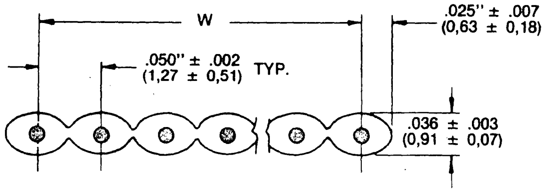
LAMINATED FLAT CABLES

GREY PVC LAMINATE

(NFG Series) UL Listed Style 2651



National Wire & Cable Corporation offers a wide variety of laminated flat cables, utilizing grey PVC insulation laminated around uninsulated stranded tinned copper conductors. The conductors are on .050" centers which make the cables compatible with most insulation displacement connectors (IDC). The cables are marked with one red edge to indicate conductor number one, and the laminate is applied in a manner to allow for simple conductor separation. Packaged in 100 foot lengths. Other lengths available on special request.



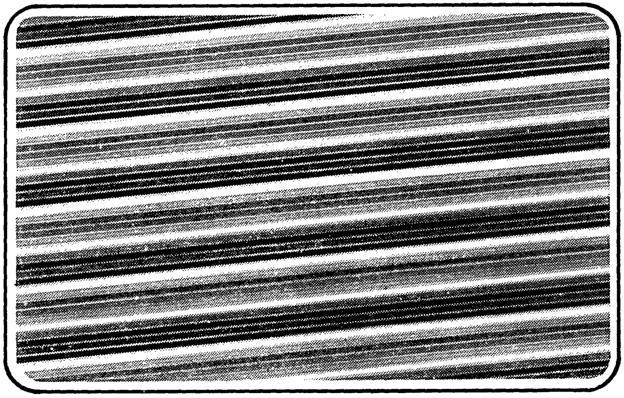
TECHNICAL DATA

Conductors:	28 AWG 7 x 36 Stranded Tinned Copper
Insulation:	Grey PVC
Cond. Spacing:	.050 ± .002
Cable Thickness:	.036 ± .003
Voltage Rating:	300V
Temp. Rating:	105 C
Impedance:	105 ohms Nom.
Capacitance:	14 pf/ft Nom.
Propagation Delay:	1.4 ns/ft Nom.

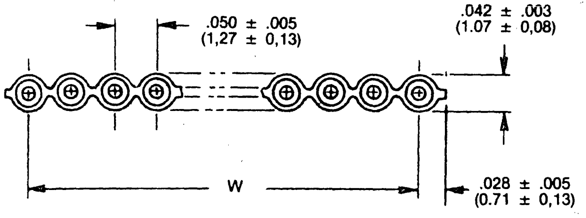
Part No.	No. Cond.	Width "W" In.
NFG-LU-10	10	.450 ± .007
NFG-LU-14	14	.650 ± .007
NFG-LU-16	16	.750 ± .011
NFG-LU-20	20	.950 ± .011
NFG-LU-24	24	1.150 ± .011
NFG-LU-25	25	1.200 ± .011
NFG-LU-26	26	1.250 ± .011
NFG-LU-34	34	1.650 ± .011
NFG-LU-37	37	1.800 ± .015
NFG-LU-40	40	1.950 ± .015
NFG-LU-50	50	2.450 ± .015
NFG-LU-60	60	2.950 ± .015
NFG-LU-64	64	3.150 ± .015

COLOR-CODED, CLEAR LAMINATE

(NFC Series) UL Listed Style 2697



National Wire & Cable Corporation offers a wide variety of flat cables, utilizing clear PVC insulation, laminated over preinsulated, stranded tinned copper conductors manufactured to UL Style 1061. The conductors are on .050" centers which make the cables compatible with most insulation displacement connectors (IDC). The preinsulated wires are color-coded for easy identification, and the clear laminate is applied in a manner to allow for simple conductor separation. Packaged in 100 foot lengths. Other lengths available on special request.



TECHNICAL DATA

Conductors:	28 AWG 7 x 36 Stranded Tinned Copper, UL Style 1061
Insulation:	PVC-Color-Coded Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray, White, Black (Repeat)
Laminate:	Clear PVC
Cond. Spacing:	.050" ± .005"
Cable Thickness:	.042" Nom.
Voltage Rating:	300V
Temp. Rating:	80 C
Impedance:	103 ohms Nom.
Capacitance:	15 pf/ft Nom.
Propagation Delay:	1.4 ns/ft Nom.

Part No.	No. Conds.	Width "W" In.
NFC-LI-10	10	.450 ± .007
NFC-LI-14	14	.650 ± .007
NFC-LI-16	16	.750 ± .011
NFC-LI-20	20	.950 ± .011
NFC-LI-24	24	1.150 ± .011
NFC-LI-25	25	1.200 ± .011
NFC-LI-26	26	1.250 ± .011
NFC-LI-34	34	1.650 ± .015
NFC-LI-37	37	1.800 ± .015
NFC-LI-40	40	1.950 ± .015
NFC-LI-50	50	2.550 ± .015
NFC-LI-60	60	2.950 ± .015
NFC-LI-64	64	3.150 ± .015

NATIONAL WIRE
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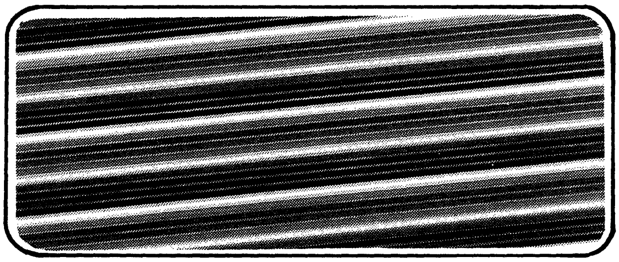
BONDED AND WOVEN FLAT CABLES

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, TLX: 181409, Fed. Stock Code H4-04569



National Wire and Cable Corporation offers a wide selection of bonded flat cables by bonding together preinsulated, stranded tinned copper conductors. This cable series is listed as Cable Style 2697, and can utilize any stranded PVC style of insulated wires. Stocked with UL1061 conductors, from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. Available in any number of conductors, providing total width does not exceed 4 inches. Packaged in 100 foot lengths.

BONDED FLAT CABLES

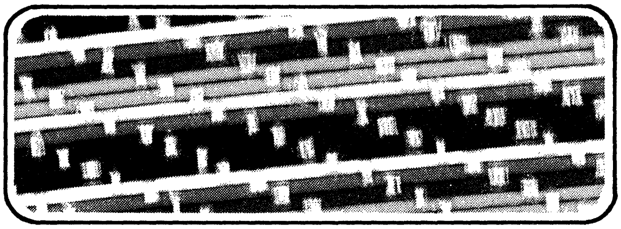
(NFBC Series)

UL Listed Style 2697

PART NUMBER GENERATION

NFBC 10 20 19 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.



National Wire and Cable Corporation offers a wide selection of woven flat cables by weaving together preinsulated, stranded tinned copper conductors. The weave is a twill type utilizing nylon, which allows conductors to move under flexing, creating a highly flexible cable. Stocked with UL1061 conductors from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. Available in any number of conductors providing total width does not exceed 3 inches. Packaged in 100 foot lengths.

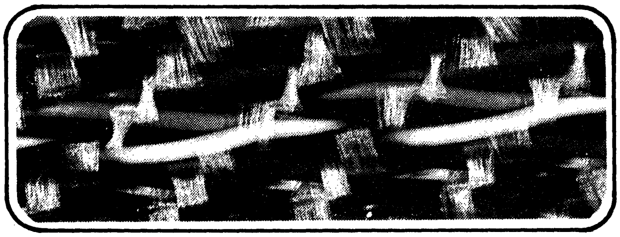
WOVEN FLAT CABLES, SINGLES

(NFWS Series)

PART NUMBER GENERATION

NFWS 20 26 7 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.



National Wire and Cable Corporation offers a wide selection of woven flat cables made with twisted pairs, by weaving together the preinsulated, stranded tinned copper conductor pairs. The weave is a twill type utilizing nylon, which allows the pairs to move under flexing, creating a highly flexible twisted pair cable. Stocked with UL1061 conductors from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. The common conductor in each pair is black. Available in any number of pairs, providing total width does not exceed 3 inches. Packaged in 100 foot lengths.

WOVEN FLAT CABLES, PAIRS

(NFWP Series)

PART NUMBER GENERATION

NFWP 12 24 7 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.

Color Code: BROWN, RED, ORANGE, YELLOW, GREEN, BLUE, VIOLET, GRAY, WHITE, BLACK (Repeat)

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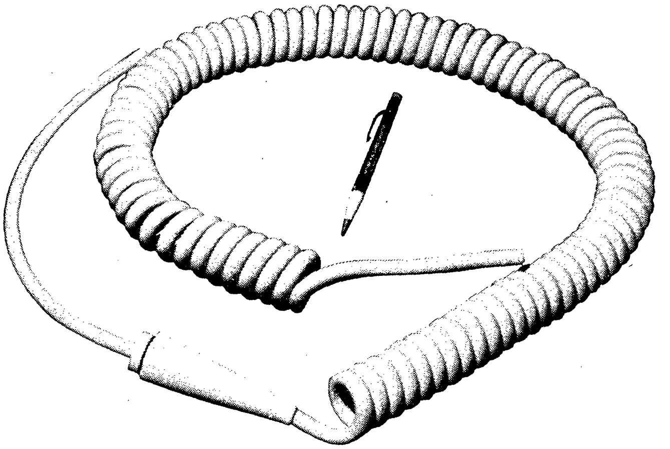
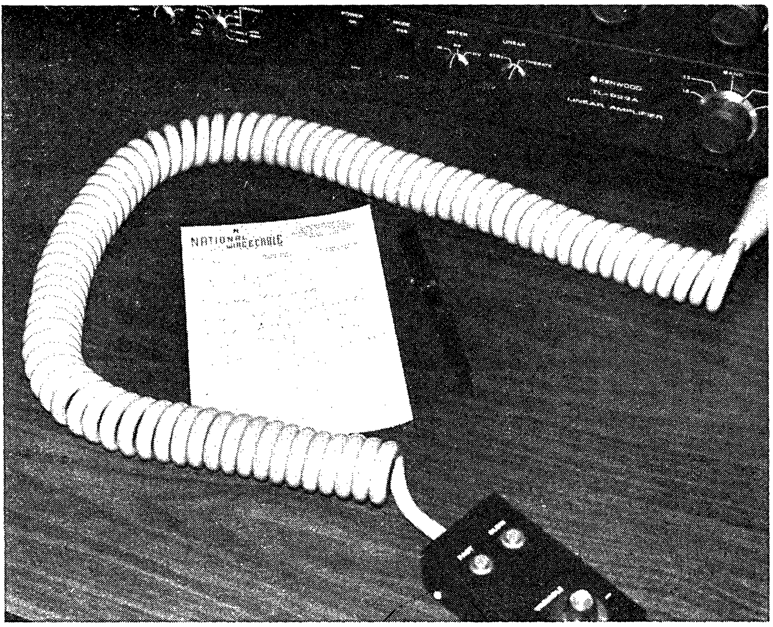
Coiled Instrumentation Cables for Custom Applications



Our new, automated coiling department is ready to design, and manufacture coiled instrumentation cables for your specific requirements. These cables are available in any number of conductors, and in gauge sizes 18 through 30 AWG. They are designed for high reliability, ultra-flexible long-life applications, as encountered in computer interconnects, bio-medical electronics, and optimum retractability, and general control cable use. Call our technical staff to discuss your custom application!



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NATIONAL CABLE
MOLDING CORPORATION

AN AFFILIATE OF NATIONAL WIRE & CABLE CORPORATION
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Molded Instrumentation Cables for all Types of Medical & Electronic Applications

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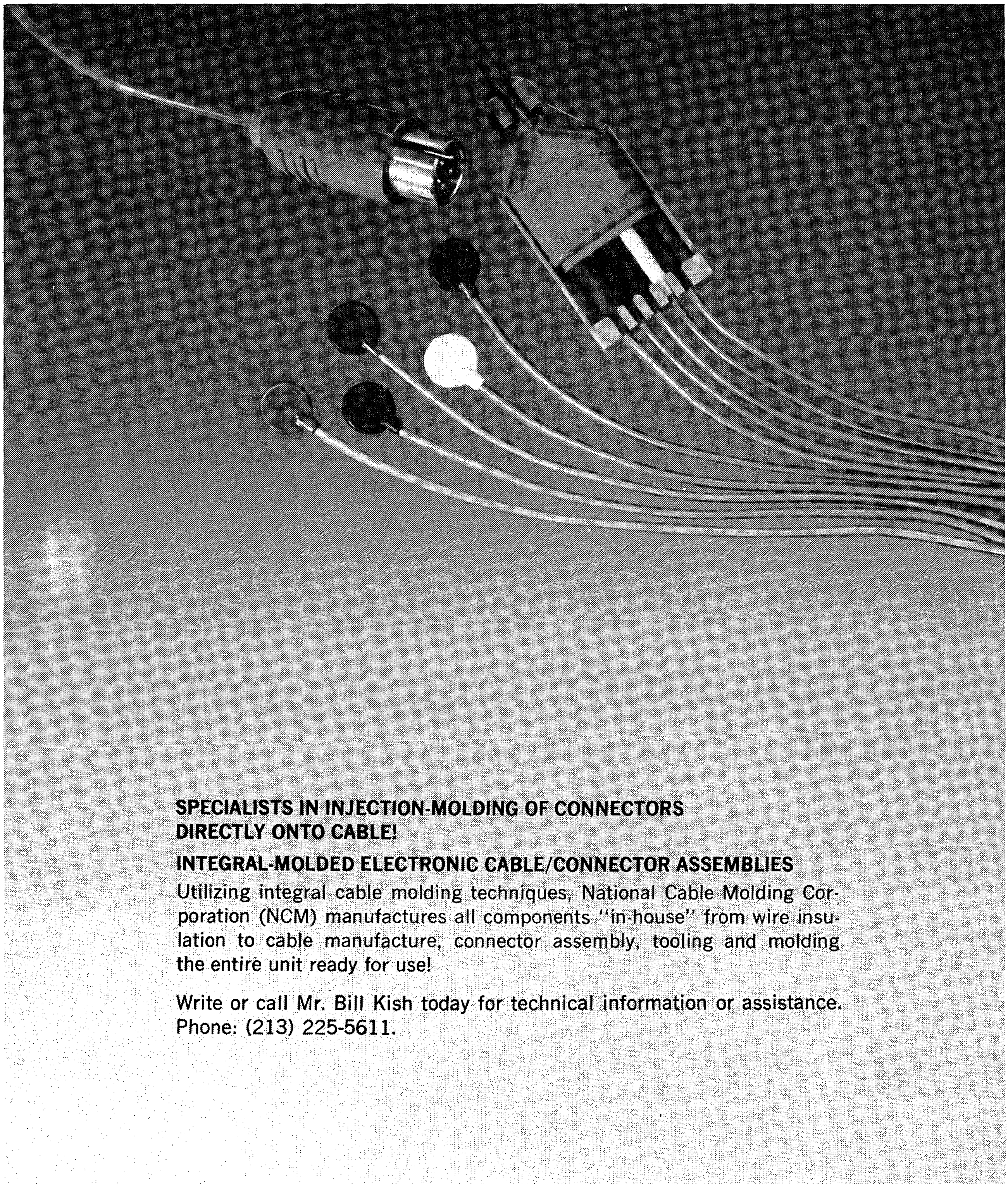

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INTEGRAL-MOLDED ELECTRONIC CABLE/CONNECTOR ASSEMBLIES

Utilizing integral cable molding techniques, National Cable Molding Corporation (NCM) manufactures all components "in-house" from wire insulation to cable manufacture, connector assembly, tooling and molding the entire unit ready for use!

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Heli-Tube®

Spirally Cut Expandable Plastic Cable Harness

Exceptional Features and uses include...
- **BUNDLES WIRES, CABLES, or HOSES FIRMLY BUT ALLOWS FLEXIBILITY**
- **RESISTS ABRASION & INSULATES**
- **DAMPENS VIBRATION**

This Heli-Tube is recognized under the Component Program of Underwriter's Laboratories, Inc.

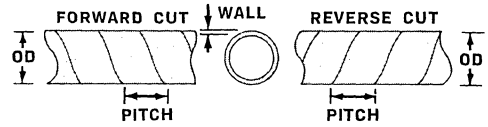
Standard Materials	Max. Oper. Temp.	Min. Oper. Temp.	Abrasion Resistance Lower Better mg loss per M cycles	Effect of Solvents	Effect of Acids	Effect of Alkalies	Flammability	Mil Spec. & Approvals
CLEAR POLYETHYLENE Low cost material . . . ideal for general applications. Not affected by ordinary solvents and extremely resistant to abrasion.	215°F 101°C	-105°F -76°C	22	None below 122°F 50°C	None	None	Flammable	Fed. Spec. LP390 MIL I 631D MIL P 26692
BLACK POLYETHYLENE Ultraviolet-resistant for outdoor use. This has the same qualities as Clear Polyethylene and, in addition, contains an ultraviolet absorber which permits it to be used in direct sunlight for long periods of time.	215°F 101°	-105°F -76°C	20	None below 122°F 50°C	None	None	Flammable	Fed. Spec. LP390 MIL I 631 D MIL P 26692
FIRE-RESISTANT POLYETHYLENE SELF EXTINGUISHING, yet has lower cost than Nylon or Teflon. Made of duPont White Rulan. (Also available in Black).	200°F 93°C	-1°F -19°C	27	None below 122°F 50°C	None	None	UL 94V-0	
NYLON Natural - Offers combination of light weight, temperature range, and high abrasion resistance. Self-extinguishing. Recommended for use in enclosed environments where possibility of fire exists. Even at temperatures beyond its operating range, or on exposure to flame, Nylon does not give off any toxic or irritating by-products. Nylon is six times as strong as Polyethylene.	250°F 121°C	-121°F -85°C	6-8	None	Satisfactory except for strong acids	None	UL 94V-2	MIL M-20693A Type I MIL M 22096 LP 410A
BLACK NYLON Has the same characteristics as Nylon Natural, but, in addition, has an ultraviolet absorber which permits use in direct sunlight. This Nylon is heat stabilized.	250°F 121°C	-121°F -85°	6-8	None	Satisfactory except for strong acids	None	UL 94V-2	MIL M-20693A Type II MIL M 22096 LP 410A
TEFLON Natural (TFE) - Has the widest temperature range. Can be used from -450°F to 500°F. Chemically inert. Non-flammable.	500°F 260°C	-450°F -85°C	7	None	None	None	Non-Flammable	MIL M-20693 AMS 3651B AMS 3653 AMS 3654 AMS 3655

Convenient Packaging

Heli-Tube
PAYOUT BOX
M. M. NEWMAN CORP.

Size	Spools Feet	Payout Box Feet
1/8″	100 or 500	
1/4″	100 or 500	250
3/8″	100 or 500	100
1/2″	100 or 500	50 or 100
3/4″	100 or 200	25 or 50
1″	100	200
Special Packaging Available		

TO ORDER please state size, material and spooling requirement.



Dimensions & Weights

Material	Part No.	Outside Dia.	Wall Thickness	Pitch Decimal	Max. Bundle Range	Weight Lbs./ M Ft.
Clear Polyethylene	HT 1/8C	.125	.032	.187	1/16 to 1/2	4
	HT 1/4C2	.250	.035	.375	3/16 to 2	9
	HT 1/4C	.250	.045	.375	3/16 to 2	12
	HT 3/8C	.375	.052	.438	5/16 to 3	22
	HT 1/2C	.500	.062	.563	3/8 to 4	35
	HT 3/4C	.750	.065	.750	3/4 to 5	58
	HT 1C	1.00	.095	1.00	1 to 7	105
Black Polyethylene Ultraviolet-Resistant for Outdoor Use	HT 1/8UR	.125	.032	.187	1/16 to 1/2	4
	HT 1/4UR	.250	.045	.375	3/16 to 2	12
	HT3/8UR	.375	.052	.438	5/16 to 3	22
	HT 1/2UR	.500	.062	.500	3/8 to 4	35
	HT 3/4UR	.750	.065	.750	3/4 to 5	58
	HT 1UR	1.00	.095	1.00	1 to 7	105
Fire-Resistant White Rulan	HT 1/8FR	.125	.032	.187	1/16 to 1/2	6
	HT 1/4FR	.250	.045	.375	3/16 to 2	17
	HT 3/8FR	.375	.052	.438	5/16 to 3	29
	HT 1/2FR	.500	.062	.563	3/8 to 4	52
	HT 3/4FR	.750	.065	.750	3/4 to 5	85
	HT 1FR	1.00	.095	1.00	1 to 7	156
Fire-Resistant Black Rulan	HT 1/4FR-B	.250	.045	.375	3/16 to 2	17
	HT 1/2FR-B	.500	.062	.563	3/8 to 4	52
Nylon	HT 1/8N	.125	.015	.187	1/16 to 1/2	3
	HT 1/4N	.250	.025	.375	3/16 to 2	9
	HT 3/8N	.375	.035	.438	5/16 to 3	18
	HT 1/2N	.500	.035	.500	3/8 to 4	25
	HT 3/4N	.750	.032	.750	1/2 to 5	38
	HT 1N	1.00	.032	1.00	1 to 7	50
Black Nylon Heat Stabilized	HT 1/8N-B	.125	.015	.187	1/16 to 1/2	3
	HT 1/4N-B	.250	.025	.375	3/16 to 2	9
	HT 3/8N-B	.375	.035	.438	5/16 to 3	18
	HT 1/2N-B	.500	.035	.500	3/8 to 4	25
	HT 3/4N-B	.750	.032	.750	1/2 to 5	38
	HT 1N-B	1.00	.032	1.00	1 to 7	50
Teflon	HT 1/8T1	.125	.030	.187	1/16 to 1/2	9.4
	HT 1/8T2	.125	.020	.187	1/16 to 1/2	7.4
	HT 3/16T	.187	.030	.250	1/8 to 1-1/12	15.2
	HT 1/4T	.250	.030	.375	3/16 to 2	20.7
	HT 3/8T	.375	.030	.438	5/16 to 2-1/2	36.5
	HT 1/2T	.500	.030	.500	3/8 to 3	50.5
	HT 3/4T	.750	.032	.750	1/2 to 4	81.3
	HT 1T	1.00	.040	1.00	3/4 to 5	175.0

Heli-Tube Division **M. M. NEWMAN**
CORPORATION
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MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 85/86 EDITION OF EEM

Abbreviations/Acronyms	**A**•1166, **B**•1012, **C**•1028, **D**•1016
ASCII Code	**D**•1087
Batteries, Product Selection Guide	**D**•1413
Batteries & Fuel Cells, Characteristics	**D**•1430
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide	**C**•1003
Capacitors, Basic Formulas	**A**•1093
Capacitors, Miniglossary	**A**•1066
Capacitors, Product Selection Guide	**A**•1003
Circuit Boards (Printed) Product Selection Guide	**C**•1099
Coils, Chokes, Inductors, Product Selection Guide	**A**•1205
Conductors, Maximum Current Capacity of Copper & Aluminum	**C**•1863
Connectors, Miniglossary	**C**•1129
Connectors, Terminals, & Sockets, Product Selection Guide	**C**•1105
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Gude	**A**•1309
Delay Lines, Product Selection Guide	**A**•1459
Discrete Semiconductors, Product Selection Guide	**A**•2067
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**B**•1015
EBCDIC Code	**D**•1092
Encapsulation, Miniglossary	**C**•1086
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**C**•1623
Filters, Product Selection Guide	**A**•1583
Instruments, Graphic Recording Product Selection Guide	**D**•1401
Instruments, Panel Meters, Product Selection Guide	**D**•1329
Instruments, Test & Measuring Product Selection Guide	**D**•1175
Interconnection Systems, Product Selection Guide	**C**•1699
Keyboards & Keypads, Product Selection Guide	**B**•1705
Logofinder & Trademark Directories	**B**•901
Microwave Components, Product Selection Guide	**A**•1701
Military Qualified Products Lists	**B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide	**B**•1129
Opto Semiconductors, Miniglossary	**B**•1214
Oscilloscopes, Product Selection Guide	**D**•1385
Panel Hardware, Product Selection Guide	**C**•1589
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide	**A**•1991
Power Supplies, Miniglossary	**D**•1462
Power Supplies, AC, Product Selection Guide	**D**•1877
Power Supplies, DC, Product Selection Guide	**D**•1447
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide	**B**•1225
Relay Contact Forms	**B**•1317
Relays, Electromechanical, Miniglossary	**B**•1308
Relays, Product Selection Guide	**B**•1261
Resistor Color Codes	**A**•1828
Resistors, Product Selection Guide	**A**•1785
Servo Components, Miniglossary	**D**•1985
Solenoids, Product Selection Guide	**B**•1463
Switches, Product Selection Guide	**B**•1477
Thermal Components, Product Selection Guide	**B**•1741
Thermal Conductivity of Dielectrics at Room Temperature	**B**•1744
Thyristors/High Power Diodes, Miniglossary	**A**•2076
Transducers & Encoders, Product Selection Guide	**B**•1777
Transformers, Product Selection Guide	**A**•2099
Wire & Cable, Product Selection Guide	**C**•1743
Wire Gauges—Diameter, Area, Copper Weight	**C**•1844

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- *Nylon*
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- *Glass*
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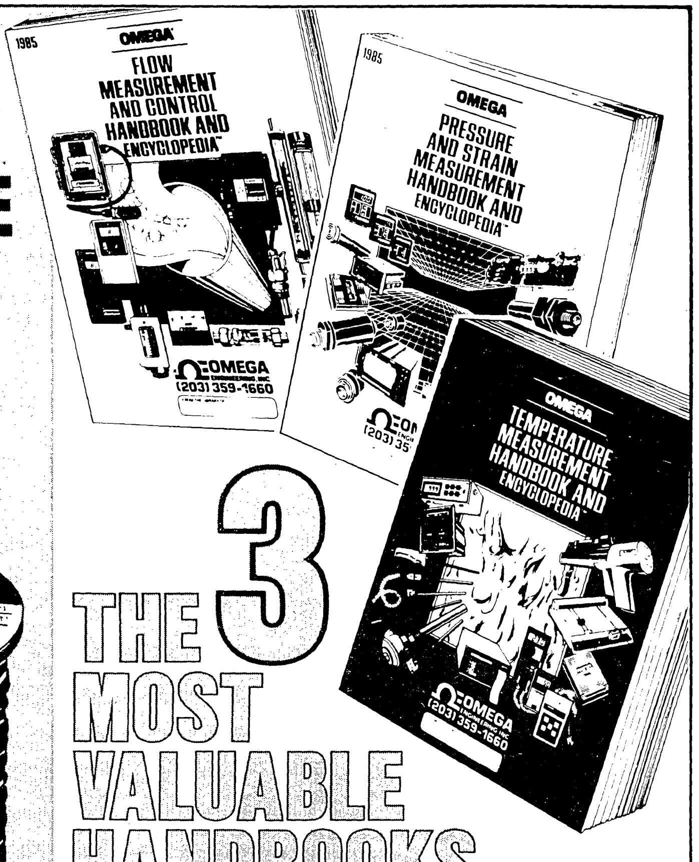
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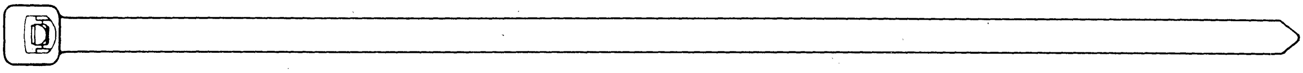
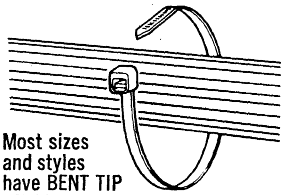
CABLE TIES

- Engineered with quality features designed to increase productivity and reduce your total installed cost:
  - — Low threading force
  - — Finger grip tip
  - — No sharp edges
  - — Bent tip

  Plus consistent quality assured by tests conducted by military and independent testing labs.
- Complete line of cable ties, clamps, push mount and marker ties. Meet all applicable Military Specifications. Recognized by U.L.
- All nylon, one-piece construction — up to 250 lbs. minimum loop tensile strength.
- Standard color natural nylon (colors available).

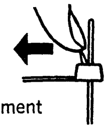




Most sizes and styles have BENT TIP DESIGN — for faster installation

RELEASABLE STYLE

Designed for applications where changes are anticipated



- Harness development
- Prototype work
- Equipment maintenance
- Modular serviceability

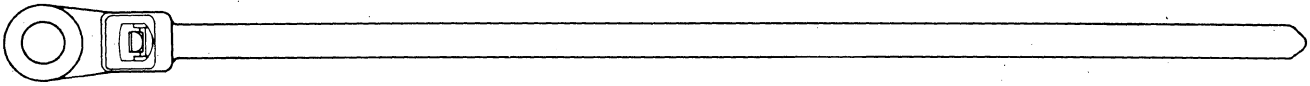
Easy to open • Economical

Part Number		Cross-Section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
Locking	Releas.					
PLT.7M	—	Sub-Miniature Tie	11/16″	3⅛″	.09″	18
PLT1M	—	Miniature Tie ▲	⅞″	3⅞″	.10″	18
PLT1S	PRT1S	Standard Tie	1″	4¾″	.19″	50
PLT1.5M	—	Miniature Tie	1¼″	5⅝″	.10″	18
PLT1.5I	—	Intermediate Tie ▲	1⅜″	5⅝″	.14″	40
PLT1.5S	PRT1.5S	Standard Tie	1½″	6⅜″	.19″	50
PLT2M	—	Miniature Tie	2″	8″	.10″	18
PLT2I	—	Intermediate Tie	2″	8″	.14″	40
PLT2S	PRT2S	Standard Tie ▲	1⅞″	7⅜″	.19″	50
PLT2H	PRT2H	Heavy Tie	2″	8⅜″	.30″	120
PLT3I	—	Intermediate Tie	3″	11⅜″	.14″	40
PLT3S	PRT3S	Standard Tie ▲	3″	11½″	.19″	50
PLT3H	PRT3H	Heavy Tie	3″	11⅜″	.30″	120
PLT4I	—	Intermediate Tie	4″	14⅝″	.14″	40
PLT4S	PRT4S	Standard Tie ▲	4″	14½″	.19″	50
PLT4H	PRT4H	Heavy Tie ▲	4″	14½″	.30″	120
PLT5S	—	Standrd Tie	5″	17½″	.19″	50
PLT5H	—	Heavy Tie	5″	17¾″	.35″	175
PLT6H	—	Heavy Tie	6″	20⅞″	.35″	175
PLT7LH	—	Heavy Tie	7″	25″	.30″	120
PLT8LH	—	Heavy Tie ▲	8″	28″	.30″	120
PLT8H	—	Heavy Tie	9″	30⅝″	.35″	175

▲ Locking Style. Meets Mil. Std. MS3367

For harsh environments, contact factory for ties made from Stainless Steel, DuPont's TEFZEL, Polypropylene, and Allied's HALAR.

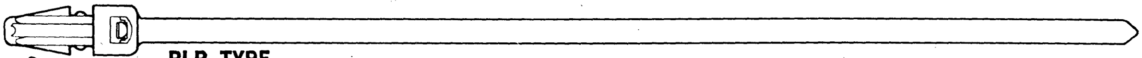
CLAMP TIES



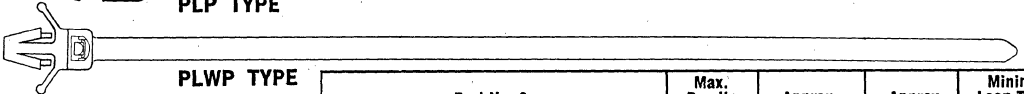
Use in place of fixed diameter clamps

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
PLC1M-S4 Miniature Clamp (#4 Screw)	¾″	4⅜″	.10″	18
PLC1.5I-S8 Intermediate Clamp (#8 Screw)	1¼″	6⅛″	.13″	30
PLC2S-S6 Standard Clamp (#6 Screw)	1¾″	7⅞″	.19″	50
PLC2S-S10 Standard Clamp (#10 Screw)	1¾″	7⅞″	.19″	50
PLC4H-S25 Heavy Clamp (¼″ Screw)	4″	15¼″	.30″	120

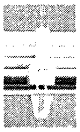
PUSH MOUNT TIES



PLP TYPE



PLWP TYPE



Integral mounting device eliminates the need for additional mounting hardware

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)	Max. Panel Thickness	Hole Diameter
PLP1.5I Intermediate Tie	1¼″	6⅛″	.14″	30	3/32″	3/16″
PLP1S Standard Tie	1″	5¼″	.19″	50	⅛″	¼″
PLP1.5S Standard Tie	1¾″	6⅞″	.19″	50	⅛″	¼″
PLP2S Standard Tie	1¾″	7⅞″	.19″	50	⅛″	¼″
PLWP1M Miniature Tie	¾″	4¼″	.10″	18	5/64″	3/16″
PLWP1S Standard Tie	1″	5⅛″	.19″	50	3/32″	¼″
PLWP1.5S Standard Tie	1½″	6¾″	.19″	50	3/32″	¼″
PLWP2S Standard Tie	1¾″	7¾″	.19″	50	3/32″	¼″
PRWP1S Standard Tie ▲▲	1″	5⅛″	.19″	50	3/32″	¼″
PRWP1.5S Standard Tie ▲▲	1½″	6¾″	.19″	50	3/32″	¼″
PRWP2S Standard Tie ▲▲	1¾″	7¾″	.19″	50	3/32″	¼″

▲▲ Releasable style

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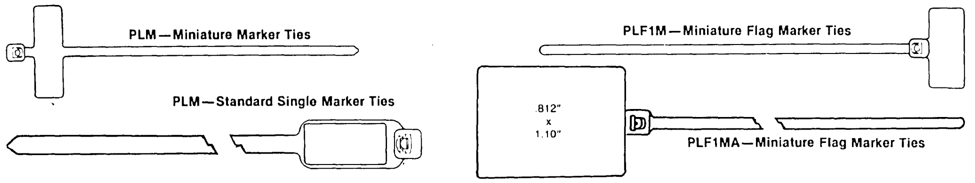
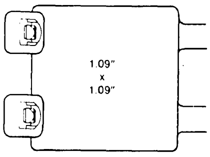
PANDUIT® wiring products

MARKER TIES

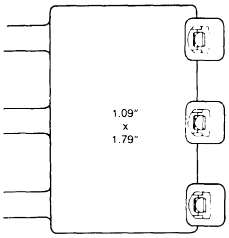

PLM—Miniature Marker Ties
PLM—Standard Single Marker Ties
PLF1M—Miniature Flag Marker Ties
.812"
x
1.10"
PLF1MA—Miniature Flag Marker Ties



PL2M2S—
Standard Double Marker Ties

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
PLM1M Miniature Tie △	¾″	3⅞″	.10″	18
PLF1M Miniature Tie	¾″	4⅜″	.10″	18
PLF1MA Miniature Tie	¾″	5″	.10″	18
PLM2M Miniature Tie	2″	8″	.10″	18
PLM2S Standard Tie △	1¾″	7⅜″	.19″	50
PLM4S Standard Tie▲	4″	14⅝″	.19″	50
PL2M2S Standard Tie	1¾″	7⅜″	.19″	50
PL3M2S Standard Tie	1¾″	7⅜″	.19″	50

△ Meets Mil. Std. MS3368

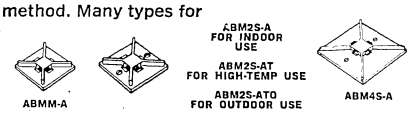


PL3M2S—
Standard Triple Marker Ties

MOUNTING ACCESSORIES (used with cable ties)

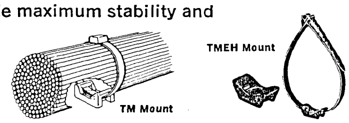
ADHESIVE BACKED MOUNTS

- Convenient mounting method. Many types for different applications.

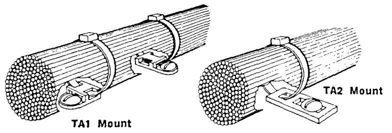

ABMM-A
ABM2S-A FOR INDOOR USE
ABM2S-AT FOR HIGH-TEMP USE
ABM2S-ATO FOR OUTDOOR USE
ABM4S-A

TIE MOUNTS

- Unique cradle design. Provide maximum stability and rigidity to the wire bundle.

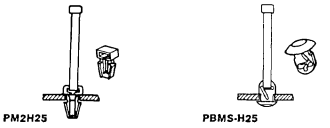

TMEH Mount
TM Mount

TIE ANCHORS


TA1 Mount
TA2 Mount

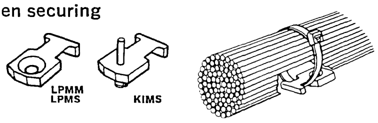
PUSH MOUNTS

- For panel thickness ⅛″ max. Hole dia. nom. ¼″.


PM2H25
PBMS-H25

LOW PROFILE MOUNTS

- Provide for low height when securing bundles to panels or other flat surfaces.


LPMM
LPMS
KIMS

SELECTION GUIDE FOR MOUNTS

	Part Number	Used With Cable Ties □	Mounting Method	Width (Inches)	Length (Inches)
Adhesive Backed Mounts	**ABMM-A** △	M	Adhesive Tape	.75	.75
	ABM2S-A △	M.I.S.	Adhesive Tape	1.00	1.00
	ABM2S-AT-0	M.I.S.	Adhesive Tape	1.00	1.00
	ABM4S-A △	M.I.S.	Adhesive Tape	2.00	2.00
Tie Mounts	**TM1S4** △	M	#4	.33	.51
	TM1S6 △	M	#6	.33	.51
	TM1A	M	Adhesive*	.33	.51
	TM2S6 △	M.I.S.	#6	.38	.59
	TM2S8 ▲	M.I.S.	#8	.38	.59
	TM2A	M.I.S.	Adhesive*	.38	.59
	TM3S8 △	M.I.S.H.•	#8	.63	.88
	TM3S10 △	M.I.S.H.•	#10	.63	.88
	TM3S25 △	M.I.S.H.•	¼″	.63	.88
	TM3A	M.I.S.H.•	Adhesive*	.63	.88
	TMEH-S8 △	M.I.S.H.EH.	#8	.74	1.65
	TMEH-S10 △	M.I.S.H.EH.	#10	.74	1.65
	TMEH-S25 △	M.I.S.H.EH.	¼″	.74	1.65
Tie Anchors	**TA1S8** △	M.I.S.	#8	.38	.75
	TA1S10 △	M.I.S.	#10	.38	.75
	TA2 △	M.I.S.	#10	.50	1.23
Push Mounts	**PBMS-H25** △	M.I.S.	Push-in ¼″ Hole	.45	.40
	PM2H25 △	M.I.S.	Push-in ¼″ Hole	.38	.62
	PMS-H24	M.I.S.	Push-in ¹⁵⁄₆₄″ Hole	.40	.47
Low Profile Mounts	**LPMM-S2** △	M	#2 or .088 dia. Rivet)	.32	.40
	LPMM-S5 △	M	#5	.32	.40
Screw Applied	**LPMS-S8** ▲	M.I.S.	#8	.50	.75
	KIMS-H366 ▲	M.I.S.	144″ Integral Rivet	.50	.75
Knock-in Rivet	**KIMS-H430** △	M.I.S.	169″ Integral Rivet	.50	.75
	KIMS-H500 △	M.I.S.	196″ Integral Rivet	.50	.75

□ Tie Cross-Section: M = Miniature, I = Intermediate, S = Standard, H = Heavy, EH = Extra Heavy
* Adhesive supplied by user ○ Except .35″ width ties.

△ UL U.L. RECOGNIZED

CABLE TIE INSTALLATION TOOLS

Panduit's complete line of cable tie installation tools allows you to choose the proper tool to meet all your cabling requirements — no matter what your application.

All the tools are lightweight, easy to operate and provide flush cut-off every time. Because they are fast and efficient, they speed cable tie installation and lower your total installed cost.

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PANDUIT
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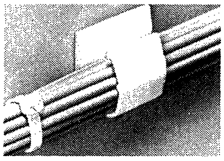
PANDUIT® wiring products

MOUNTING ACCESSORIES (used without cable ties)

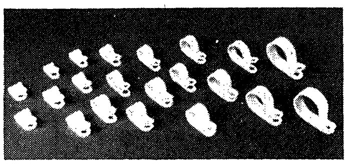


ADHESIVE BACKED CORD CLIPS — NYLON

Three sizes to hold cords, tubing or wire bundles up to .62″ dia. Are easily snapped into or out of the clips.

ACC19-A Up to .19″ dia.
ACC38-A Up to .38″ dia.
ACC62-A Up to .62″ dia.

FIXED DIAMETER CLAMPS — NYLON

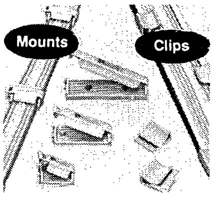


Series **CCS** (Std)
- 3/8″ wide
- 7 sizes (1/8″ thru 1/2″ dia.)

Series **CCH** (Hvy)
- 1/2″ wide
- 14 sizes (1/8″ thru 1 1/2″ dia.)

FLAT CABLE MOUNTS & CLIPS

- **Convenient, One-Piece** • **Releasable**
- **Adhesive Backed**



FLAT CABLE MOUNTS

- Three sizes to secure 1″, 2″ and 3″ wide flat cable
- Fast installation; releasable and reusable for easy revisions

FLAT CABLE CLIPS

- Securely retain any flat cable up to 11/64″ stack height; one size for any width
- Integral serrations grip cable, prevent slipping

PANDUIT® *INSTA-CODE*®

WIRE AND IDENTIFICATION MARKERS —COMPARE FEATURES AND VISIBILITY

CRISP SHARP LEGENDS • COMPLETE LINE • PROVEN SERVICE

120 VOLTS
UVWXYZUVW
DANGER
VOLTAGE HIGH V
240 VOLTS 240 VO
240 VOLTS 240 VOLT
ABCDEFGHIJ
DANGER NO SMOKING
4160 VOLTS

Vinyl Cloth Markers
Dispenser cards (full & half sizes)
Books (17 assortments)
Pre-titled industrial markers
Large size markers (6 sizes — up to 3″)

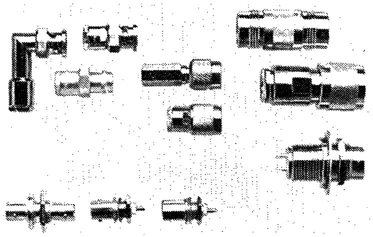
Self-laminating Vinyl
Pre-printed legend (cards)
Write-on (cards and books)
Sheet form (for typewriter)

Vinyl (For Indoors or Outdoors)
Voltage markers (3 sizes)
Safety signs
Large size markers
Reflective markers
KVA markers

Tape
Hazard warning

Clip-on Markers
Available in seven sizes
.075″ up to .617″

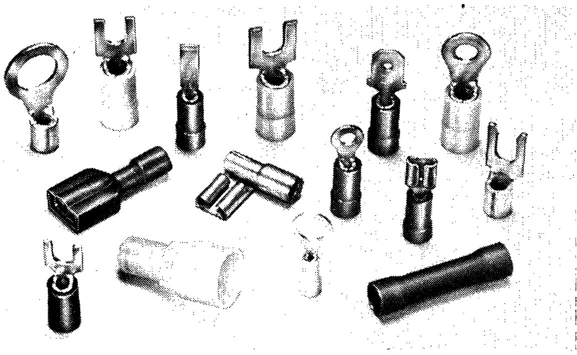
CUSTOM MARKERS—Any Legend, Size, Color to Meet YOUR Application.



PANDUIT® COAX CONNECTORS

For RG-58, 59, 62, (59 & 62 Plenum) Cable
- BNC and TNC styles
- Selection of jacks, plugs, adapters, and receptacles
- Twist-on and wedge clamp installation

For Twinax (IBM73662, Belden 9207, Dearborn 6207) Cable
- Plug, splices, bulkhead receptacle



PAN-TERM® TERMINALS

- Complete line of PANDUIT PAN-TERM® terminals, disconnects, splices and wire joints for #26 through #2 AWG wire.
- Funnel entry, to speed assembly, available on most terminals and disconnects.
- Electrolytically refined copper for best crimping and low resistance/high conductivity.
- Applicable sizes are UL listed, SP certified, meet Mil. Specs.

For High Production—Terminals and disconnects supplied on reels. Continuously molded insulation eliminates the production problems of strip fed and tape fed systems.

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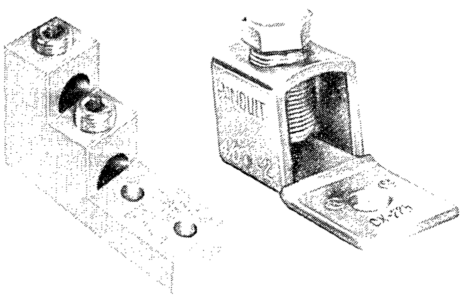
PANDUIT® wiring products



PAN-TERM™ MECHANICAL CONNECTORS

- Complete selection of styles and sizes for copper and aluminum cables #14 AWG through 1000 MCM. Also split bolt connectors.
- No special installation tools required. Connectors are easily reusable.
- Provide U.L. listed and CSA certified connections.
- Versatile—each connector can be used for a wide range of cable sizes.
- Heavy duty construction for reliable connections.

PANDUCT®

PLASTIC WIRING DUCT—TYPE "E"

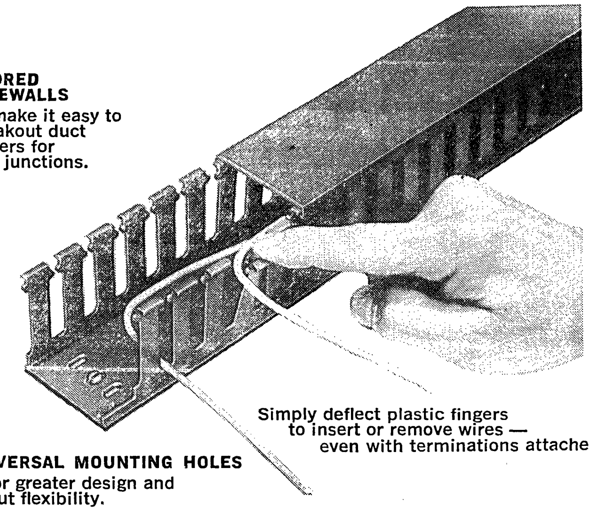
- Reduce your total installed costs with patented snap-in slot design:
  - —Holds breakout wires captive while providing complete accessibility for adding or removing wires — even with terminations attached.
  - —Result: your total cost is reduced during initial installation, wire tracing, trouble shooting and circuit revisions.
- Non-slip cover prevents vibration slippage, yet easy to install or remove.
- Standard color: Light gray. White and dark gray available. Standard length: 6 ft.
- Complete variety of accessories available for installation.
- Also available:
  - Type "S" Solid Wall Duct
  - Type "D" Round Hole Duct
  - Type "NE" & "NS" Chlorine-Free, High-Temperature Duct
  - Type "PE" & "PS" Clear Polycarbonate Duct

All "E", "S", and "D" Duct are available with optional adhesive backing.

Applicable sizes are recognized under Components Program of Underwriters' Laboratories, Inc.

C.S.A. CERTIFIED

MEETS J.I.C. REQUIREMENTS

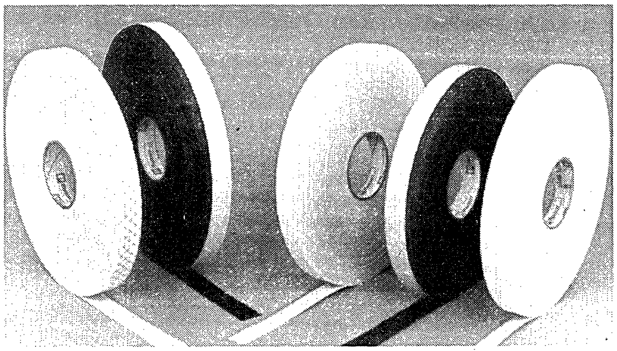


SCORED SIDEWALLS
— make it easy to breakout duct fingers for "T" junctions.

Simply deflect plastic fingers to insert or remove wires — even with terminations attached.

UNIVERSAL MOUNTING HOLES
— for greater design and layout flexibility.

Nominal Duct Size W x H	Nominal Duct Size W x H	Nominal Duct Size W x H
.5 x .5	1 x 2	2 x 4
.5 x .62	1 x 3	2.5 x 3
.5 x 1	1 x 4	3 x 1
.5 x 1.25	1.5 x 1	3 x 1.25
.5 x 1.75	1.5 x 1.5	3 x 2
.5 x 2	1.5 x 2	3 x 3
.75 x .75	1.5 x 3	3 x 4
.75 x 1	1.5 x 4	3 x 5
.75 x 1.5	2 x 1	4 x 1.5
.75 x 2	2 x 1.5	4 x 2
1 x 1	2 x 2	4 x 3
1 x 1.25	2 x 2.5	4 x 4
1 x 1.5	2 x 3	4 x 5



PANDUIT® FOAM TAPE

Solves Fastening and Sealing Problems

- Single or double-sided rolls with acrylic or rubber adhesive—for indoor, outdoor, standard or high temperature applications.
- Polyethylene foam in white or black.
- Custom widths, thicknesses or lengths available besides a complete line of standard sizes.

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INTERNATIONAL Cords, Cordsets and Cordage

1. Detachable cordsets:

Detachable cordsets offer flexibility for both the equipment manufacturer and user.

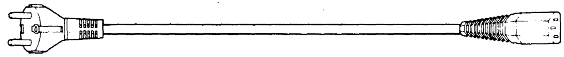
The manufacturer can meet most international cord requirements with just one product model that is equipped with an IEC 320/CEE-22 connector. Then a cordset with the mating IEC 320 connector and the appropriate international plug can be specified at the time the product is shipped to the end user. The table below describes eight standard PCC cordsets.

International cordsets have some limitations. First, current ratings are limited to 6 amps by European agencies. The limitation is derived from restrictions placed on the IEC 320 connector. Equipment which draws more than 6 amps at 220 VAC should be equipped with permanently installed power cords described below. (For applications up to 10 amps, some countries allow the use of a new replaceable connector which is patterned after the IEC 320 unit but which is polarized to prevent insertion of the 6 amp models.

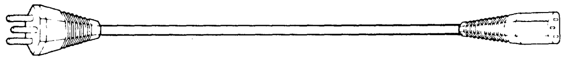
Secondly, addition of the connector adds to the cost of the power cord. Typically, the IEC 320 connector which is molded to the cord adds 50-75 cents to the cord cost. A panel mounting IEC 320 receptacle is about 50 cents. Both prices assume purchases in the 100-piece range. Clearly, a trade-off between added cost and manufacturing flexibility has to be made.

TABLE 1

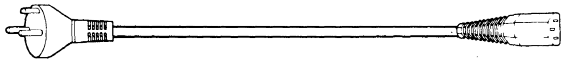
86511000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



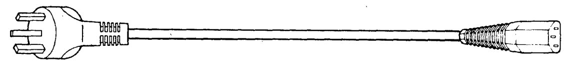
86515000 Switzerland



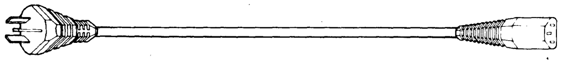
86536000 Denmark



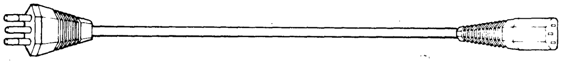
86558000 Israel



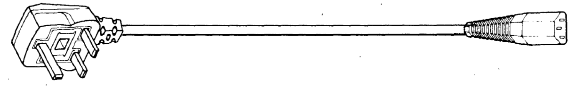
86516000 Australia



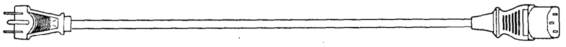
86531000 Italy



86552002 United Kingdom



86537030 Canada, United States



Part Number	Color	Length	Conductor Size	Current Rating	Approval(s)
86511000	Black (Note 3)	2.5 meters (98.4 inches)	0.75 mm²	6A	Note 1
86515000	Black (Note 3)	"	"	6A	SEV
86536000	Black (Note 3)	"	"	6A	DEMKO
86558000	Black (Note 3)	"	"	6A	SII
86516000	Black (Note 3)	"	"	6A	EANSW
96531000	Black (Note 3)	"	"	7A	Note 2
86552002	Black (Note 3)	"	"	6A	Note 4
86537030	Black (Note 3)	"	"	6A	UL, CSA

Note 1: Approved by VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, UTE.
Note 2: Agency approvals not usually required for cordsets in Italy.
Note 3: Conductors are color-coded blue, brown, green/yellow.
Note 4: Approved by ASTA, BSI, BASEC.

2. Unterminated IEC 320/CEE-22 cords:

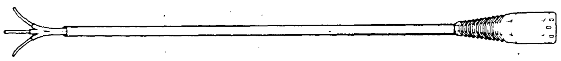
With some products, export volume does not justify stocking different cordsets for even major foreign markets. In other situations, sales volume in Germany and the U.K. may be large enough to justify unique cordsets, whereas export volume to Switzerland, Denmark, Australia, and Israel, for example, are not sufficient.

In both of these cases, the equipment manufacturer can specify the model 2500 unterminated IEC 320/CEE-22 cord for use in low-volume markets. Cordsets described in the previous section would be specified for high-volume markets.

The disadvantage to this approach is, of course, that your customer or sales people must attach a suitable power plug to the cord. The decision on this issue will depend on the cost of stocking an additional cordset vs. the size of the affected market segment and the cost of field termination. (Call us for our brochure on international plugs and sockets.)

TABLE 2

86525000 Universal



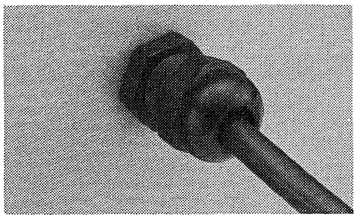
Part Number	Color	Length	Conductor Size	Current Rating	Approval(s)
86525000	Black	2.5 meters (98.4 inches)	0.75 mm²	6A	VDE, OVE, KEMA, CEBEC, NEMKO SEMKO, FEI, SEV, UTE

Note: Free end on model 86525000 is stripped 50/5 mm.

Strain Reliefs

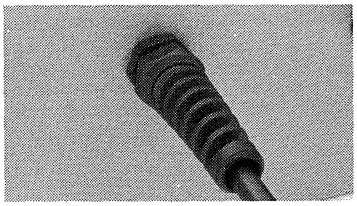
Power supply cords all require some type of mechanical mounting device which positively secures them to an enclosure or piece of equipment. PCC strain reliefs provide an effective cable grip with or without an integral bend relief. Furthermore, the strain relief comes with a neoprene compression gland which prevents moisture intrusion along the cord when used with round cordage and when the cord and strain relief have been selected and assembled properly. UL recognized and CSA certified.

WITHOUT BEND RELIEF



PCC Part No.	Cordage O.D. Range
85810010	.187-.312 in. 4.7-7.9 mm
85810020	.231-.394 in. 5.9-10.0 mm
85810030	.270-.480 in 6.9-12.2 mm

WITH BEND RELIEF



PCC Part No.	Cordage O.D. Range
85810040	.187-.312 in. 4.7-7.9 mm
85810050	.231-.394 in. 5.9-10.0 mm
85810060	.270-.480 in. 6.9-12.2 mm

PANEL COMPONENTS CORPORATION P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

From Panel Components Corporation

3. International power supply cords:

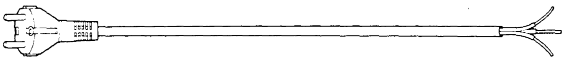
Permanently installed power supply cords are specified when the equipment requires more than 6 amps at 220-240 VAC. Generally, for applications in which the current requirement is 6-10 amps, 1.0 mm² conductors are specified. For applications rated at 10-16 amps, 1.5 mm² conductors should be specified. For comparison purposes, 16 AWG is 1.23 mm² and 14 AWG is 1.95 mm². (Note: the limit for portable equipment in Switzerland is 10 amps; in the U.K., 13 amps. In most other European countries, the limit is 16 amps. In equipment that draws greater amounts of current, the equipment must be permanently connected to the power system.)

Power supply cords may also be used to reduce component costs, especially in very high-volume production. This is particularly true in Class II (two wire, ungrounded) appliances. The model 86532000 cord described below is intended for these applications.

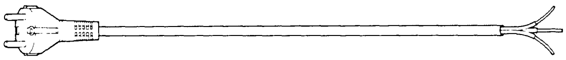
The power supply cords illustrated below are supplied with standard cut and strip terminations (50/5 mm) on the free end. Panel Components will customize these cords to meet your requirements.

TABLE 3

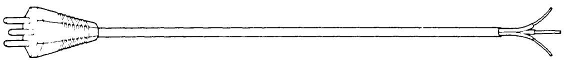
86517000 Austria, Belgium, Finland, France (Note 6), **Germany, Netherlands, Norway, Sweden**



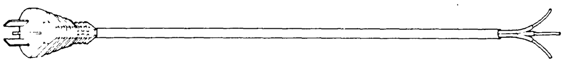
86518000



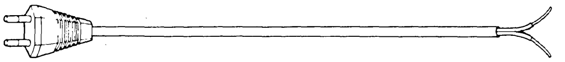
8652100 Switzerland



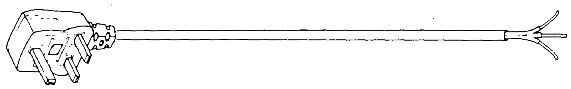
86522000 Australia



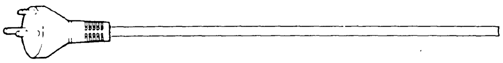
86532000 All Europe except United Kingdom (Rated at 12.5 Amps)



86554002 United Kingdom



86539000 Denmark



Part No.	Color	Length	Cable O.D.	Conductor Size	Current Rating	Approval(s)
86517000	Black	2.5 meters (98.4 inches)	7.0 mm	1.0 mm²	10A	Note 1
86518000	Black	"	8.5 mm	1.5 mm²	16A	Note 1
86521000	Black	"	7.0 mm	1.0 mm²	10A	SEV
86522000	Black	"	7.0 mm	1.0 mm²	10A	EANSW
86532000	Black	1.8 meters	3.4 x 5.6 mm Note 3	0.75 mm²	2.5A	Note 2 Note 4
86554002	Black	2.5 meters	6.8 mm	0.75 mm²	6.0A	ASTA, BSI, BASEC
86539000	Black	"	7.0 mm	1.0 mm²	10A	DEMKO Note 5

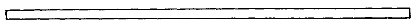
Note 1: VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, UTE.
Note 2: VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, SEV, DEMKO; 2 wires.
Note 3: Conductor is not round but oblong.
Note 4: Cut blunt.

4. Other alternatives cordage and shielded cords:

Cordage: When neither a molded power supply cord or cordset is suitable, international cordage with appropriately sized conductors may be the best alternative. This cordage is tested and certified by VDE to HAR (HD-21) standards.

TABLE 4

CABLE Universal

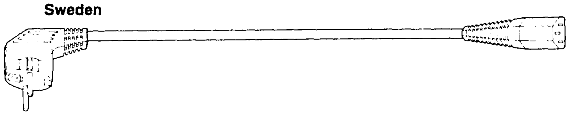


Part No.	Cond. (mm²)	Max. Curr.	O.D.	Jacket Color	Jacket Mater.	HD-21 Number	AWG Equiv.
86010011	3 x 0.75	6A	6.8 mm	Black	PVC	H05VVF3G0.75	18 AWG
86010021	3 x 0.75	6A	6.8 mm	Gray	PVC	H05VVF3G0.75	18 AWG
86010041	3 x 1.00	10A	7.0 mm	Black	PVC	H05VVF3G1.00	16 AWG
86010051	3 x 1.00	10A	7.0 mm	Gray	PVC	H05VVF3G1.00	16 AWG
86010071	3 x 1.50	16A	8.5 mm	Black	PVC	H05VVF3G1.50	14 AWG
86010081	3 x 1.50	16A	8.5 mm	Gray	PVC	H05VVF3G1.50	14 AWG

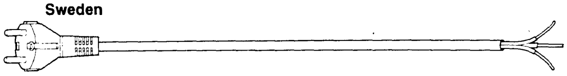
Shielded cords and cordsets: Emission of conducted radio frequency interference is now subject to rigid controls in most industrialized countries. Since the power supply cord itself can act as an effective antenna at some frequencies, some designers specify shielded power cords in place of or in combination with RFI power line filters. VDE approval only on 86527000, 86528000, 86529000 and 86530000. UL recognition and CSA certification on 86534000.

TABLE 5

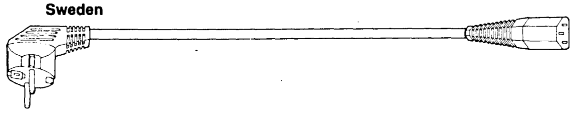
86527000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



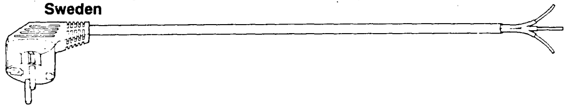
86528000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



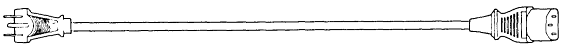
86529000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



86530000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



86534001 Canada, United States



Part No.	Color	Length	Shield Type	Cond. Size	Curr. Rating	Type
86527000	Black	2.5 meters (98.4 inches)	foil	0.75 mm²	6A	Cordset
86528000	Black	"	foil	0.75 mm²	10A	Cord
86529000	Black	"	braid	0.75 mm²	6A	Cordset
86530000	Black	"	foil	1.00 mm²	10A	Cord
86534001	Black	"	foil	18 AWG	7A	Cordset

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components [illegible]tors/
dr[illegible]es · ba[illegible]
supplies, ac [illegible] relays ·
solenoids · [illegible]s/trimmers
controls/rhe[illegible] ·
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EEM PRODUCT SELECTION GUIDES

Use the EEM Product Selection Guides. There are 34 Guides in this edition of EEM. See page 2 (A•2, B•2, C•2, D•2) of each volume to locate the Product Selection Guides that pertain to your needs.

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High Temperature silicone rubber wire and cable.

Rowe's silicone rubber insulation offers better performance and longer life than natural rubber or thermoplastic insulation. For example, our high temperature wire and cable is: heat stable to 200°C and flexible to −90°C, unaffected by severe thermal cycling, ultraviolet radiation, ozone or corona, resistant to ageing, moisture and chemicals, highly flame retardant and tough enough for unbraided lead wire.

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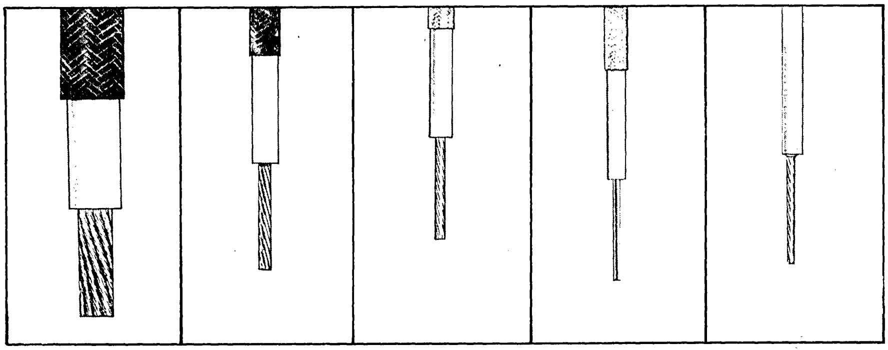

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Lighting wire for 600 volt transmission with solid tinned copper conductor, silicone rubber insulation and fiberglass braided covering.

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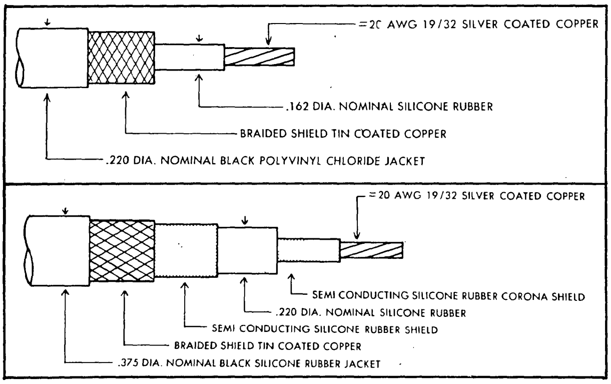
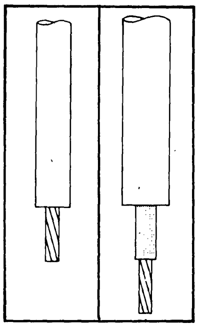
COAXIAL.


=20 AWG 19/32 SILVER COATED COPPER
.162 DIA. NOMINAL SILICONE RUBBER
BRAIDED SHIELD TIN COATED COPPER
.220 DIA. NOMINAL BLACK POLYVINYL CHLORIDE JACKET
=20 AWG 19/32 SILVER COATED COPPER
SEMI CONDUCTING SILICONE RUBBER CORONA SHIELD
.220 DIA. NOMINAL SILICONE RUBBER
SEMI CONDUCTING SILICONE RUBBER SHIELD
BRAIDED SHIELD TIN COATED COPPER
.375 DIA. NOMINAL BLACK SILICONE RUBBER JACKET

Features: 5-100KV minimum voltage ratings, 8-22 AWG corona-free and ozone resistant, 80°C to 200°C operating temperature range. Excellent for high pulse applications and for use with Rowe high voltage miniature coaxial connector series, G series connectors, Hi-pulse 40KV series and Rowe R75 connector series. All exhibit good corona-free RFI-EMI capabilities and have excellent flexibility properties.

SINGLE CONDUCTOR, UNSHIELDED.



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TWIN AXIAL CABLES

Part #	Description	AWG	Stranding	Dielec Material & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Jacket Material	Nom O.D.	UL Style	Wt Per 1000 ft	Color Code
8462	2 conductors	18	7x.0152 1 BC	Poly .285	2 TC Braids 95%	95	66%	16.0	Black Non-Contaminating Vinyl	.420	—	128	—
8442	2 conductors	20	7x28 1 BC 1 TC	Poly .240	1 TC Braid 85%	100	66%	15.5	Black PVC	.330	2498	62	—
8443	2 conductors EQUIVALENT IBM PART #7362211	20	7x28 1 BC 1 TC	Poly .240	1 TC Braid 95%	100	66%	15.5	Black PVC	.330	2498	68	—
8475	2 conductors	20	7x28 1 BC 1 TC	Poly	1 TC Braid 95%	100	66%	15.5	Black Polyethylene	.330	—	64	—

78 OHM TWIN AXIAL CABLES

8446	2 conductors with overall foil shield & drain	20	7x28 TC	Poly	1TC Braid + overall foil 58% Braid 100% Foil	78	66%	19.7	Blue PVC	.242	2582 60°C 150V	37	Blue/ Natural
8450	2 conductors cabled with TC shield overall	20	7x28 TC	Poly	1 TC Braid 93%	78	66%	19.7	Blue PVC	.242	2092	41	Blue/ Natural

124 OHM TWIN-AXIAL CABLES

8447	2 conductors 1 twisted pair with overall foil shield & drain	25	7x33 TC	Poly	Foil + TC Drain	124	66%	12.2	Blue PVC	.242	2092 60°C 300V	26	Blue/ Natural
8448	6 conductors (3 pair) each pair individually shielded with 7x30 TC drain	25	7x33 TC	Poly	Foil each pair + TC drain 100% Foil	124	66%	12.2	Blue PVC	.450	2092 60°C 300V	80	(Foil Colors) Blue/Red/ Green
8478	2 conductors (Balanced Vireo Pair) with TC Braid & foil	16	Solid BC	Foam	1 TC Braid + Foil 94% Braid 100% Foil	124	78%	10.9	Black PVC	.440	2448 60°C 300V	104	Blue/ White

150 OHM TWIN AXIAL CABLES

8479	2 conductors with Stranded TC Drain	22	19x34 TC	Exalene	Foil + stranded TC drain 100% Foil	150	78%	8.8	Black PVC	.350	2668 60°C 300V	47	Black/ Yellow

LOOP AND POS CABLES

8449	EQUIVALENT IBM PART #5165886 4 conductors (2 pair) twisted & cabled with TC braid & solid TC drain	22	Solid TC	Poly	1 TC Braid + Foil + solid TC Drain 58% Braid 100% Foil	100	66%	15.5	Black PVC	.300	2582 60°C 300V	52	Red/Blue + Black/ Yellow
8453	EQUIVALENT IBM PART #1657665 4 conductors (2 pair) twisted + Mylar binder + TC braid + foil shield + drain	22	Solid BC	Poly	1 TC Braid + Foil + Drain 58% Braid 100% Foil	100	66%	15.5	Black PVC	.290	2919 80°C 300V	45	Blue/ White w blue stripe + Orange/ Orange w white stripe
8455	4 conductors (2 pair) each pair individually shielded + drain. Pairs jacketed on parallel axis	22	7x30 TC	PVC	Foil each pair 100% Foil +22 AWG stranded TC Drain			50.0	Beige PVC	.175 x .280	2464 80°C 300V	33	Black/ White + Black/ Yellow

NETWORK CABLES

TRUNK CABLE—Ethernet™ (Xerox Corp.)

													Nom Atten MHz db
8458	Trunk Cable Ethernet	.0855	Solid TC	Foam	Foil bonded to dielectric 1 TC Braid + Foil + 1 TC Braid 92% each braid	50	78%	26.0	Yellow PVC	.405	1478 60°C 30V	120	5 8.5 10 5.0

TRANSCEIVER DROP CABLE

8461	4 pairs twisted, each pair individually shielded with foil + TC braid & foil overall	3 pair 22 1 pair 20	7x30 TC 7x28 TC	Exalene SR PVC	Foil each pair + 1 TC Braid overall 100% Foil 94% Braid	78	66%	19.7	Gray PVC	.390	2919 80°C 30V	95	

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COAXIAL CABLES

Part #	RG Type Mil Spec	AWG	Stranding	Dielec Material & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Material	Nom O.D	UL Style	Wt Per 1000 Ft
									MHz	db				
8419	6/U Type	18	Solid BC	Foam .180	1 TC Braid +Foil overall 61% Braid 100% Foil	75	78%	17.3	50 100 200 500 900	1.5 2.1 3.1 5.8 6.9	Black PVC	.270	1354	34
1584	RG 8A/U Mil C 17	13	7x21 BC	Poly .285	1 Mil C 17 BC Braid 95%	52	66%	29.5	100 200 400 900	2.2 3.2 4.7 8.0	Black Non-contaminating Vinyl	.405	1354	105
8282	RG 8/U Jan C 17A	13	7x21 BC	Poly .285	1 BC Braid 95%	52	66%	29.5	50 100 200 400 900	1.6 2.2 3.2 4.7 8.0	Black PVC	.405	1354	110
8284	8/U Type	11	7x19 BC	Foam .285	1 Mil C 17D BC Braid 95%	50	78%	26.0	50 100 200 400 900	1.2 1.8 2.7 4.3 6.7	Black PVC	.405	1354	110
8336	RG 11A/U Mil C 17D	18	7x.0159 TC	Poly .285	1 Mil C 17D BC Braid 95%	75	66%	20.5	50 100 200 400 900	1.3 2.0 2.9 4.2 6.8	Black Non-contaminating Vinyl	.405	—	93
1586	11/U Type	14	Solid BC	Foam .285	1 BC Braid 95%	75	78%	17.3	50 100 200 500 900	1.0 1.5 2.2 3.7 5.2	Black PVC	.405	—	85
8289	RG 58/U Jan C 17A	20	Solid BC	Poly .116	1 Mil C 17 Tin Braid 95%	53.5	66%	28.5	50 100 200 400 900	3.1 4.5 6.8 10.0 16.0	Black PVC	.195	1354	28
8290	RG 58A/U Jan C 17A	20	19x33 TC	Poly .116	1 Mil C 17 Tin Braid 95%	50	78%	30.8	50 100 200 400 900	3.3 4.9 7.3 11.5 20.0	Black PVC	.195	1354	27
7290	Same as Part # 8290 with the Exception of a White Vinyl Jacket													
8335	RG 58C/U Mil C 17	20	19x33 TC	Poly .116	1 Mil C 17D Tin Braid 95%	50	66%	30.8	50 100 200 400 900	3.3 4.9 7.3 11.5 20.0	Black Non-contaminating Vinyl	.195	—	26
8432	59/U	22	7x30 BC	Foam .144	1 BC Braid 95%	75	78%	17.3	50 100 200 400 900	2.1 3.0 4.5 6.6 10.1	Black PVC	.242	1354	37
8292	RG 59/U Jan C 17A	22	Solid BC Clad Steel 40% conductivity	Poly .144	1 Mil C 17D BC Braid 95%	73	66%	21.0	50 100 200 400 900	2.4 3.4 4.8 7.1 10.9	Black PVC	.242	1354	37
8266	RG 59B/U Dual	.023	Solid BC Clad Steel	Poly .144	1 Mil C 17 BC Braid 95%	75	66%	20.5	100 200 400 900	3.4 5.1 7.5 12.0	Black PVC	.242 X .485	20063 80°C 300V	80
8332	RG 59B/U Mil C 17D	.0230	BC Clad Steel 40% conductivity	Poly .144	1 Mil C 17D BC Braid 95%	75	66%	20.5	50 100 200 400 900	2.4 3.4 4.4 7.0 11.0	Black Non-contaminating Vinyl	.242	—	35
8480	RG 71	22	Solid BC Clad Steel	Semi solid Poly .144	1 BC Braid +1 TC Braid 95% BC Braid 95% TC Braid	93	84%	13.5	50 100 200 400 700 900 1000	1.9 2.7 3.8 5.4 7.3 8.3 8.7	Black Polyethylene	.245	—	46
8404	RG 62A/U Mil C 17D Equivalent IBM Part # 323921	22	Solid BC Clad Steel 40% conductivity	Poly .144	1 BC Braid 95%	93	84%	13.5	50 100 200 400 900	1.9 2.7 3.8 5.4 8.3	Black PVC	.242	1478 60°C 30V	34
8415	62A/U	22	Solid BC Clad Steel 40% conductivity	Poly .144	1 BC Braid 95%	93	84%	13.5	50 100 200 400 900	1.9 2.7 3.8 5.4 8.3	Black PVC	.242	1478 60°C 30V	35
8305	RG 62A/U Mil C 17D	22	Solid BC Clad Steel 40% conductivity	Poly .144	1 BC Braid 95%	93	84%	13.5	50 100 200 400 900	1.9 2.7 3.8 5.4 8.3	Black Non-contaminating Vinyl	.242	1478 60°C 30V	32
8333	RG 174/U Mil C 17D	26	7x34 BC Clad Steel	Poly .060	1 TC Braid 90%	50	66%	30.8	50 100 200 400 900	6.6 8.8 12.0 17.5 28.2	Black PVC	.100	1354	9
8330	RG 231/U Mil C 17D	13	7x .0296 BC	Poly .285	1 Mil C 17 BC Braid 95%	50	66%	30.8	50 100 200 400 900	1.6 2.2 3.2 4.7 8.0	Black Non-contaminating Vinyl	.405	1354	106

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COAXIAL CABLES (continued)

Part #	RG Type Mil Spec	AWG	Strand-ing	Dielec Ma-terial & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Material	Nom O.D	UL Style	Wt Per 1000 Ft
									MHz	db				
8321	RG 214/U Mil C 17D	13	7x .0296 Silver Coated Copper	Poly .285	2 Silver Coated Copper Braids Inner—96% Outer—98%	50	66%	30.8	50 100 200 400 900 1000 4000	1.6 2.2 3.2 4.7 8.8 8.9 21.5	Black Non-con- taminating Vinyl	.425	1354	130
8322	RG 223/U Mil C 17D	19	Solid Silver Coated Copper	Poly .116	2 Silver Coated Copper Braids 95% each	50	66%	30.8	50 100 200 400 900 1000	3.1 4.5 6.4 9.2 14.3 16.3	Black Non-con- taminating Vinyl	.212	1354	37

MIL-C 17F QPL COAXIAL CABLES MANUFACTURED TO CURRENT GOVERNMENT STANDARDS AND REVISIONS

Part #	RG Type Mil Spec	Qualifi-cation Ref. #	AWG	Strand-ing	Dielec Ma-terial & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Ma-terial	Nom O.D.	Wt Per 1000 Ft
										MHz	db			
1587	RG 11 Mil 17/6	17-418-83	18	7x26 TC	Poly .285	1 Mil C 17 BC Braid 95%	75	66%	20.5	50 100 200 400 900 1000	1.3 2.0 2.9 4.2 6.9 7.2	Black Non- con- tami- nating Vinyl	.405	93
1591	RG 58 M 17/155- 00001	17-1104-82	20	19x33 TC	Poly .116	1 Mil C 17 Tin Braid 95%	50	66%	30.5	50 100 200 400 900 1000	3.3 4.9 7.3 11.5 20.0 21.5	Black Non- con- tami- nating Vinyl	.195	25
1591F	RG 58 M 17/28	17-1127-83	20	19x33 TC	Poly .116	1 Mil C 17 Tin Braid 95%	50	66%	30.5	100 200 400 900	5.3 8.2 12.6 20.0	Black Non- con- tami- nating Vinyl	.195	25
8299	RG 59 M 17/29	17-1103-83	.0230	Solid BC	Poly .144	1 Mil C 17 BC Braid 95%	75	66%	20.5	50 100 200 400 900	2.4 3.5 5.1 7.5 12.0	Black Non- con- tami- nating Vinyl	.242	34
8405	RG 62 M 17/30	17-417-83	22	Solid BC Clad Steel	Semi- Solid Poly .144	1 Mil C 17 BC Braid 95%	50	84%	13.5	50 100 200 400 900	1.9 3.1 4.4 6.3 11.1	Black Non- con- tami- nating Vinyl	.242	34
8409	RG 213/U M 17/163- 00001	17-1105-82	13	7x .0296 BC	Poly .285	1 Mil C 17 BC Braid	50	66%	30.8	50 100 200 400 900 1000	1.6 2.2 3.2 4.7 8.0 8.9	Black Non- con- tami- nating Vinyl	.405	105
8409F	RG 213/U M 17/74	17-1126-83	13	7x .0296 BC	Poly .285	1 Mil C 17 BC Braid 95%	50	66%	30.8	50 100 200 400 900 1000	1.6 2.2 3.2 4.7 8.0 8.9	Black Non- con- tami- nating Vinyl	.405	105
8421	RG 214/U M 17/164- 00001	17-421-83	13	7x .0296 Silver Coated Copper	Poly .285	2 Silver Coated Copper Braids Inner—96% Outer—98%	50	66%	30.8	50 100 200 400 900 1000 4000	1.6 2.2 3.2 4.7 8.0 8.9 21.5	Black Non- con- tami- nating Vinyl	.425	130
8422	RG 223/U M 17/167- 00001	17-420-83	19	Solid Silver Coated Copper	Poly .116	2 Silver Coated Copper Braids 95% each	50	66%	30.8	50 100 200 400 900 1000	3.1 4.5 6.4 9.2 14.3 16.3	Black Non- con- tami- nating Vinyl	.212	37

VIDEO CABLE

75 OHM PRECISION VIDEO COAXIAL CABLES — 100% SWEEP TESTED

Part #	AWG	Strand-ing	Dielec Material & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Material	Nom O.D.	Wt Per 1000 Ft
								MHz	db			
8457	20	Solid BC	Poly .198	2 TC Braids 98% each	75	66%	21.0	.01 .10 1.0 4.5 10.0 100.0	.06 .08 .25 .45 .78 2.70	Gray Non-con- taminating Vinyl	.304	74
8456	20	Solid BC	Poly .198	2 TC Braids 98%	75	66%	21.0	.01 .10 1.0 4.5 10.0 100.0	.06 .08 .25 .45 .78 2.70	Black Polyethy- lene	.304	75

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VIDEO CABLES (continued)

MINIATURE 75 OHM COAXIAL VIDEO CABLE

Part #	AWG	Strand-ing	Dielec Ma-terial & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Material	Nom O.D.	UL Style	Wt Per 1000 Ft
								MHz	db				
8280	27	7x35 BC Clad Steel	Poly .100	1 TC Braid 93%	75	66%	20.5	50 100 200 400 700 900 1000	3.9 5.7 8.3 12.1 16.5 19.0 20.0	Black PVC	.150	1354	16

SIAMESE TYPE VIDEO CABLES— FEATURING PARALLEL COAXIAL AND MULTICONDUCTOR CABLES

Part #	Description	AWG	Strand-ing	Dielec Ma-terial & O.D.	Shield Material & Coverage	Nom Imp Ohms	Vel of Prop	Nom Cap Per Ft	Nom Atten		Jacket Material	Nom O.D.	UL Style	Wt Per 1000 Ft	Color Code
									MHz	db					
8435	59/U Type 2 conductors (1 pair) + coax +100% foil shield-ed pair	22 Coax 22 Pair	7x30 BC-Coax 7x30 TC-Pair	Poly .144 Coax PVC .054-Pair	1 BC Braid 95%-Coax 100% Foil with drain–pair	75	78%	51.0	1 5 10 50 100	.3 .7 1.0 2.1 3.0	Black PVC	.242 x .445	20006 60°C 30V	64	(Pair) Black/Red
8451	59/U Type 3 pairs twisted+ coax, pairs 100% foil shielded	22 Coax 22 Pair	7x30 BC-Coax 7x30 TC-Pair	Poly .146-Coax Vinyl .051-Pair	1 BC Braid 95%-Coax 100% Foil with drain each pair	75	78%	17.3	1 5 10 100	.3 .7 1.0 3.0	Black Vinyl	.242 x .445	20006 60°C 30V	86	(Pairs) Black-Red Black-White Black-Green

CRT TERMINAL CABLES—60°—30 VOLTS

CONTROLLED IMPEDANCE—COMPACT CONSTRUCTION

Part #	No. of Cond.	Descriptions & Specifications	Jacket Ma-terial	Jacket Thick-ness	Nom O.D.	Color Code	UL Style	Wt Per 1000 Ft
8440	13	12 conductors cabled around 1 62A) coax + Mylar binder overall; 1 RG 62A/U—un-jacketed; 2 18 AWG (16x30) TC UL Style 1061; 10 22 AWG (10x30) TC UL Style 1061 Use with 4 phase systems	Chrome PVC	.063	.425	Chart #1	2385	114
8441	16	15 conductors cabled around 1 RG 62A/U—unjacketed; 1 18 AWG (26x30) TC Style 1061; 14 22 AWG (10x30) TC UL Style 1061 Use with 4 phase systems	Chrome PVC	.035	.430	Chart #2	2384	124
8444	8	7 conductors cabled around 1 RG 59/U 75 Ohm coax + Mylar binder overall; 1 RG 59/U 75 Ohm—PVC jacketed; 7 26 AWG (7x34) TC UL Style 1061 Use with TI Systems 90	Black PVC	.035	.310	Yellow/ Blue/ Gray/ Green/ Purple/ Natural/ Orange	2384	47
8268		5 twisted pairs cabled around 1 RG 59/U 75 Ohm coax + Mylar binder & 85% TC Braid; 1 RG 59/U 75 Ohm—PVC jacketed; Coax-22 AWG BCW Center conductor .146 O.D., Foam Oielectric + 1 85% BC Braid; 5 pairs 22 AWG (7x30) TC UL Style 1061	Black PVC	.035	.500	Chart #3	2384	145

TV CAMERA CABLE

13 CONDUCTOR REMOTE CONTROL AND VIDEO CABLE

Part #	No. of Cond	Descriptions & Specifications	Jkt Mat	Jkt Thick	Nom O.D.	UL Style	Wt Per 1000 Ft
8445	13	1-22 AWG stranded 75 Ohm coax with BC conductor, Foam poly insulated with a 95% BC braid shield, Black PVC jacket 12-20 AWG (7x28) TC Conductors, PVC insulated	Gray PVC	.032	.460	2594 60°C	163

COMPUTER POS AND INSTRUMENTATION CABLE

MULTICONDUCTOR CABLES — OVERALL FOIL SHIELD

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: S R PVC
Construction: Conductors cable with Foil Shield
Shield: 100% Aluminum Mylar Foil + 24 AWG 7x32 TC Drain Wire
Jacket: Chrome Vinyl 80°C
Entire cable passes VW1

AWM E26174
LL46351

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	Color Code	Wt Per 1000 Ft
2464	3403	3	.010	.035	.168	30	Chart 1	19
2464	3404	4	.010	.035	.190	30	Chart 1	22
2464	3405	5	.010	.035	.195	30	Chart 1	24
2464	3406	6	.010	.035	.215	30	Chart 1	28
2464	3407	7	.010	.035	.215	30	Chart 1	30
2464	3408	8	.010	.035	.230	30	Chart 1	34
2464	3409	9	.010	.035	.250	30	Chart 1	38
2464	3410	10	.010	.035	.250	30	Chart 1	40
2464	3412	12	.010	.035	.270	30	Chart 1	45
2464	3415	15	.010	.035	.290	30	Chart 2	53
2464	3420	20	.010	.035	.320	30	Chart 2	70
2464	3425	25	.010	.040	.360	30	Chart 2	90
2464	3430	30	.010	.040	.380	30	Chart 2	105
2464	3440	40	.010	.040	.430	30	Chart 2	135
2464	3450	50	.010	.045	.490	30	Chart 2	170

UL Style 2464 80°C 300V
* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTICONDUCTOR CABLES — OVERALL FOIL SHIELD AND BRAID

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: S R PVC
Construction: Conductors cabled with Foil Shield + 65% Tinned Copper Braid
Shield: 1) 100% Aluminum Mylar Foil
2) 65% Tinned Copper Braid
Jacket: Chrome Vinyl 80°C
Entire Cable Passes VW 1

AWM E26174
LL46351

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft		Color Code	Wt Per 1000 Ft
						*	**		
2464	3463	3	.010	.035	.190	30	55	Chart 2	23
2464	3464	4	.010	.035	.200	30	55	Chart 2	26
2464	3465	5	.010	.035	.210	30	55	Chart 2	31
2464	3466	6	.010	.035	.225	30	55	Chart 2	35
2464	3467	7	.010	.035	.225	30	55	Chart 2	37
2464	3468	8	.010	.035	.240	30	55	Chart 2	40
2464	3469	9	.010	.035	.255	30	55	Chart 2	44
2464	3470	10	.010	.035	.270	30	55	Chart 2	50
2464	3472	12	.010	.035	.280	30	55	Chart 2	55
2464	3475	15	.010	.035	.300	30	55	Chart 2	66
2464	3480	20	.010	.035	.350	30	55	Chart 2	77
2464	3485	25	.010	.040	.370	30	55	Chart 2	100
2464	3490	30	.010	.045	.395	30	55	Chart 2	120

UL Style 2465 80°C 300V
* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

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MULTI-PAIR CABLE — OVERALL FOIL SHIELD

AWM E26174
LL46351

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: S R PVC
Construction: Twisted pairs cabled together with foil shield & 24 AWG stranded tin drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: Chrome vinyl 80°C

Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	3601	1	.010	.035	.160	30	50	Chart 3	15
2464	3602	2	.010	.035	.225	30	50	Chart 3	25
2464	3603	3	.010	.035	.230	30	50	Chart 3	32
2464	3604	4	.010	.035	.265	30	50	Chart 3	36
2464	3605	5	.010	.035	.295	30	50	Chart 3	45
2464	3606	6	.010	.035	.295	30	50	Chart 3	50
2464	3607	7	.010	.035	.295	30	50	Chart 3	55
2464	3608	8	.010	.035	.330	30	50	Chart 3	65
2464	3609	9	.010	.035	.340	30	50	Chart 3	70
2464	3610	10	.010	.035	.380	30	50	Chart 3	80
2464	3613	12+1	.010	.035	.410	30	50	Chart 3	100
2464	3615	15	.010	.040	.425	30	50	Chart 3	110
2464	3619	19	.010	.040	.460	30	50	Chart 3	132
2464	3625	25	.010	.045	.515	30	50	Chart 3	170

* Capacitance between conductors
** Capacitance between 1 conductor and other conductor connected to shield

MULTI-PAIR CABLE — OVERALL FOIL SHIELD AND BRAID

AWM E26174
LL46351

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: SR PVC
Construction: Twisted pairs cabled together with foil shield + 65% tinned copper braid
Shield: 1) 100% Aluminum Mylar Foil
2) 65% Tinned Copper Braid
Jacket: Chrome Vinyl 80°C

Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	3672	2	.010	.035	.250	30	50	Chart 3	35
2464	3673	3	.010	.035	.265	30	50	Chart 3	42
2464	3674	4	.010	.035	.290	30	50	Chart 3	48
2464	3675	5	.010	.035	.295	30	50	Chart 3	54
2464	3676	6	.010	.035	.310	30	50	Chart 3	62
2464	3677	7	.010	.035	.310	30	50	Chart 3	66
2464	3678	8	.010	.035	.335	30	50	Chart 3	75
2464	3680	10	.010	.035	.375	30	50	Chart 3	90
2464	3682	12+1	.010	.035	.400	30	50	Chart 3	107
2464	3683	15	.010	.040	.445	30	50	Chart 3	130
2464	3684	19	.010	.040	.475	30	50	Chart 3	155
2464	3685	25	.010	.045	.550	30	50	Chart 3	195

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTI-PAIR CABLES — OVERALL FOIL SHIELD AND BRAID

AWM E26174
LL46351

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: S R PVC
Construction: Twisted pairs cabled with foil shield + 65% tinned copper braid
Shield: 1) 100% Aluminum Mylar Foil; 2) 65% Tinned Copper Braid
Jacket: Chrome Vinyl 80°C

Entire cable passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8481	2	.010	.035	.280	35	63	Chart 3	44
2464	8482	3	.010	.035	.300	35	63	Chart 3	53
2464	8483	4	.010	.035	.320	35	63	Chart 3	65
2464	8484	5	.010	.035	.320	35	63	Chart 3	71
2464	8485	6	.010	.035	.350	35	63	Chart 3	77
2464	8496	7	.010	.035	.350	35	63	Chart 3	85
2464	8497	8	.010	.035	.390	35	63	Chart 3	100
2464	8498	10	.010	.035	.440	35	63	Chart 3	125
2464	8499	12+1	.010	.035	.460	35	63	Chart 3	139
2464	8500	15	.010	.040	.500	35	63	Chart 3	157
2464	8501	19	.010	.040	.540	35	63	Chart 3	191
2464	8502	25	.010	.045	.620	35	63	Chart 3	240

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

LOW CAPACITANCE — EDDC

MULTI-PAIR CABLE OVERALL FOIL SHIELD

AWM E26174
LL46351

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: Polyethylene 12.5 pf Velocity 66%
Construction: Pairs 125 OHM impedance, pairs cabled together with foil shield and 24 AWG stranded tin drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: Chrome Vinyl

Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Wall Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2969	3704	2	.015	.035	.289	15	27	Chart 5	29
2969	3706	3	.015	.035	.300	15	27	Chart 5	34
2969	3708	4	.015	.035	.320	15	27	Chart 5	40
2969	3710	5	.015	.035	.354	15	27	Chart 5	
2969	3712	6	.015	.035	.370	15	27	Chart 5	62
2969	3714	7	.015	.040	.370	15	27	Chart 5	75
2969	3718	9	.015	.040	.440	15	27	Chart 5	68
2969	3725	12+1	.015	.045	.500	15	27	Chart 5	98
2969	3737	18+1	.015	.045	.540	15	27	Chart 5	136

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTI-PAIR CABLES — OVERALL FOIL SHIELD AND BRAID

AWM E26174
LL46351

Construction: Pairs—125 OHM impedance, pairs cabled together with foil shield and drain wire + overall 90% tinned copper braid
Shield: 1) 100% Aluminum Mylar Foil
2) 90% Tinned Copper Braid
Jacket: Chrome Vinyl

UL Style	Part #	No of Pairs	Insul Thick	Wall Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2969	3742	2	.015	.040	.300	12.5	27	Chart 5	50
2969	3743	3	.015	.040	.310	12.5	27	Chart 5	55
2969	3744	4	.015	.040	.330	12.5	27	Chart 5	68
2969	3745	5	.015	.040	.350	12.5	27	Chart 5	74
2969	3746	6	.015	.040	.380	12.5	27	Chart 5	80
2969	3747	7	.015	.040	.380	12.5	27	Chart 5	85
2969	3749	9	.015	.040	.440	12.5	27	Chart 5	100
2969	3751	12+1	.015	.045	.480	12.5	27	Chart 5	125
2969	3758	18+1	.015	.045	.570	12.5	27	Chart 5	175

* Capacitance between conductors
** Capacitance between 1 conductor and other connected to shield

MULTICONDUCTOR CABLE — OVERALL FOIL SHIELD

AWM E26174
LL46351

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: S R PVC
Construction: Conductors cabled with foil shield and 24 AWG stranded drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: Chrome Vinyl 80°C

Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	Color Code	Wt Per 1000 Ft
2464	3504	4	.010	.035	.200	35	Chart 1	28
2464	3506	6	.010	.035	.245	35	Chart 1	36
2464	3508	8	.010	.035	.251	35	Chart 1	47
2464	3510	10	.010	.035	.275	35	Chart 1	50
2464	3512	12	.010	.035	.285	35	Chart 1	62
2464	3515	15	.010	.040	.316	35	Chart 4	73
2464	3520	20	.010	.040	.352	35	Chart 4	94
2464	3525	25	.010	.040	.395	35	Chart 4	114
2464	3530	30	.010	.045	.410	35	Chart 4	127

UL Style 2464 80°C 300V
* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTICONDUCTOR CABLES — OVERALL FOIL SHIELD AND BRAID

AWM E26174
LL46351

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: S R PVC
Construction: Conductors cabled with foil shield + 65 %tinned copper braid
Shield: 1) 100% Aluminum Mylar Foil
2) 65% Tinned copper braid
Jacket: Chrome Vinyl 80°C

Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	3634	4	.010	.040	.215	35	63	Chart 2	32
2464	3635	5	.010	.040	.230	35	63	Chart 2	37
2464	3636	6	.010	.040	.245	35	63	Chart 2	42
2464	3637	7	.010	.040	.245	35	63	Chart 2	44
2464	3638	8	.010	.040	.260	36	63	Chart 2	50
2464	3640	10	.010	.040	.280	35	63	Chart 2	63
2464	3645	15	.010	.040	.335	35	63	Chart 2	87
2464	3650	20	.010	.040	.370	35	63	Chart 2	105
2464	3655	25	.010	.045	.420	35	63	Chart 2	125
2464	3656	30	.010	.045	.435	35	63	Chart 2	155

UL Style 2464 80°C 300V
* Capacitance between conductors
** Capacitance between i conductor and other conductors connected to shield

MULTI-PAIR CABLES — OVERALL FOIL SHIELD

AWM E2464
LL46351

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: S R PVC
Construction: Twisted pairs cabled together with foil shield & 22 AWG stranded tin drain wire
Shield: 100 Aluminum Mylar Foil
Jacket: Chrome Vinyl 80°C

Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8466	1	.010	.032	.164	35	63	Chart 3	29
2464	8467	2	.010	.032	.243	35	63	Chart 3	45
2464	8468	3	.010	.032	.260	35	63	Chart 3	50
2464	8469	4	.010	.032	.270	35	63	Chart 3	65
2464	8470	5	.010	.032	.310	35	63	Chart 3	73
2464	8471	6	.010	.035	.320	35	63	Chart 3	82
2464	8486	8	.010	.035	.350	35	63	Chart 3	98
2464	8472	10	.010	.035	.395	35	63	Chart 3	120
2464	8487	12	.010	.035	.410	35	63	Chart 3	138
2464	8473	15	.010	.040	.440	35	63	Chart 3	125
2464	8488	19	.010	.040	.480	35	63	Chart 3	165
2464	8489	25	.010	.040	.560	35	63	Chart 3	215

UL Style 2464 80°C 300V
*Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

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INSTRUMENTATION, COMPUTER AND POS CABLES

MULTI-CONDUCTOR—OVERALL FOIL SHIELDED

2464
80°C
300V

Conductor: 22 AWG Solid Tinned Copper
Insulation: PVC
Construction: Conductors paired pairs cabled with overall foil shield and 22 AWG stranded Tin drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: 80°C Chrome Vinyl

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	4202	2	.013	.032	.250	35	50	Chart 3	30
2464	4204	4	.013	.032	.270	35	50	Chart 3	44
2464	4206	6	.013	.035	.330	35	50	Chart 3	64
2464	4209	9	.013	.037	.390	35	50	Chart 3	90
2464	4210	15	.013	.040	.480	35	50	Chart 3	142
2464	4212	19	.013	.040	.500	35	50	Chart 3	172
2464	4214	27	.013	.045	.615	35	50	Chart 3	239

* Capacitance between conductors
** Capacitance between 1 conductor and other conductor connected to shield

AUDIO, CONTROL AND DATA CABLES

MULTI-PAIRS INDIVIDUALLY SHIELDED

2464
80°C
300V

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: S R PVC
Construction: Twisted pairs each pair individually shielded and isolated each with 22 AWG Tinned Copper drain wire laid parallel
Sheild: 100% Aluminum Mylar Foil
Jacket: 80°C Beige Vinyl
Entire Cable Passes VW 1

UL Style	Part #	No. of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8455	2	.010	.035	.280	50	90	Blk/Wht/ Blk/Yel	33

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTI-PAIRS INDIVIDUALLY SHIELDED

2464
80°C
300V

Conductor: 20 AWG 7x28 Tinned Copper
Insulation: PVC
Construction: Twisted pairs individually shielded and isolated each with 22 AWG Tinned Copper drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: 80°C Chrome Vinyl
Entire Cable Passes VW 1

UL Style	Part #	No. of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8495	2	.010	.035	.300	55	95	Blk/Red Grn/Wht	48

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTICONDUCTOR PAIRS — OVERALL FOIL SHIELDED

2464
80°C
300V

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: PVC
Construction: Twisted pair with foil shield and 22 AWG Tinned Copper drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: Chrome Vinyl
Entire Cable Passes VW 1

UL Style	Part #	No. of Pairs	Strand-ing	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8493	1	7x30	.013	.031	.178	50	90	Blk/Red	19

2464
80°C
300V

Conductor: 20 AWG 7x28 Tinned Copper
Insulation: PVC
Construction: Twisted pairs with foil shield and 22 AWG Tinner Copper drain wire
Shield: 100% Aluminum Mylar Foil
Jacket: Beige PVC
Entire Cable Passes VW 1

UL Style	Part #	No. of Pairs	Strand-ing	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	8494	1	7x28	.013	.031	.198	60	100	Blk/Red	23

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

SPECIAL AUDIO CABLES

MULTI-PAIRS

2464
80°C
300V

Conductors: 20 AWG 7x28 Tinned Copper
Insulation: PVC
Construction: Pairs cabled with foil shield and 22 AWG Tinned Copper drain wire on common axis "Pair In-Pair Out"
Shield: 100% Aluminum Mylar Foil
Jacket: 80°C Chrome Vinyl
Entire Cable Passes VW 1

Part #	No. of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
8460	2 shielded unshielded	.015	.028	.226	26	48	Blk/Red Grn/Wht	35

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTICONDUCTOR CABLES—INDIVIDUALLY SHIELDED PAIRS

2464
80°C
300V

Conductor: 22 AWG Solid Tinned Copper
Insulation: PVC
Construction: Individually shielded and isolated pairs each with Tinned Copper drain wire, pairs cables
Shield: Each pair 100% Aluminum Mylar Foil with Tin drain wire
Jacket: 80° Chrome Vinyl

UL Style	Part #	No of Pairs	Strand-ing	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Nom Cap Per Ft *	**	Color Code	Wt Per 1000 Ft
2464	2550	3	Solid	.013	22 AWG	.037	.279	40	77	Chart 3	48
2464	2551	6	Solid	.013	22 AWG	.037	.379	40	77	Chart 3	85
2464	2552	9	Solid	.013	22 AWG	.040	.425	40	77	Chart 3	128
2464	2553	11	Solid	.013	22 AWG	.040	.470	40	77	Chart 3	146
2464	2554	15	Solid	.013	22 AWG	.045	.525	40	77	Chart 3	186

OVERALL FOIL SHIELDED CABLES

AWM
E26174

Conductor: 24 AWG 7x32 Tinned Copper
Insulation: Polyethylene
Construction: Twisted pair
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft *	**	Wt Per 1000 Ft
2092	2190	2	7x32	.016	24 AWG (7)	.025	.168	Blk/ Nat	22	72	15

AWM
E26174

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: Polyethylene
Construction: Twisted pair cabled
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft *	**	Wt Per 1000 Ft
2092	2191	2	7x30	.016	22 AWG (7)	.025	.175	Blk/ Nat	24	47	18
2093	2192	3	7x30	.016	22 AWG (7)	.025	.183	Blk/Red/ Nat	23	41	21
2094	2201	4	7x30	.016	22 AWG	.025	.200	Blk/Nat Red/Grn	24	48	22

AWM
E26174

Conductor: 20 AWG 7x.012 Tinned Copper
Insulation: Polyethylene
Construction: Twisted pair cabled
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft *	**	Wt Per 1000 Ft
2092	2193	2	7x.012	.016	22 AWG (7)	.028	.204	Blk/Nat	27	49	25
2093	2194	3	7x.012	.016	22 AWG (7)	.028	.208	Blk/Nat/ Red	27	49	29

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

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MULTI-CONDUCTOR CABLES

OVERALL FOIL SHIELDED CABLES

AWM
E26174

Conductor: 18 AWG Tinned Copper
Insulation: Polyethylene
Construction: Twisted pair cabled
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
									*	**	
2092	2195	2	16x30	.018	20 AWG (7)	.028	.222	Blk/ Nat	27	49	29
2093	2196	3	16x30	.018	20 AWG (7)	.028	.236	Blk/Red/ Nat	27	48	37
2094	8459	4	16x30	.018	20 AWG (7)	.028	.260	Blk/Nat Red/Grn	27	48	45

AWM
E26174

Conductor: 16 AWG 19x29 Tinned Copper
Insulation: Polyethylene
Construction: Twisted pairs
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60° Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
									*	**	
2106	2197	2	19x29	.032	18 AWG	.032	.304	Blk/ Nat	27	47	50
2107	2198	3	19x29	.032	18 AWG	.032	.318	Blk/Red Nat	26	60	65

Conductor: 14 AWG 19x27 Tinned Copper
Insulation: Polyethylene
Construction: Twisted pairs
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
									*	**	
2106	2199	2	19x27	.032	16 AWG	.032	.340	Blk/Nat	24	47	68

AWM
E26174

Conductor: 12 AWG 19x25 Tinned Copper.
Insulation: Polyethylene
Construction: Twisted pair
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
									*	**	
2106	2200	2	19x25	.037	14 AWG	.040	.400	Blk/Nat	25	49	100

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

SPECIAL AUDIO AND INSTRUMENTATION CABLES

MULTICONDUCTOR CABLES

Conductor: 22 AWG Tinned Copper
Insulation: Polypropylene
Construction: Twisted pair
Shield: 100% Aluminum Mylar Foil + Tinned Copper drain wire
Jacket: Chrome Vinyl

Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
								*	**	
8400	2	Solid	.008	22 AWG	.015	.118	Blk/Red	131	249	12
8401	2	7x30	.008	24 AWG	.020	.135	Blk/Red	34	67	14

Conductor: 22 AWG Tinned Copper
Insulation: Polypropylene
Construction: Twisted pairs on common axis—"Pair In - Pair Out"
Shield: 100% Aluminum Mylar Foil + stranded Tinned Copper drain wire
Jacket: 80°C Chrome Vinyl

Part #	No of Cond	Strand	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Color Code	Nom Cap Per Ft		Wt Per 1000 Ft
								*	**	
8402	4	7x30	.008	24 AWG	.022	.165	Red/Blk Grn/Wht	34	67	21

* Capacitance between conductors
** Capacitance between 1 conductor and other conductors connected to shield

MULTICONDUCTOR CABLES— INDIVIDUALLY SHIELDED PAIRS

AWM
E26174

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: Polypropylene
Construction: Pairs individually shielded and isolated each with Tinned Copper drain wire
Shield: Each pair 100% Aluminum Mylar Foil
Jacket: 60° Chrome Vinyl

UL Style	Part #	No of Pairs	Stranding	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Nom Cap Per Ft		Color Code	Wt Per 1000 Ft
								*	**		
2493	2503	3	7x30	.010	22 AWG	.048	.301	30	55	Chart 3	52
2493	2506	6	7x30	.010	22 AWG	.048	.376	30	55	Chart 3	95
2493	2509	9	7x30	.010	22 AWG	.048	.443	30	55	Chart 3	127
2493	2511	11	7x30	.010	22 AWG	.048	.460	30	55	Chart 3	146
2493	2512	12	7x30	.010	22 AWG	.060	.500	30	55	Chart 3	152
2493	2515	15	7x30	.010	22 AWG	.065	.580	30	55	Chart 3	208
2493	2519	19	7x30	.010	22 AWG	.065	.625	30	55	Chart 3	245
2493	2527	27	7x30	.010	22 AWG	.070	.745	30	55	Chart 3	339

MULTICONDUCTOR CABLES—

AWM
E26174

Conductor: 20 AWG 10x30 Tinned Copper
Insulation: Polypropylene
Construction: Individually shielded and isolated pairs each with Tinned Copper drain wire pairs cabled
Shield: Each pair 100% Aluminum Mylar Foil with Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Pairs	Stranding	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Nom Cap Per Ft		Color Code	Wt Per 1000 Ft
								*	**		
2493	2528	3	10x30	.013	22 AWG	.048	.356	30	55	Chart 3	68
2493	2529	6	10x30	.013	22 AWG	.048	.471	30	55	Chart 3	124

AWM
E26174

Conductor: 18 AWG 16x30 Tinned Copper
Insulation: Polypropylene
Construction: Individually shielded and isolated pairs each with Tinned Copper drain wire pairs cabled
Shield: Each pair 100% Aluminum Mylar Foil with Tinned Copper drain wire
Jacket: 60°C Chrome Vinyl

UL Style	Part #	No of Pairs	Stranding	Insul Thick	Drain Wire	Jkt Thick	Nom O.D.	Nom Cap Per Ft		Color Code	Wt Per 1000 Ft
								*	**		
2493	2533	3	16x30	.016	20 AWG	.048	.398	30	55	Chart 3	92
2493	2536	6	16x30	.016	20 AWG	.065	.570	30	55	Chart 3	193
2493	2539	9	16x30	.016	20 AWG	.065	.630	30	55	Chart 3	252
2493	2542	12	16x30	.016	20 AWG	.070	.750	30	55	Chart 3	329
2493	2545	15	16x30	.016	20 AWG	.070	.820	30	55	Chart 3	416

* Capacitance between conductors
** Capacitance between 1 conductor and other conductor connected to shield

PVC CONTROL CABLES

MULTICONDUCTOR CABLES—UNSHIELDED

AWM
E26174

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: PVC
Construction: Conductors cabled
Jacket: Chrome Vinyl 80°C
Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2576	2371	3	.010	.032	.170	Blk/rd/grn	18
2576	2372	4	.010	.032	.180	Chart 1	22
2576	2373	5	.010	.032	.195	Chart 1	25
2576	2374	6	.010	.032	.215	Chart 1	28
2576	2375	7	.010	.032	.215	Chart 1	33
2576	2376	8	.010	.032	.230	Chart 1	36
2576	2377	9	.010	.032	.245	Chart 1	41
2576	2378	10	.010	.032	.260	Chart 1	49
2576	2379	12	.010	.032	.270	Chart 1	54
2576	2404	15	.010	.040	.330	Chart 4	75
2576	2380	20	.010	.040	.350	Chart 4	88
2576	2405	25	.010	.040	.380	Chart 4	110
2576	2406	30	.010	.040	.400	Chart 4	127

UL Style 2576 80°C 150V

MULTICONDUCTOR CABLES—UNSHIELDED

AWM
E26174

Conductor: 20 AWG 10x30 Tinned Copper
Insulation: PVC
Construction: Conductors cabled
Jacket: Chrome vinyl 80°C

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2464	2381	2	.013	.032	.200	Chart 1	20
2464	2383	4	.013	.032	,220	Chart 2	31
2464	2384	5	.013	.032	.239	Chart 2	37
2464	2385	6	.013	.032	.260	Chart 2	50
2464	2386	8	.013	.032	.296	Chart 2	68
2464	2389	12	.013	.035	.330	Chart 2	82
2464	2390	15	.013	.040	.370	Chart 2	105

UL Style 2464 80°C 300V

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WESTERN STATES 800-331-WIRE

MULTICONDUCTOR CABLES—UNSHIELDED

AWM
E26174

Conductor: 18 AWG 16x30 Tinned Copper
Insulation: PVC
Construction: Conductors Cabled
Jacket: Chrome Vinyl 80°C
Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2464	2395	4	.016	.035	.260	Chart 1	50
2464	2396	5	.016	.035	.270	Chart 1	60
2464	2397	6	.016	.035	.295	Chart 1	72
2464	2398	8	.016	.035	.330	Chart 1	90
2464	2402	9	.016	.035	.350	Chart 1	100
2464	2399	12	.016	.035	.400	Chart 2	125
2464	2400	15	.016	.040	.480	Chart 2	167
2464	2401	25	.016	.050	.580	Chart 2	270

UL Style 2464 80°C 300V

MULTICONDUCTOR CABLES—UNSHIELDED

AWM
E26174

Conductor: 16 AWG 19x29 Tinned Copper
Insulation: PVC
Construction: Conductors cabled
Jacket: Chrome Vinyl 80°C
Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
	2165	2	.023	.032	.270	Chart 1	37
	2167	4	.023	.045	.360	Chart 1	80

AWM
E26174

Conductor: 14 AWG 19x27 Tinned Copper
Insulation: PVC
Construction: Conductors Cabled
Jacket: hrome Vinyl 80°C
Entire Cable Passes VW 1

UL Style	Part #	No of Cond	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2463	2173	2	.031	.035	.335	Chart 1	65
2463	2175	4	.031	.045	.425	Chart 1	138

UL Style 2463 80°C 600V

MULTICONDUCTOR CABLES—UNSHIELDED

AWM
E26174

Construction: 12 AWG 19x25 Tinned Copper
Insulation: PVC
Construction: Conductors paired
Jacket: Chrome Vinyl 80°C

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2463	2177	1	.031	.040	.385	Blk/Wht	87

SOUND AND CONTROL CABLES

MULTI-PAIRS—UNSHIELDED

AWM
E26174

Conductor: 22 AWG Solid Tinned Copper
Insulation: PVC
Construction: Conductors paired and pairs cabled
Jacket: Chrome PVC
Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2464	2334	1	.016	.032	.174	Chart 3	13
2464	2412	2	.016	.032	.250	Chart 3	25
2464	2413	3	.016	.032	.270	Chart 3	36
2464	2414	4	.016	.032	.295	Chart 3	47
2576	2416	6	.010	.035	.305	Chart 3	52
2576	2418	9	.010	.037	.354	Chart 3	77
2576	2420	12	.010	.037	.369	Chart 3	113
2576	2422	16	.010	.040	.405	Chart 3	124
2576	2424	19	.010	.040	.460	Chart 3	152
2576	2427	27	.010	.045	.535	Chart 3	217

AWM
E26174

Conductor: 22 AWG 7x30 Tinned Copper
Insulation: PVC
Construction: Conductors paired and pairs cabled
Jacket: Chrome PVC
Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Nom O.D.	Color Code	Wt Per 1000 Ft
2464	2370	1	.015	.032	.188	Blk/Red	14
2464	2432	2	.015	.032	.238	Chart 3	28
2464	2433	3	.015	.032	.284	Chart 3	40
2464	2434	4	.015	.032	.299	Chart 3	48
2576	2436	6	.010	.035	.320	Chart 3	59
2576	2439	9	.010	.037	.389	Chart 3	86
2576	2442	12	.010	.040	.425	Chart 3	112
2576	2445	15	.010	.040	.440	Chart 3	135
2576	2449	19	.010	.040	.505	Chart 3	166
2576	2453	23	.010	.045	.555	Chart 3	204
2576	2457	27	.010	.045	.575	Chart 3	225

MULTI-PAIRS—UNSHIELDED

AWM
E26174

Conductor: 18 AWG 16x30 Tinned Copper
Insulation: PVC
Construction: Conductors paired and pairs cabled
Jacket: Chrome PVC
Entire Cable Passes VW 1

UL Style	Part #	No of Pairs	Insul Thick	Jkt Thick	Color Code	Wt Per 1000 Ft
2464	2393	1	.016	.032	Chart 3	28
2464	2463	3	.016	,037	Chart 3	75
2464	2466	6	.016	.045	Chart 3	139
2464	2469	9	.016	.055	Chart 3	215
2464	2472	12	.016	.055	Chart 3	262

COLOR CODES

CHART #1 & 4

Conductor	Color	Conductor	Color
1	Black	16	White/Black
2	White	17	White/Red
3	Red	18	White/Green
4	Green	19	White/Yellow
5	Brown	20	White/Blue
6	Blue	21	White/Brown
7	Orange	22	White/Orange
8	Yellow	23	White/Gray
9	Violet	24	White/Violet
10	Gray	25	White/Black/Red
11	Pink	26	White/Black/Green
12	Tan	27	White/Black/Yellow
13	Red/Green	28	White/Black/Blue
14	Red/Yellow	29	White/Black/Brown
15	Red/Black	30	White/Black/Orange

CHART #2

Conductor	Color	Conductor	Color
1st	Black	16th	Black/Red
2nd	White	17th	White/Red
3rd	Red	18th	Orange/Red
4th	Green	19th	Blue/Red
5th	Orange	20th	Red/Green
6th	Blue	21st	Orange/Green
7th	White/Black	22nd	Black/White/Red
8th	Red/Black	23rd	White/Black/Red
9th	Green/Black	24th	Red/Black/Red
10th	Orange/Black	25th	Green/Black/Red
11th	Blue/Black	26th	Orange/Black/White
12th	Black/White	27th	Blue/Black/White
13th	Red/White	28th	Black/Red/Green
14th	Green/White	29th	White/Red/Green
15th	Blue/White	30th	Red/Black/Green

CHART #3

Conductor Pairs	Color Combination	Conductor Pairs	Color Combination
1	Black paired with Red	15	Green paired with Blue
2	Black paired with White	16	Green paired with Yellow
3	Black paired with Green	17	Green paired with Brown
4	Black paired with Blue	18	Green paired with Orange
5	Black paired with Yellow	19	White paired with Blue
6	Black paired with Brown	20	White paired with Yellow
7	Black paired with Orange	21	White paired with Brown
8	Red paired with White	22	White paired with Orange
9	Red paired with Green	23	Blue paired with Yellow
10	Red paired with Blue	24	Blue paired with Brown
11	Red paired with Yellow	25	Blue paired with Orange
12	Red paired with Brown	26	Brown paired with Yellow
13	Red paired with Orange	27	Brown paired with Orange
14	Red paired with White		

CHART #5

1st Color	2nd Color
1. Black	White
2. Red	Green
3. Brown	Blue
4. Orange	Yellow
5. Purple	Gray
6. Pink	Tan
7. White/Blue	Blue/White
8. White/Brown	Brown/White
9. White/Orange	Orange/White
10. White/Green	Green/White
11. White/Red	Red/White
12. White/Black	Black/White
13. Red/Blue	Blue/Red
14. Red/Green	Green/Red
15. Red/Gray	Gray/Red
16. Black/Blue	Blue/Black
17. Black/Orange	Orange/Black
18. Green/Black	Black/Green

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC	alternating current
A/D	analog to digital
ADC	analog to digital converter
ADP	automatic data processing
AF	audio frequency
AFC	automatic frequency control
ALGOL	algorithmic language
AM	amplitude modulation
AND	a logical operator
AQL	acceptable quality level
ASCII	American national standard code for information interchange
AWG	American wire gauge

B

BALUN	balanced to unbalanced
BASIC	beginners' all-purpose symbolic instruction
BCD	binary-coded decimal
BNC	baby "N" connector
BUS	basic utility system

C

CAD	computer aided design
CAM	computer aided manufacture
CATV	cable television or community antenna television
CERMET	ceramic metal element
Comm.	communications
CMOS	complementary metal-oxide semiconductor
CPS	characters per second
CPU	central processing unit

D

D/A	digital to analog
DAC	digital to analog converter
DC	direct current
DIAC	bidirectional trigger diode
DIL	dual in-line
DIN	Deutsche Industrie Normenausschuss
DIP	dual in-line package
DPM	digital panel meter
DTL	diode transistor logic

E

EDP	electronic data processing
EBCDIC	extended binary coded decimal interchange code
EEPROM	electrically erasable PROM
EMC	electromagnetic compatibility
EMI	electromagnetic interference
EMP	electromagnetic pulse
EPROM	electrically programmable ROM
ESR	equivalent series resistance

F

FEP	fluorinated ethylene propylene Copolymar, 200° Teflon
FET	field-effect transistor
FM	frequency modulation
FORTRAN	formula translator

G

GaAsFET	gallium arsenide field effect transistor
GPIB	general purpose interface bus

H

HF	high frequency (3 to 30 MHz)
HIPOT	test, measurement and diagnostic equipment
HLL	high level language
HV	high voltage
Hz	Hertz

I

IC	integrated circuit
IDC	insulation displacement contact
IF	intermediate frequency
IO	input/output (devices)
IR	insulation resistance (or) infrared

J

JFET	junction field effect transistor
JMOS	junction metal oxide semiconductor

K

kHz	kilohertz (10^3 hertz)
KSR	keyboard send receive

L

LC	inductance capacitance
LCD	liquid crystal display
LED	light-emitting diode
LF	low frequency (30 to 300 kHz)
LIF	low insertion force
LNA	low noise amplifier
LNB	low noise band
LSI	large scale integration
LVDT	linear velocity displacement transformer

M

MASER	microwave amplification by stimulated emission of radiation
MATV	master antenna television
μF	microforad
MHz	megahertz
MIPS	million instructions per second
MIB	microcomputer interface board
MOS	metal oxide semiconductor
MOSFET	metal oxide semiconductor field effect transistor
MOSIGT	metal-oxide semiconductor insulated-gate transistor
MOV	metal oxide varistor
MPU	microprocessor unit
MSI	medium scale integration

N

NBS	National Bureau of Standards
NEMP	nuclear electromagnetic pulse
NIM	nuclear instrumentation module
NOR	not OR
NTC	negative temperature coefficient

O

OCR	optical character reader
OEM	original equipment manufacturer
OR	a logical operator

P

PC	printed circuit
PCB	printed circuit board
pF	picofarad
PGA	pin grid array
PIN	positive-intrinsic-negative (transistor)
PLA	programmable logic array
PLL	phased lock loop
PPI	plan position indicator
PROM	programmable read only memory
PTC	positive temperature coefficient
PUT	programmable unijunction transistor

Q

QAM	quadrature amplitude modulation
Q (meter)	quality-factor meter

R

RAM	random access memory
RC	resistance-capacitance
RFI	radio frequency interference
RMS	root mean square
ROM	read only memory
RF	radio frequency
RFC	radio-frequency choke
RFI	radio-frequency interference
RTD	resistance-temperature detector
RTL	resistor transistor logic
RTV	room temperature vulcanizing
RW	read/write

S

SAS	silicon asymmetrical switch
SBC	single board (micro) computer
SBS	silicon bilateral switch
SCR	silicon-controlled rectifier
SCS	silicon controlled switch
SDA	source & detector assemblies
SIDAC	bidirectional voltage-triggered switch
SIP	single in-line package
SSI	small scale integration
SSR	solid state relay
STL	Schottky transistor logic
SUS	silicon unilateral switch

T

TC	temperature coefficient
TCXO	temperature compensated crystal oscillator
TFE	tetrafluoride ethylene propylene Copolymer, 250° Teflon
TRIAC	bidirectional AC switch
TTL	transistor-transistor logic
TTY	teletypewriter

U

UHF	ultra high frequency (300 MHz to 3 GHz)
UJT	silicon unijunction transistor
UL	Underwriters Laboratory
UPS	uninterruptible power supply

V

VAC	volts (of) alternating current
VAR	volt-ampere reactive
VCR	video cassette recorder
VDC	volts (of) direct current
VHF	very high frequency
VHSIC	very high speed integrated circuit
VLF	very low frequency (3 to 30 kHz)
VLSI	very large scale integration
VME	virtual machine environment
VRM	voice recognition module
VTVM	vacuum tube volt meter
VU	volume unit
VSWR	voltage standing wave ratio

W

WPS	word processing software

Y

YIG	yttrium iron garnet

Z

ZIF	zero insertion force

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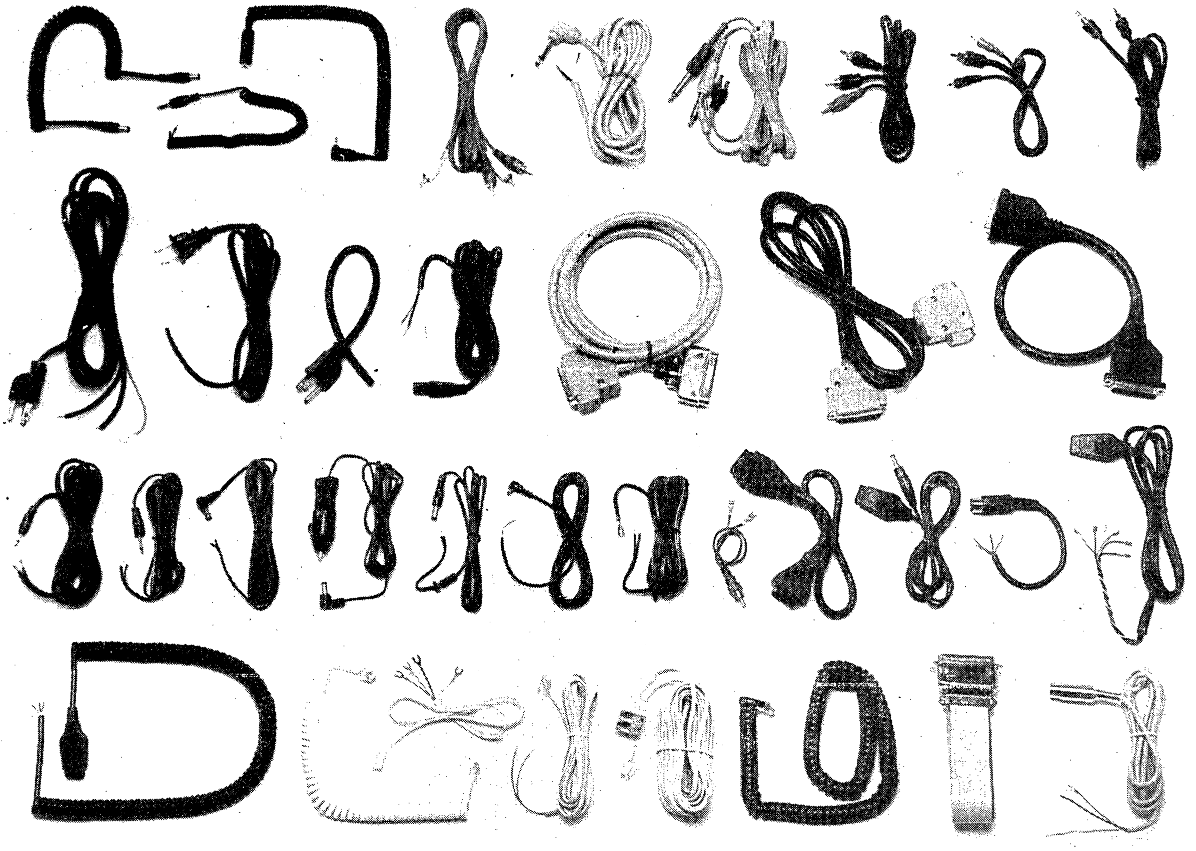
The products illustrated and listed are only a small representation of the full range of items available.



CORD SETS and CABLE ASSEMBLIES

TELECOMMUNICATION

Coiled or straight; round, flat or oval; copper, stranded or tinsel. Available with 4, 6 or 8-position modular plugs or spade lugs, keyed or unkeyed to mate with any standard modular connector.

AUDIO

A wide variety of molded plugs and in-line jacks for stereo or mono are offered shielded or unshielded with single or multi-conductors.

ZIP

Manufactured in standard or custom lengths, gauges, insulation thickness and jacket colors. Also available with molded DC plugs (2.1mm and 2.5mm) or phone plugs (2.1mm, 2.5mm, 3.5mm and 6.3mm). For use with wall-plug transformers.

COMPUTER and VIDEO

Designed to interface with all major computer/video products. Manufactured with molded or crimped "D" connectors, from 9 to 50 pins, male or female, plastic or metal, for round or flat cable. Teminations may be low-profile, edgewise or multipolar. DIN cables produced to spec and available with shielding.

POWER

Custom made to specified current and temperature ratings or produced in standard types including SPT-1, SPT-2, ST, SVT, SJT, XT or PXT with UL/CSA approval.

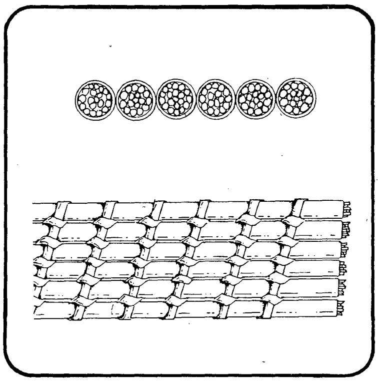
Cord sets and cable assemblies may be ordered to OEM specifications — length, AWG, number of conductors, color, etc. All Shogyo products are manufactured under one roof and quality assurance is 100% guaranteed.

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2100/2450/2950/4750/5600

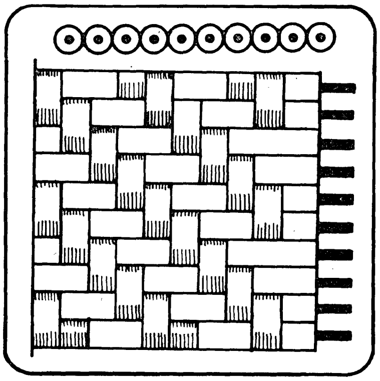
TEXTRO
INCORPORATED

Your Source for All Top-Quality Flat Woven Cable

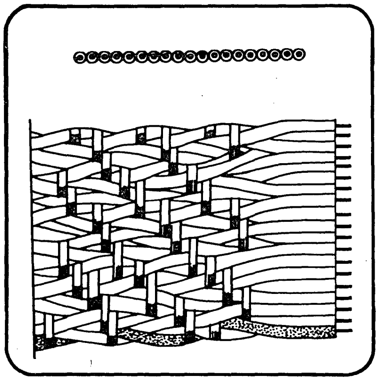
P.O. Box 381 Greer, SC 29652-0381 Phone: 803/879-0752



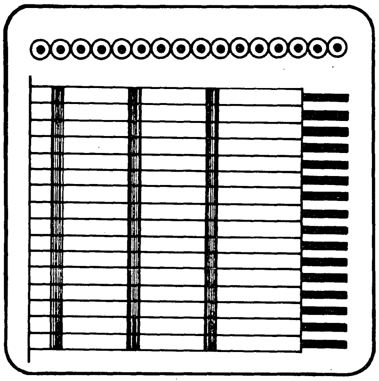
STANDARD WEAVE
6 conductors
20 gauge
Teflon 16878/4
Woven width — Nomex



TWILL WEAVE
10 conductors
26 gauge/7 strands
UL 1061 woven with nylon
NEMA Color Code



IBM CABLE
12 twisted pair
24 gauge/7 strand
UL 1061 woven with nylon
11 wires yellow/black
1 wire red/black



STANDARD WEAVE
16 conductors
20 gauge/19 strand — Teflon
Woven Teflon

TEXTRO
INCORPORATED

Your Source for All Top-Quality Flat Woven Cable

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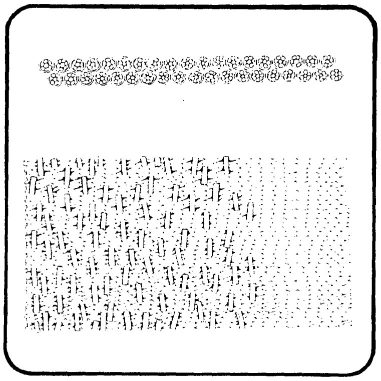
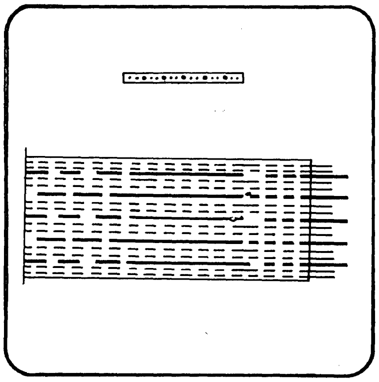
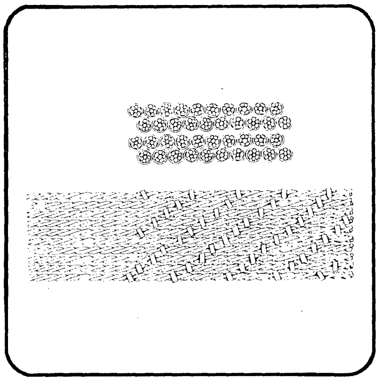


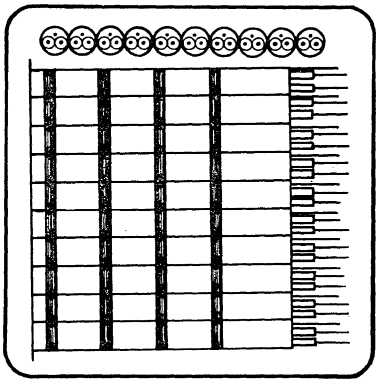
TWILL WEAVE CABLE
25 twisted pair
28 gauge/7 strands
UL 1568
Woven with nylon



TTC CABLE (Textroweave Transmission line cable)
92 Ohms
Programmed weave
12 conductors
Two ground between each conductor



STACK WEAVE
24 twisted pair
(12 one side, 12 the other side)
yellow/black
red/black
24 gauge/7 strands
UL 1061 woven with nylon

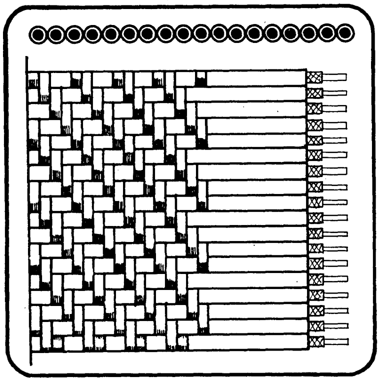


COAXIAL WIRES IN STANDARD WEAVE
16 WL Gore Mini twinaxes
Standard weave
Woven with nylon

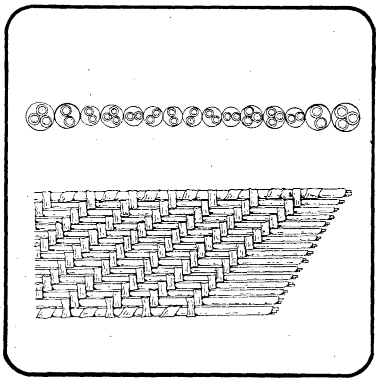
TEXTRO
INCORPORATED

Your Source for All Top-Quality Flat Woven Cable

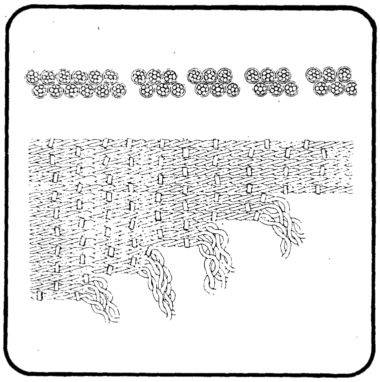
P.O. Box 381 Greer, SC 29652-0381 Phone: 803/879-0752



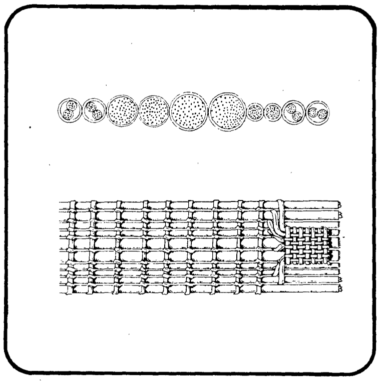
KAPTON
18 conductors
26 gauge — 19/38 strands shielded and jacketed
MIL-W-81381/17
Temperature rating — 200°C
Voltage rating — 600 volts



KAPTON
1. - twisted triad 22 gauge shielded and jacketed
2. - 22 gauge twisted pair shielded and jacketed
3. - 24 gauge twisted pair shielded and jacketed
4. - twisted triad 26 gauge shielded and jacketed
5. thru 11. - 26 gauge twisted pair shielded and jacketed
12. and 13. - twisted triad shielded and jacketed
14. - 24 gauge twisted pair shielded and jacketed
15. - 22 gauge twisted pair shielded and jacketed
16. - 22 gauge twisted triad shielded and jacketed



MILITARY - DESIGN YOUR OWN
Dimensions you supply
1. - dimension of unwoven
2. - dimension of woven
3. - number of break outs
4. - dimension from one break out to another
5. - type of wire insulation
6. - AWG and stranding
7. - location of break outs
8. - type of weave material



TEFZEL
Mix of conductors
Mixture of gauges (hybrid cable)
Programmed weave — woven with polyester
1. - 20 AWG
2. - 24 WAWG
3. - 24 AWG
4. - 22 AWG
5. thru 18. - 24 AWG
19. - 22 AWG twisted quad
20. - 20 AWG
21. thru 24. - 24 AWG

Dimension you supply:
1. dimension of unwoven
2. dimension of woven
3. dimension after woven terminates

VIRGINIA PLASTICS

P.O. Box 4577
Roanoke, Virginia 24015-0577
Phone (703) 985-3811
TWX 710-870-0440

WIRING HARNESS OPTIONS/ORDER GUIDE

	Straight	Coiled	Handset (male) 4 Pos.	Line Plug 6 Pos.	6-8 Line Plug 8 Pos.	Unkeyed 8 Pos.	Keyed 8 Pos.	8-10 Unkeyed 10 Pos.	8-10 Keyed 10 Pos.	Spade Terminals	Blunt Cut / Striped	CPRE 75	Vinyl	24 AWG	26 AWG	28 AWG	Non-Shielded	Single Shield 20AWG(6)	Double Shield 20 AWG(6)	Straight Wired	Reverse Wired	Ring Terminal	UL Recognized	UL Not Recognized
2 Conductors (flat)								■	■									■	■					
4 Conductors (flat)								■	■										■					
5 Conductors (round)			■	■													■		■					
6 Conductors (flat)			■																■					
6 Conductors (round)			■																					
8 Conductors (flat)			■	■	■														■					
8 Conductors (round)			■	■																				
9 Conductors (round)			■	■	■	■	■																	
10 Conductors (round)			■	■	■	■	■																	
	Cable Style		End Terminations									Outer Jacket Material		Conductor Gage			Shielding Options			Wiring Sequence		Strain Relief	U.L. Status	

COLORS

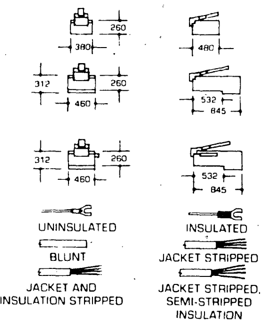
NAME	SILVER PEARL (ONLY PVC)	SATIN IVORY	BLACK (ONLY PVC)	SATIN BLACK	SATIN COCOA BROWN
ORDERING CODE	**Z**	**AS**	**D**	**DS**	**PS**

OUTER JACKETS:

PVC or CPRE 75

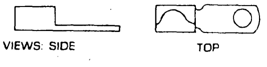
END TERMINATIONS

DESCRIPTION	CODE	PICTORIAL (IN INCHES)
SIX POSITION LINE	S	
EIGHT POSITON UNKEYED	U	
TEN POSITION UNKEYED	Y	
EIGHT POSITION KEYED	K	
SPADE TERMINAL	T	
BLUNT CUT	B	
SPECIAL TERMINALS	A	CONTACT FACTORY WITH REQUIREMENTS

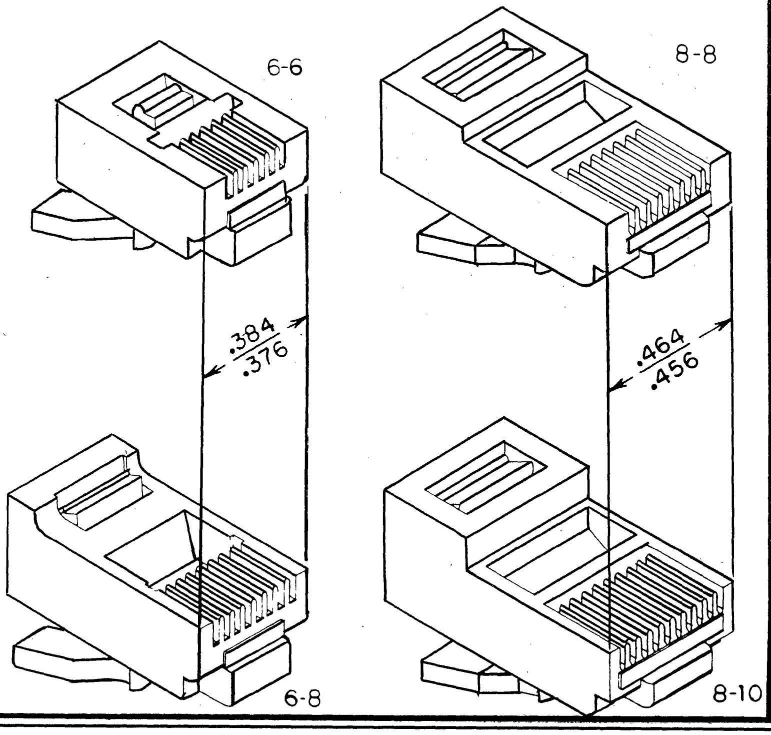

260
380
480
312
260
460
532
845
312
260
460
532
845
UNINSULATED
INSULATED
BLUNT
JACKET STRIPPED
JACKET AND INSULATION STRIPPED
JACKET STRIPPED, SEMI-STRIPPED INSULATION

STRAIN RELIEFS

RING TERMINAL


VIEWS: SIDE
TOP

TEN LINE CAPACITY IN MODULAR CONNECTION SYSTEM


6-6
8-8
.384
.376
.464
.456
6-8
8-10

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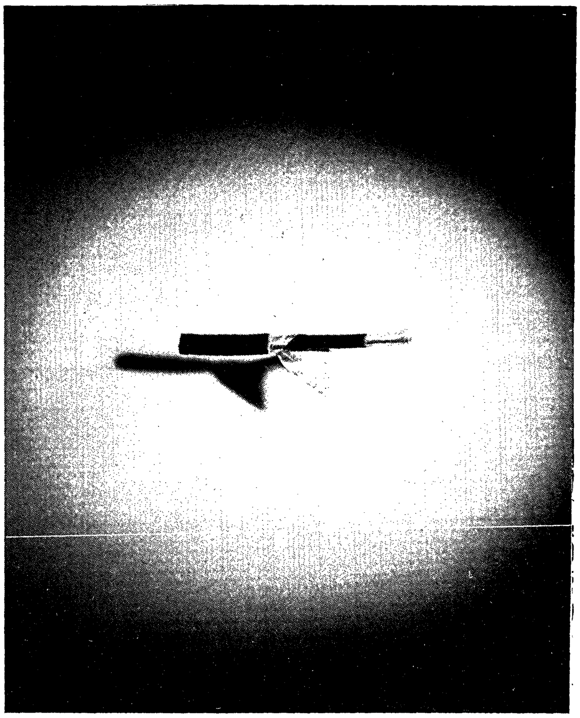


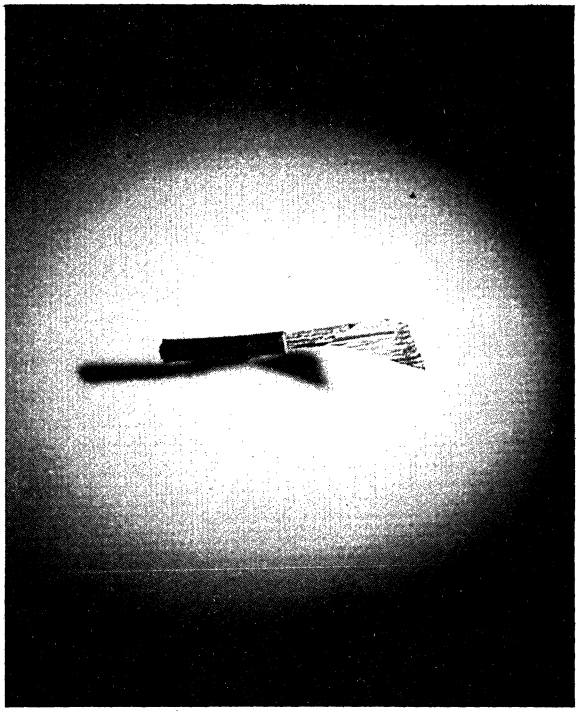
PART NUMBER PREFIX (51).

Virginia Plastics Company U.L. Recognized Modular Wiring Harnesses.

To meet your interconnection wiring needs Virginia Plastics provides the complete system. A complete modular interconnection system is reliable, inexpensive, and simple to install. We can meet your needs for FCC approval. Virginia Plastics has three different types of cable material: ***A) Double Shielded, B) Single Shield, C) Non-Shielded.***

DOUBLE SHIELDED Construction provides very high levels of EMI/RFI/ESD protection. The shield surrounding the conductor bundle is a semiconductive Olefin Propylene Rubber containing a conductive filler. Over this shield is a 100% spiral wrap of Aluminum/Mylar/Aluminum Foil Tape. Each signal conductor within the conductor bundle is in intimate contact with the inner shielding jacket. The shield ground (drain) conductor is in high compression contact with the inner shielding jacket at any and every point along the length of the cable.

SINGLE SHIELDED Construction provides effective EMI/RFI/ESD protection for most business machine applications. Aluminum/Mylar/Aluminum Foil Tape is wrapped around the conductor with a minimum overlap of 20%. Each signal conductor in the conductor bundle is in intimate contact with the shielding tape. The shield ground (drain) conductors are in high compression contact with the shield tape at any and every point along the length of the cable.



PART NUMBER PREFIX (1).

VIRGINIA PLASTICS

P.O. Box 4577
Roanoke, Virginia 24015-0577
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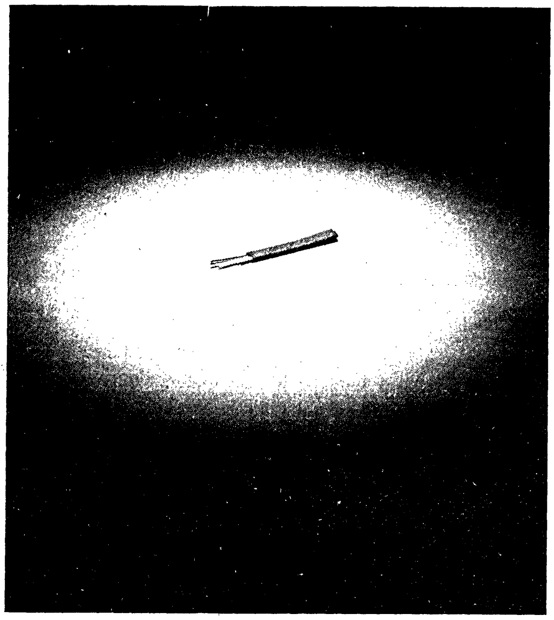
NON-SHIELDED Construction for applications where EMI shielding is not necessary. Standard 26 or 28 AWG conductors enclosed in either a PVC or CPRE 75 outer jacket.



Features of Shielded Harnesses:

- •UL recognized wiring harnesses.
- •Shield is drained by way of 20AWG ground wire.
- •Conductor gauge sizes available 24AWG, 26AWG, 28AWG.

Specifications on Shielded Harnesses:

Round Cable–	Single	Double
Outer Diameter of 6 Conductor	.165"	.190"
Outer Diameter of 8 Conductor	.190"	.215"

Electrical Specifications for Shielded Cables:

Dielectric Strength–	
Signal Conductor to Signal Conductor	1000 VRMS MIN.
Signal Conductor to Ground Conductor	500 VRMS MIN.
Signal Conductor to Shield/Shields	500 VRMS MIN.

Conductor Resistance:

Signal Conductor (26 AWG)	.131 OHMS/METER
Signal Ground (Drain, 20 AWG)	.039 OHMS/METER

Insulation Resistance:

Signal Conductor to Signal Conductor	1000 MEGOHMS MIN.
Signal Conductor to Ground Conductor	500 MEGOHMS MIN.
Signal Conductor to Shield/Shields	500 MEGOHMS MIN.

OUTGOING ELECTRICAL TESTING:

Each modular harness is inspected at a 100% level for each conductor and contact blade/conductor continuity. A 100% level inspection is performed for dielectric shorts from each conductor to each conductor or ground conductor or shield on each modular harness. All modular harnesses will be UL recognized and must meet the requirements for component modular wiring harnesses. All modular harnesses have a UL yellow card recognition.

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